Plugin Reference Guide3

(Release 3.11)

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Plugins Compatibility

- Plugins in Release 3.11 are compatible with AutomationEdge Release 6.0.0 onwards.

Plugins Technical Reference

AutomationEdge Plugins technical reference includes three guides,

- AutomationEdge_R3.11_Plugin_Reference_Guide1
- AutomationEdge_R3.11_Plugin_Reference_Guide2
- AutomationEdge_R3.11_Plugin_Reference_Guide3

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III. Advanced Workflow Steps

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1 Active Directory

Active Directory plugin steps are for the purpose of automating Microsoft Windows Active Directory tasks.

Prerequisites:

1. Privileges to access Active Directory Server.
2. PowerShell version 5 and above.
3. To run AD steps PowerShell setup with Active Directory Modules must be done.
4. Please refer Appendix 2: PowerShell Setup-Active Directory for updating PowerShell Version and Active Directory module installation.

Note: User Logon Name and User Principal Name:

1.1 Add to Group

1.1.1 Description

This step is used to add existing Active Directory Account to an Active Directory Group.

Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	

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5	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text Var (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Object Type allowed values are: **User, Computer,** and **Group**. **Note:** Double quotes (") and back quote (`) are not to be provided.
2	Object Name	Provide Object name of an existing account in Active Directory to Add to Group, corresponding to the Object Type chosen above. • For object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN). • For object type Computer you may specify Computer Name (CN). • For object type Group you may specify Group Name (CN). • You may specify Distinguished Name or Canonical Name for User, Computer or Group object types. The data type is string. This field is mandatory. Object Name must be unique in Active Directory.

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		Note: Object Name(CN) in Active Directory should not contain a slash(/ or \).
3	Group Name	Existing Active Directory Group Name in formats such as Group Name (CN) or Canonical name or Distinguished name to which we intend to add an existing Active Directory object. **Note:** Group Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Successful execution shows user has been added to AD group. This field is mandatory.

1.2 Advanced Search

1.2.1 Description

Active Directory: Search Account plugin step provides the list of all Active Directory Users or Groups for the specified Object Type for the Path specified and with Property search criteria provided.

1.2.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.

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4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
6	Password	Specify the password for the username above. Password field appears as Text box and accepts static values or variables. The data type is string. The field is mandatory.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Hover over the field to see Allowed values are: **User** and **Group**. The data type is String. This field is mandatory.
2	Path	Provide the path of an Active Directory object for Advanced Search Usually Distinguished name (DN) (e.g. OU=Temp, DC=autoedge, DC=com) or Canonical name (e.g. automationedge.com/Temp) of the object. The data type is String. This field is mandatory.
	Tabular Fields:	At least one Property Name, Search Condition and respective Property Value must be selected in the table fields.
3	Property Name	Double click to select Property Names form the pop up window. The data type is String. This field is mandatory. This field is mandatory.
4	Search Condition	Select a Search Condition from the dropdown list. Following are the values in the list. The data type is String. This field is mandatory. • Starts with • Ends with • Is (exactly) • Is not • Present

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		• Not Present
5	Property Value	Provide a desired property value. The data type is String. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Name	Specify an output field to hold the result- Name upon successful plugin execution. The default label value for this field is “Name”. This field is mandatory.
2	Distinguished Name	Specify an output field to hold the result: Distinguished Name on the successful plugin execution. The default label value for this field is “DistinguishedName”. This field is mandatory. **Note:** Advance Search returns Name and Distinguished Name as output. In case you need to use the output of Advanced Search but additionally need User Logon Name then you need to use Get User Properties step after Advanced Search in the workflow to get the User Principal Name by providing DN as input. (e.g. Suppose you want to know Does User Exist/ Is Account Locked for all the users returned in Advanced Search, you need User Principal Name to input DoesUserExist/IsAccountLocked steps. Get User Properties step after Principal Name can fetch the User Principal Name).

1.3 Create Account

1.3.1 Description

Active Directory: Create Account Plugin step is used to create a new Active Directory user.

1.3.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

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	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget called SecuredComboVar. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	First name	First name of the user account to be created. This field is mandatory.
2	Last name	Last name of the user account to be created. This field is mandatory.

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3	Full name	Full name of the user account to be created. This field is mandatory.
4	User logon name	Provide User logon name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) for the new account to be created. User Logon Name is mandatory.
5	User logon password	Provide a password for the user Account to be created.
6	Path	Provide path of Active Directory object (usually DN, For e.g. OU=Temp, DC=autoedge,DC=com) where the User Account is to be created. This field is mandatory.

Note:

The account is created if the password fails for any reason. If you provide a password, an attempt will be made to set that password however, this can fail due to password policy restrictions. The user account will still be created and you may use Reset Account Password to set the password on that account. In order to ensure that accounts remain secure, user accounts will never be enabled unless a valid password is set or Password Not Required is set in AD.

Output Tab:		
No.	Field Name	Description
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Successful execution shows user account has been created. Result label value is mandatory.

1.4 Create Group

1.4.1 Description

Active Directory: Create Group Plugin step is used to create a new Active Directory Group.

1.4.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

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	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget called SecuredComboVar. The widget handles both Text Var (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed as field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group name	Provide an AD Group Name. The Group name must be unique in the active directory domain. This field is mandatory.

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2	Group Scope	Allowed values for Group scope are:**0, 1, 2 or Domain local, Global, Universal**. This field is mandatory.
3	Group Display Name	Provide a display name of the Group. This field is mandatory.
4	Group Category	Group category allowed values are: **0, 1, or Distribution, Security**. This field is mandatory.
6	Path	Provide the path of Active Directory object where the Group is to be created - usually Distinguished Name (DN) (e.g. OU=Temp, DC=autoedge, DC=com) or Canonical Name (e.g. automationedge.com/Temp). This field is mandatory.

Output Tab:		
No.	Field Name	Description
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Successful execution shows user group has been created. Result label value is mandatory.

1.5 Delete Account

1.5.1 Description

Active Directory: Delete Account step is deletes an Active Directory User Account.

1.5.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.

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4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text Var (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User Logon Name	Provide User logon name (e.g. sbrown, scott.brown etc.) or User Principal Name of an existing Active Directory user account (e.g. sbrown@autoedge.com) that is to be deleted. You may also provide the Name (CN)/Distinguished Name/Canonical Name of an Active Directory user account to be deleted. The data type is String. User Logon Name is mandatory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \)

Output Tab:		
No.	Field Name	Description

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	Output Field:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Successful execution shows user account has been deleted. Result label value is mandatory.

1.6 Delete Group

1.6.1 Description

Active Directory: Delete Group plugin step deletes an existing Active Directory Group.

1.6.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox

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		above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Name	Specify the Group Name (CN)/Distinguished Name/Canonical Name in active directory to be deleted. This field is mandatory. Canonical name\Distinguished Name may be provided in the group name field to avoid duplicate group name errors. Group Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description
1	Result	Output field to hold the result of the successful plugin execution. The default value of this field is “Result”. This field is mandatory.

1.7 Disable Account

1.7.1 Description

Active Directory: Disable Account Plugin step disables a user or computer account.

1.7.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

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	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Object Type allowed values are: **User, Computer**. **Note:** Double quotes (") and back quote (`) are not to be provided.
2	Object Name	Provide an existing Active Directory object name (user or computer name) which we intend to disable.

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		• For object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN). • For object type Computer you may specify Computer Name (CN). • You may specify Distinguished Name or Canonical Name for both User and Computer object type. The data type is string. This field is mandatory. Object Name must be unique in Active Directory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).

1.8 Does Group Exists

1.8.1 Description

This plugin checks the current status of an existing Active Directory Group.

1.8.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	

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5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget called SecuredComboVar. The widget handles both Text Var (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group name	Provide Active Directory Group name (CN i.e. Common Name) or Canonical name or Distinguished name to check if it exists. This field is mandatory. **Note:** Group Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Successful execution shows whether group exists or does not exist. Result label value is mandatory.

1.9 Does User Exists

1.9.1 Description

The step is used to check the status of an Active Directory user if it exists or does not exist.

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1.9.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	

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1	User Logon Name	Provide User logon name (e.g. sbrown, scott.brown etc.) or User Principal Name of an existing Active Directory user account (e.g. sbrown@autoedge.com) to check if user exists. You may also provide the Name (CN)/Distinguished Name/Canonical Name of an Active Directory user account to be deleted. The data type is String. User Logon Name is mandatory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Successful execution shows user exists. Result label value is mandatory.

1.10 Enable Account

1.10.1 Description

Active Directory: Enable Account step is used to enable a disabled user or computer account.

1.10.2 Configurations

Configuration:		
No.	Field Nameve	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.

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4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Object Type allowed values are: **User, Computer**. The data type is String. This field is mandatory. **Note:** Double quotes (") or back quote (`) are not to be provided.
2	Object Name	Specify the name of an existing Active Directory object to be enabled, corresponding to the Object Type chosen above. • For object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN). • For object type Computer you may specify Computer Name (CN). • You may specify Distinguished Name or Canonical Name for User, Computer or Group object types.

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		The data type is string. This field is mandatory. Object Name must be unique in Active Directory. **Note:** Object Name(CN) in Active Directory should not contain a slash(/ or \).

1.11 Get Computers

1.11.1 Description

Active Directory: Get Computers plugin step provides the list of all active directory computers on a specified path for the hierarchical scope specified.

This is a row generating step and hence has to be the first step in a workflow.

1.11.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
6	Password	Specify the password for the username above. Password field appears as Text box and accepts static values or variables. The data type is string. The field is mandatory.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Path	Provide path of Active Directory usually Distinguished Name (DN) (e.g. OU=Temp, DC=autoedge, DC=com or) or Canonical Name (e.g. e.g. automationedge.com/Temp) for which we want to get all the Computers. The Data type is String. This field is mandatory.
2	Search Scope	Mouse hover on this element to see the allowed values ‘Base’, ‘OneLevel’, ‘SubTree’, OR ‘0’, ‘1’, ‘2’. The Data type is String. This field is mandatory. Specifies the scope of an Active Directory search. The acceptable values for this parameter are as shown in the table below:

Level	Description
Base or 0	Base or 0 searches only the current path or object.
OneLevel or 1	OneLevel or 1 searches the immediate children of that path or object.
SubTree or 2	Subtree or 2 searches the current path or object and all children of that path or object.

Output Tab:		
No.	Field Name	Description
1	Computers	Specify an output field to hold the Computer Name on the successful plugin execution. The default value for this field is “Computers”.
2	Distinguished Name	Specify an output field to hold the Distinguished Name of a computer on the successful plugin execution. The default value for this field is “DistinguishedName”.

1.12 Get Groups

1.12.1 Description

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Active Directory: Get Groups plugin step provides the list of all active directory groups on a specified path.

This is a row generating step and hence has to be the first step in a workflow.

1.12.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
5	Password	Specify the password for the username above. Password field appears as Text box and accepts static values or variables. The data type is string. The field is mandatory.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Path	Specify an Active Directory Path (Canonical name or Distinguished Name of an object) for which we wish to get all Groups.

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		• Canonical Name can be viewed under Properties (while Advanced Featured are enabled in View menu) under Object • Distinguished Name can be viewed under Properties (while Advanced Features are enabled in View menu) under Attribute Editor. Path data type is String. Path is mandatory. **Note:** Double quotes (") and back quote (`) are not required as part of input.
2	Search Scope	Mouse hover on this element to see the allowed values 'Base', 'OneLevel', 'SubTree', OR '0', '1', '2'. Specifies the scope of an Active Directory search. The acceptable values for this parameter are as shown in the table below: Level / Description Base or 0 / Base or 0 searches only the current path or object. OneLevel or 1 / OneLevel or 1 searches the immediate children of that path or object and excludes the base object itself. SubTree or 2 / Subtree or 2 searches the current path or object and all children of that path or object. Search Scope data type is String. It is mandatory. **Note:** Double quotes (") and back quote (`) are not required as input.

Output Tab:		
No.	Field Name	Description
1	Groups	Specify an output field to hold the result of the successful plugin execution. Default label value for this field is "Groups". Result label value is mandatory.
2	Distinguished Name	Specify a field name to store the Distinguished Names of the Groups retrieved. The default value is "Distinguished Name".

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		Result label value is mandatory.

1.13 Get Group Members

Active Directory: Get Group Members plugin step gets the list of all members present in the Active Directory group.

Limitations:

- On execution, the step can fetch a maximum of 5000 members.
- You cannot fetch Group Member of type **Contact** using the step.

1.13.1 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname / Server Name / IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide the name (SAM Account Name) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not.

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		For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Name	Provide name of the group of an existing active directory group.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Distinguished Name	Specify a name to store the Distinguished Name of the retrieved members. Default value: Distinguished Name
2	Member Type	Specify a name to store the retrieved member types. Default value: MemberType.

1.14 Get Group Properties

1.14.1 Description

Active Directory: Get Group Properties plugin step gets the properties of an Active Directory Group.

1.14.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.

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3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Name	Specify an Active Directory Group Name (CN)\Canonical Name\ Distinguished Name to get the Group properties. Canonical name\Distinguished Name may be provided to the group name field to avoid duplicate group name errors. **Note:** Group Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description

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	Output Fields Tabular:	
1	Property Name	Double click to get a list of Group property names. At least one property name should be selected.
2	Output Field	Specify a field name to store the retrieved property values of the corresponding property names.

1.15 Get Organizational Units

1.15.1 Description

Active Directory: Get Organizational Units plugin step gets the list of active organizational units for a specified path. It is a row generating step and hence has to be the first step in a workflow.

1.15.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
5	Password	Specify the password for the username above. Password field appears as Text box and accepts static values or variables. The data type is string. The field is mandatory.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:

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<table>
<tr><th>No.</th><th>Field Name</th><th>Description</th></tr>
<tr><td></td><td>Input Fields:</td><td></td></tr>
<tr><td></td><td>Path</td><td>Specify an Active Directory Path (Canonical name or Distinguished Name of an object) for which we wish to get all Organizational Units.
Canonical Name can be viewed under Properties (while Advanced Features are enabled in View menu) under Object in AD.
Distinguished can be viewed under Properties (while Advanced Features are enabled in View menu) under Attribute Editor in AD.
Path data type is String. Path is mandatory.
Note: Double quotes (") and back quote (`) are not required as part of input.</td></tr>
<tr><td></td><td>Search Scope</td><td>Mouse hover on this element to see the allowed values ‘Base’, ‘OneLevel’, ‘SubTree’, OR ‘0’, ‘1’, ‘2’.

Specifies the scope of an Active Directory search. The acceptable values for this parameter are as shown in the table below:<table><tr><th>Level</th><th>Description</th></tr><tr><td>Base or 0</td><td>Base or 0 searches only the current path or object.</td></tr><tr><td>OneLevel or 1</td><td>OneLevel or 1 searches the immediate children of that path or object and excludes the base object itself.</td></tr><tr><td>SubTree or 2</td><td>Subtree or 2 searches the current path or object and all children of that path or object.</td></tr></table>Search Scope data type is String. It is mandatory.

Note: Double quotes (") and back quote (`) are not required as input.</td></tr>
</table>

<table>
<tr><th colspan="3">Output Tab:</th></tr>
<tr><th>No.</th><th>Field Name</th><th>Description</th></tr>
</table>

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1	OU Name	Specify a field name to store the OU names retrieved. The default value is “OU Name”.
2	Distinguished Name	Specify a field name to store the Distinguished Names of the OU names retrieved. The default value is “Distinguished Name”.

1.16 Get Last Logon Timestamp

1.16.1 Description

Active Directory: Get Last Logon Timestamp plugin step gets the last logon timestamp of an Active Directory user or computer.

1.16.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of the machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box and accepts static values or variables. Else if checkbox

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		above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Specify Object Type - allowed values are: **User** and **Computer**. The data type is String. This field is mandatory. **Note:** Double quotes (") and back quote (`) are not to be provided.
2	Object Name	Specify an existing Active Directory object name for which we wish to get the last logged in timestamp. • For object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN). • For object type Computer you may specify Computer Name (CN). • You may specify Distinguished Name or Canonical Name for both User and Computer object type. The data type is string. This field is mandatory. Object Name must be unique in Active Directory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description
1	Last LogonTimestamp (UTC)	Output field to hold the result of the successful plugin execution. Default value for this field is “LastLogonTimestamp”. This field is mandatory.

1.17 Get Users

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1.17.1 Description

Active Directory: Get Users step provides the list of all Active Directory users on the Path specified.

It is a row generating step and hence has to be the first step in a workflow.

1.17.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
6	Password	Specify the password for the username above. Password field appears as Text box and accepts static values or variables. The data type is string. The field is mandatory.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Path	Specify an Active Directory Path (Canonical name or Distinguished Name of an object) for which we wish to get all Users.

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		Advanced Features must be enabled from View menu to fetch Canonical name or Distinguished Name from the Object Properties. • Canonical Name can be viewed in Properties under Object in AD. • Distinguished Name can be viewed in Properties under Attribute Editor tab in AD. Path data type is String. Path is mandatory. **Note:** Double quotes (") and back quote (`) are not required as part of input.
2	Search Scope	Mouse hover on this element to see the allowed values 'Base', 'OneLevel', 'SubTree', OR '0', '1', '2'. Specifies the scope of an Active Directory search. The acceptable values for this parameter are as shown in the table below: Level / Description Base or 0 / Base or 0 searches only the current path or object. OneLevel or 1 / OneLevel or 1 searches the immediate children of that path or object and excludes the base object itself. SubTree or 2 / Subtree or 2 searches the current path or object and all children of that path or object. Search Scope data type is String. It is mandatory. **Note:** Double quotes (") and back quote (`) are not required as input.

Output Tab:		
No.	Field Name	Description
1	Users	Specify an output field to hold the result (User Logon Name/User Principal Name) upon successful plugin execution. The default value for this field is "Users".

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1.18 Get User Groups

1.18.1 Description

Active Directory: Get User Groups step provides the list of all groups for a specified user.

It is a row generating step and hence has to be the first step in a workflow.

1.18.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
6	Password	Specify the password for the username above. Password field appears as Text box and accepts static values or variables. The data type is string. The field is mandatory.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User Logon Name	Provide User logon name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) for which you need all the assigned groups.

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		You may also provide the User Name (CN)/Distinguished Name/Canonical Name of an Active Directory user account to fetch assigned groups. User Logon Name is mandatory.

Output Tab:		
No.	Field Name	Description
1	User Groups	Output field to hold the result of the successful plugin execution. Default label value for this field is “User Groups”. Result label value is mandatory.
2	Distinguished Name	Specify an output field to hold the result:-Distinguished Name on the successful plugin execution. The default label value for this field is “DistinguishedName”. This field is mandatory.

1.19 Get User Properties

1.19.1 Description

Active Directory: Get User Properties step gets the properties of an Active Directory user.

1.19.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	

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5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User Logon Name	Provide User logon name (e.g. sbrown, scott.brown etc.) or User Principal name (e.g. sbrown@autoedge.com) of the user for which you wish to fetch User Properties. You may also provide the User Name (CN)/Distinguished Name/Canonical Name of an Active Directory user account to fetch User Properties. The data type is String. User Logon Name is mandatory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description
	Output Tabular Fields:	At least one Property Name and Respective Output field should be provided.
1	Property Name	On Click, property names associated with the user are retrieved in a list. Select one or more Property Names one by one.
2	Output Field	Specify an output fieldname to hold the value of the corresponding Property Name.

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1.20 Is Account Disabled

1.20.1 Description

Active Directory: Is Account Disabled plugin step checks whether the current status of an existing Active Directory account is disabled.

1.20.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text b box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Object Type: Allowed values are ‘User’, ‘Computer’. The data Type is String. This field is mandatory.
2	Object Name	Specify an existing Active Directory object name for which you wish check if Acount is disabled. • For object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN). • For object type Computer you may specify Computer Name (CN). • You may specify Distinguished Name or Canonical Name for both User and Computer object type. The data type is string. This field is mandatory. Object Name must be unique in Active Directory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description
1	Result	Specify an output field to hold the result of the plugin execution. Default label value for this field is “Result”. Result label value is mandatory. If Account is disabled the Result is true else false.

1.21 Is Account Locked

1.21.1 Description

Active Directory: Is Account Locked plugin checks whether the current status of an existing Active Directory account is locked.

1.21.2 Configurations

Configuration:		
No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Specify an Object Type. The allowed values are ‘User’, ‘Computer’. The data type is string. This field is mandatory.

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2	Object Name	Specify an existing Active Directory object name for which you wish check if Acount is locked. • For object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN). • For object type Computer you may specify Computer Name (CN). • You may specify Distinguished Name or Canonical Name for both User and Computer object type. The data type is string. This field is mandatory. Object Name must be unique in Active Directory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Result label value is mandatory.

1.22 Move Account

1.22.1 Description

Move Account Plugin step is moves a user from one organization (OU) to another organization in Active Directory.

1.22.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.

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3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget called SecuredComboVar. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Specify the Object Type. Allowed values are ‘User’, ‘Computer’, ‘Group’. The data type is string. This field is mandatory.
2	Object Name	Specify the name of an existing Active Directory object which you wish to move. • For object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN).

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		• For object type Computer you may specify Computer Name (CN). • For object type Group you may specify Group Name (CN). • You may specify Distinguished Name or Canonical Name for User, Computer or Group object types. The data type is string. This field is mandatory. Object Name must be unique in Active Directory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).
3	Destination Path	Give the object path (usually OU DN) to which you want to move the active directory account This field is mandatory. Specify the Object Destination Path as Distinguished Name Path (usually OU DN - e.g. OU=Temp, DC=autoedge, DC=com) or Canonical Name Path where the user is to be moved (e.g. automationedge.com/Temp).

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Successful execution shows user account has been moved. Result label value is mandatory.

1.23 Get Password Expiration Days Left

1.23.1 Description

Active Directory: Password Expiration Days Left plugin step searches a given Object (User or Computer) and gets password expiration days left.

1.23.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

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	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Specify Object Type - allowed values are: **User** and **Computer**. The data type is String. This field is mandatory. **Note:** Double quotes (") or back quote (`) are not to be provided.
2	Object Name	Specify an existing Active Directory object name for which you get the Password Expiration Days left.

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		• For object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN). • For object type Computer you may specify Computer Name (CN). • You may specify Distinguished Name or Canonical Name for both User and Computer object type. The data type is string. This field is mandatory. Object Name must be unique in Active Directory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description
1	Password Expiration Days Left	Output field to hold the result of the successful plugin execution. Default label value for this field is "PasswordExpirationDaysLeft". Result label value is mandatory.

1.24 Remove from Group

1.24.1 Description

This plugin is used to remove an existing Active Directory account from an existing Active Directory group.

1.24.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.

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4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text Var (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Object Type allowed values are: **User, Computer,** and **Group**. **Note:** Double quotes (") and back quote (`) are not to be provided.
2	Object Name	Provide Object name of an existing account in Active Directory; that you wish to Remove from Group; corresponding to the Object Type chosen above. • For object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN). • For object type Computer you may specify Computer Name (CN). • For object type Group you may specify Group Name (CN).

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		• You may specify Distinguished Name or Canonical Name for User, Computer or Group object types. The data type is string. This field is mandatory. Object Name must be unique in Active Directory. **Note:** Object Name(CN) in Active Directory should not contain a slash(/ or \).
3	Group Name	Existing Active Directory Group Name in formats such as Group Name (CN) or Canonical name or Distinguished name from which we intend to remove an existing Active Directory object. This field is mandatory. **Note:** Group Name(CN) in Active Directory should not contain a slash(/ or \).

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Successful execution shows Account has been removed from Group.

1.25 Rename Account

1.25.1 Description

Active Directory: Rename Account plugin step renames an Active Directory Account.

1.25.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.

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3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Object Type	Object Type allowed values are only "'User', 'Computer', 'Group'". The data type is String. This field is mandatory. **Note:** Double quotes (") and back quote (`) are not to be provided.
2	Object Name	Specify an existing Active Directory object name to be renamed. • For object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN).

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		• For object type Computer you may specify Computer Name (CN). • For object type Group you may specify Group Name (CN). • You may specify Distinguished Name or Canonical Name for all User, Computer or Group object types. The data type is string. This field is mandatory. Object Name must be unique in Active Directory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).
3	New Name	Specify a new Name (CN) for the object to be renamed. This field is a String. The field is mandatory.

1.26 Reset Account Password

1.26.1 Description

The step is used to reset password of an existing AD user.

1.26.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.

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6	Password	Password is entered using a widget. The widget handles both Text Var (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User logon name	Provide User logon name (e.g. sbrown, scott.brown etc.) or User Principal Name of an existing Active Directory user account (e.g. sbrown@autoedge.com) to reset password. You may also provide the Name (CN)/Distinguished Name/Canonical Name of an Active Directory user account to be deleted. The data type is String. User Logon Name is mandatory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).
2	New Password	New password which we intend to set for the above User logon name. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Successful execution shows user password has been reset.

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1.27 Set Group Properties

1.27.1 Description

Active Directory: Set properties for an existing group in the Active Directory.

1.27.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the hostname or server name or IP address of machine where Active Directory is hosted. The Data Type is String. This field is mandatory.
3	Port	Provide the port number for Active Directory. Port number must be an integer. **Note:** Use the internal default port, 389 for Active Directory, if the port number is not provided.
4	Username	Provide user logon name of an Active Directory account to authenticate. The Data Type is String. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:

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No.	Field Name	Description
	Input Fields:	
1	Group Name	Specify a Group Name to set properties. The name has to be unique in a single workflow. The Data Type is String. This field is mandatory.
2	Accept fields as JSON	Select the checkbox if you want to provide a JSON in the JSON field.
3	JSON	Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (“). Provide all the required or mandatory fields and other fields to be inserted as keys in the JSON. This field is mandatory only if the JSON checkbox is selected.
4	Table fields	
	Property Name	Specify the Property Name key, which is used to keep track of the object. The Data Type is String. This field is mandatory.
	Property Value	Specify Property value, which is a value, such as number, simple string, or date associated with a key.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

1.28 Set Password Properties

1.28.1 Description

Active Directory: Set Password Properties plugin step sets password properties for an existing user account in Active Directory.

1.28.2 Configurations

Configuration:

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User Logon Name	Specify an existing Active Directory User to set password properties.

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		• For an existing object type User in Active Directory you may specify User logon name (e.g. sbrown, scott.brown etc.), User Principal Name (e.g. sbrown@autoedge.com) or User Name (CN). • You may also specify Distinguished Name or Canonical of the User. The data type is string. This field is mandatory. Object Name must be unique in Active Directory. **Note:** User Name(CN) in Active Directory should not contain a slash(/ or \).
	User Must Change Password At Next Logon	Give the appropriate property value. Allowed values are '0', '1' or 'true', 'false'. The data type is String. This field is mandatory.
3	User Cannot Change Password	Give the appropriate property value. Allowed values are '0', '1' or 'true', 'false'. The data type is String. This field is mandatory.
4	Password Never Expires	Give the appropriate property value. Allowed values are '0', '1' or 'true', 'false'. The data type is String. This field is mandatory.

1.29 Set User Properties

1.29.1 Description

Active Directory: Set properties for an existing user in the Active Directory.

1.29.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the hostname or server name or IP address of machine where Active Directory is hosted. The Data Type is String. This field is mandatory.
3	Port	Provide the port number for Active Directory. Port number must be an integer. **Note:** Use the internal default port, 389 for Active Directory, if the port number is not provided.

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4	Username	Provide user logon name of an Active Directory account to authenticate. The Data Type is String. This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User Logon Name	Provide user logon name (e.g. sbrown, scott.brown etc.) or you may also provide Full User logon name (e.g. sbrown@autoedge.com) of the user account to set user properties. This is field is mandatory.
2	Accept fields as JSON	Select the checkbox if you want to provide a JSON in the JSON field.
3	JSON	Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (“). Provide all the required or mandatory fields and other fields to be inserted as keys in the JSON. This field is mandatory only if the JSON checkbox is selected.
4	Table fields	
	Property Name	Specify the Property Name key, which is used to keep track of the object.

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		The Data Type is String. This field is mandatory.
	Property Value	Specify Property value, which is a value, such as number, simple string, or date associated with a key.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

1.30 Unlock Account

1.30.1 Description

The step is used to unlock AD user account which is locked (i.e. user account gets locked when we enter wrong credentials multiple times).

1.30.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of machine where Active Directory is hosted. This field is mandatory.
3	Port	The port number for Active Directory should be provided. If port number is not provided, internally default port for Active Directory is used i.e. 389. Port should be an integer.
4	Username	Provide User Logon Name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory.

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	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Password is entered using a widget. The widget handles both Text Var (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User logon name	Provide User logon name (e.g. sbrown, scott.brown etc.) or User Principal Name (e.g. sbrown@autoedge.com) of an existing Active Directory account to unlock account. You may also specify Distinguished Name or Canonical of the User Account. The data type is string. User Logon Name is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. Successful execution shows user account has been unlocked. Result label value is mandatory.

Known Issues:

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These known errors are for all AD plugins

- If an invalid environment variable is provided as input to the plugin, then plugin validates it and throws error as “Failed to get <respective field name>”. But when the same workflow is executed through AutomationEdge, error thrown is not identical to the error thrown by process studio.

- When more than one consecutive space character is provided between two non-space characters and submitted as input to the plugin, then plugin receives input as two non-space characters with only one space character between them, instead of original multiple consecutive spaces.
  Reference Link: https://bugs.java.com/view_bug.do?bug_id=7028657

2 AirWatch

AirWatch plugin steps can be used for MDM (Mobile Device Management) in AirWatch.
AirWatch plugin is designed to provide your IT department with the ability to quickly enroll users, devices, Apps, Content, Email and Telecom in your enterprise environment, configure and update device settings over-the-air, enforce security policies and compliance, secure mobile access to corporate resources, and remotely lock and wipe managed devices.

Compatibility:
This plugin has been tested with AirWatch- 19.2.0.0(On-Cloud)

Prerequisites:

- AirWatch instance with access details.

Create REST API Keys in AirWatch:

- Reference ‘VMware AirWatch REST API Guide’:
  https://resources.workspaceone.com/view/zv5cgwjrcv972rd6fmml/en

- **Steps to Create REST API Keys in AirWatch:**
  With Admin as account type, you can access all the managed content APIs.
  To do this navigate to,
  Groups & Settings >All Settings > System > Advanced > API > REST API, and select Add, to generate an API key for the service and account type as **Admin**.

Enroll Device:

You can enroll Android, Apple, QNX, Chrome OS and Windows OS devices in AirWatch.

The process of enrolling devices for MDM (Mobile Device Management) is discussed in Appendix 9: Enrolling devices for MDM in AirWatch.

Future Enhancement:

- If required, ‘Advance Input’ tab can be introduced to accommodate the additional input parameters.

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Known Issues:

- We can create a child Organization Group but cannot create a user under it.

2.1 AW: Add Enrollment User (Basic)

2.1.1 Description

AW: Add Enrollment User (Basic) plugin step adds an enrollment user in AirWatch and sends an email to the user with enrollment instructions.

2.1.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the AirWatch instance Server URL (e.g. https://cn1106.awmdm.com) or IP address of the AirWatch instance. This field is mandatory.
4	Username	Specify a username to authenticate to the AirWatch instance (e.g. xx.xx@automationedge.com). This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Provide the password of the username to authenticate. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	API Key:	
5	Accept Values from fields	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.

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6	API Key	API Key is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down to select fields from previous steps. API Key is available in system settings when REST API access is enabled in AirWatch. API Key is needed to integrate VMware Identity Manager with AirWatch. **Steps to Create REST API Keys in AirWatch:** With Admin as account type, you can access all the managed content APIs. To do this navigate to, Groups & Settings >All Settings > System > Advanced > API > REST API, and select Add, to generate an API key for the service and account type as **Admin**. Username, Password and API Key for AirWatch instance are validated.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	New Username	Specify a desired unique new username of the enrollment user. This field is mandatory.
2	New Password	Specify a desired password of the enrollment user. This field is mandatory.
3	First name	Specify First name of the enrollment user. This field is mandatory.
4	Last name	Specify a Last name of the enrollment user. This field is mandatory.
5	Email	Specify the desired email address of the enrollment user
6	Security Type	Allowed values are ‘1’ for Directory and ‘2’ for Basic as seen on the Tooltip.
Optional Input Tab: (You may optionally provide values for fields in this tab. Default values will be set if values are not provided explicitly.)		
No.	Field Name	Description
1	Organization Group	Specify the unique identification of the Organization Group to be associated with the enrollment user.

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		Organization Group is visible on the top of the screen once you login to an AirWatch instance as shown below.
2	Status	Status is the state of the Enrollment user for activation and deactivation. Allowed values are "True" for creating an Active user, "False" for creating an Inactive user
3	Contact Number	Specify a desired contact number of the enrollment User.
4	Mobile Number	Specify a desired mobile number of the enrollment user.
5	Role	Role associated with the user. Allowed values are "Basic Access", "Full Access" and “External Access”.
6	Message Type	Type of the message sent to the enrollment user. Allowed values are: Email, SMS, NONE.
7	Message Template ID	Unique ID of the template of the confirmation Email/SMS sent to the User.
Output Tab:		
No.	Field Name	Description
1	UUID	Specify an output fieldname to hold the UUID (Universal Unique Identifier) generated as a result of the step execution.
2	User ID	Specify an output fieldname to hold the User ID generated as a result of the step execution.

2.2 AW: Add Enrollment User To User Group

2.2.1 Description

AW: Add Enrollment User To User Group plugin step adds an enrollment user to an AirWatch User Group.

2.2.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the AirWatch instance Server URL (e.g. https://cn1106.awmdm.com) or IP address of the AirWatch instance. This field is mandatory.

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4	Username	Specify a username to authenticate to the AirWatch instance (e.g. xx.xx@automationedge.com). This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Provide the password of the username to authenticate. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Username, Password and API Key for AirWatch instance are validated.
	API Key:	
5	Accept Values from fields	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.
6	API Key	API Key is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down to select fields from previous steps. API Key is available in system settings when REST API access is enabled in AirWatch. API Key is needed to integrate VMware Identity Manager with AirWatch. **Steps to Create REST API Keys in AirWatch:** With Admin as account type, you can access all the managed content APIs. To do this navigate to, Groups & Settings >All Settings > System > Advanced > API > REST API, and select Add, to generate an API key for the service and account type as **Admin**.
Input Tab:		
No.	Field Name	Description

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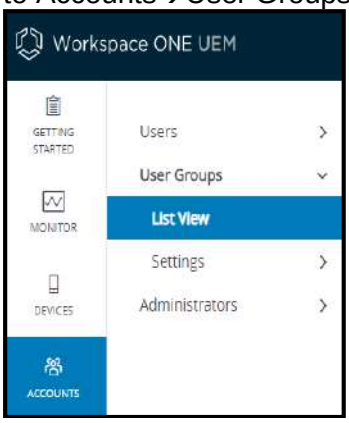
	Input Fields:	
1	Enrollment Username	Specify an Enrollment username which is to be added to a User Group.
2	Custom User Group	Specify the name of the Custom User Group in which enrollment user is to be added. The available Custom User Groups can be found by navigating to Accounts→User Groups→List View menu in AirWatch. 

2.3 AW: Deactivate Enrollment User

2.3.1 Description

AW: Deactivate Enrollment User plugin step deactivates an AirWatch Enrollment User.

2.3.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Provide Fully Qualified Domain Name/IP address of machine Specify the AirWatch instance Server name Specify the AirWatch instance Server URL (e.g. https://cn1106.awmdm.com) or IP address of the AirWatch instance. This field is mandatory.
4	Username	Specify a username to authenticate to the AirWatch instance (e.g. xx.xx@automationedge.com). This field is mandatory.
	Password:	

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5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Provide the password of the username to authenticate. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Username, Password and API Key for AirWatch instance are validated.
	API Key:	
5	Accept Values from fields	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.
6	API Key	API Key is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down to select fields from previous steps. API Key is available in system settings when REST API access is enabled in AirWatch. API Key is needed to integrate VMware Identity Manager with AirWatch. **Steps to Create REST API Keys in AirWatch:** With Admin as account type, you can access all the managed content APIs. To do this navigate to, Groups & Settings >All Settings > System > Advanced > API > REST API, and select Add, to generate an API key for the service and account type as **Admin**. Username, Password and API Key for AirWatch instance are validated.
Input Tab:		
No.	Field Name	Description
	Input Fields:	

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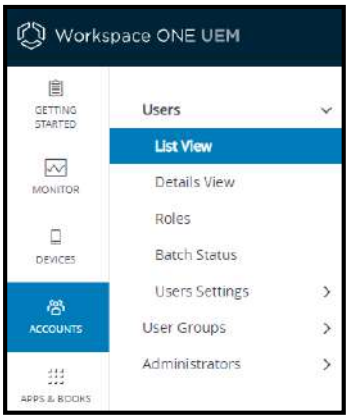
1	Enrollment Username	Specify the Enrollment username which is to be deactivated in AirWatch. Existing Enrollment users can be found by navigating to Accounts→Users→List View menu in AirWatch. 

2.4 AW: Remove Enrollment User from User Group

2.4.1 Description

AW: Remove Enrollment User From User Group plugin step removes an Enrollment User from an AirWatch User Group.

2.4.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the AirWatch instance Server URL (e.g. https://cn1106.awmdm.com) or IP address of the AirWatch instance. This field is mandatory.
4	Username	Specify a username to authenticate to the AirWatch instance (e.g. xx.xx@automationedge.com). This field is mandatory.
	Password:	
5	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Provide the password of the username to authenticate.

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		Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Username, Password and API Key for AirWatch instance are validated.
	API Key:	
5	Accept Values from fields	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.
6	API Key	API Key is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down to select fields from previous steps. API Key is available in system settings when REST API access is enabled in AirWatch. API Key is needed to integrate VMware Identity Manager with AirWatch. **Steps to Create REST API Keys in AirWatch:** With Admin as account type, you can access all the managed content APIs. To do this navigate to, Groups & Settings >All Settings > System > Advanced > API > REST API, and select Add, to generate an API key for the service and account type as **Admin**.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Enrollment Username	Specify an Enrollment username which is to be removed from a User Group.
2	Custom User Group	Specify the name of the Custom User Group from which enrollment user is to be removed

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3 Amazon EC2

Amazon EC2 plugin steps perform Amazon EC2 Virtual Machine operations.

Steps to Create Access Key ID and Secret Access Key:

Access Key and Secret Key are required for all Amazon EC2 Plugin steps.
Log on to your Amazon AWS Console (https://console.aws.amazon.com) and follow the procedure to create Access Key and Secret Key.

1. Click on the **AWS logged in username** in the top right side.
2. Click on **'My Security Credentials'**.
3. Click on **'Access keys (access key ID and secret access key)'**.
4. Click on **'Create New Access Key'**.
5. Your keys are now created. Either click on **'Show Access Key'** to see the generated keys or Click on **'Download Key File'** which contains the keys.

Prerequisites:

- Amazon AWS cloud instance with access details.
- Login details [Access key and Secret key] to authenticate to Amazon AWS cloud. These can be found under AWS Management Console→User Icon→ Security Credentials navigation. Refer "Steps to Create Access Key ID and Secret Access Key" in the Plugin header for details.

Reference:
https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/device_naming.html#available-ec2-device-names

3.1 Amazon EC2: Attach Volume

Reference:

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/device_naming.html#available-ec2-device-names

3.1.1 Description

Amazon EC2: Attach Volume step attaches an EBS volume to a running or stopped instance and exposes it to the instance with the specified device name.

3.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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2	Region	Specify the region where the instance is hoisted or choose a region from the Region Explorer window.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
4	Access Key	Specify an Access Key to authenticate EC2 instance on Amazon AWS cloud. This field is mandatory.
5	Secret Key	Specify a Secret Key to authenticate Amazon AWS cloud. This field is mandatory.
6	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key, and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static (hardcoded) values and environment variables are allowed. It will not work for previous step fields.

Input Tab:

No.	Field Name	Description
	Input Fields:	
1	Volume ID	Select the ID of the EBS volume. The volume and instance must be within the same availability zone. Data type is String. This field is mandatory.
	Button: Get	Click to get the list of volume IDs.
2	Instance ID	Select the ID of the instance to which you want to attach the volume ID. Data type is String. This field is mandatory.
	Button: Get	Click to get the list of instance IDs.
3	Device	Select the device name. For example, /dev/sdh or xvdh. Data type is String. This field is mandatory.

Output Tab:

Field Name	Description
Status	Specify the status of attach operation, which will be given as output through this field. The default value is ‘Status’.

3.2 Amazon EC2: Create Key Pair

3.2.1 Description

Amazon EC2: Create Key Pair step creates an ED25519 or 2048-bit RSA key pair with the specified name in the Amazon AWS account.

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Note: ED25519 keys are not supported for Windows instances, EC2 Instance Connect, and EC2 Serial Console.

3.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.
4	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
5	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If the above checkbox is enabled, Access Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled, Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
6	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
7	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If above checkbox is enabled, Secret Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.
Input Tab:		

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No.	Field Name	Description
	Input Fields:	
1	Key Pair Name	Select name of a key pair. The field type is String. This field is mandatory.
2	Local File Path To Download Key At	Specify the local file path where you want to download the key. The field type is String. This field is mandatory.
3	Button: Browse	Click Browse button to select the file path to download the key.
4.	Key Pair Type	Select the type of key pair. Allowed values are: rsa or ed25519. Default value: rsa The field type is String. This field is mandatory.
5	Tags	Provide the key and value in tabular format if you want to give a tag to your security group. **Note:** You can add up to 50 tags in each Key Pair.
	Tabular Fields	**Note:** You can provide a Tag Name without providing the value in the Value field. However, you cannot provide only the value without the Tag Name. Validations are applied to ensure that the condition is fulfilled.
6	Key	Select if you want to give a tag, then provide the tag key name in this field.
7	Value	Select value for the respective Tag Key Name.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	RSA Key	Specify the generated key as output through this field. The default value is 'RSAKey'.

3.3 Amazon EC2: Create Security Group

3.3.1 Description

Amazon EC2: Create Security Group step creates a new security group in the Amazon AWS account.

3.3.2 Configurations

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.
4	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
5	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If the above checkbox is enabled, Access Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled, Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
6	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
7	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If above checkbox is enabled, Secret Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Security Group Name	Select name security group.

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		The field type is String. This field is mandatory. **Note:** Following constraints are applied: • Security Group Name can have up to 255 characters. It cannot start with *sg*. • For EC2 Classic, ASCII characters are allowed. • For EC2-VPC, a-z, A-Z, 0-9, spaces, and ._-:/()#,@[]+=&;{}!$* are allowed.
2	Group Description	Select the description of the security group. The field type is String. This field is mandatory. **Note:** Following constraints are applied: • Group Description can have up to 255 characters. • For EC2 Classic, ASCII characters are allowed. • For EC2-VPC, a-z, A-Z, 0-9, spaces, and ._-:/()#,@[]+=&;{}!$* are allowed.
3	VPC ID	Select the ID of the VPC in which you want to create the security group.
	Button: Get	Click Get button to get a list of VPC ID.
4	Tags	Provide the key and value in tabular format if you want to give a tag to your security group. **Note:** You can add up to 50 tags in each Security Group.
	Tabular Fields	**Note:** You can provide a Tag Name without providing the value in the Value field. However, you cannot provide only the value without the Tag Name. Validations are applied for checking that the condition is fulfilled.
5	Key	Select if you want to give a tag, then provide the tag key name in this field.
6	Value	Select value for the respective Tag Key Name.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Group ID	Specify the generated ID of newly created Security Group is given as output through this field.

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		The default value is ‘GroupID’.

3.4 Amazon EC2: Create Volume

3.4.1 Description

Amazon EC2: Create Volume step creates an EBS volume that you can attach to an instance in the same availability zone.

Note:

- **Size of volume in GiBs:** You must specify either a snapshot ID or a volume size. If you specify a snapshot, the default is the snapshot size. You can specify a volume size that is equal to or larger than the snapshot size. Following are the sizes of the supported volumes for each volume type:
    - gp2 and gp3: 1-16,384
    - io1 and io2: 4-16,384
    - st1 and sc1: 125-16,384
    - standard: 1-1,024
- The volume type parameter can be one of the following values:
    - General Purpose SSD: gp2 | gp3
    - Provisioned IOPS SSD: io1 | io2
    - Throughput Optimized HDD: st1
    - Cold HDD: sc1
    - Magnetic: standard

  If you enable Multi-Attach, you can attach the volume to up to 16 Instances built on the Nitro System in the same Availability Zone. This parameter is supported with io1 and io2 volumes only.
- The number of I/O operations per second (IOPS). For gp3, io1, and io2 volumes, this represents the number of IOPS that are provisioned for the volume. For gp2 volumes, this represents the baseline performance of the volume and the rate at which the volume accumulates I/O credits for bursting. The following are the supported values for each volume type:
    - gp3: 3,000-16,000 IOPS
    - io1: 100-64,000 IOPS

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- io2: 100-64,000 IOPS

io1 and io2 volumes support up to 64,000 IOPS only on Instances built on the Nitro System. In other instances, families support performance up to 32,000 IOPS.

3.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.
4	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
5	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If the above checkbox is enabled, Access Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled, Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
6	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
7	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If above checkbox is enabled, Secret Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Availability Zone	Specify the availability zone in which to create the volume. The field type is String. This field is mandatory.
2	Volume Size(GiB)	Specify the size of the volume, in GiBs. If you specify a snapshot, the default is the snapshot size. You can specify a volume size that is equal to or larger than the snapshot size. **Note:** 1 GiB = 1024^3 bytes, whereas 1 GB = 1000^3 bytes. One between Snapshot ID or Volume Size is mandatory.
3	Snapshot ID	Specify the snapshot from which to create the volume. One between Snapshot ID or Volume Size is mandatory.
4	Volume Type	Select the volume type. Valid Values: standard | io1 | io2 | gp2 | sc1 | st1 | gp3.
5	Encrypt This Volume	Indicates whether the volume should be encrypted. Allowed Values are 'Yes' and 'No'. The default value is 'No'.
5.a	KMS Key ID	The identifier of the AWS Key Management Service (AWS KMS) KMS key is used for Amazon EBS encryption. Specify KmsKeyId, however, if you do not specify the KmsKeyId, then the AWS KMS key for Amazon EBS is used.
6	Enable Multi Attach	Indicates whether to enable Amazon EBS Multi-Attach. If you enable Multi-Attach, you can attach the volume to up to 16 Instances built on the Nitro System in the same Availability Zone. This parameter is supported with io1 and io2 volumes only. Allowed Values are 'Yes' and 'No'. The default value is 'No'.
7	Throughput(M/s)	Specify the throughput to provision for a volume, with a maximum of 1,000 MiB/s. This parameter is valid only for gp3 volumes. Valid Range: Minimum value of 125. The maximum value of 1000.
8	Number of IOPS	Specify the number of I/O operations per second (IOPS). This parameter is required for io1 and io2 volumes. This parameter is not supported for gp2, st1, sc1, or standard volumes.
9	Tags	Select if you want to give a tag to your volume.

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9.a	Key	If you want to give a tag, then provide the tag key name in this field.
9.b	Value	Specify the value for that respective Tag Key Name.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Volume ID	Specify the ID of the volume is given as output through this field. The default value is 'VolumeID'.

3.5 Amazon EC2: Delete Key Pair

3.5.1 Description

Amazon EC2: Delete Key Pair step deletes the specified key pair by removing the public key from Amazon EC2.

3.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.
4	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
5	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If the above checkbox is enabled, Access Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled, Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.

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6	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
7	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If above checkbox is enabled, Secret Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Key Pair Name	Specify the name of key pair which you want to delete. The field type is String. This field is mandatory.
2	Get	Click the button to fetch the list of all key pair available in your AWS account in a specified region.

3.6 Amazon EC2: Delete Volume

3.6.1 Description

Amazon EC2: Delete Volume step deletes the specified EBS volume.

3.6.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.

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3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.
4	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
5	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If the above checkbox is enabled, Access Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled, Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
6	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
7	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If above checkbox is enabled, Secret Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Volume ID	Specify the volume ID of that volume which you want to delete. The field type is String. This field is mandatory.
2	Get	Click the button gets a list of all Volume IDs in your AWS account in a specified region.

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3.7 Amazon EC2: Detach Volume

3.7.1 Description

Amazon EC2: Detach Volume step detaches an EBS volume from an instance in the Amazon AWS account.

3.7.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.
4	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
5	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If the above checkbox is enabled, Access Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled, Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
6	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
7	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If above checkbox is enabled, Secret Key field appears as Text box and accepts static values or variables. And if the above checkbox is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud.

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		For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Volume ID	Select the ID of the volume to be detached. The field type is String. This field is mandatory.
	Button: Get	Click Get button to get a list of volume ID.
2	Instance ID	Select the ID of the instance. **Note:** If you are detaching a multi-attach enabled volume, you must specify an instance ID.
	Button: Get	Click Get button to get a list of instance ID.
3	Force Detach Volume	Select to force detach a volume, if the previous detachment attempt did not occur cleanly. Select Yes or No. The default value is No.
4	Device	Select the name of the device.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Status	Specify the status of detach operation as output through this field. The default value is Status.

3.8 Amazon EC2: Get Instance Properties

3.8.1 Description

Amazon EC2: Get Instance Properties step fetches the properties of all EC2 instances on the specified Amazon AWS cloud account.

Prerequisites:

- Amazon AWS cloud instance with access details.
- Login details [Access key and Secret key] to authenticate to Amazon AWS cloud. Refer “Steps to Create Access Key ID and Secret Access Key” in the Plugin header for details.

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Note:
As this step generates multiple rows use this as the first step in the workflow.

3.8.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hoisted or choose a region from the Region Explorer window.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
5	Access Key	Specify an Access Key to authenticate EC2 instance on Amazon AWS cloud. This field is mandatory.
7	Secret Key	Specify a Secret Key to authenticate Amazon AWS cloud. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static (hardcoded) values and environment variables are allowed. It will not work for previous step fields.
Output Tab:		
No.	Field Name	Description
	Output Fields (Tabular):	
1	Field Name	On click of the cell in the output table, if the connection is successfully established, it populates the list of instance properties. Select an instance property in a field or many in the table as desired.
2	Output Field	Specify an output field to hold the field values for the field name specified above.

3.9 Amazon EC2: Get Instance Properties By Instance ID

3.9.1 Description

Amazon EC2: Get Instance Properties By Instance ID step fetches properties of any specific EC2 instance.

3.9.2 Configurations

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
4	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. The field type is String. This field is mandatory.
5	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance.
6	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Instance ID	Select the ID of the instance you want to perform an operation. The field type is String. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	XML	Specify the result of the step as XML output through this field. The default value is XML.

3.10 Amazon EC2: Launch Instance

3.10.1 Description

Amazon EC2: Launch Instance plugin step launches an EC2 instance on the specified Amazon AWS cloud account.

Prerequisites

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- Login details [Access key and Secret key] to authenticate to Amazon AWS cloud. These can be found under AWS Management Console→User Icon→ Security Credentials navigation. Refer “Steps to Create Access Key ID and Secret Access Key” in the Plugin header for details.

3.10.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.
4	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
5	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
6	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
7	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud.

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		For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Amazon Machine Image	Specify Amazon Machine Image (AMI) Id to be launched.
2	Instance Type	Specify Instance Type of the AMI to be launched.
3	Button: Get	Click Get button to get a popup containing list of Instance types.
4	Number of Instances	Specify Number of instances to be created.
5	Subnet ID	Specify the ID of an existing Subnet in which instance is to be launched.
6	Button: Get	Click Get button, if the connection is successfully established it populates the list of subnet IDs available on the Amazon AWS cloud.
7	Security Group	Specify Security Group in which instance is to be launched.
8	Button: Get	Click Get button to get a popup containing list of Security Groups.
9	Key Pair Name	Specify Key Pair Name to be assigned to the instance.
10	Button: Get	Click Get button to get a popup containing list of Key Pair Names.

Tip: You may use Get Instance Properties as the first step in the workflow to fetch these properties for all the EC2 instances on this AWS cloud account other than fetching them manually from EC2 web portal.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Instance Id	Specify an output field to hold the Instance Id of the newly created Virtual Machine instance launched as a result of step execution.

3.11 Amazon EC2: Reboot Instance

3.11.1 Description

Amazon EC2: Reboot Instance plugin step reboots an EC2 instance on the specified Amazon AWS cloud account.

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Prerequisites

- Login details [Access key and Secret key] to authenticate Amazon AWS cloud.

  Refer “Steps to Create Access Key ID and Secret Access Key” in Plugin header for details.

3.11.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.
4	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
5	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
6	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
7	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud.

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		For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Instance Id	Specify the EC2 Virtual Machine Instance Id to be restarted.

3.12 Amazon EC2: Start Instance

3.12.1 Description

Amazon EC2: Start Instance plugin step is designed to start an EC2 instance on the specified Amazon AWS cloud account.

Prerequisites:

Login details [Access key and Secret key] to authenticate Amazon AWS cloud. Refer “Steps to Create Access Key ID and Secret Access Key” in Plugin header for details.

3.12.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is

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		disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Instance Id	Specify the EC2 Virtual Machine Instance Id to be started.
Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Current State	Specify an output field to hold the current state of the instance after successful plugin execution. Default value for this field is “CurrentState”. Current State label value is mandatory.
2	Previous State	Specify an output field to hold the previous state of the instance before successful plugin execution. Default label value for this field is “PreviousState”. Previous State label value is mandatory.

3.13 Amazon EC2: Stop Instance

Amazon EC2: Launch Instance plugin step stops an EC2 instance on the specified Amazon AWS cloud account.

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Prerequisites:

Login details [Access key and Secret key] to authenticate Amazon AWS cloud. Refer “Steps to Create Access Key ID and Secret Access Key” in the Plugin header for details.

3.13.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.
4	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
5	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
6	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
7	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow

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		is in running state. Static values and environment variables are allowed.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Instance Id	Specify the Virtual Machine Instance Id to be stopped.
Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Current State	Specify an output field to hold the current state of the instance after successful plugin execution. Default value for this field is “CurrentState”. Current State label value is mandatory.
2	Previous State	Specify an output field to hold the previous state of the instance before successful plugin execution. Default label value for this field is “PreviousState”. Previous State label value is mandatory.

3.14 Amazon EC2: Terminate Instance

Amazon EC2: Terminate Instance plugin step terminates an EC2 instance on the specified Amazon AWS cloud account.

Prerequisites:

Login details [Access key and Secret key] to authenticate Amazon AWS cloud. Refer “Steps to Create Access Key ID and Secret Access Key” in the Plugin header for details.

3.14.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or choose a region from the Region Explorer window. The field type is String. This field is mandatory.
3	Button: Get	Click Get button to open the Region Explorer window. Choose a Region.
	Access Key:	Access key to authenticate Amazon AWS cloud.

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4	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
5	Access Key	Specify the Access Key to authenticate Amazon AWS cloud EC2 instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
6	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
7	Secret Key	Specify the Secret Key to authenticate Amazon AWS Cloud EC2 instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
8	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon AWS cloud. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Instance Id	Specify the EC2 Instance Id to be terminated.
Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Current State	Specify an output field to hold the current state of the instance after successful plugin execution. Default value for this field is “CurrentState”. Current State label value is mandatory.

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2	Previous State	Specify an output field to hold the previous state of the instance before successful plugin execution. Default label value for this field is “PreviousState”. Previous State label value is mandatory.

4 Amazon S3

Amazon S3 Plugin steps perform actions on S3 buckets.

Prerequisites:

- Amazon S3 instance with access details.
- Connection parameters like Access Key and Secret Key should be generated beforehand from the Amazon S3 console.

Reference:

- Generate Access Key and Secret Key –

https://docs.aws.amazon.com/powershell/latest/userguide/pstools-appendix-sign-up.html

4.1 Amazon S3: Add Tag To Bucket

4.1.1 Description

Amazon S3: Add Tag To Bucket plugin step adds a tag to the existing Amazon S3 bucket.

Note:

- Each S3 bucket has a tag set. A tag set contains all of the tags that are assigned to that bucket. A tag set can contain as many as 50 tags, or it can be empty. Keys must be unique within a tag set, but values in a tag set do not have to be unique. For example, you can have the same value in tag sets named *project/Trinity* and *cost-center/Trinity*.
- Within a bucket, if you add a tag that has the same key as an existing tag, the new value overwrites the old value.

4.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window. The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.

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	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:

No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the bucket to which the tag will be added. This field is mandatory.
2	Button: Get	Click Get button, populates the list of Buckets on the Amazon S3 instance for a specific region.
3	Tag Key	Specify the tag key, which is the name of the tag. For example, in the tag *project/Trinity*, the *project* is the key. This field is mandatory. **Note:**

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		The tag key is a case-sensitive string that can contain 1 to 128 Unicode characters.
4	Tag Value	Specify the tag value, which is a required string. For example, in the tag *project/Trinity*, *Trinity* is the value. **Note:** The tag value is a case-sensitive string that can contain from 0 to 256 Unicode characters.

4.2 Amazon S3: Create Bucket

4.2.1 Description

Amazon S3: Create Bucket plugin step creates a bucket on Amazon S3. Bucket names must be unique across all of Amazon S3, that is, among all their users. Within Amazon S3, only a single user owns each bucket. Ownership of the bucket is retained as long as the owner has an Amazon S3 account.

4.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window. The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.

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5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:

No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the S3 bucket to create. To conform with Amazon S3, bucket names must meet the following requirements – • Bucket names should not contain underscores • Bucket names should have 3 to 63 characters • Bucket names should not end with a dash • Bucket names cannot contain adjacent periods • Bucket names cannot contain dashes next to periods (e.g., “my-.bucket.com” and “my.-bucket” are invalid) • Bucket names cannot contain uppercase characters **Note:** • Bucket names must be unique in the Amazon S3 instance across the users. • An Amazon S3 bucket name is globally unique, and the namespace is shared by all AWS accounts. This means that after a bucket is created, the name of that bucket cannot be used by another AWS account in any AWS Region until the bucket is deleted.

Additional Input Tab:

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No.	Field Name	Description
	Additional Input Field:	
1	Object Lock	Allowed values are: Enabled or Disabled. When enabled, the object will be prevented from being deleted or overwritten until the hold is explicitly removed. The objects can be stored using the write-once-read-many (WORM)model. Object Lock only works in versioned buckets; and enabling Object Lock automatically enables bucket versioning. The data type is String.

4.3 Amazon S3: Create Folder

4.3.1 Description

Amazon S3: Create Folder plugin step creates a folder (object) in a bucket on Amazon S3. Amazon S3 folder/subdirectory is considered as an object. By creating folders in buckets, it enables the user to maintain the hierarchy.

4.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window. The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.

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5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the S3 bucket in which the folder is to be created. The field type is String. This field is mandatory.
2	Button: Get	Click the button to open the bucket explorer, with the list of Buckets on the Amazon S3 instance for a specific region.
3	Folder Name	The name of the folder, by which the folder is created. The field type is String. This field is mandatory. **Note:** Create a folder into the folder, (e.g. “foldername1/foldername2”, will create folder “foldername2” in folder “foldername1”

4.4 Amazon S3: Delete Bucket

4.4.1 Description

Amazon S3: Delete Bucket step, deletes a bucket from Amazon S3.

Note: Delete all objects in the bucket, including versions of objects and delete markers, if Bucket Versioning is enabled before deleting the bucket.

4.4.2 Configurations

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window. The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.
Input Tab:		
No.	Field Name	Description
	Input Fields:	

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1	Bucket Name	Specify the name of the S3 bucket to be deleted. The field type is String. This field is mandatory. **Note:** Delete all objects in the bucket, such as versions of objects and delete markers if bucket versioning is enabled before deleting the bucket.

4.5 Amazon S3: Delete File

Reference Links:

- Bucket versioning enabled – https://docs.aws.amazon.com/AmazonS3/latest/userguide/DeletingObjectVersions.html
- Bucket versioning suspended – https://docs.aws.amazon.com/AmazonS3/latest/userguide/DeletingObjectsfromVersioningSuspendedBuckets.html
- Working with delete markers – https://docs.aws.amazon.com/AmazonS3/latest/userguide/DeleteMarker.html
- Deleting Amazon S3 objects – https://docs.aws.amazon.com/AmazonS3/latest/userguide/DeleteMarker.html

4.5.1 Description

Amazon S3: Delete file plugin step, deletes a file from a bucket on Amazon S3. To delete an object there are two available options: -

- Delete an object with a specific version by specifying a version ID. S3 bucket versioning should be 'enabled'.
- Delete an object without specifying a version ID, in which case S3 adds a delete marker to the object.

Note: The operation can be performed by the owner of the bucket. If Bucket Versioning is not enabled, there is no way to restore the deleted object.

4.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window.

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		The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:

No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the S3 bucket from which the object is to be deleted. The field type is String. This field is mandatory.
2	Get	On click of this button, it populates the list of Buckets on the Amazon S3 instance for a specific region.

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3	Key Name	The object name that is to be deleted. It deletes a single file. If the file resides in any folder, it should be given as “foldername/filename.extension”. The field type is String. This field is mandatory.
4	Version ID	The specific version ID of the object to be deleted. Bucket versioning should be enabled.

Notes:

- The Key Name field is the Object’s Key name.
- To delete an object of a specific version, S3 bucket versioning should be enabled.
- Bucket versioning Notes –
  I. For Files -
  a) When versioning is disabled, then objects will be permanently deleted.
  b) When versioning is enabled, a simple DELETE cannot permanently delete an object. Instead, Amazon S3 inserts a delete marker in the bucket, and that marker becomes the current version of the object with a new ID. To delete versioned objects permanently, the version ID field value should be provided (If version ID is null, provide ‘null’ value in version ID field).
  c) When versioning is suspended for a bucket, then for a DELETE request,
    i. It only removes objects with version ID is null.
    ii. It does not remove anything if there is not a null version of the object in the bucket.
    iii. Inserts a delete marker into the bucket.
    iv. Amazon S3 inserts a delete marker in its place with a version ID of null.
- Specify a versioned delete request — specify both the key and a version ID. In this case, the following two outcomes are possible:
  a) If the version ID maps to a specific object version, Amazon S3 deletes the specific version of the object.
  b) If the version ID maps to the delete marker of that object, Amazon S3 deletes the delete marker. This makes the object reappear in your bucket.
- Once the object is deleted using the plugin step and the workflow is re-run, the workflow will be successful.
- "The key must be specified when deleting a version" error may occur due to following reasons -
  a) The provided version ID does not exist.
  b) The provided version ID is not associated to the provided Key Name.

Known Issue:

- If non-existing file is given in Key Name field, it will create the file with Delete marker.

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4.6 Amazon S3: Download File

4.6.1 Description

Amazon S3: Download File plugin step downloads a single file (object) from a bucket on Amazon S3.

Reference Link:

Downloading an Object –
https://docs.aws.amazon.com/AmazonS3/latest/userguide/download-objects.html

4.6.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window. The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.

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7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the S3 bucket from where the object is to be downloaded. The data type is string. The field is mandatory.
2	Get	On click of this button, it populates the list of Buckets on the Amazon S3 instance for a specific region.
3	Key Name	The object name that is to be downloaded. It downloads a single object(file). If the file resides in any folder, it should be given as “foldername/filename.extension”. The data type is string. The field is mandatory. **Notes:** • The Key Name field is the Object’s Key name. • If the file to be downloaded resides in any folder/subdirectory, the Key Name should be given as “foldername/filename.extension”.
4	Output Folder Path	Folder path to download a file at the given location. The data type is string. The field is mandatory.
5	Browse	To browse the folder path to download a file from Amazon S3.
6	Version ID	The specific version ID of the object to be downloaded. Bucket versioning should be enabled. The data type is string. **Notes:** • To download an object of a specific version, S3 bucket versioning should be enabled. • If the version ID is not given, the latest file (without the **‘L’ marker**) is downloaded.
Additional Input Tab:		
No.	Field Name	Description

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	Additional Input Field:	
1	Delete Output Folder Contents Before Downloading	Specify Yes to delete output folder contents before downloading else Specify No. Allowed values: Yes, No. Default value: No. The data type is string.
2	Add Date TimeStamp For Duplicate File	Specify Yes to add Date TimeStamp for duplicate files. Allowed values: Yes, No. Default value: No. The data type is string.
3	Add File To Result	Specify Yes to add the downloaded files to the result set and display the download link on AE otherwise else select No. Allowed values: Yes, No. Default value: No. The data type is string.
Output Tab:		
No.	Field Name	Description
	Additional Input Field:	
1	File Overwritten	Specify a field name that returns Yes if the file is overwritten else No. This field is mandatory.

Known Issues:

If the internet connection is disconnected in the middle of downloading a file, the contents will be partially downloaded to the point where the internet was disconnected.

4.7 Amazon S3: Download Folder

4.7.1 Description

Amazon S3: Download Folder plugin step downloads a single folder (object) from a bucket on Amazon S3.

Reference Link:

Downloading an Object

https://docs.aws.amazon.com/AmazonS3/latest/userguide/download-objects.html

4.7.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window.

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		The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:

No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the S3 bucket from where the object is to be downloaded. The data type is String. This field is mandatory.
2	Get	Click to populate a list of Buckets on the Amazon S3 instance for a specific region. **Note:**

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		If no buckets are available it throws an error.
3	Key Name	The object name that is to be downloaded. It downloads a single object(folder). The data type is String. This field is mandatory. **Notes:** • The Key Name field is the Object's Key name. • If the "null" value is given in Key Name, all the contents in the given bucket will be downloaded.
4	Output Folder Path	Folder path to download a folder at the given location. The data type is String. This field is mandatory.
5	Browse	To browse the folder path to download a folder from Amazon S3.
Additional Input Tab:		
No.	Field Name	Description
	Additional Input Field:	
1	Delete Output Folder Contents Before Downloading	Specify Yes to delete output folder contents before downloading else Specify No. Allowed values are: Yes, No. The default value is No. The data type is String.

Known Issues:

1. If an empty folder that is folder that does not contain any file is given, it will execute the workflow, but nothing will be downloaded.
2. If the internet connection is disconnected in the middle of downloading a folder, the contents will be partially downloaded to the point where the internet was disconnected.

4.8 Amazon S3: Get Bucket List

4.8.1 Description

Amazon S3: Get Bucket List step fetches the list of buckets on Amazon S3.

4.8.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window. The field type is String. This field is mandatory.

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	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Bucket Name	Specify the name of the S3 bucket to get the list of the bucket(s) in the Amazon S3. Default value: *BucketName* The data type is String. This field is mandatory.

4.9 Amazon S3: Get Objects From Bucket

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4.9.1 Description

Amazon S3: Get Objects From Bucket plugin step Gets the list of objects from a bucket on Amazon S3. The call returns some or all (up to 1000) objects in a bucket.

4.9.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window. The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the S3 bucket to get objects. The data type is String. This field is mandatory. Note: If no buckets are available it throws an error.
2	Get	Click Get button, to populates a list of Buckets on the Amazon S3 instance.
Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Object Name	The name of the Object (Key) in the bucket. It returns the names of files as well as folders. **Note:** To get the list of objects from a bucket a user must have **Read** permission on the bucket.
2	ETag	The ETag (entity tag) is the hash of an object.
3	Object Size	The object size returns the size of each object in the bucket.
4	Last Modified	The last modified is the date of the modification of the objects.
5	Storage Class	It returns the Storage class of the object. Storage classes offer higher durability.

4.10 Amazon S3: List Versions Of Objects

4.10.1 Description

Amazon S3: List Versions Of Objects plugin step lists the versions of objects from a versioning-enabled bucket.

Note:
To get the list of objects and version IDs from a bucket a user must have **Read** permission on the bucket.

4.10.2 Configurations

No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window. The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the bucket from which the objects are to be got.

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		The data type is String. This field is mandatory.
2	Get	Click Get button, to populates a list of Buckets on the Amazon S3 instance.
3	Prefix	Specify the prefix parameter restricts the response to keys that begin with the specified prefix. **Note:** If the object resides in the folder, provide the prefix as **foldername/<prefix>**. For example, *testFolder/abc*
Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Object Name	Specify the name of the Object (Key) in the bucket. It returns the names of files and folders. Default value: *ObjectName*
2	Version	Returns the Version ID of the Object. Default value: *VersionID*
3	Is Latest	Returns whether or not this version is the latest version for the associated object. Default Value: *IsLatest*
4	Is Delete Marker	Returns whether or not this version represents a delete marker. Default Value: *IsDeleteMarker*

4.11 Amazon S3: Upload Directory

4.11.1 Description

Amazon S3: Upload Directory plugin step uploads multiple files and subdirectories to the Amazon S3 bucket.

Permissions:

- To upload an object, the user must have **"write"** permission on the bucket.
- If Object Name is not given, the files will be uploaded to the root of the bucket.

4.11.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window. The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the S3 bucket in which the directory is to be uploaded. The data type is string. The field is mandatory.

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2	Get	On click of this button, it populates the list of Buckets on the Amazon S3 instance. **Note:** If no buckets are available should throw an error.
3	Object Name	Specify a folder in the S3 bucket in which files are to be uploaded. Keep it blank to upload files to the root of the bucket.
4	Directory Path	Specify the directory name that is to be uploaded. It is the path to the directory which is uploaded on the Amazon S3 bucket. The data type is string. The field is mandatory. **Note:** If the directory or sub-directory is empty, that is, does not contain files, then the workflow will be successful but the empty directory or sub-directory won't be uploaded to the UI.
5	Browse	Click to browse the directory path to upload multiple files in the Amazon S3 bucket.
6	Include Subdirectories	Select if you want to include subdirectories in the upload. If true, files found in subdirectories will be included uploaded. Default Value: *No*

4.12 Amazon S3: Upload File

4.12.1 Description

Amazon S3: Upload File plugin step Creates/Uploads an object in a bucket of Amazon S3.

Permissions:

To create/upload an object, the user must have **"write"** permission on the bucket.

4.12.2 Prerequisites

- You must have an Amazon S3 instance with access details.
- Generate connection parameters, such as Access Key and Secret Key from the Amazon S3 console before using this feature.

4.12.3 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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2	Region	Specify the region where the instance is hosted or click the Get button to choose a region from the Region Explorer window. The field type is String. This field is mandatory.
	Button: Get	Click Get button to open the Region Explorer window populated with the list of Regions available on the Amazon S3 instance. Choose a Region.
	Access Key:	Access key to authenticate an Amazon S3 cloud instance.
3	Accept Values from fields	Leave checkbox unchecked to accept Access Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Key field to appear as Text box.
4	Access Key	Specify the Access Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Access Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Access Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
	Secret Key:	Secret key to authenticate Amazon AWS cloud.
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Secret Key	Specify the Secret Key to authenticate Amazon S3 cloud instance. If checkbox above is enabled Secret Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Secret Key field appears as a drop down to select fields from previous steps. The field type is String. This field is mandatory.
7	Button: Test Connection	Click Test Connection button to verify whether the connection is available or not. Region, Access key and Secret Key are mandatory to authenticate Amazon S3 cloud instance. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:

No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the S3 bucket to create/upload an object. The data type is string. The field is mandatory.
2	Get	On click of this button, it populates the list of Buckets on the Amazon S3 instance.

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		Note: If no buckets are available should throw an error.
3	Local File Path	Specify the file path on the local machine to be created/uploaded on the Amazon S3 bucket. The data type is string. The field is mandatory.
4	Browse	To browse the file path to create a file in the Amazon S3 bucket.
5	Key Name	This field is used to Rename a file. The file will be stored in an Amazon S3 bucket with the name given in this field. The data type is string. The field is mandatory. Notes: • The Key Name field is used to rename a file. The file will be stored in an Amazon S3 bucket with the name given in this field. • To store the file in a folder, specify the folder name with delimiter "/". Example: **"foldername/filename.extension".** • If the given folder does not exist on the bucket, it will be created. • If the file name is not given in Key Name, it will take the default file name and create an object with that name. • Provide valid file extension, same as the extension of File, given in the "Local File Path" field. • Key name does not support consecutive forward slashes (//).
Additional Input Tab:		
No.	Field Name	Description
	Additional Input Field:	
1	Storage Class	The storage class to assign to the object. The default value is STANDARD. The data type is string.
2	Access Control List	Specify an Access Control List. The Access Control List determines user permissions for the uploaded file. It enables the owner to grant required permissions to other AWS accounts. The default value is Private. The data type is string.
Output Tab:		
No.	Field Name	Description
	Output Field:	

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1	Object URL	An object URL is generated by an AWS user who has access to the object. The generated URL is then given to the users without making the bucket private. The data type is string.

5 Ansible

Ansible is a software provisioning, configuration management, and application-deployment tool. Ansible Plugin steps have been designed to perform Ansible tasks and return results.

5.1 Ansible: Run Playbook

5.1.1 Description

Ansible: Run Playbook step executes an Ansible-playbook command and returns the result over secure shell(ssh) TCP/IP protocol.

References:

- https://docs.ansible.com

5.1.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
Connection Tab:		
No.	Field Name	Description
	Connection Fields:	
2	Server name / IP address	Specify the Server name or IP address of the machine on which you want to execute a command. This field is mandatory.
3	Server port	Specify the TCP/IP port on which ssh protocol lives on the server. The default is 22.
4	Timeout	Specify the timeout in seconds. If set to a number larger than zero you can specify a non-default connection timeout.
5	Username	Specify the username to log in with.
	Password :	
6	Accept value as variable/ static	Leave checkbox unchecked to accept Password from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Specify the Password. This field is mandatory.

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		Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use key	Enable this option if you want to log in using a private key.
9	Private key	The private key file. The private part of a private/public RSA key-pair (see: ssh-keygen).
10	Passphrase	Specify the optional pass-phrase used when the key-pair was generated.
11	Proxy host	In case the machine is in a proxy environment, specify the proxy server host to use (name or IP address).
12	Proxy port	Specify the proxy server port to use .
13	Proxy username	Specify the proxy user name .
	Proxy password :	
14	Accept value as variable/ static	Leave checkbox unchecked to accept Proxy Password from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Proxy Password field to appear as Text box.
15	Proxy password	Specify the Proxy password. This field is mandatory. Proxy Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Proxy Password field appears as Text box. Else if checkbox above is disabled Proxy Password field appears as a drop down to select fields from previous steps.
16	Test connection	Click to see if the supplied credentials are sufficient for logging into the SSH server.

Input Tab:		
No.	Field Name	Description
1	Host / Client	Specify the server Name or IP address or Group Name of machine which is already present in hosts file and on which you want to perform operation using Ansible. **Note:** Comma separated values are allowed in this field.
2	Playbook File Path (on Ansible CLI Machine)	Specify YAML File path or Directory path on Ansible CLI Machine. (if user provides a static or environment value and

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		user provides “/”, it will auto populate the current directory list in dropdown) **Note:** • If user provides value for Playbook File Path (on Ansible Machine) as Static or environment variable, then user can press Linux file separator “/” to auto populate the directory list in dropdown. 1. If Both Playbook File Path (on Ansible CLI Machine) and YAML File Path field contains full Yaml path, then first preference will be given to Playbook File Path (on Ansible CLI Machine). 2. If Playbook File Path (on Ansible CLI Machine) contains directory and YAML File Path field contains yaml file with extension, then path will be created as Playbook File Path (on Ansible CLI Machine) + “/” +name of file with extension from YAML File Path field. 3. If Copy/Replace YAML File To Playbook File field value is “Yes” then local yaml file will be created on Playbook File Path (on Ansible CLI Machine) with given directory structure. (if Playbook File Path (on Ansible CLI Machine) Field contains full YAML file path with extension then no file will be copied on Ansible CLI Machine.) 4. If there is special character in filename, then please provide escape characters as per Linux standards.
3	YAML File Path	Specify Local Machine YAML file path. **Note:** If there is special character in filename, then please provide escape characters as per Linux standards.
4	Browse	Browse Local YAML file and selected file path loaded into YAML File Path.
5	Supporting File	Specify the supporting file name to be copied to the Ansible CLI machine. You can also **Browse** for the files and click **Add** button to add to the list below. **Note:** Variables and previous fields are also allowed in this field.
6	Supporting File List	Displays the playbook supporting files to be copied to the Ansible CLI machine.
7	Copy / Replace YAML File To Playbook File Path	If value is ‘Yes’ then copies local YAML file at Ansible CLI Machine at given Playbook File Path Directory. And if Directory not exists it will create the given Directory. Allowed Values: ‘Yes’ and ‘No’. Default Value ‘No’.

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8	Accept Parameter As JSON	Specify Yes to accept Ansible extra-var parameters in JSON format else No to specify parameters as key-value pairs in the Parameters table. The default value is No.
i	JSON	If Yes is provided in the field above, Specify a JSON string for Ansible extra-var parameters. **Sample JSON:** {"name":"Bob", "email":"bob32@gmail.com"}
ii	Parameters	Specify Key = Value in table field if Checkbox is unchecked. **Note:** If you are using Table for parameters and you need to specify space separated value or special characters in value then provide value in single quote.
7	Get	Fetches parameters from Playbook File Path and YAML File Path. Priority will be given to Playbook File Path if both Playbook File Path and YAML File Path contains YAML file extension. **Note:** Get button will fetch YAML file parameters and show in Parameters table from any of Playbook File Path (on Ansible CLI Machine) or YAML File Path field. If both are given, then priority will be given to Playbook File Path (on Ansible CLI Machine)
8	Wait For Response/Max Execution Timeout	Specify timeout duration in seconds. Default 0. When it is 0 it waits for infinite time until result comes. If greater than 0, then wait for specified timeout seconds.

Privilege Escalation Tab:		
No.	Field Name	Description
	Privilege Escalation (Client Machine)	
1	Use Become	Become another User to execute Playbook. Allowed Values: "Yes", "No". Default value is "No".
2	Become Method	Specify the privilege escalation method to use (default=sudo). Allowed Values: "sudo", "su".
3	Username/ Become Username	Run playbook operations as this user (default=root) Known Issue: If user provides any special sequence of characters which can be used in Ansible commands in Become User field, then workflow is stuck for infinite time.
	Become Password:	

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4	Accept value as variable/ static	Leave checkbox unchecked to accept Become Password from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Become Password field to appear as Text box.
5	Become Password	Specify the Become Password. This field is mandatory. Become Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Become Password field appears as Text box. Else if checkbox above is disabled Become Password field appears as a drop down to select fields from previous steps.
6	Vault Key	Specify the 'Vault ID without label' or the 'location of file'. **Note:** Vault IDs help you encrypt different files with different passwords to be referenced inside a playbook. Vault Key is used when multiple level passwords are used. Refer to the URL: https://docs.ansible.com/ansible/2.8/user_guide/vault.html or https://docs.ansible.com/ansible/latest/user_guide/vault.html
7	Vault Password File Path	Specify the 'Vault Password File Path ' or 'Vault ID Label'. Refer to the URL: https://docs.ansible.com/ansible/2.8/user_guide/vault.html or https://docs.ansible.com/ansible/latest/user_guide/vault.html

Extra Parameter Tab:		
No.	Field Name	Description
	Extra Ansible Parameters:	
1	Get Input Fields	In this pane the field from previous steps are visible.
2	Extra Ansible Arguments	Specify any extra arguments which will be appended to Ansible-Playbook command. like --force-handlers, --flush-cache, -f <FORKS>, -t <TAGS>, --syntax-check, --list-tags, etc. **Note:** You can separate these arguments with a space.
3	Prefix Command With Sudo	Specify whether to prefix ansible-playbook command with **sudo**. Allowed Value: Yes/No. Default is No.

Output Tab:		
No.	Field Name	Description

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1	Response fieldname	Specify the name of the String output field that will contain the text passed to the standard output channel (stdOut) by the specified commands. This information can then be picked up by the step and passed in a field to subsequent steps.
2	Error response field name	The name of the String output field that will contain the text passed to the standard error channel (stdErr) by the specified commands. This information can then be picked up by the step and passed in a field to subsequent steps.

6 BMC Remedy

We have Remedy steps to get, insert and update application data in Remedy.

Prerequisites: Access to a Remedy instance from Process Studio / AE agent machine.

6.1 Get Remedy Record

6.1.1 Description

This Plugin step fetches the record details of Remedy Applications like Incident Management, Service Request Management, Change Management, Problem Management and others based on the criteria provided.

6.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	Specify IP, hostname or fully qualified domain name of Remedy server. This field is mandatory.
3	Port Number	Port Number to access Remedy Server. Port must be positive integer value. This field is mandatory.
4	User Name	The username having permission to login to Remedy Server (Ex: - Allen). This field is mandatory.
	Password:	
5	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.

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6	Password	The Password to the username to authenticate to Remedy. Password is encrypted and not stored in the .psw file. This field is mandatory. If checkbox above is enabled Password field appears as Text box for static values or variables. Else if checkbox above is disabled Password field appears as a combo box to select fields from previous steps.
	Button:	
7	Test Connection	Test connection with username and password provided. Verifies whether the connection is available or not. Server name, Port number, username and password are mandatory. If invalid username and password are provided connection is established as a guest user. **Note:** If the connection fields are provided from previous step, then Test Connection Button does not work. Hence, provide connection fields either as static values or environment variables to test connection with the Test Connection Button the first time. All requisite forms and fields in Input and Output fields will now be populated with the corresponding values. Once input and output field values are populated the connection fields may be replace with previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	This holds the Remedy form name from which the record details will be fetched.
2	Button: Get Forms	Click on this button to get the list of Forms and select one to populate it into the Form Name field. The list of forms visible depends on the access(/role) permissions of the user. Get Record is done on main forms, for e.g. WOI:WorkOrder to get workorder, HPD:HelpDesk to get incident and CHG:Infrastructure to get for change.
3	Criteria Field	Double click on this field to get the list of fields associated with the selected form.

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4	Criteria Value	Specify the valid value for the selected field. If an invalid value is provided then no result record is returned.

Output Tab:		
No.	Field Name	Description
1	Output Fields:	
2	Field Name	The name of the fields to be fetched should be selected. Multiple fields can be selected from the list displayed on click. The selected field's values will be the output parameters of this plugin.
3	Field Value	Specify the name to the output field which holds the value of the fields selected.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

6.2 Insert Remedy Record

6.2.1 Description

The step is used to create records in Remedy Applications like Incident Management, Service Request Management, Change Management, Problem Management and others. Users can insert into any form according to the permissions.

6.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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1	Server Name	Specify IP, hostname or fully qualified domain name of Remedy server. This field is mandatory.
2	Port Number	Port Number to access Remedy Server. Port must be positive integer value. This field is mandatory.
3	User Name	Remedy login username. (Ex: - Allen). This field is mandatory.
	Password:	
4	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	The Password to the username to authenticate to Remedy. Password is encrypted and not stored in the .psw file. This field is mandatory. If checkbox above is enabled Password field appears as Text box for static values or variables. Else if checkbox above is disabled Password field appears as a combo box to select fields from previous steps.
	Button:	
6	Test Connection	Test connection with username and password provided. Verifies whether the connection is available or not. Server name, Port number, username and password are mandatory. If invalid username and password are provided connection is established as a guest user. **Note:** If the connection fields are provided from previous step, then Test Connection Button does not work. Hence, provide connection fields either as static values or environment variables to test connection with the Test Connection Button the first time. All requisite forms and fields in Input and Output fields will now be populated with the corresponding values. Once input and output field values are populated the connection fields may be replace with previous step fields.

Input Tab:		
No.	Field Name	Description
1	Input Fields:	
2	Form Name and Button to Get Forms	Click this button to get a list of Remedy forms. Choose a form from the list to populate the Form Name field. The list of forms visible depends on the access(/role) permissions of the user.

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		Once a form is chosen the Criteria field is enabled. Provide a criteria and its value. By using this plugin, we can insert in any interface form which is available in Remedy. For e.g. if creating an incident, you need to insert record in the form: HPD:IncidentInterface_Create, to create a workorder you need to insert record in the form WOI:WorkOrderInterface_Create and to create change you need to insert record in CHG:ChangeInterface_Create.
3	Field Name	Select form field names from the list. The mandatory field names must be chosen and values provided. Else, the step gives an error listing the mandatory fields to be provided.
4	Field Value	Provide values for the corresponding field name chosen above. (e.g. Status=3 for success and 2 for failure, Description=ResultData and Retry Count=3).

Output Tab:		
No.	Field Name	Description
1	Output Fields:	
2	Field Name	Choose the outputs field of the form.
3	Output Field	The process studio output field name to store the remedy field values.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

6.3 Update Remedy Record

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6.3.1 Description

The step is used to update Remedy Applications like Incident Management, Service Request Management, Change Management, Problem Management and others. For example Remedy Update can be used to close a ticket if resolved.

6.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Server Name	Specify IP, hostname or fully qualified domain name of Remedy server. This field is mandatory.
2	Port Number	Port Number to access Remedy Server. Port must be positive integer value. This field is mandatory.
3	User Name	Remedy login username. (Ex: - Allen). This field is mandatory.
	Password:	
4	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	The Password to the username to authenticate to Remedy. Password is encrypted and not stored in the .psw file. This field is mandatory. If checkbox above is enabled Password field appears as Text box for static values or variables. Else if checkbox above is disabled Password field appears as a combo box to select fields from previous steps.
	Button:	
6	Test Connection	Test connection with username and password provided. Verifies whether the connection is available or not. Server name, Port number, username and password are mandatory. If invalid username and password are provided connection is established as a guest user. **Note:** If the connection fields are provided from previous step, then Test Connection Button does not work. Hence, provide connection fields either as static values or environment variables to test connection with the Test Connection Button the first time.

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		All requisite forms and fields in Input and Output fields will now be populated with the corresponding values. Once input and output field values are populated the connection fields may be replace with previous step fields.

Input Tab:			
No.	Field Name		Description
1	Input Fields:		
2	Form Name and Button to Get Forms		Click this button to get a list of Remedy forms. Choose a form from the list to populate the Form Name field. The list of forms visible depends on the access(/role) permissions of the user. Once a form is chosen the Criteria field is enabled. Provide a criteria and its value. Update is done on main forms, for e.g. WOI:WorkOrder to update workorder, HPD:HelpDesk to update incident, CHG:Infrastructure to update for change.
3	Criteria Field:		Double click to select a field. Provide a value for the selected field.
		Field Name	Select form field names to be updated from the list.
		Field Value	Provide values for the corresponding field name chosen above. (e.g. Status=3 for success and 2 for failure, Description=ResultData and Retry Count=3).

Output Tab:		
No.	Field Name	Description
1	Output Fields:	
2	Field Name	Choose the outputs field of the form.
3	Field Value	The process studio output field name to store the remedy field values.

Common Buttons:		
No.	Field Name	Description

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	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

7 BMC Remedy (REST)

We have BMC Remedy (REST) steps to search, insert, update and delete application data in Remedy as well as upload and download attachments to specified fields of a record in Remedy Applications.

Prerequisites: Remedy instance and access details.

AE Compatibility: AutomationEdge 5.X.X

Developed with: BMC Remedy 9.1.0

7.1 Remedy (REST): Delete Record

7.1.1 Description

Remedy (REST): Delete Record plugin step deletes a single record on Remedy Server Applications on a specified form name with field value criterion for deletion.

The step is used to delete records in Remedy Applications like Incident Management, Change Management, Problem Management, People Management and others. For example Remedy Delete can be used to delete a people record.

7.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	AE Server Base URL	Base URL of Remedy server (e.g. http://Server Name or IP:port where Port is the Remedy REST API port). The default REST API port is 8008. This field is mandatory.

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2	Username	Specify a username in the Remedy instance having permissions to authenticate and to delete Record on the Remedy server. This field is mandatory.
	Password:	
3	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	Password	Specify the password of the user to authenticate to Remedy Server. Password is encrypted and not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
5	Test Connection	Test connection based on AE Server Base URL, Port number, username and password. All these fields are mandatory. Test connection button verifies whether the connection is available or not. **Note:** If the connection fields are provided from previous step, then Test Connection Button does not work.

Input Tab:		
No.	Field Name	Description
1	Input Fields:	
2	Form Name	Double Click this field to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field. Form Name has to be chosen from the Form Explorer window. It will not work for the previous step fields; however Static Values can be provided (e.g. CTM:People, HPD:Help Desk, PBM:Problem Investigation, CHG:Infrastructure Change etc. Users can Delete records from any form according to the permissions.). Once a form is chosen the Criteria field is enabled. Provide a criteria and its value.

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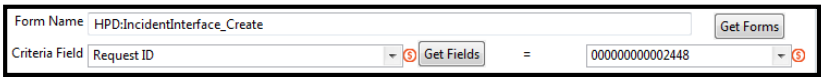
3	Button: Get Forms	Click this button to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field.
4	Criteria Field	Double click this field to open the Field Explorer window. Select form field names to set Criteria Field. Criteria Field has to be chosen from the Field Explorer window. It will not work for the previous step fields, Static Values and Environment Variables can also be provided.
5	Button: Get Fields	Click this button to open the Field Explorer window. Select a Criteria form field from the list.
6	Criteria Field Value	Provide a value for the Criteria Field chosen above. For e.g. to delete an incident record in form HPD:IncidentInterface_Create with criteria field RequestID you may provide the Criteria Field Value XXX, where XXX is an existing Request ID as shown below.  However, make sure all the required fields are available in the record for deletion. (For e.g. in case of CTM:People Status should be Delete and Site is required before deletion operation can be carried out).

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Delete Record Id	Specify an output field to hold the result of the step execution that is the Record Id deleted.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message.

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		If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

7.2 Remedy (REST): Download Attachment

7.2.1 Description

Remedy (REST): Download Attachment plugin step downloads all attachments of the specified Remedy record, on a Remedy Server.

The step is used to download attachments from Remedy Applications like Incident Management, Change Management, Problem Management, People Management and others. For example Remedy Download Attachment can be used to download attachments in a work log.

7.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	AE Server Base URL	Base URL of Remedy server (e.g. http://Server Name or IP:port where Port is the Remedy REST API port). The default REST API port is 8008. This field is mandatory.
3	User Name	Specify a username (Ex: - Allen) in the Remedy instance having permissions to authenticate and download attachemnts of a Record on the Remedy server Applications. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Specify the password of the user to authenticate to Remedy Server. Password is encrypted and not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

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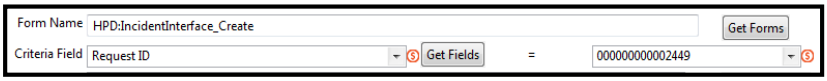
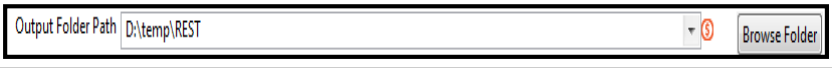
	Button:	
6	Test Connection	Test connection based on AE Server Base URL, Port number, username and password. All these fields are mandatory. Test connection button verifies whether the connection is available or not. **Note:** If the connection fields are provided from previous step, then Test Connection Button does not work.
Input Tab:		
No.	Field Name	Description
1	Input Fields:	
2	Form Name	Double Click this field to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field. Form Name has to be chosen from the Form Explorer window. It will not work for the previous step fields; however Static Values can be provided (e.g. HPD:WorkLog, PBM:Investigation WorkLog, CHG:WorkLog etc. Users can download attachments from any form records according to the permissions.). Once a form is chosen the Criteria field is enabled. Provide a criteria and its value.
3	Button: Get Forms	Click this button to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field.
4	Criteria Field	Double click this field to open the Field Explorer window. Select form field names to set Criteria Field. Criteria Field has to be chosen from the Field Explorer window. It will not work for the previous step fields; however Static Values and Environment Variables can be provided.
5	Button: Get Fields	Click this button to open the Field Explorer window. Select a Criteria form field from the list.
6	Criteria Field Value	Provide a value for the Criteria Field chosen above. 
7	Output Folder Path	Provide the absolute directory path where the attachments need to be downloaded. 
8	Browse Folder	Click to browse the absolute path of the desired target output folder path.

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9	Delete Output Folder Contents before Downloading	Allowed values: Yes or No If given “Yes” then the contents of the target Output folder path will be deleted.
10	Add DateTimeStamp for Duplicate Files	Allowed values: Yes or No If given “Yes” then the new file will be appended with the Date Timestamp in the filename.
11	Add File To Result	Allowed values: Yes or No. If given “Yes”, After execution the link to download the file will be visible on Automation Edge portal.
Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Total Files	Specify an output fieldname to hold the total number of files available on the record.
2	Downloaded Files	Specify an output fieldname to hold the total number of successfully downloaded files.
3	Overwritten Files	Specify an output fieldname to hold the total number of replaced/overwritten files.
Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

7.3 Remedy (REST): Input

7.3.1 Description

Remedy (REST): Input plugin step gets the records of a form with specified criteria on a Remedy server instance.

The step is used to search Remedy Applications like Incident Management, Change Management, Problem Management, People Management and others. For example Remedy Input can be used to query open incidents etc.

7.3.2 Configurations

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	AE Server Base URL	Base URL of Remedy server (e.g. http://Server Name or IP:port where Port is the Remedy REST API port). The default REST API port is 8008. This field is mandatory.
3	User Name	Specify a username (Ex: - Allen) in the Remedy instance having permissions to authenticate and to search Record on Remedy server. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Specify the password of the user to authenticate to Remedy Server. Password is encrypted and not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
6	Button: Test Connection	Test connection based on AE Server Base URL, Port number, username and password. All these fields are mandatory. Test connection button verifies whether the connection is available or not. **Note:** If the connection fields are provided from previous step, then Test Connection Button does not work.
Input Tab:		
No.	Field Name	Description
1	Input Fields:	
2	Form Name	Double Click this field to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field. Form Name has to be chosen from the Form Explorer window. It will not work for the previous step fields; however Static Values can be provided. The form name is

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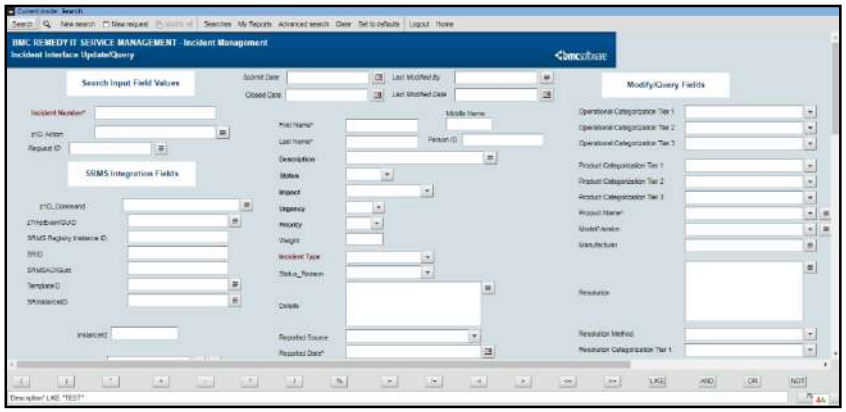
		validated on remedy server. (e.g. CTM:People, HPD:IncidentInterface, PBM:ProblemInterface, CHG:ChangeInterface etc. Users can perform a Search on any form according to the permissions.) Once a form is chosen the Criteria field is enabled. Provide a criteria and its value.
3	Button: Get Forms	Click this button to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field.
4	Criteria Query	Provide criteria for the search. Records present on the Remedy server will be fetched as per the provided criteria query. e.g. on CTM:People there could be a criteria query :- 'First Name'="test3" AND 'Last Name'="sk" e.g. on HPD:IncidentInterface there could be a criteria query:- 'First_Name'="test3" Query Criteria in BMC Remedy can be built by navigating to the Advanced Search on the form on which search is being conducted. The following is a screenshot of HPD:IncidentInteface in Advanced search. On the bottom row you can see the operators that can be used in Criteria Query.  On the bottom Right you may click the Fields button. You have the options to select Fields, Selection Values (List of Values), Keywords and currency as part of query building.

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		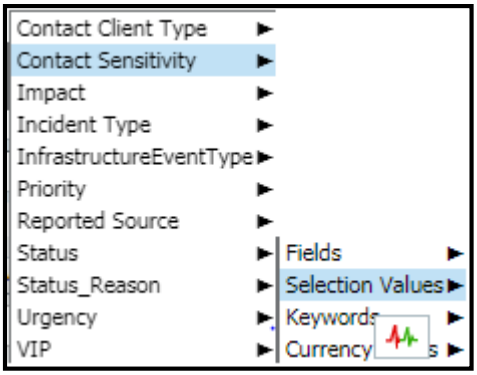 Query built in BMC Remedy forms can be used in Criteria Query field of this plugin. However, make modifications as follows. Please **Note:** that elements on the left of the operator should be in single quotes and elements on the right should be in double quotes. Any * associated with mandatory fields should be removed before using the Remedy Query in the Criteria Query field.
5	Fetch Records Batch Size	Specify a batch size to fetch records. The default value is 10. Input step will give the output depending on the criteria query on the specified form. By this provision it will fetch the records in the provided batches.
Output Tab:		
No.	Field Name	Description
1	Output Fields:	
2	Field Name	On double click in output table, fields associated with the form name will populate. The name of the fields to be fetched should be selected. Multiple fields can be selected from the list displayed on click. The selected field's values will be the output parameters of this plugin. Validation: The plugin validates field names from remedy server.
3	Field Value	Specify the name to the output field which holds the value of the fields selected.
Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message.

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		If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

7.4 Remedy (REST): Insert Record

7.4.1 Description

Remedy (REST): Insert Record plugin step creates a new record on the provided form name by inserting the field values provided on the specified Remedy Server instance.

The step is used to insert records in Remedy Applications like Incident Management, Change Management, Problem Management, People Management and others. For example Remedy Insert can be used to create an incident.

7.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	AE Server Base URL	Base URL of Remedy server (e.g. **Error! Hyperlink reference not valid.** where Port is the Remedy REST API port). The default REST API port is 8008. This field is mandatory.
3	User Name	Specify a username (Ex: - Allen) in the Remedy instance having permissions to authenticate and to search Record on Remedy server. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Specify the password of the user to authenticate to Remedy Server. Password is encrypted and not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

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6	Button: Test Connection	Test connection based on AE Server Base URL, Port number, username and password. All these fields are mandatory. Test connection button verifies whether the connection is available or not. **Note:** If the connection fields are provided from previous step, then Test Connection Button does not work.
Input Tab:		
No.	Field Name	Description
1	Input Fields:	
2	Form Name	Double Click this field to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field. Form Name has to be chosen from the Form Explorer window. It will not work for the previous step fields; however Static Values can be provided. (e.g. HPD: IncidentInterface_Create, PBM: ProblemInterface_Create, CHG: ChangeInterface_Create, CTM: People etc. Users can insert into any form according to the permissions.)
3	Button: Get Forms	Click this button to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field.
5	Accept Fields as JSON	Enable checkbox to accept field names as JSON input.
6	JSON	If 'Accept Fields as JSON' checkbox is enabled this field is activated. Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (") enclosure. Provide all the required or mandatory fields as well as other fields to be inserted as keys in the JSON. **Note:** The JSON could be from any input step such as Generate rows, Text File input, Excel Input et al. In Remedy REST steps JSON text can only be accepted from input fields from previous steps and not as files directly. Sample JSON text for inserting a single Knowledge Article record: Following is a sample JSON for inserting a record in Knowledge Article form. This JSON text has five key-value pairs denoting fields and their values to populate five fields. In this Cherwell instance Service and Title are mandatory for Knowledge Article Business Object. **Note:** Lookup field values must exactly match existing values in the Cherwell instance. Sample JSON text for inserting an Incident record:

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		Following is a sample JSON for inserting a record in Incident form. This JSON text has eight key-value pairs denoting fields and their values to populate eight fields. Lookup field values must exactly match existing values in the Remedy instance. In this Remedy instance for Incident creation, First_Name, Last_Name, Service Type, Status, Impact, Urgency, Description and Reported Source are mandatory. e.g. on HPD:IncidentInterface there could be JSON field as shown below where field JSON_Inc is coming from the input stream such as a field in Generate Rows, CSV etc. Sample value of JSON_Inc: {"Description":"Test_Incident_25072019","Impact":"2-Significant/Large","Urgency":"2-High","Service_Type":"User Service Request","First_Name":"Taufeek","Last_Name":"Kureshi","Status":"New","Reported Source":"Direct Input"} Sample JSON text for inserting a People record: Following is a sample JSON for inserting a record in People form. This JSON text has five key-value pairs denoting fields and their values to populate five fields. Lookup field values must exactly match existing values in the Remedy instance. In this Remedy instance for People, Company, Last Name, First Name, Client Type, Phone Number Business are mandatory. e.g. on CTM:People there could be JSON field as shown below, where field JSON1 is coming from the input stream such as a field in Generate Rows, CSV etc. Sample value of JSON1: {"First Name":"Thomas","Last Name":"Astebro","Client Type":"Office-Based Employee","Company":"Calbro Services","Phone Number Business":"9999999999"}
	Table Fields:	
7	Variable Field Name	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable.
8	Static Field Name	On click of this column field, it opens a dialog with the list of available form fields of the provided Form Name. The name of the fields to be inserted should be selected. Multiple fields can be selected from the list displayed on click. The selected field's values below will be inserted in the record. Validation: The plugin validates field names from remedy server.

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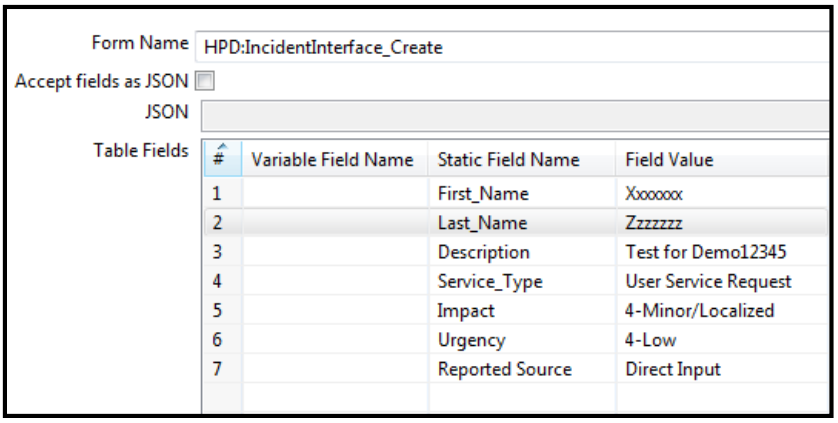
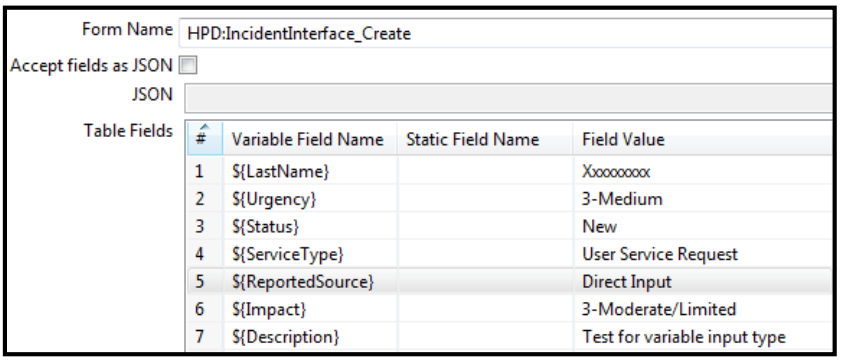
9	Field Value	Provide field values to be inserted in the corresponding chosen fields. Following, is a sample snapshot of input tab with Table Fields with Static Field Name.  Following, is a sample snapshot of input tab with Table Fields with Variable Field Name. 

Form Name: HPD:IncidentInterface_Create
Accept fields as JSON:
JSON:
Table Fields:

#	Variable Field Name	Static Field Name	Field Value
1		First_Name	Xxxxxxx
2		Last_Name	Zzzzzzz
3		Description	Test for Demo12345
4		Service_Type	User Service Request
5		Impact	4-Minor/Localized
6		Urgency	4-Low
7		Reported Source	Direct Input

Form Name: HPD:IncidentInterface_Create
Accept fields as JSON:
JSON:
Table Fields:

#	Variable Field Name	Static Field Name	Field Value
1	${LastName}		Xxxxxxxxx
2	${Urgency}		3-Medium
3	${Status}		New
4	${ServiceType}		User Service Request
5	${ReportedSource}		Direct Input
6	${Impact}		3-Moderate/Limited
7	${Description}		Test for variable input type

Output Tab:

No.	Field Name	Description
	Output Fields:	
1	Record Location	Specify an output field to hold the location value of the record.
2	Generated Requested ID	Specify an output field to hold the Generated Request ID of the inserted record.

Common Buttons:

No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

7.5 Remedy (REST): Update Record

7.5.1 Description

Remedy (REST): Update Record plugin step updates a single record in the sprcified form name with field values provided on a Remedy Server instance.

The step is used to update Remedy Applications like Incident Management, Change Management, Problem Management, People Management and others. For example, Remedy Update Record can be used to close a ticket if resolved.

7.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	AE Server Base URL	Base URL of Remedy server (e.g. e.g. http://Server Name or IP:port**.** where Port is the Remedy REST API port). The default REST API port is 8008. This field is mandatory.
3	User Name	The username having permission to login to Remedy Server (Ex: - Allen). This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Specify the password of the user to authenticate to Remedy Server. Password is encrypted and not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
6	Test Connection	Test connection based on AE Server Base URL, Port number, username and password. All these fields are mandatory. Test connection button verifies whether the connection is available or not. **Note:** If the connection fields are provided from previous step, then Test Connection Button does not work.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	Double Click this field to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field. Form Name can be chosen from the Form Explorer window. It will not work for the previous step fields; however Static Values and Environment Variables can be provided (e.g. CTM:People, HPD:IncidentInterface, PBM:ProblemInterface, CHG:ChangeInterface etc. Users can update records on any form according to the permissions).
2	Button: Get Forms	Click this button to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field.
3	Criteria Field	Double click this field to open the Field Explorer window. Select form field names to set Criteria Field. Criteria Field has to be chosen from the Field Explorer window. It will not work for the previous step fields; however Static Values and Environment Variables can also be provided.
4	Button: Get Fields	Click this button to open the Field Explorer window. Select a Criteria form field from the list.
5	Criteria Field Value	Provide a value for the Criteria Field chosen above.
6	Accept Fields as JSON	Enable checkbox to accept field names as JSON input.
7	JSON	If ‘Accept Fields as JSON’ checkbox is enabled this field is activated. Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (“)

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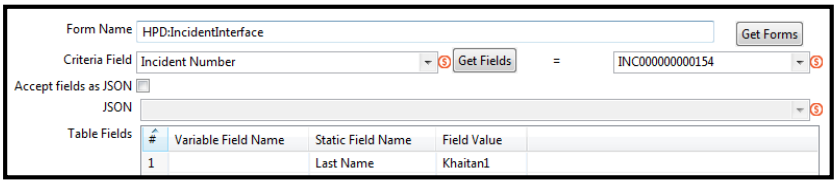
		enclosure. Provide all the required or mandatory fields as well as other fields to be inserted as as keys in the JSON. **Note:** The JSON could be from any input step such as Generate rows, Text File input, Excel Input etc. In Remedy (REST) steps JSON text can only be accepted from input fields from previous steps and not as files directly. Sample JSON text for updating an Incident record: Following is a sample JSON for updating a record in Incident form. Provide key-value pairs in the JSON text denoting the fields to be updated and the new values for the record. **Note:** Lookup field values must exactly match existing values in the Remedy instance. For e.g. if Last_Name is to be updated in HPD:IncidentInterface create a JSON field with value: {"Last Name":"Khaitan"}
	Table Fields:	
8	Variable Field Name	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable.
9	Static Field Name	On click of this column field, it opens a dialog with the list of available form fields of the provided Form Name. The name of the fields to be inserted should be selected. Multiple fields can be selected from the list displayed on click. The selected field's values below will be inserted in the form.
10	Field Value	Provide field values to be inserted in the corresponding chosen fields. Following, is a sample snapshot of input tab with Table fields populated. Following, is a sample snapshot of input tab with Table Fields with Static Field Name. You may also provide variables in Variable Field Name instead of Static Field Name. 

Output Tab:

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No.	Field Name	Description
	Output Fields:	
1	Updated Record Id	Specify an output field to hold the Record Id of the updated record as a result of the step execution.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

7.6 Remedy (REST): Upload Attachment

7.6.1 Description

Remedy (REST): Upload Attachment plugin step uploads an attachment to specified form and record in a Remedy Server instance.

The step is used to upload attachments to records of Remedy Applications like Incident Management, Change Management, Problem Management and others. Users can upload attachments to records of any form according to the permissions and provision in the form for attachments.

7.6.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	AE Server Base URL	Base URL of Remedy server (e.g. http://Server Name or IP:port where Port is the Remedy REST API port). The default REST API port is 8008. This field is mandatory.
	User Name	The username having permission to login to Remedy Server and upload an attachment (e.g - Allen). This field is mandatory.
	Password:	

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4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Specify the password of the user to authenticate to Remedy Server. Password is encrypted and not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
4	Test Connection	Test connection based on AE Server Base URL, Port number, username and password. All these fields are mandatory. Test connection button verifies whether the connection is available or not. **Note:** If the connection fields are provided from previous step, then Test Connection Button does not work.

Input Tab:		
No.	Field Name	Description
1	Input Fields:	
2	Form Name	Double Click this field to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field. Form Name can be chosen from the Form Explorer window. It will not work for the previous step fields; however Static Values and Environment Variables can be provided (e.g HPD:WorkLog, PBM:Investigation WorkLog, CHG:WorkLog etc. Users can upload attachments to records of any form according to the permissions.).
3	Button: Get Forms	Click this button to open a Form Explorer window with a list of Remedy forms. Choose a form from the list to populate the Form Name field.
4	Criteria Field	Double click this field to open the Field Explorer window. Select form field names to set Criteria Field.

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		Criteria Field has to be chosen from the Field Explorer window. It does not work for the previous step fields; however Static Values can be provided.
5	Button: Get Fields	Click this button to open the Field Explorer window. Select a Criteria form field from the list.
6	Criteria Field Value	Provide a valid value for the Criteria Field chosen above.
7	Attachment Field Name	On double click of this field, if connection is successfully established populates list of attachment fields/placeholders names associated with the Form name on the Remedy Server.
8	Get	On click of this button, if connection is successfully established , it populates list of attachment field's name on the Remedy Server
9	Input File Path	The absolute file path has to be given where the attachment has to be stored.
10	Browse File	Click to get absolute path of desired target file.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Attachment Uploaded to Record	Specify an output field to hold the Record Id of record to which an attachment has been uploaded as a result of step execution.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

8 CAPTCHA

CAPTCHA Plugin resolves CAPTCHA using 'Death By Captcha' service. 'Death By Captcha' may be referred to as DBC at times in this document.

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Sometimes CAPTCHA may not get resolved, this may be due to incorrect response from ‘Death By Captcha’ service. If you observe such issue frequently, then please contact ‘Death By Captcha’ support.

8.1 DBC: Image

8.1.1 Description

DBC: Image is a step in the Utilty Plugin. DBC: Image workflow step retrieves the text from a word CAPTCHA image. It uses ‘Death By Captcha’ (DBC) REST APIs to resolve CAPTCHA text. User needs to have DBC: Image account in order to use their services. The DBC REST API base URL is http://api.dbcapi.me/api/captcha.

8.1.2 Description

General Tab:		
No.	Field Name	Description
	DBC Account Details:	
1	URL	Specify the REST API http URL of your DBC account (http://api.dbcapi.me/api/captcha).
2	Username	Specify the username of your DBC account.
3	Password	Specify the password.
	Input:	
1	Captcha image filepath	CAPTCHA image file path. The data type is String. This field is mandatory.
2	Button: Browse	Click Browse button to select CAPTCHA image file. The supported image formats are JPG, PNG, GIF and BMP.
	Retry if DBC Service is Temporarily Unavailable:	
3	Retry Count	Specify Number of times the server is expected to retry if the DBC service is temporarily unavailable. The data type is integer. The default value of Retry Count is 5. **Note:** When the DBC service is temporarily unavailable, the value in the 'Retry Count' field specifies the number of times the server should retry uploading the image and calling the API after every specified interval in seconds.
4	Retry Interval in Seconds	Specify a Retry time interval (in seconds) between every retry attempt (Polling repeat interval) in case DBC server is temporarily unavailable or CAPTCHA is not resolved. The data type is integer. The default value is 2.

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		Note: If at first attempt, the API fails to retrieve the CAPTCHA text i.e. the result returned by the API is blank, it will internally retry polling for maximum of 10 times after every specified interval in seconds until it gets the CAPTCHA text.
	Output:	
1	Captcha Output	Output field to hold the resolved CAPTCHA text.

List of Validations:

Sr. No.	Validation
1	CAPTCHA image file should be of one of the supported formats i.e. JPG, PNG, GIF and BMP
2	CAPTCHA image file size is limited to less than 180 KB
4	Minimum Retry Interval should not be less than 2 seconds.
5	Execution should fail if CAPTCHA is not yet resolved after polling 10 times with specified Interval in Seconds

8.2 DBC: reCAPTCHA v2 Checkbox

8.2.1 Description

DBC: reCAPTCHA v2 Checkbox step, gets the token to solve reCAPTCHA v2 Checkbox.

References:

- How to use token to solve reCAPTCHA https://www.deathbycaptcha.com/user/api/newtokenrecaptcha

Note:s:

- To solve reCAPTCHA pass the Token Text received in response, to an Inject JavaScript step to complete action of handling the output Token to process reCAPTCHA.

8.2.2 Description

General Tab:		
No.	Field Name	Description
	DBC Account Details:	
1	URL	Specify the REST API http URL of your DBC account 'Death By Captcha' API URL (http://api.dbcapi.me/api/captcha). The URL is defined in the field and is non-editable.
2	Username	Specify the username of your DBC account.

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	Password:	
3	Accept value as variable/static	Enable checkbox for Password field to appear as Text box. Else, leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list.
4	Password	Specify the password of the DBC account. If checkbox above is enabled Password field appears as Text box to enter password. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is String. This field is mandatory.

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Page URL	Specify URL of the page on which the re CAPTCHA with Checkbox is to be resolved. The data type of the field is String. This field is mandatory.
2	Site Key	Site Key is a web-based security system, which provides a type of mutual authentication between end-users and websites. Its primary purpose is to deter phishing. The data type of the field is String. This field is mandatory. Fetch data-sitekey or sitekey from page source (by right clicking on web page and click to view page source).
	Retry if DBC Service is temporarily unavailable:	
3	Max Retry Count	Max Retry Count is used for- • When the DBC service is temporarily unavailable • When API fails to retrieve the output i.e token text If the value is not provided or less than 10, then it will retry for maximum 10 times internally. The data type of the field is Integer. This field is optional. The default value is 10.
4	Retry Interval (seconds)	Time interval (in seconds) between every retry attempt (Polling repeat interval). If value is not provided, default value 2 is considered. Minimum Retry Interval should not be less than 2 seconds. The data type of the field is integer. This field is optional.

Output Tab

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No.	Field Name	Description
	Token Text:	
1	Token Text	Specify an output field to hold the retrieved token text on successful plugin execution. Default label value for this field is “TokenText”. **Steps to handle Token Text to resolve reCAPTCHA with Checkbox:** • In the following JavaScript code substitute <'Paste String here'> with the Token Text, document.getElementById('g-recaptcha-response').innerHTML=<'Paste String here'>; document.forms[0].submit(); **Manual Steps:** • You need to right click on Page URL and click Inspect. • On the Inspect page navigate to the Console tab and paste this code and Enter. This enables the CAPTCHA checkbox. However, this is a manual activity. Hence you may create a workflow to automate this activity as mentioned in the next point. **Automation:** • After the reCAPTCHA v2 Checkbox step in the workflow you may put, ○ A single Plugin step→ Inject Java Script. with the above JavaScript in an Inject JavaScript step or else, ○ A combination of RPA Plugin steps to right click and inspect the page→ set the JavaScript code above as a variable in Modified Java Script step →Web Set Value on console and → Press Enter with Robot Handling step.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

8.3 DBC: reCAPTCHA v3

8.3.1 Description

DBC: reCAPTCHA v3 step gets the token to solve reCAPTCHA v3.

Note:s:

- How to use token to solve reCAPTCHA https://www.deathbycaptcha.com/user/api/newtokenrecaptcha
- To solve reCAPTCHA using plugin step pass the Token Text received in response to - Inject JavaScript step and complete action.

8.3.2 Description

General Tab:		
No.	Field Name	Description
	DBC Account Details:	
1	URL	'Death By Captcha' API URL (http://api.dbcapi.me/api/captcha). The URL is defined in the field and the value is non- editable.
2	Username	Specify the username of your DBC account.
	Password:	
3	Accept value as variable/static	Enable checkbox for Password field to appear as Text box. Else, leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list.
4	Password	Specify the password. If checkbox above is enabled Password field appears as Text box to enter password. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. This field is mandatory.

Input Tab		
No.	Field Name	Description

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	Input Fields:	
1	Page URL	Specify URL of the page on which the reCAPTCHA is to be resolved. The data type of the field is String. This field is mandatory.
2	Site Key	Site Key is a web-based security system, which provides a type of mutual authentication between end-users and websites. Its primary purpose is to deter phishing. The data type of the field is String. This field is mandatory. Fetch data-sitekey or sitekey from page source (right clicking on web page and click to view page source).
3	Action	The action parameter at reCAPTCHA v3 is additional data used to separate different CAPTCHA validations like login, register, sales, etc. The data type of the field is String. This field is mandatory. Action value can be obtained from page source. It is the Action associated with the data-sitekey/sitekey
4	Min. Score	The minimal score needed for the CAPTCHA resolution. We recommend using the 0.3 min-score value, scores higher than 0.3 are hard to get. The data type of the field is String. This field is mandatory.
	Retry if DBC Service is temporarily unavailable:	
3	Max Retry Count	Max Retry Count is used for- • When the DBC service is temporarily unavailable • When API fails to retrieve the output i.e token text If the value is not provided or less than 10, then it will retry for maximum 10 times internally. The data type of the field is Integer. This field is optional. The default value is 10.
4	Retry Interval (seconds)	Time interval (in seconds) between every retry attempt (Polling repeat interval). If value is not provided, default value '2' will be considered. The data type of the field is integer. This field is optional. The default value is 2. Minimum Retry Interval should not be less than 2 seconds.

Output Tab		
No.	Field Name	Description
	Token Text:	

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1	Token Text	Specify an output field to hold the retrieved token text on successful plugin execution. Default label value for this field is “TokenText”. **Steps to handle Token Text to resolve reCAPTCHA:** • In the following JavaScript code substitute <'Paste String here'> with the Token Text, document.getElementById('g-recaptcha-response').innerHTML=<'Paste String here'>; document.forms[0].submit(); **Manual Steps:** • You need to right click on Page URL and click Inspect. • On the Inspect page navigate to the Console tab and paste this code and Enter. This enables the CAPTCHA checkbox. However, this is a manual activity. Hence you may create a workflow to automate this activity as mentioned in the next point. **Automation:** • After the reCAPTCHA v3 step in the workflow you may put, o A single Plugin step→ Inject Java Script, with the above JavaScript in an Inject JavaScript step or else, o A combination of RPA Plugin steps to right click and inspect the page→ set the JavaScript code above as a variable in Modified Java Script step →Web Set Value on console and → perform Action specified in the Input Tab.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

9 Cherwell

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Cherwell plugin has several steps for operations on Cherwell.

Compatibilitry: Cherwell plugin steps have been tested on Cherwell Version 9.4

Prerequisites:

- Services of the Cherwell Server must be up and running.
- Access Cherwell instance using REST APIs from Process Studio/AE agent machine.
- Cherwell Server settings:

  When Cherwell REST APIs are called simultaneously, due to multiple requests with the same username, password and api key, the API starts giving 'invalid_grant: badrequest' error.

  To handle this error, add highlighted line in the web.conig file of CherwellAPI.

```
<appSettings>
<add key="DisableMessageThrottling" value="true" />
<add key="TrebuchetDataSource" value="[Common]Cherwell Browser" />
<add key="SamlBaseUri" value="your web api base uri(https://domain/CherwellApi" />
</appSettings>
```

Error Message Display Properties when run with Process Studio:

i. All the validation messages are displayed as pop up and runtime error messages are recorded in the logging tab.
ii. The pop up box is configured to be displayed as Message Box not as Error Dialog box.
iii. The error messages at runtime are displayed in the logging tab of Process Studio in red color.
iv. For Successful validation the Message Box title is "Success" and the result message in the body.
v. For Failed validation message the Message Box title is "Failure" and the failed message is in the body.
vi. The plugin throws error at run time if invalid query is provided.

9.1 Cherwell: Delete Record

9.1.1 Description

Cherwell Delete Record step is used to delete records in Cherwell Business Objects (Forms) (For example close an incident if it is resolved or to keep a ticket open if not resolved yet).

9.1.2 Configurations

Connection:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
2	URL	Base URL of Cherwell. This field is mandatory.

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3	User Name	Cherwell username. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Provide the Cherwell Password for the user. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
6	Client ID	Provide a Cherwell Client ID. Client ID is used to communicate to Cherwell instance. This field is mandatory. **Note:** CSM Administrator (Orange client) and CSM client (Blue client) tools can be installed for administration and development purposes. Generate a Cherwell client ID from Orange Client using the navigation, CSM Administrator tool→Security → REST API clients.
7	Button: Test Connection	Verifies whether the connection is available or not. Base URL, Username, Password, Client ID fields are mandatory. If no values are provided or some values are missing, then it will display the validation error message. **Note:** For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Fields:		
No.	Field Name	Description
1	Form Name	Specify the Cherwell form name/Business Object from which the record details will be fetched. This field is mandatory.

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2	Button: Get Forms	On click of this button, it populates the forms of the connected Cherwell Server depending on Access/Permissions of the user. If any required field values are missing, then it will display validation error message. Select a form to populate it into the Form Name field.
3	Business Object Public ID/RecID	Cherwell Business Object PublicID/RecID. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

Result:
There is no explicit output Result field in this plugin. Plugin results weather success or error can be captured using Set Workflow Result. Errors can be captured in error handling as discussed in Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.

9.2 Cherwell: Download Attachment

9.2.1 Description

Cherwell Download Attachment step is used to download attachments from Cherwell Business Objects (Forms) on a provided Business Object Rec ID or Public ID. (For example close an incident if it is resolved or to keep a ticket open if not resolved yet).

9.2.2 Configurations

Connection:		
No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
2	URL	Specify URL to access Cherwell. This field is mandatory.
3	User Name	Cherwell username. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Provide the Cherwell Password for the user. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
6	Client ID	Provide a Cherwell Client ID. Client ID is used to communicate to Cherwell instance. This field is mandatory. **Note:** CSM Administrator (Orange client) and CSM client (Blue client) tools can be installed for administration and development purposes. Generate a Cherwell client ID from Orange Client using the navigation, CSM Administrator tool→Security → REST API clients.
7	Button: Test Connection	Verifies whether the connection is available or not. Base URL, Username, Password, Client ID fields are mandatory. If no values are provided or some values are missing, then it will display the validation error message. **Note:** For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Fields:		
No.	Field Name	Description
1	Form Name	This holds the Cherwell form name from which the record details will be fetched. This field is mandatory.

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2	Button: Get Forms	On click of this button, it populates the forms of connected Cherwell Server depending on Access/Permissions of the user. If any required field values are missing, then it will display validation error message. Select a form to populate it into the Form Name field.
3	Business Object Public ID/RecID	Cherwell Business Object PublicID/RecID. This field is mandatory.
4	Output Folder Path	Specify a folder path where files are to be downloaded or browse for a folder using the Browse File… button. Alternatively, when the folder path is coming from an input stream, you may select the field containing the folder path from the drop down list
5	Button: Browse Folder	This is the button to browse for a folder to download to a Cherwell Business Object file.
6	Delete Output Folder Contents before downloading	Allowed values: 'Yes', 'No'. Specify Yes to delete output folder contents before downloading else Specify No.
7	Add Date TimeStamp for Duplicate Files	Allowed values: 'Yes', 'No'. Specify Yes to add Date TimeStamp for Duplicate Files.
8	Add File To Result	Allowed values: 'Yes', 'No'. Specify Yes to add file to result set and display download link on AE otherwise else select No.
Output Tab:		
No.	Field Name	Description
1	Total Files	Specify a field name to store the total number of files in the Cherwell Business Object. This field is mandatory.
2	Downloaded Files	Specify a field name to store the number of Downloaded Files. This field is mandatory.
3	Overwritten Files	Specify a field name to store the number of Overwritten Files in the output folder. This field is mandatory.

Result:
There is no explicit output Result field in this plugin. Plugin results weather success or error can be captured using Set Workflow Result. Errors can be captured in error handling as discussed in Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

9.3 Cherwell: Input

9.3.1 Description

Cherwell input step gets Cherwell records based on the form name and query criteria provided. It returns the form field values for fields specified in the output Field Name.

9.3.2 Configurations

Connection:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
2	URL	Specify URL to access Cherwell. This field is mandatory.
3	Username	Cherwell username. This field is mandatory.
4	Password	Provide the Cherwell Password for the user. Password field value is encrypted (*****) and also stored in encrypted format in the psw file. This field is mandatory.
5	Client ID	Provide a Cherwell Client ID. Client ID is used to communicate to Cherwell instance. This field is mandatory. **Note:** CSM Administrator (Orange client) and CSM client (Blue client) tools can be installed for administration and development purposes. Generate a Cherwell client ID from Orange Client using the navigation, CSM Administrator tool→Security → REST API clients.
6	Button: Test Connection	Verifies whether the connection is available or not.

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		URL, Username, Password, Client ID fields are mandatory. If no values are provided or some values are missing, then it will display the validation error message. **Note:** For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Fields:		
No.	Field Name	Description
1	Form Name	This holds the Cherwell Form/Business Object/ for which the record details will be fetched. This field is mandatory.
2	Button: Get Forms	On click of this button, it populates the forms of connected Cherwell Server depending on Access/Permissions of the user. If any required field values are missing, then it will display validation error message. Select a form to populate it into the Form Name field.

3	Criteria Query	Specify the criteria query in json format.
		Following, is a sample json with two conditions. The first condition is 'Status' equals (eq) 'Assigned' and the second statement is 'Created Date Time' later than(lt) '6/20/2016 8:59:17 PM'.
		[
		{
		"displayName": "Status","operator": "eq","value": "Assigned"
		},
		{
		"displayName": "Created Date Time","operator": "lt","value": "6/20/2016 8:59:17 PM"
		}
		]
		This criteria query will filter rows fulfilling the two conditions below.

4	Fetch Records Batch Size	Default Records Batch Size is 10. Specify the batch size to fetch records. These fetched records in the batch are then available to the next step in workflow while the next batch is being fetched in this step. Thus, parallel execution of records is achieved. This should be a positive number.
5	Get Top N Records	Specify the number of latest records to be fetched.

Output Fields:

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No.	Field Name	Description
	Output Fields:	
1	Field Name	The name of the fields fetched from the business object as per Criteria Query. On click of this column field, it will open a dialog with the list of available form fields of the provided Business Object Name.
2	Output Field	Specify an output field name for containing Cherwell field values.
3	Get HTML	Select Yes/No from the Drop down list. If a field in a Business object accepts Rich Text Format (RTF) input (Text and images) then such input is stored in HTML format internally. To fetch the stored content in RTF (in html format) you may select Yes. If Yes is selected for fields that do not have RTF input, it returns null. Some examples of business object fields accepting RTF input are, Incident: Description, Change: Description, Problem: Description, Knowledge Article: Body Text.
Result:		
There is no explicit output Result field in this plugin. Plugin results weather success or error can be captured using Set Workflow Result. Errors can be captured in error handling as discussed in Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.		

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

9.4 Cherwell: Insert Record

9.4.1 Description

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Cherwell Insert record step is used to create a record in a particular Cherwell Business Object (Form). It creates a new record with for the provided form name and field values on specified Cherwell Server. It returns the Public ID/RecID and Result as output.

9.4.2 Configurations

Connection:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
2	URL	Specify URL to access Cherwell. This field is mandatory.
3	User Name	Cherwell username. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Provide the Cherwell Password for the user. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
6	Client ID	Provide a Cherwell Client ID. Client ID is used to communicate to Cherwell instance. This field is mandatory. **Note:** CSM Administrator (Orange client) and CSM client (Blue client) tools can be installed for administration and development purposes. Generate a Cherwell client ID from Orange Client using the navigation, CSM Administrator tool→Security → REST API clients.
7	Button: Test Connection	Verifies whether the connection is available or not. Base URL, Username, Password, Client ID fields are mandatory. If no values are provided or some values are missing then it will display the validation error message. **Note:** For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

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Input Fields:		
No.	Field Name	Description
1	Form Name	This holds the Cherwell form name from which the record details will be fetched. This field is mandatory.
2	Button: Get Forms	On click of this button, it populates the forms of connected Cherwell Server depending on Access/Permissions of the user. If any required field values are missing then it will display validation error message. Select a form to populate it into the Form Name field.
3	Accept Fields as JSON	Enable checkbox to accept field names as JSON input.
4	JSON	If 'Accept Fields as JSON' checkbox is enabled this field is activated. Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (") enclosure. Provide all the required or mandatory fields as well as other fields to be inserted as as keys in the JSON. **Note:** The JSON could be from any input step such as Generate rows, Text File input, Excel Input Et al. In Cherwell steps JSON text can only be accepted from input fields from previous steps and not as files directly. **Sample JSON text for inserting a single Knowledge Article record:** Following is a sample JSON for inserting a record in Knowledge Article form. This JSON text has five key-value pairs denoting fields and their values to populate five fields. In this Cherwell instance Service and Title are mandatory for Knowledge Article Business Object. **Note:** Lookup field values must exactly match existing values in the Cherwell instance. JSON text: [{ "displayName": "Service", "value": "IT Service Desk" }, { "displayName": "Title", "value": "Test_KA5" }, { "displayName": "Category", "value": "Request Help" },

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```
 {
   "displayName": "SubCategory",
   "value": "Submit Service Request"
 },
 {
   "displayName": "Keywords",
   "value": "Test for KA"
 },
 {
   "displayName": "Visible to Customer Portal",
   "value": "False"
 },
 {
   "displayName": "Article Type",
   "value": "How To"
 }
]
```


Sample JSON text for inserting an Incident record:
Following is a sample JSON for inserting a record in Incident form. This JSON text has five key-value pairs denoting fields and their values to populate three fields. In this Cherwell instance Description, Short Description, Priority, Owned By and Customer ID are mandatory for Incident Business Object.

Note: Lookup field values must exactly match existing values in the Cherwell instance.


```
[
 {
   "displayName": "Description",
   "value": " Computer is Slow "
 },
 {
   "displayName": "Short Description",
   "value": " Cannot open office applications "
 },
 {
   "displayName": "Priority",
   "value": "1"
 },
 {
   "displayName": "Owned By",
   "value": "Andrew"
 },
 {
   "displayName": "Customer ID",
   "value": "123"
 }
]
```


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		]
	Table Fields:	
5	Variable Field Name	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable.
6	Static Field Name	On click of this column field, it opens a dialog with the list of available form fields of the provided Form Name. The name of the fields to be inserted should be selected. Multiple fields can be selected from the list displayed on click. The selected field's values below will be inserted in the Business object form.
7	Field Value	Provide field values to be inserted in the corresponding chosen fields.

Output Tab:		
No.	Field Name	Description
1	RecID	Specify a field name to return the RecID created with the input fields and field values provided. This field is mandatory.
2	Public ID	Specify a field name to return the Business Object Public ID created with the input fields and field values provided. This field is mandatory.

Result:
There is no explicit output Result field in this plugin. Plugin results weather success or error can be captured using Set Workflow Result. Errors can be captured in error handling as discussed in Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.

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2	Cancel	On click of this button, it will cancel the window and do not save any values

9.5 Cherwell: Update Record

9.5.1 Description

Cherwell Update Record is used to update Cherwell Business Objects (Forms). For example, Cherwell Update record may be used to update an incident (i.e. to close an incident if resolved or to keep an incident open if not resolved yet).

9.5.2 Configurations

Connection:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
2	URL	Specify URL to access Cherwell. This field is mandatory.
3	User Name	Cherwell username. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Provide the Cherwell Password for the user. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
6	Client ID	Provide a Cherwell Client ID. Client ID is used to communicate to Cherwell instance. This field is mandatory. **Note:** CSM Administrator (Orange client) and CSM client (Blue client) tools can be installed for administration and development purposes. Generate a Cherwell client ID from Orange Client using the navigation, CSM Administrator tool→Security → REST API clients.
7	Button: Test Connection	Verifies whether the connection is available or not.

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		Base URL, Username, Password, Client ID fields are mandatory. If no values are provided or some values are missing, then it will display the validation error message. **Note:** For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Fields:		
No.	Field Name	Description
1	Form Name	This holds the Cherwell form name from which the record details will be fetched. This field is mandatory.
2	Button: Get Forms	On click of this button, it populates the forms of connected Cherwell Server depending on Access/Permissions of the user. If any required field values are missing, then it will display validation error message. Select a form to populate it into the Form Name field.
3	Business Object Public ID/RecID	Cherwell Business Object PublicID/RecID. This field is mandatory.
4	Accept Fields as JSON	Enable checkbox to accept field names as JSON input.
5	JSON	About JSON text: If ‘Accept Fields as JSON’ checkbox is enabled, this field is activated. Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (“) enclosure. Provide all the required or mandatory fields as well as other fields to be inserted as as keys in the JSON. **Note:** The JSON could be from any input step such as Generate rows, Text File input, Excel Input Et al. In Cherwell steps JSON text can only be accepted from input fields from previous steps and not as files directly. **Sample JSON text for inserting a single Knowledge Article record:** Following is a sample JSON for inserting a record in Knowledge Article form. This JSON text has five key-value pairs denoting fields and their values to populate five fields. In this Cherwell instance Service and Title are mandatory for Knowledge Article Business Object.

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Note: Lookup field values must exactly match existing values in the Cherwell instance.

JSON text:

```
[
 {
  "displayName": "Service",
  "value": "HR Service Desk"
 },
 {
  "displayName": "Title",
  "value": "Test_KA10"
 },
 {
  "displayName": "Category",
  "value": "Request leave Rules"
 },
 {
  "displayName": "SubCategory",
  "value": "Submit Service Request"
 },
 {
  "displayName": "Keywords",
  "value": "Test for KA"
 },
 {
  "displayName": "Visible to Customer Portal",
  "value": "False"
 },
 {
  "displayName": "Article Type",
  "value": "How To"
 }
]
```

Sample JSON text for updating an Incident record:
Following is a sample JSON for updating two records in Incident form. This JSON text has three key-value pairs denoting three fields and their values to update three fields. In this Cherwell instance Description, Short Description, Priority, Owned By and Customer ID are mandatory for Incident Business object.

Note: Lookup field values must exactly match existing values in the Cherwell instance.

```
[
[
 {
  "displayName": "Description",
```

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		"value": "Computer is Slow_updated"
		},
		{
		"displayName": "Short Description",
		"value": "Cannot open office applications_updated"
		},
		{
		"displayName": "Priority",
		"value": "1"
		},
		{
		"displayName": "Owned By",
		"value": "Andrew"
		},
		{
		"displayName": "Customer ID",
		"value": "123"
		}
		]
		]

	Table Fields:	
1	Variable Field Name	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable.
2	Select Field Name	On click of this column field, it opens a dialog with the list of available form fields of the provided Form Name. The name of the fields to be updated should be selected. Multiple fields can be selected from the list displayed on click. The selected field's values below will be updated in the Business object form.
3	Field Value	Provide field values to be inserted in the corresponding chosen fields.

Result:
There is no explicit output Result field in this plugin. Plugin results weather success or error can be captured using Set Workflow Result. Errors can be captured in error handling as discussed in Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

9.6 Cherwell: Upload Attachment

9.6.1 Description

Cherwell Upload Attachment step is used to upload a file to a Cherwell Business Object using the Public ID/RecID.

9.6.2 Configurations

Connection:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
2	URL	Specify URL to access Cherwell. This field is mandatory.
3	User Name	Cherwell username. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Provide the Cherwell Password for the user. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
6	Client ID	Provide a Cherwell Client ID. Client ID is used to communicate to Cherwell instance. This field is mandatory. **Note:** CSM Administrator (Orange client) and CSM client (Blue client) tools can be installed for administration and development

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		purposes. Generate a Cherwell client ID from Orange Client using the navigation, CSM Administrator tool→Security → REST API clients.
7	Button: Test Connection	Verifies whether the connection is available or not. Base URL, Username, Password, Client ID fields are mandatory. If no values are provided or some values are missing then it will display the validation error message. **Note:** For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Fields:		
No.	Field Name	Description
1	Form Name	This holds the Cherwell form name from which the record details will be fetched. This field is mandatory.
2	Button: Get Forms	On click of this button, it populates the forms of connected Cherwell Server depending on Access/Permissions of the user. If any required field values are missing, then it will display validation error message. Select a form to populate it into the Form Name field.
3	Business Object Public ID/RecID	Cherwell Business Object PublicID/RecID. This field is mandatory.
4	File	Specify a file path to be uploaded may browse for a file using the Browse File… button. Alternatively, when the filename is coming from an input stream, you may select the field containing the filename from the drop down list.
5	Button: Browse File…	This is the button to browse a file to be uploaded to a Cherwell Business Object.

Result:
There is no explicit output Result field in this plugin. Plugin results weather success or error can be captured using Set Workflow Result. Errors can be captured in error handling as discussed in Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.

Common Buttons:

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No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

10 Cognibot

10.1 Cognibot: Send Reply

10.1.1 Description

Cognibot: Send Reply plugin step sends the reply to Cognibot.

10.1.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Chatbot URL	Specify a valid chatbot URL. The field data type is String. This is mandatory.
3	Additional Information	Specify Valid additional information received from a chatbot. It is in JSON input, which can be configured from Cognibot or AI studio. The field data type is String. This is mandatory. For example: `{"response_type": "chatbot", "conversation_details": {"chat_channel": "emulator", "service_url": "http://localhost:44209/v3/conversations/d14ee9c0-e099-11eb-bea8-256feff2f274|livechat/activities/abcd", "bot_id": "84ba24d0-e071-11eb-bea8-256feff2f274", "bot_name": "Bot", "user_id": "3a0eb962-d3e8-400a-b8e5-2023fd79f0ff", "user_name": "User", "conversation_id": "d14ee9c0-e099-11eb-bea8-256feff2f274|livechat"}}`

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4	Data	Specify a valid JSON. JSON data which needs to be sent back to Chatbot.
		
		For example:
		
		{
		"details":
		{
		"even": true,
		"id": 1
		}
		}

11 Docker

Use the Docker plugin steps for performing various actions on container and images in the Docker instance.

Note: For Docker installation and connection setup details, see Appendix 19: Docker Installation and Connection Setup.

Prerequisites: Docker instance with access details.

United Tested with: AutomationEdge 7.1.1, Process Studio 7.1.1, Docker 20.10.12, Ubuntu 20.04 LTS

11.1 Docker: Commit Container

11.1.1 Description

Docker: Commit Container step is used to commit a container.

11.1.2 References

https://docs.docker.com/engine/reference/commandline/commit/

11.1.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Configuration Type	Select the configuration type, that is, SSH or SSL-TLS.
	Configuration type: SSH	
3	Server Name	Specify the Server Name or IP Address of the server where the Docker daemon is running.

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		The field data type is String. This field is mandatory.
4	Port	Specify a valid port. The field data type is String. This field is mandatory.
5	Username	Specify the valid Username to connect to server or where the Docker Daemon running. The field data type is String. This field is mandatory.
6	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use Key	Select if you want to use the key. Allowed values are Yes or No.
9	Private Key	Specify a valid private key path.
10	Browse	Click to extract the private key path.
11	Passphrase	Specify a valid passphrase.
12	Proxy Host	Specify the proxy host or IP address of the proxy host.
13	Proxy Username	Specify a valid proxy user name.
14	Proxy Password	Specify a valid proxy password.
	Configuration type: SSL-TLS	
15	Docker Host URI	Select a valid Docker Host URI on which Docker Daemon is running. **Note:** If you set the DOCKER_HOST then no need to provide the Docker host URI.
16	CA path (.pem)	Select a valid ca.pem (Certificate authority that signed) file path. **Note:** If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory, and also set the DOCKER_TLS_VERIFY variables.

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17	Cert Path (.pem)	Select valid cert.pem (Client certificate) file path.
18	Key Path (.pem)	Select valid Key.pem (Client key) file path.
19	Test Connection	Verifies if the connection is established or not. **Note:** Test connection verifies if the connection is established or not. Even if the SSL-TLS connection parameters are not provided, the verification of the connection is done based on the settings provided in the connection documentation.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Container ID/Name	Select the container ID or name. The field data type is String. This field is mandatory.
2	New Image Name	Select the image name. You can also provide a tag, such as **ImageName:Tag**
3	Author	Select the author. For example, "John Hannibal Smith <hannibal@a-team.com>")
4	Message	Select a commit message.
5	Pause	Select Yes or No. Select Yes if you want to pause a container during image commit. Else, select No. Default value: Yes **Note:** The container is committed and its processes are paused while the image is committed, by default. This reduces the possibility of data corruption during the process of creating the commit. However, if you do not want to pause the container, set the pause option to No.
6	Change in Dockerfile	Apply Dockerfile instruction to the created image. You can provide multiple values using a semicolon. For example, "ENV DEBUG=true";"CMD ["apachectl", "-DFOREGROUND"]". **Note:** • The change in Dockerfile option will apply Dockerfile instructions to the image that is created. Supported Dockerfile instructions: **CMD|ENTRYPOINT|ENV|EXPOSE|LABEL|ONBUILD|USER|VOLUME|WORKDIR** • Provide values in double-quotes separated by comma(,) or semicolon(;) for 'Change in Dockerfile'.

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7	Max Wait For Response (Sec)	Specify the amount of time to wait for a response. The default value is 10 sec.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Image ID	Specify the Image ID field name. Default value: ImageID

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

11.2 Docker: Create Container

11.2.1 Description

Docker: Create Container step is used to create container.

11.2.2 References

https://docs.docker.com/engine/reference/commandline/create/

11.2.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Configuration Type	Select the configuration type, that is, SSH or SSL-TLS.
	Configuration type: SSH	
3	Server Name	Specify the Server Name or IP Address of the server where the Docker Daemon is running.

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		The field data type is String. This field is mandatory.
4	Port	Specify a valid port. The field data type is String. This field is mandatory.
5	Username	Specify the valid Username to connect to server or where the Docker Daemon running. The field data type is String. This field is mandatory.
6	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use Key	Select if you want to use the key. Allowed values are Yes or No.
9	Private Key	Specify a valid private key path.
10	Browse	Click to extract the private key path.
11	Passphrase	Specify a valid passphrase.
12	Proxy Host	Specify the proxy host or IP address of the proxy host.
13	Proxy Username	Specify a valid proxy user name.
14	Proxy Password	Specify a valid proxy password.
	Configuration type: SSL-TLS	
15	Docker Host URI	Select a valid Docker Host URI on which Docker Daemon is running. **Note:** The Docker Host URI is not required, if you set the DOCKER_HOST.
16	CA path (.pem)	Select a valid ca.pem (Certificate authority that signed) file path. **Note**: If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory, and also set the DOCKER_TLS_VERIFY variables.

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17	Cert Path (.pem)	Select valid cert.pem (Client certificate) file path.
18	Key Path (.pem)	Select valid Key.pem (Client key) file path.
19	Test Connection	Verifies if the connection is established or not. **Note:** Test connection verifies if the connection is established or not. Even if the SSL-TLS connection parameters are not provided, the verification of the connection is done based on the settings provided in the connection documentation.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Image ID/Name	Select the image ID or name. The field data type is String. This field is mandatory.
2	Command	This command is optional because the user who created the IMAGE may have already provided a default COMMAND using the Dockerfile CMD instruction. As the operator (the person running a container from the image), you can override that CMD instruction just by specifying a new COMMAND. If the image also specifies an ENTRYPOINT then the CMD or COMMAND get appended as arguments to the ENTRYPOINT.
3	Options/Flags	Provide valid options or flags to create a container. Click the following link to get a list of flags: https://docs.docker.com/engine/reference/commandline/create/#options **Note:** Provide flags in the following format: For example, __domainname=abc --hostname=test --tty -i --env=foo=bar --health-cmd="ping google.com"
4	Max Wait For Response (Sec)	Select the amount of time to wait for a response. The default value is 10 sec.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Container ID	Specify the Container ID field name. Default value: ContainerID.

Common Buttons:

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No.	Field Name	Description
	Buttons:	
1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

11.3 Docker: Delete Container

11.3.1 Description

Docker: Delete Container step is used to delete the container.

11.3.2 References

https://docs.docker.com/engine/reference/commandline/rm/

11.3.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Configuration Type	Select the configuration type, that is, SSH or SSL-TLS.
	Configuration type: SSH	
3	Server Name	Specify the Server Name or IP Address of the server where the Docker Daemon is running. The field data type is String. This field is mandatory.
4	Port	Specify a valid port. The field data type is String. This field is mandatory.
5	Username	Specify the valid Username to connect to server or where the Docker Daemon running. The field data type is String. This field is mandatory.
6	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list.

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		Else enable checkbox for Password field to appear as Text box.
7	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use Key	Select if you want to use the key. Allowed values are Yes or No.
9	Private Key	Specify a valid private key path.
10	Browse	Click to extract the private key path.
11	Passphrase	Specify a valid passphrase.
12	Proxy Host	Specify the proxy host or IP address of the proxy host.
13	Proxy Port	Specify a valid proxy user name.
14	Proxy Username	Specify a valid proxy password.
15	Proxy Password	Specify a valid proxy password.
	Configuration type: SSL-TLS	
16	Docker Host URI	Select a valid Docker Host URI on which Docker Daemon is running. **Note:** If you set the DOCKER_HOST then no need to provide the Docker host URI.
17	CA path (.pem)	Select a valid ca.pem (Certificate authority that signed) file path. **Note:** If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory, and also set the DOCKER_TLS_VERIFY variables.
18	Cert Path (.pem)	Select valid cert.pem (Client certificate) file path.
19	Key Path (.pem)	Select valid Key.pem (Client key) file path.
20	Test Connection	Verifies if the connection is established or not. **Note:** Test connection verifies if the connection is established or not. Even if the SSL-TLS connection parameters are not provided, the verification of the connection is done based on the settings provided in the connection documentation.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Container ID/Name	Select one or more container IDs or name to be deleted. **Note:** Format to provide multiple containers: Name1,Name2,Name3 or Name1;ID1,Name2 The field data type is String. This field is mandatory.
2	Remove Container Forcefully	Specify Yes or No. If you specify Yes, the container is forcefully removed. The default value is No. **Note:** If the container is running, stop it before removing it.
3	Remove Anonymous Volumes	Specify Yes or No. If you specify Yes, the container and any volumes associated with it is removed. The default value is No. **Note:** If a volume was specified with a name, it will not be removed.
4	Max Wait For Response (Sec)	Select the amount of time to wait for a response. The default value is 10 sec.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

11.4 Docker: Delete Image

11.4.1 Description

Docker: Delete Image step is used to delete one or more images.

Notes:

- The step removes and un-tags one or more images from the host node. If an image has multiple tags, using this command with the tag as a parameter only removes the tag. If the tag is the only one for the image, both the image and the tag are removed.
- The step does not remove the image from the registry.

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11.4.2 References

https://docs.docker.com/engine/reference/commandline/rmi/

11.4.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Configuration Type	Select the configuration type, that is, SSH or SSL-TLS.
	Configuration type: SSH	
3	Server Name	Specify the Server Name or IP Address of the server where the Docker Daemon is running. The field data type is String. This field is mandatory.
4	Port	Specify a valid port. The field data type is String. This field is mandatory.
5	Username	Specify the valid Username to connect to server or where the Docker Daemon running. The field data type is String. This field is mandatory.
6	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use Key	Select if you want to use the key. Allowed values are Yes or No.
9	Private Key	Specify a valid private key path.
10	Browse	Click to extract the private key path.
11	Passphrase	Specify a valid passphrase.
12	Proxy Host	Specify the proxy host or IP address of the proxy host.
13	Proxy Port	Specify a valid proxy user name.

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14	Proxy Username	Specify a valid proxy password.
15	Proxy Password	Specify a valid proxy password.
	Configuration type: SSL-TLS	
16	Docker Host URI	Select a valid Docker Host URI on which Docker Daemon is running. **Note:** If you set the DOCKER_HOST then no need to provide the Docker host URI.
17	CA path (.pem)	Select a valid ca.pem (Certificate authority that signed) file path. **Note:** If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory, and also set the DOCKER_TLS_VERIFY variables.
18	Cert Path (.pem)	Select valid cert.pem (Client certificate) file path.
19	Key Path (.pem)	Select valid Key.pem (Client key) file path.
20	Test Connection	Verifies if the connection is established or not. **Note:** Test connection verifies if the connection is established or not. Even if the SSL-TLS connection parameters are not provided, the verification of the connection is done based on the settings provided in the connection documentation.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Image ID/Name	Select one or more Image IDs or Names to delete the image. **Note:** If the image is pulled with the image tag then the best practice is to provide an image name with a tag like <ImageName>:<ImageTag>. Example => Java:8 Format to provide multiple image IDs/Names => Name1,Name2,id1 or name1;name2;id1 The field data type is String. This field is mandatory.
2	Remove Image Forcefully	Select Yes or No from the dropdown. Select Yes to remove an image forcefully even if it is being used by stopped containers or has other tags. Default value is No.

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3	Remove Untagged Parent Images	Select Yes or No from the dropdown. Select Yes to remove an image, along with any untagged parent images that were referenced by that image. Default value: No.
4	Max Wait For Response (Sec)	Select the amount of time to wait for a response. The default value is 10 sec.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

11.5 Docker: Inspect Container

11.5.1 Description

Docker: Inspect Container step is used to inspect one or more container.

11.5.2 References

https://docs.docker.com/engine/reference/commandline/container_inspect/

11.5.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Configuration Type	Select the configuration type, that is, SSH or SSL-TLS.
	Configuration type: SSH	
3	Server Name	Specify the Server Name or IP Address of the server where the Docker Daemon is running. The field data type is String. This field is mandatory.

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4	Port	Specify a valid port. The field data type is String. This field is mandatory.
5	Username	Specify the valid Username to connect to server or where the Docker Daemon running. The field data type is String. This field is mandatory.
6	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use Key	Select if you want to use the key. Allowed values are Yes or No.
9	Private Key	Specify a valid private key path.
10	Browse	Click to extract the private key path.
11	Passphrase	Specify a valid passphrase.
12	Proxy Host	Specify the proxy host or IP address of the proxy host.
13	Proxy Port	Specify a valid proxy user name.
14	Proxy Username	Specify a valid proxy password.
15	Proxy Password	Specify a valid proxy password.
	Configuration type: SSL-TLS	
16	Docker Host URI	Select a valid Docker Host URI on which Docker Daemon is running. **Note:** If you set the DOCKER_HOST then no need to provide the Docker host URI.
17	CA path (.pem)	Select a valid ca.pem (Certificate authority that signed) file path. **Note:** If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory --- and set the DOCKER_TLS_VERIFY variables as well
18	Cert Path (.pem)	Select valid cert.pem (Client certificate) file path.

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19	Key Path (.pem)	Select valid Key.pem (Client key) file path.
20	Test Connection	Verifies if the connection is established or not. **Note:** Test connection verifies if the connection is established or not. Even if the SSL-TLS connection parameters are not provided, the verification of the connection is done based on the settings provided in the connection documentation.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Container ID/Name	Select one or more Container IDs or Name to inspect container. **Note:** Use the following format to provide multiple containers: Name1,Name2,Name3 or Name1;ID1;Name2 The field data type is String. This field is mandatory.
2	Include Size Of Container	Specify Yes or No. If you specify Yes, it returns the size of the container as fields SizeRw and SizeRootFs. Default value: No.
3	Max Wait For Response (Sec)	Select the amount of time to wait for a response. The default value is 10 sec.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Output JSON	Output field to hold the output JSON on successful plugin execution. Default is OutputJSON.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.

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2	Cancel	On click of this button, it will cancel the window and does not save any values.

11.6 Docker: List Containers

11.6.1 Description

Docker: List Containers step is used to get list of containers.

11.6.2 References

https://docs.docker.com/engine/reference/commandline/ps/

11.6.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Configuration Type	Select the configuration type, that is, SSH or SSL-TLS.
	Configuration type: SSH	
3	Server Name	Specify the Server Name or IP Address of the server where the Docker daemon is running. The field data type is String. This field is mandatory.
4	Port	Specify a valid port. The field data type is String. This field is mandatory.
5	Username	Specify the valid Username to connect to server or where the Docker Daemon running. The field data type is String. This field is mandatory.
6	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox

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		above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use Key	Specify if you want to log in using a private key. Allowed values are Yes or No. Default value: No
9	Private Key	Specify a valid private key path.
10	Browse	Click to extract the private key path.
11	Passphrase	Specify the pass-phrase used when the key-pair was generated.
12	Proxy Host	Specify the proxy host or IP address of the proxy host.
13	Proxy Port	Specify a valid proxy user name.
14	Proxy Username	Specify a valid proxy password.
15	Proxy Password	Specify a valid proxy password.
	Configuration type: SSL-TLS	
17	Docker Host URI	Select a valid Docker Host URI on which Docker Daemon is running. **Note:** If you set the DOCKER_HOST then no need to provide the Docker host URI.
18	CA path (.pem)	Select a valid ca.pem (Certificate authority that signed) file path. **Note:** If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory, and also set the DOCKER_TLS_VERIFY variables.
19	Browse	Click to select the ca.pem file path.
20	Cert Path (.pem)	Select valid cert.pem (Client certificate) file path.
21	Browse	Click to select the cert.pem file path.
22	Key Path (.pem)	Select valid Key.pem (Client key) file path.
23	Browse	Click to select the key.pem file path.
24	Test Connection	Verifies if the connection is established or not. **Note:** Test connection verifies if the connection is established or not. Even if the SSL-TLS connection parameters are not provided, the verification of the connection is done based on the settings provided in the connection documentation.

Input Tab:		
No.	Field Name	Description

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	Input Fields:	
1	Include All Containers	Select Yes or No. If you select 'No' then it will return only running containers, otherwise, it will return all the containers. Default value: Yes
2	Output Format	The formatting output pretty-prints container output using a Go template. Valid placeholders for the Go template are listed in Note.
3	Show Last N Created Containers	Select the value to show last n (Number) created containers. Default value is -1.
4	Include Size Of Containers	Select Yes or No. Returns the size and virtual size used by the container.
5	Filters – Get Input Fields	Specify the filters to process on the container list.
6	Max Wait For Response (Sec)	Specify the amount of time to wait for a response. The default value is 10 sec.

Output Tab:	
Field Name	Description
Output Fields:	
Container List	Holds the Containers List on successful plugin execution. Default value: Container List

NOTE:

1. The filtering format is a key=value pair. If there is more than one filter, then pass multiple values in comma (,) or semicolon (;) separated values. Example. Key=value,key=value;key=value. Available filters are as follows:

Filter	Description
Id	Container's ID
name	Container's name
label	An arbitrary string representing either a key or a key-value pair. Expressed as <key> or <key>=<value>
exited	An integer representing the container's exit code. Only useful with Include All Containers equal to yes. Example. **exited=0**
status	One of **created**, **restarting**, **running**, **removing**, **paused**, **exited**, or **dead** Example: status=created
ancestor	Filters containers which share a given image as an ancestor. Expressed as <image-name>[:<tag>], <image id>, or <image@digest>
before or *since*	Filters containers created before or after a given container ID or name

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volume	Filters running containers that have mounted a given volume or bind mount.
network	Filters running containers connected to a given network.
publish or *expose*	Filters containers which publish or expose a given port. Expressed as <port>[/<proto>] or <startport-endport>/[<proto>]
health	Filters containers based on their health check status. One of starting, healthy, unhealthy or none.
isolation	Windows daemon only. One of default, process, or hyperv.
is-task	Filters containers that are a “task” for a service. Boolean option (true or false)

2. Output Format Examples. {{.ID}} *or* {{.ID}}: {{.Command}} or table {{.ID}}\t{{.Labels}}
   Following are available Go-Templets:

Placeholder	**Description**
.ID	Container ID
.Image	Image ID
.Command	Quoted command
.CreatedAt	The time when the container was created.
.RunningFor	Elapsed time since the container was started.
.Ports	Exposed ports.
.State	Container status (for example; “created”, “running”, “exited”).
.Status	Container status with details about duration and health status.
.Size	Container disk size.
.Names	Container names.
.Labels	All labels are assigned to the container.
.Label	Value of a specific label for this container. For example '{{.Label "com.docker.swarm.cpu"}}'
.Mounts	Names of the volumes mounted in this container.
.Networks	Names of the networks attached to this container.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Container List	Specify the output field to hold the containers list. Default value is ContainerList.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

11.7 Docker: Start Container

11.7.1 Description

Docker: Start Container step is used to start one or more container.

Note: If the Container is already started or running then this step will not throw an error.

11.7.2 References

https://docs.docker.com/engine/reference/commandline/start/

11.7.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Configuration Type	Select the configuration type, that is, SSH or SSL-TLS.
	Configuration type: SSH	
3	Server Name	Specify the Server Name or IP Address of the server where the Docker Daemon is running. The field data type is String. This field is mandatory.
4	Port	Specify a valid port. The field data type is String. This field is mandatory.
5	Username	Specify the valid Username to connect to server or where the Docker Daemon running. The field data type is String. This field is mandatory.
6	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.

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7	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use Key	Specify if you want to log in using a private key. Allowed values are Yes or No. Default value: No
9	Private Key	Specify a valid private key path.
10	Browse	Click to extract the private key path.
11	Passphrase	Specify the pass-phrase used when the key-pair was generated.
12	Proxy Host	Specify the proxy host or IP address of the proxy host.
13	Proxy Port	Specify a valid proxy user name.
14	Proxy Username	Specify a valid proxy password.
15	Proxy Password	Specify a valid proxy password.
	Configuration type: SSL-TLS	
16	Docker Host URI	Select a valid Docker Host URI on which Docker Daemon is running. **Note:** If you set the DOCKER_HOST then no need to provide the Docker host URI.
17	CA path (.pem)	Select a valid ca.pem (Certificate authority that signed) file path. **Note:** If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory, and also set the DOCKER_TLS_VERIFY variables.
18	Browse	Click to select the ca.pem file path.
19	Cert Path (.pem)	Select valid cert.pem (Client certificate) file path.
20	Browse	Click to select the cert.pem file path.
21	Key Path (.pem)	Select valid Key.pem (Client key) file path.
22	Browse	Click to select the key.pem file path.
23	Test Connection	Verifies if the connection is established or not.

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		Note: Test connection verifies if the connection is established or not. Even if the SSL-TLS connection parameters are not provided, the verification of the connection is done based on the settings provided in the connection documentation.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Container ID/Name	Select one or more Container IDs or Name to start container. The field data type is String. This field is mandatory.
2	Detach keys	Select the value to override the key sequence for detaching a container. **Note:** Format is a single character [a-Z] or ctrl-<value> where <value> is one of: a-z, @, ^, [, , or _.
3	Max Wait For Response (Sec)	Specify the amount of time to wait for a response. The default value is 10 sec.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

11.8 Docker: List Images

11.8.1 Description

Docker: List Images step is used to get list of images.

11.8.2 References

https://docs.docker.com/engine/reference/commandline/images/

11.8.3 Configurations

Configuration:

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No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Configuration Type	Select the configuration type, that is, SSH or SSL-TLS.
	Configuration type: SSH	
3	Server Name	Specify the Server Name or IP Address of the server where the Docker daemon is running. The field data type is String. This field is mandatory.
4	Port	Specify a valid port. The field data type is String. This field is mandatory.
5	Username	Specify the valid Username to connect to server or where the Docker Daemon running. The field data type is String. This field is mandatory.
6	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use Key	Select if you want to use the key. Allowed values are Yes or No.
9	Private Key	Specify a valid private key path.
10	Browse	Click to extract the private key path.
11	Passphrase	Specify a valid passphrase.
12	Proxy Host	Specify the proxy host or IP address of the proxy host.
13	Proxy Port	Specify a valid proxy user name.
14	Proxy Username	Specify a valid proxy password.
15	Proxy Password	Specify a valid proxy password.
	Configuration type: SSL-TLS	

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16	Docker Host URI	Select a valid Docker Host URI on which Docker Daemon is running. **Note:** If you set the DOCKER_HOST then no need to provide the Docker host URI.
17	CA path (.pem)	Select a valid ca.pem (Certificate authority that signed) file path. **Note:** If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory, and also set the DOCKER_TLS_VERIFY variables.
18	Cert Path (.pem)	Select valid cert.pem (Client certificate) file path.
19	Key Path (.pem)	Select valid Key.pem (Client key) file path.
20	Test Connection	Verifies if the connection is established or not. **Note:** Test connection verifies if the connection is established or not. Even if the SSL-TLS connection parameters are not provided, the verification of the connection is done based on the settings provided in the connection documentation.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Include All Images	Select Yes or No. Select Yes to show all images. Only images from a final layer (no children) are shown by default. Default is Yes.
2	Output Format	Select the formatting output pretty-prints container output using a Go template. Valid placeholders for the Go template are listed in Note:.
3	Digests	Select Yes or No. Select Yes to show the digests. Default value is No.
4	Truncate Output	Select Yes or No. Select Yes to truncate the output. Default value is Yes.
5	Filters	Specify the filters to process on the image list.
6	Max Wait For Response (Sec)	Specify the amount of time to wait for a response. The default value is 10 sec.

NOTE:

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1. The filtering format is a key=value pair. If there is more than one filter, then pass multiple values in comma(,) or semicolon(;) separated values. Example. Key=value,key=value;key=value. Currently, supported filters are as follows:

Filter	Description
dangling	Dangling=true or false
label	An arbitrary string representing either a key or a key-value pair. Expressed as label=<key> or label=<key>=”<value>” or label=<key>=<value> **Note:** If value contains space the use this format label=<key>=”<value>”.
before or *since*	(<image-name>:<tag>, <image id> or <image@digest>) - filter images created before or since given id or references. Example. **Before=java:8**
reference	reference (pattern of an image reference) - filter images whose reference matches the specified pattern. Example. **reference=hello*:lat***

2. Output Format Examples. {{.ID}} *or* {{.ID}}: {{.Repository}} or table {{.ID}}\t{{.Repository}}\t{{.Tag}}.
   Following are available Go-Templates:

Placeholder	Description
.ID	Image ID
.Repository	Image repository
.Tag	Image tag
.Digest	Image digest
.CreatedSince	Elapsed time since the image was created
.CreatedAt	The time when the image was created
.Size	Image disk size

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Container List	Specify the output field to hold the containers list. Default value is ContainerList.

Common Buttons:

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No.	Field Name	Description
	Buttons:	
1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

11.9 Docker: Stop Container

11.9.1 Description

Docker: Stop Container step is used to stop one or more container.

Note: If the Container is already stopped then this step will not throw an error.

11.9.2 References

https://docs.docker.com/engine/reference/commandline/stop/

11.9.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Configuration Type	Select the configuration type, that is, SSH or SSL-TLS.
	Configuration type: SSH	
3	Server Name	Specify the Server Name or IP Address of the server where the Docker Daemon is running. The field data type is String. This field is mandatory.
4	Port	Specify a valid port. The field data type is String. This field is mandatory.
5	Username	Specify the valid Username to connect to server or where the Docker Daemon running. The field data type is String. This field is mandatory.

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6	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use Key	Specify if you want to log in using a private key. Allowed values are Yes or No. Default value: No
9	Private Key	Specify a valid private key path.
10	Browse	Click to extract the private key path.
11	Passphrase	Specify the pass-phrase used when the key-pair was generated.
12	Proxy Host	Specify the proxy host or IP address of the proxy host.
13	Proxy Port	Specify a valid proxy user name.
14	Proxy Username	Specify a valid proxy password.
15	Proxy Password	Specify a valid proxy password.
	Configuration type: SSL-TLS	
16	Docker Host URI	Select a valid Docker Host URI on which Docker Daemon is running. **Note:** If you set the DOCKER_HOST then no need to provide the Docker host URI.
17	CA path (.pem)	Select a valid ca.pem (Certificate authority that signed) file path. **Note:** If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory, and also set the DOCKER_TLS_VERIFY variables.
18	Browse	Click to select the ca.pem file path.
19	Cert Path (.pem)	Select valid cert.pem (Client certificate) file path.
20	Browse	Click to select the cert.pem file path.
21	Key Path (.pem)	Select valid Key.pem (Client key) file path.
22	Browse	Click to select the key.pem file path.

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23	Test Connection	Verifies if the connection is established or not. **Note:** Test connection verifies if the connection is established or not. Even if the SSL-TLS connection parameters are not provided, the verification of the connection is done based on the settings provided in the connection documentation.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Container ID/Name	Select one or more Container IDs or Name to stop the container. The field data type is String. This field is mandatory.
2	Wait Before Force Stop Action (In Seconds)	The number of seconds to wait before force stop action. Default is 10 seconds
3	Max Wait For Response (Sec)	Specify the amount of time to wait for a response. The default value is 10 sec.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

11.10 Docker: Update Container

11.10.1 Description

Docker: Update Container step is used to update one or more container.

Warning: This step is not supported for Windows containers.

11.10.2 References

https://docs.docker.com/engine/reference/commandline/update/

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11.10.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Configuration Type	Select the configuration type, that is, SSH or SSL-TLS.
	Configuration type: SSH	
3	Server Name	Specify the Server Name or IP Address of the server where the Docker Daemon is running. The field data type is String. This field is mandatory.
4	Port	Specify a valid port. The field data type is String. This field is mandatory.
5	Username	Specify the valid Username to connect to server or where the Docker Daemon running. The field data type is String. This field is mandatory.
6	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The Data Type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
8	Use Key	Select if you want to use the key. Allowed values are Yes or No.
9	Private Key	Specify a valid private key path.
10	Browse	Click to extract the private key path.
11	Passphrase	Specify a valid passphrase.
12	Proxy Host	Specify the proxy host or IP address of the proxy host.
13	Proxy Port	Specify a valid proxy user name.
14	Proxy Username	Specify a valid proxy password.
15	Proxy Password	Specify a valid proxy password.

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	Configuration type: SSL-TLS	
16	Docker Host URI	Select a valid Docker Host URI on which Docker Daemon is running. **Note:** If you set the DOCKER_HOST then no need to provide the Docker host URI.
17	CA path (.pem)	Select a valid ca.pem (Certificate authority that signed) file path. **Note:** If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory, and also set the DOCKER_TLS_VERIFY variables.
18	Cert Path (.pem)	Select valid cert.pem (Client certificate) file path.
19	Key Path (.pem)	Select valid Key.pem (Client key) file path.
20	Test Connection	Verifies if the connection is established or not. **Note:** Test connection verifies if the connection is established or not. Even if the SSL-TLS connection parameters are not provided, the verification of the connection is done based on the settings provided in the connection documentation.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Container ID/Name	Select one or more Container IDs or Name of the container to update. The field data type is String. This field is mandatory.
2	Options/Flags	Provide valid options or flags to create a container. Click the following link to get the list of flags: https://docs.docker.com/engine/reference/commandline/update/#options The field data type is String. This field is mandatory.
	Variable Field Name	Provide supported 'Options/Flags' value. For a list of 'Options/Flags' refer Note. The field data type is String. This field is mandatory.
	Static Field Name	Select Options/Flags value from the list provided in the dialog. The field data type is String. This field is mandatory.
	Field Value	Provide valid field value. The field data type is String. This field is mandatory.

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3	Max Wait For Response (Sec)	Specify the amount of time to wait for a response. The default value is 10 sec.

Note:

Supported Options/flags list

Name	**Description**
--blkio-weight	Block IO (relative weight), between 10 and 1000, or 0 to disable (default 0)
--cpu-period	Limit CPU CFS (Completely Fair Scheduler) period
--cpu-quota	Limit CPU CFS (Completely Fair Scheduler) quota
--cpu-rt-period	Limit the CPU real-time period in microseconds
--cpu-rt-runtime	Limit the CPU real-time runtime in microseconds
--cpu-shares	CPU shares (relative weight)
--cpus	Number of CPUs
--cpuset-cpus	CPUs in which to allow execution (0-3, 0,1)
--cpuset-mems	MEMs in which to allow execution (0-3, 0,1)
--kernel-memory	Kernel memory limit
--memory	Memory limit
--memory-reservation	Memory soft limit
--memory-swap	Swap limit equal to memory plus swap: '-1' to enable unlimited swap
--pids-limit	Tune container pids limit (set -1 for unlimited)
--restart	Restart policy to apply when a container exits

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On Click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

12 DocuSign

Use the DocuSign plugin steps for performing various actions on documents and envelope in DocuSign.

Note: For generating DocuSign refresh token, see Appendix: DocuSign: Generate Refresh Token.

Prerequisites

- DocuSign Account
- Login details [Secret Key and Refresh Token] to authenticate to DocuSign.
- Generate Secret Key user's must-have DS Admin permission.
- Provide access (whitelist) to the following URL through your firewall and network. **https://account-d.docusign.com**

References

- https://developers.docusign.com/platform/auth/authcode/authcode-get-token/
- Use this reference when adding a recipient to an envelope, https://developers.docusign.com/docs/esign-rest-api/reference/envelopes/enveloperecipients/

Notes:

- Supported file types: .doc, .docm, .docx, .dot, .dotm, .dotx, .htm, .html, .msg, .pdf, .rtf, .txt, .wpd, .xps, .bmp, .gif, .jpg, .jpeg, .png, .tif, .tiff, .pot, .potx, .pps, .ppt, .pptm, .pptx, .csv, .xls, .xlsm, .xlsx.
- DocuSign recommends that you do not add files larger than 25MB to an envelope. Depending on the recipient's internet connection, large files might affect signing performance.
- DocuSign has not imposed a limit on the number of files that can be added to an envelope. However, as with file size, envelopes with a large number of files might affect signing performance.

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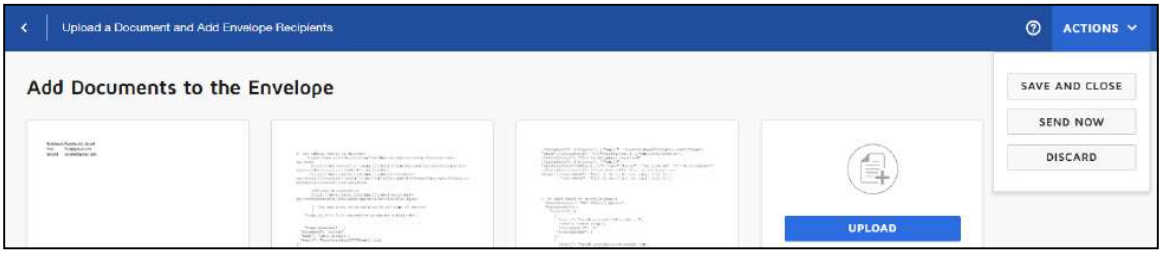
- For signer-uploaded attachment files, DocuSign supports files sizes up to 25MB for an envelope.
- There is a file size limit of 5MB for attaching completed documents to emails sent by DocuSign to recipients when an envelope is completed. If the completed documents are greater than 5MB, the email still provides a link to the documents on the DocuSign system.
- There is a limit to a call rate of 1,000 API calls per hour per account. If the API call rate limit is reached, you will receive an exception for each call until the start of the next hour (this can be up to 60 minutes). The exception message states: “The maximum number of hourly API invocations has been exceeded” (error number 207).
- If you have opened **Sender View** of the template, you are updating through this step in DocuSign, then that template will be locked. You will see an error message, ‘*The user is not the owner of the lock. The template is locked by another user or in another application.*’ To resolve the issue, you must **Save** and **Close** the template from DocuSign.



12.1 DocuSign: Add Document In Envelope

12.1.1 Description

DocuSign: Add Document In Envelope step adds a document in an Envelope in DocuSign.

12.1.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform.

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		The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Envelope ID	Specify the ID of the envelope in which you want to add a document The field data type is String. This field is mandatory.
2	Document To Upload	Specify the document you want to add to the envelope. The field data type is String. This field is mandatory. For more information about documents that you can upload, see Notes.
3	Browse	Click to select the file to upload.
4	Document Name After Upload	Specify the name of the document with extension.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Document ID	It is the ID of the added document will be given as output using this field. Default is DocumentID.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

12.2 DocuSign: Add Document In Template

12.2.1 Description

DocuSign: Add Document In Template step adds a document in a template.

12.2.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
3	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
4	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
5	Test Connection	Verifies whether the connection is established or not. Note: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Template ID	Specify the ID of the template in which you want to add a document The field data type is String. This field is mandatory.
2	Document To Upload	Specify the document you want to add to the template. The field data type is String. This field is mandatory.
3	Browse	Click the button to select the file path and then select the document to upload.
4	Document Name After Upload	Specify a valid name along with the extension. The extension must be same as the extension of the document in the **Document To Upload** field. This field is used to rename the document.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Document ID	Specify the ID of the added document in this field. The default value is *DocumentID*.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

Notes:

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If you have opened **Sender View** of the template, you are updating through this step in DocuSign, then that template will be locked. You will see an error message, '*The user is not the owner of the lock. The template is locked by another user or in another application.*' To resolve the issue, you must **Save** and **Close** the template from DocuSign.

12.3 DocuSign: Add Field In Document

12.3.1 Description

DocuSign: Add Field In Document step adds a Field in the document present in the envelope in DocuSign.

12.3.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test

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		Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Envelope ID	Specify the ID of the envelope in which you want to add a document The field data type is String. This field is mandatory.
2	Field Type	Specify the type of field you want to add using this step. The field data type is String. This field is mandatory.
4	Get	Click to populate the recipient types.
3	Recipient ID	Specify the ID of the recipient that is associated with the tab. The field data type is String. This field is mandatory.
4	Get	Click to populate the recipient IDs.
5	Document ID	Specify the document ID number that the Field is placed on. The field data type is String. This field is mandatory.
6	Get	Click to populate the document IDs.
7	Page Number	Specify the Page Number in a document in which sign field is to be added. The field data type is String. This field is mandatory.
8	X Position	Specify the position with respect to the x-axis (in pixel) where the field will be added. The field data type is String. This field is mandatory.
9	Y Position	Specify the position with respect to the y-axis (in pixel) where the field will be added. The field data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

12.4 DocuSign: Add Recipient In Envelope

12.4.1 Description

DocuSign: Add Recipient In Envelope step adds a Recipient in Envelope in DocuSign.

12.4.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note**: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Envelope ID	Specify the ID of envelope in which you want to add recipient. The field data type is String. This field is mandatory.
2	Recipient Type	Specify the type of recipient you want to add using this step. The field data type is String. This field is mandatory.
3	Get	Click to populate the list of recipient types.
4	Routing Order	Specify the routing order of the recipient in the envelope. It specifies order in which email will be sent among all recipients present in envelope. The field data type is String. This field is mandatory.
5	Name	Specify the full legal name of the recipient. The field data type is String. This field is mandatory.
6	Email	Specify the email address of the envelope recipients. The field data type is String. This field is mandatory.
7	Email Subject	Specify the subject of the email used to send the envelope. Maximum Length: 100 characters. The field data type is String. This field is mandatory.
8	Email Body	Specify a string with the email message sent to the recipient. Maximum Length: 10000 characters. The field data type is String. This field is mandatory. **Note:** Use ‘ \n’ to change line.
9	Email language	Select the two-letter code for the language to use for the standard email format and the signing view for the recipient. For example, for English US code is *en*.
10	Get	Click to populate the list of languages available in DocuSign.

Output Tab:		
No.	Field Name	Description
	Input Fields:	
1	Recipient ID	Specify the ID of the added recipient that will be given as output using this field.

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		The field data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

12.5 DocuSign: Add Recipient In Template

12.5.1 Description

DocuSign: Add Recipient In Template step adds a recipient in template in DocuSign.

12.5.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.

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6	Test Connection	Verifies whether the connection is established or not. Note: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Template ID	Specify the ID of the template in which you want to add recipient. The field data type is String. This field is mandatory.
2	Recipient Type	Specify the type of recipient you want to add using this step. Each recipient is assigned a specific recipient type, which defines their role in the signing process. The field data type is String. This field is mandatory.
3	Get	Click to populate the list of recipient types.
4	Routing Order	Specify the routing order of the recipient in the envelope. It specifies order in which email will be sent among all recipients present in envelope. The field data type is String. This field is mandatory.
5	Email Subject	Specify the subject of the email used to send the envelope. Maximum Length: 100 characters. The field data type is String. This field is mandatory.
6	Role Name	Specify the role name associated with the recipient. It must either be a *Name* and *Email* OR *Role Name*. The field data type is String. This field is mandatory.
7	Name	Specify the full legal name of the recipient. It must either be a *Name* and *Email* OR *Role Name*. The field data type is String. This field is mandatory.
8	Email	Specify the email address of the envelope recipients. It must either be a *Name* and *Email* OR *Role Name*. The field data type is String. This field is mandatory.

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9	Email Body	Specify a string with the email message sent to the recipient. Maximum Length: 10000 characters. The field data type is String. This field is mandatory. Note: Use ‘ \n’ to change line.
10	Email language	Specify or select the two-letter code for the language to use for the standard email format and the signing view for the recipient. For example, for English US code is *en*.
11	Get	Click to populate the list of languages available in DocuSign.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Recipient ID	Specify the ID of the added recipient that will be given as output using this field. The default value is *RecipientID*. The field data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

Note:

If you have opened **Sender View** of the template, you are updating through this step in DocuSign, then that template will be locked. You will see an error message, ‘*The user is not the owner of the lock. The template is locked by another user or in another application.*’ To resolve the issue, you must **Save** and **Close** the template from DocuSign.

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12.6 DocuSign: Create Draft Envelope

12.6.1 Description

DocuSign: Create Draft Envelope step creates an empty envelope in a draft in DocuSign.

12.6.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note**: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

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Output Tab:		
No.	Field Name	Description
	Input Fields:	
1	Envelope ID	Specify the generated ID of created envelope that is given as output through this field. The field data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

12.7 DocuSign: Create Draft Envelope Using Template

12.7.1 Description

DocuSign: Create Draft Envelope Using Template step creates a draft envelope using the template ID in DocuSign.

12.7.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Specify or select a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.

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4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Specify or select a valid refresh token. The field data type is String. This field is mandatory.
7	Test Connection	Verifies whether the connection is established or not. **Note**: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:	
Field Name	Description
Input Fields:	
Template ID	Specify the ID of the template from which you want to create an envelope. The field data type is String. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Envelope ID	Specify the generated ID of created envelope that is given as output through this field. The default value is *EnvelopeID*.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

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12.8 DocuSign: Create Template

12.8.1 Description

DocuSign: Create Template step creates an empty template in DocuSign.

12.8.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note**: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Template Name	Specify the name of the Template. The length of the name should be less than 100 characters. The field data type is String. This field is mandatory.

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2	Template Description	Specify the description of the template. The length of the character should be less than 500 characters.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Template ID	Specify the generated ID of created Template is given as output through this field. The default value is TemplateID.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

12.9 DocuSign: Delete Documents From Envelope

12.9.1 Description

DocuSign: Delete Documents From Envelope step will delete single as well as multiple documents from the existing envelope that has not yet been completed in DocuSign.

12.9.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.

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3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note**: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Envelope ID	Select the ID of the envelope from which you want to delete the document. The field data type is String. This field is mandatory.
2	Document ID(s)	Select the unique ID of Document. To delete multiple documents, separate by ",". For example, *792015*,*792016*,*792017*. The field data type is String. This field is mandatory.
	Button: Get	Click to get the document ID.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message.

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		If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

12.10 DocuSign: Delete Recipient From Envelope

12.10.1 Description

DocuSign: Delete Recipient From Envelope step will delete a recipient from a draft or sent envelope in DocuSign. If the envelope is "In Process" (has been sent and is not completed or voided), recipients that have completed their actions cannot be deleted.

12.10.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note**: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Envelope ID	Select the ID of the envelope from which you want to get recipients. The field data type is String. This field is mandatory.
2	Recipient ID(s)	Specify the unique ID of recipient. The field data type is String. This field is mandatory.
	Button: Get	Click to get the document ID.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

12.11 DocuSign: Download Documents From Envelope

12.11.1 Description

DocuSign: Download Documents From Envelope step will download documents from an envelope in DocuSign.

12.11.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.

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3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note**: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Envelope ID	Select the ID of the envelope from which you want to download documents. The field data type is String. This field is mandatory.
2	Local Folder Path	Select the local folder path to download the document at. The field data type is String. This field is mandatory.
	Button: Browse	Click to select the file path to download the documents.
3	Document ID	Select the unique ID of the document. If you want to download any specific document, then give the ID of that document. Note: If this field is left empty then all the documents from the envelope will be downloaded.
	Button: Get	Click to get the list of document IDs.

Additional Input Tab:		
No.	Field Name	Description
	Additional Input Fields:	

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1	Delete Output Folder Contents before Downloading	Select *Yes* or *No*. Select *Yes* to deletes all files and folders from the specified local folders before downloading. The default value is *No*.
2	Add DateTimeStamp for Duplicate Files	Select *Yes* or *No*. If the local folder contains the same file name, then add a date timestamp in the newly-downloaded file. If the value is false, then the file will be overwritten. The default value is *No*.
3	Add File To Result	Select *Yes* or *No*. Select *Yes* to add downloaded file as the result of workflow. The allowed value is *Yes* or *No*. The default value is *No*.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

Note:

If you have opened **Sender View** of the template, you are updating through this step in DocuSign, then that template will be locked. You will see an error message, '*The user is not the owner of the lock. The template is locked by another user or in another application.*' To resolve the issue, you must **Save** and **Close** the template from DocuSign.

12.12 DocuSign: Get Documents From Envelope

12.12.1 Description

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DocuSign: Get Documents From Envelope step fetches document details from the envelope in DocuSign.

12.12.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note**: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Envelope ID	Select the ID of the envelope from which you want to get documents. The field data type is String. This field is mandatory.

Output Tab:

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No.	Field Name	Description
	Output Fields:	
1	JSON Output	The result of the step will be given as output in form of JSON using this field. *JSONOutput* is the default value for this field.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

12.13 DocuSign: Get Recipients From Envelope

12.13.1 Description

DocuSign: Get Recipients From Envelope step fetches recipients details from the envelope in DocuSign.

12.13.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list.

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		Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note**: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Envelope ID*	Select the ID of the envelope from which you want to get recipients. The field data type is String. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	JSON Output	The result of the step will be given as output in form of JSON using this field. *JSONOutput* is the default value for this field.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

12.14 DocuSign: Send Envelope By Envelope ID

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12.14.1 Description

DocuSign: Send Envelope By Envelope ID sends an envelope present in DocuSign.

12.14.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Accept value as variable/static	Leave checkbox unchecked to accept secret key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
3	Secret Key	Select or specify a valid secret key. A secret key is a value that is stored securely in your web server and only shared with your web server and the DocuSign platform. The field data type is String. This field is mandatory.
4	Accept value as variable/static	Leave checkbox unchecked to accept refresh token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as text box.
5	Refresh Token	Select or specify a valid refresh token. The field data type is String. This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note**: For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Envelope ID	Specify the ID of the envelope to be sent. The field data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description

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	Buttons:	
1	OK	On click of this button the field values are checked. If any required field values are missing, then it displays a validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and does not save any values.

13 Dropbox

Prerequisite

- Dropbox account with all required permissions of the application.
- App key, App secret, Refresh Token should be known.

References
Link for app registration:- https://www.dropbox.com/developers/apps

Permissions:

Permissions for **Files and folders**	**Steps:** Copy File Or Folder Create Folder Delete File Or Folder Move File Or Folder Rename File Or Folder Upload File	files.content.write
	Download File Or Folder	files.content.read
Permissions for **Collaboration**	**Steps:** Share File Or Folder	sharing.write

13.1 Dropbox: Copy File Or Folder

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13.1.1 Description

Dropbox: Copy File or Folder plugin step copies a file or folder on Dropbox.

13.1.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	App Key*	Select the application key of the Dropbox application. The field data type is String. This is a mandatory field.
3	Accept Value as variable/static	Leave checkbox unchecked to accept App Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for App Secret field to appear as Text box.
4	App Secret	Specify the App Secret of Dropbox application. App Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the App Secret field appears as text box and accepts static values or variables. Else, select App Secret from the drop down list. The field data type is String. This is a mandatory field.
5	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
6	Refresh Token	Provide the Refresh Token generated by using connection documentation. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Source File Or Folder Path	Specify the Dropbox source path of file or folder to copy. The data type is String This field is mandatory.
2	Destination Path File Or Folder	Specify the Dropbox destination path of file or folder to be copied. The data type is String This field is mandatory. **Note:** • Provide Dropbox Folder reference as: **/<ExistingFolder>/<FolderName>**. • If the provided path contains a folder that does not exist on Dropbox, then a new folder with the specified name is created in the path. For example, **/Sample Folder/NewFolderName/Test.exe**, here **NewFolderName** is created in the **Sample Folder**.
3	Auto Rename	Auto Rename field is used to auto rename any file or folder to avoid conflict if already exists in the Dropbox destination path. Allowed values are: Yes, No. Default Value: Yes
4	Allow Ownership Transfer	Provide the ownership when the operation is performed. Allowed values are: Yes, No. Default Value: No

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Output File Or Folder Path	Specify the output field name. Default value: *OutputFileOrFolderPath*

13.2 Dropbox: Create Folder

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13.2.1 Description

Dropbox: Create Folder plugin step creates a folder on Dropbox.

13.2.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	App Key*	Select the application key of the Dropbox application. The field data type is String. This is a mandatory field.
3	Accept Value as variable/static	Leave checkbox unchecked to accept App Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for App Secret field to appear as Text box.
4	App Secret	Specify the App Secret of Dropbox application. App Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the App Secret field appears as text box and accepts static values or variables. Else, select App Secret from the drop down list. The field data type is String. This is a mandatory field.
5	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
6	Refresh Token	Provide the Refresh Token generated by using connection documentation. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Dropbox Folder Path	Specify the folder path on which the folder is to be created. **Note:** • Provide Dropbox File Path reference as: **/<FolderName>/<FileName.extension>** • Provide Dropbox Folder reference as: **/<FolderName>** • If the provided path contains a folder that does not exist on Dropbox, then a new folder with the specified name is created in the path. For example, **/Sample Folder/NewFolderName/Test.exe**, here **NewFolderName** is created in the **Sample Folder**.For example: **/<ExistingFolderPath>/<NewFolderName>** The data type is String This field is mandatory.
2	Auto Rename	Auto Rename field is used to auto rename any folder to avoid conflict if already exists in the Dropbox Folder Path. Default Value: No

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Created Folder Path	Specify the output field name. Default value: *CreateFolderPath*

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

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13.3 Dropbox: Delete File Or Folder

13.3.1 Description

Dropbox: Delete File Or Folder step deletes file or folder on Dropbox.

Note:

1. To provide required permissions on App registration portal click on Permissions Tab.
2. Root folder is not supported for deleting.

13.3.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	App Key	Specify the application key of the Dropbox application. The data type is secure string. This field is mandatory.
3	App Secret	Specify the App Secret. The data type is string. This field is mandatory.
4	Refresh Token	Provide the Refresh Token generated by using connection documentation.

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	File Or Folder Path	Specify the file or folder path to delete. The data type is string. This field is mandatory. **Note:** 3. To give Dropbox File Path reference **"/<FolderPath>/<FileName. Extension>"**. 4. To give Dropbox Folder Path reference **"/<FolderPath>/<FolderName>"**.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

13.4 Dropbox: Download File Or Folder

13.4.1 Description

Dropbox: Download File Or Folder step downloads file on Dropbox.

Note:

- There are few files which do not support the Download functionality. Such files may support the Export functionality. For more information, see Dropbox API documentation.
- Root folder is not supported for deleting.
- Download a folder from the user's Dropbox, as a zip file. The folder must be less than 20 GB in size and any single file within must be less than 4 GB in size. The resulting zip must have fewer than 10,000 total file and folder entries, including the top level folder. The input cannot be a single file.

13.4.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	App Key	Specify the application key of the Dropbox application. The data type is secure string. This field is mandatory.
3	App Secret	Specify the App Secret. The data type is string. This field is mandatory.
4	Refresh Token	Provide the Refresh Token generated by using connection documentation.

Input Tab		
No.	Field Name	Description

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	Input Fields:	
1	Step name	Name of the step. This name has to be unique in a single workflow.
2	File Or Folder Path	Dropbox path of file or folder path to download. **Note:** • To give Dropbox File Path reference **"/<FolderPath>/<FileName. Extension>"**. • To give Dropbox Folder Path reference **"/<FolderPath>/<FolderName>"**.
3	Browse	To browse the folder path to download file from Dropbox.
4	Output Folder Path	Folder path to download file at given location.
5	Delete Output Folder Contents Before Downloading	Specify Yes to delete output folder contents before downloading else Specify No. Allowed values: Yes, No.
6	Add Date TimeStamp For Duplicate File	Specify Yes to add Date TimeStamp for duplicate files. Allowed values: Yes, No.
7	Add File To Result	Specify Yes to add the downloaded files to result set and display download link on AE otherwise else select No. Allowed values: Yes, No.

Output Tab		
No.	Field Name	Description
	Output Field:	
1	File Or Folder Overwritten	Specify a field name that returns Yes if file or folder is overwritten else No. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.

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2	Cancel	On click of this button, it will cancel the window and do not save any values

13.5 Dropbox: Move File Or Folder

13.5.1 Description

Dropbox: Move File or Folder plugin step moves a file or folder on Dropbox.

13.5.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	App Key*	Select the application key of the Dropbox application. The field data type is String. This is a mandatory field.
3	Accept Value as variable/static	Leave checkbox unchecked to accept App Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for App Secret field to appear as Text box.
4	App Secret	Specify the App Secret of Dropbox application. App Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the App Secret field appears as text box and accepts static values or variables. Else, select App Secret from the drop down list. The field data type is String. This is a mandatory field.
5	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
6	Refresh Token	Provide the Refresh Token generated by using connection documentation. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.

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7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Source File Or Folder Path	Specify the Dropbox source path of file or folder to move from. • Provide Dropbox File Path reference as: **/<FolderName>/<FileName.extension>** • Provide Dropbox Folder reference as: **/<FolderName>** The data type is String This field is mandatory.
2	Destination Path File Or Folder	Specify the Dropbox destination path of file or folder to be moved to. • If the path provided contains a folder not present on Dropbox it will create a folder with the name provided in the path viz., **/Sample Folder/NewFolderName/Test.exe**, here the **NewFolderName** will be create inside **Sample Folder**. The data type is String This field is mandatory.
3	Auto Rename	Auto Rename field is used to auto rename any file or folder to avoid conflict if already exists in the Dropbox destination path. Default Value: Yes Allowed values: Yes, No
4	Allowed Ownership Transfer	Provide the ownership when the operation is performed. Allowed values are: Yes, No. Default Value: No

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Output File Or Folder Path	Specify the output field name. Default value: *OutputFileOrFolderPath*

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

13.6 Dropbox: Rename File Or Folder

13.6.1 Description

Dropbox: Rename File or Folder plugin step renames a file or folder on Dropbox.

13.6.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	App Key*	Select the application key of the Dropbox application. The field data type is String. This is a mandatory field.
3	Accept Value as variable/static	Leave checkbox unchecked to accept App Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for App Secret field to appear as Text box.
4	App Secret	Specify the App Secret of Dropbox application. App Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the App Secret field appears as text box and accepts static values or variables. Else, select App Secret from the drop down list. The field data type is String. This is a mandatory field.
5	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.

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6	Refresh Token	Provide the Refresh Token generated by using connection documentation. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	File Or Folder Path	Specify a Dropbox path, for file/folder to rename. The data type is String This field is mandatory. **Notes:** • To give Dropbox File Path reference **"/<Folder Name>/<File Name. Extension>"**. • To give Dropbox Folder Path reference **"/<Folder Name >/<FolderName>"**. • To give New Name reference **"<FolderName>" / "<File Name. Extension>"** • If the path provided contains a folder not present on Dropbox it will create a folder with the name provided in the path viz., **/Sample Folder/NewFolderName/Test.exe**, here the NewFolderName will be create inside Sample Folder.
2	New Name	Specify the new name of the file or folder. The data type is String This field is mandatory.
3	Auto Rename	Auto Rename field is used to auto rename any file or folder to avoid conflict if already exists in the Dropbox destination path. Default Value: Yes Allowed values: Yes, No
4	Allowed Ownership Transfer	Provide the ownership when the operation is performed. Allowed values are: Yes, No.

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		Default Value: No

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Rename File Or Folder Path	Specify the output field name. Default value: *RenamedFileOrFolderPath*

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

13.7 Dropbox: Share File Or Folder

13.7.1 Description

Dropbox: Share File or Folder plugin step shares a file or folder.

13.7.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	App Key*	Select the application key of the Dropbox application. The field data type is String. This is a mandatory field.

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3	Accept Value as variable/static	Leave checkbox unchecked to accept App Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for App Secret field to appear as Text box.
4	App Secret	Specify the App Secret of Dropbox application. App Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the App Secret field appears as text box and accepts static values or variables. Else, select App Secret from the drop down list. The field data type is String. This is a mandatory field.
5	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
6	Refresh Token	Provide the Refresh Token generated by using connection documentation. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	File Or Folder Path	Specify a Dropbox file path or folder to create its shared link. The data type is String This field is mandatory.

Additional Input Tab:		
No.	Field Name	Description
	Link Settings:	

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1	Access Level	Specify an access level to the shared link The Allowed Values are viewer, editor, max. The default value is Viewer. The data type is String. **Note:** Shared files can only have edit (editor) and Max (max) privileges for Google Docs and Microsoft files.
2	Shared Link Expiry Date	Specify the date to set the expiry timestamp of the shared link (format: MM/DD/YYYY). The data type is String.
3	Who Has Access	Specify a value to manage the effective audience access that benefits from shared link. Allowed Values are: AnyoneWithLink, TeamMembers, no_one, PeopleWithPassword. The default value is AnyoneWithLink. The data type is String.
4	Shared Link Password	Specify the password for the shared link. The shared link password is works only if, Require Password is Yes and Who Has Access is set to PeopleWithPassword. The data type is String.
5	Disable Download	This field is used to control download permission using the shared link. Specify Yes to disable download else No. The allowed values are: Yes, No. The default value is No. The data type is String.
	Folder Settings:	
6	Folder Membership	Specify an option to limit who can be added as a member of the folder. The options are: Anyone, TeamMembers. The default value is: Anyone. The data type is String.
7	Manage Access	Specify who choose who can add people to the folder. The allowed values are: Owner, TeamMembers. The default value is TeamMembers. The data type is String.
8	Link Restrictions	Specify an option to prevent non-members from accessing the folder via link. Allowed values are: Anyone/Members. The default value is Anyone. The data type is String.
9	Viewer Info	Specify Yes to show who viewed files in this folder to team members and people who can edit. The allowed values are: Yes, No. The default value is Yes. The data type is String.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Shared Link URL	Specify an output field to hold the shared link URL created. This field is mandatory.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

13.8 Dropbox: Upload File

13.8.1 Description

Dropbox: Upload File step uploads file on Dropbox.

13.8.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	App Key	Specify the application key of the Dropbox application. The data type is secure string. This field is mandatory.
3	App Secret	Specify the App Secret. The data type is string. This field is mandatory.
4	Refresh Token	Provide the Refresh Token generated by using connection documentation.

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	File To Upload	Local path of file to upload on Dropbox.
2	Browse	To browse the path of file to upload on Dropbox.
3	Dropbox File Path	Path in the user's Dropbox to save the file.

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4	If File Exists on Dropbox Path	If File Exists on Dropbox Path is used to auto rename, overwrite a file on Dropbox. Default value : ThrowException Allowed Values:- AutoRename, Overwrite, ThrowException
5	Client Modified Timestamp (UTC)	Client Modified Timestamp (UTC) is additional timestamp, used to provide the file modified timestamp. By default it takes current timestamp.
6	Send Notifications To Desktop Client	The user is made aware of any file modification by sending a notification. It will send notification if not set to No. Default: Yes. Allowed Values: Yes, No

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

Notes:

1. To give Dropbox File Path reference **"/FolderName/FileName.extension"**.
2. Specify the timestamp as per the tooltip provided in Client Modified Timestamp (UTC) field.
   Timestamp format: - yyyy-MM-DDTHH-mm-ssZ
3. Access Token generation is one time process for any app, this token never expires unless new is generated. Please do not share the generated Access Token.
4. The maximum size of a file one can upload to an upload session is 350 GB.
5. If the path provided contains a folder not present on Dropbox it will create a folder with the name provided in the path viz., **/Sample Folder/NewFolderName/Test.exe**, here the NewFolderName will be create inside Sample Folder.
6. If you want to upload file in root then provide "/" with file name, for example, "/FileName.extension".

14 Dynamic 365

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Dynamics 365 plugin is designed to perform operations on Dynamic 365 entities.

Prerequisites:

- Dynamics 365 CRM instance with access details.
- User must be authorized to access the specified entity and perform the requisite operation such as query, delete, insert and update.

References:

a. Refer to the links below to generate Client ID, Client Secret Key and Tenant ID from the Azure portal
   - https://www.inkoop.io/blog/how-to-get-azure-api-credentials/
   - https://community.microfocus.com/t5/Identity-Manager-Tips/Creating-the-application-Client-ID-and-Client-Secret-from/ta-p/1776619

b. Refer to the link below to connect Dynamics CRM with Microsoft Azure
   - https://docs.microsoft.com/en-us/power-platform/admin/manage-application-users#create-an-application-user
   - https://www.youtube.com/watch?v=Td7Bk3IXJ9s

c. Refer to the links below to check the Criteria Value type required for the specified Criteria Field supported for the given Entity Name.
   - https://docs.microsoft.com/en-us/powerapps/developer/data-platform/webapi/query-data-web-api
   - https://docs.microsoft.com/en-us/dynamics365/customer-engagement/web-api/entitytypes?view=dynamics-ce-odata-9

14.1 Dynamics 365: Delete Entity

14.1.1 Description

Dynamics 365: Delete Entity plugin step deletes one or more Dynamics 365 entity records matching the given criterion.

14.1.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the Dynamics 365 CRM Instance. For example, https://XXXXX.crm8.dynamics.com The field data type is String. This is mandatory.
3	Tenant ID	Specify Tenant ID to authenticate Dynamics 365 CRM Instance. The field data type is String. This is mandatory.

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		Note: To create Tenant ID refer plugin prerequisites and references.
4	Client ID	Specify Client ID to authenticate Dynamics 365 CRM Instance. The field data type is String. This is mandatory. **Note:** To create Client ID refer plugin prerequisites and references.
	Client Secret:	**Note:** To create Client Secret refer the plugin prerequisites and references.
5	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
6	Client Secret	Provide the Client Secret to authenticate Dynamics 365 CRM Instance. Client Secret is entered using a widget. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The field data type is String This field is mandatory.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Entity Name	Select an Entity name to delete a specific record. The field data type is String. This is mandatory.
2	Get	On click of this button, if the connection is successfully established it populates the list of Entity names on the Dynamics 365 CRM instance.
3	Criteria Field	Specify a valid criteria field name to search the record.
4	Get	On click of this button, if the connection is successfully established it populates the list of fields associated with the Entity Name on the Dynamics 365 CRM instance.
5	Criteria Value	Value of the respective field to search the record.

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		Specify a query criterion that fetches a unique record or else set 'Delete Multiple Records '=Yes. An invalid query criterion throws a no records found error.
6	Delete Multiple Records	Allowed Values: 'Yes' or 'No'. If the specified value is 'Yes', multiple records matching specified criteria will be deleted. Default Value: No

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Deleted Record IDs	Specify an output field to hold the holds the IDs of deleted records. The default value is DeletedRecordIDs The field data type is String. This is mandatory.

14.2 Dynamics 365: Get Entity Records

14.2.1 Description

Dynamics 365: Get Entity Records plugin step fetches all Dynamics 365 entity records matching the query criterion.

Note: This step generates multiple rows hence, use it as the first step in the workflow.

14.2.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the Dynamics 365 CRM Instance. For example, https://XXXXX.crm8.dynamics.com The field data type is String. This is mandatory.
3	Tenant ID	Specify Tenant ID to authenticate Dynamics 365 CRM Instance. The field data type is String. This is mandatory. **Note:** To create Tenant ID refer plugin prerequisites.
4	Client ID	Specify Client ID to authenticate Dynamics 365 CRM Instance. The field data type is String. This is mandatory. **Note:** To create Client ID refer plugin prerequisites.

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	Client Secret:	**Note:** To create Client Secret refer the plugin prerequisites.
5	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
6	Client Secret	Provide the Client Secret to authenticate Dynamics 365 CRM Instance. Client Secret is entered using a widget. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The field data type is String This field is mandatory.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Entity Name	Select an Entity name to delete a specific record. The field data type is String. This is mandatory.
2	Get	On click of this button, if the connection is successfully established it populates the list of Entity names on the Dynamics 365 CRM instance.
3	Criteria Query	Provide a Criteria Query to fetch all Dynamics 365 CRM matching records. The field data type is String. This is mandatory. **Sample Criteria Query:** • “Account Name” eq ‘RPA Test’ • ‘Total Amount’ eq 1500.55 • “Account Number” eq “INC0010097” • “Account Name" eq 'Proseware, Inc.' and "Status" eq 0 Refer to the links below to check the Criteria Query supported for the given Entity Name (Criteria Value type required for the specified Criteria Field). • https://docs.microsoft.com/en-us/powerapps/developer/common-data-service/webapi/query-data-web-api

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		• https://docs.microsoft.com/en-us/dynamics365/customer-engagement/web-api/entitytypes?view=dynamics-ce-odata-9 **Note:** • Provide display names in the criteria query. • Provide criteria field in double-quotes & criteria value in single quotes if it is a string or without quotes for other types. **Limitation:** Lookup fields are not supported.
4	Fetch Records Batch Size	Input step will give the output based upon the batch size. By this provision, it will fetch the records in the provided batches. It must be a positive number. The field data type is String. This is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields (Tabular):	
1	Field Name	On click of the cell in the output table, if the connection is successfully established it populates the list of fields associated with the Entity Name on the Dynamics 365 CRM instance. The field data type is String. This is mandatory. **Note:** At least one 'Field Name' and 'Output Field' must be provided.
2	Output Field	Specify an output field to hold valid values for the fields associated with the field name. The field data type is String. This is mandatory.

14.3 Dynamics 365: Insert Entity

14.3.1 Description

Dynamic 365: Insert Entity plugin step inserts in a record in a Dynamics 365 entity.

Note: For lookup fields, provide the GUID of the selected target in the ‘Field Value’ column of ‘Table Fields’. You can copy GUID from address bar with format -> id=c1852f57-6ab9-ec11-983f-000d3aca381e.

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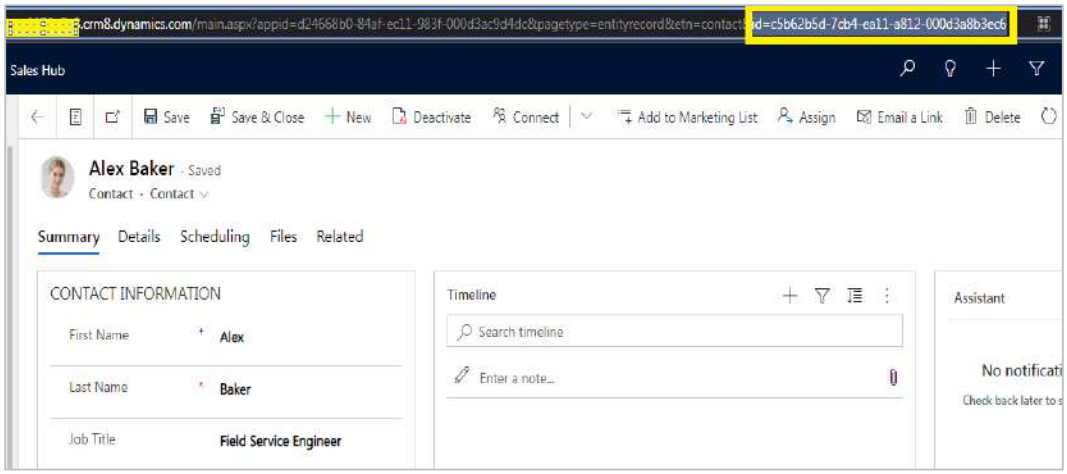

Limitations:
Following field types are not supported:

- In Table Fields, PartyList and Regarding lookup field types.
- In Table Fields, in custom lookup fields, lookup fields having different Logical names and Schema names will not work.
- File and Image field types are not supported.

14.3.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the Dynamics 365 CRM Instance. For example, https://XXXXX.crm8.dynamics.com The field data type is String. This is mandatory.
3	Tenant ID	Specify Tenant ID to authenticate Dynamics 365 CRM Instance. The field data type is String. This is mandatory. **Note:** To create Tenant ID refer plugin prerequisites.
4	Client ID	Specify Client ID to authenticate Dynamics 365 CRM Instance. The field data type is String. This is mandatory. **Note:** To create Client ID refer plugin prerequisites.
	Client Secret:	**Note:** To create Client Secret refer the plugin prerequisites.
5	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.

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6	Client Secret	Provide the Client Secret to authenticate Dynamics 365 CRM Instance. Client Secret is entered using a widget. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The field data type is String This field is mandatory.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Entity Name	Select an Entity name to insert a record. The field data type is String. This is mandatory. **Note:** • User must be authorized to access specified entity name. • User must have appropriate permissions on Dynamics365 CRM instance to insert a record with 'Dynamics 365: Insert Entity' step.
2	Get	On click of this button, if the connection is successfully established it populates the list of Entity names on the Dynamics365 CRM instance.
3	Accept Fields As JSON	• If Checkbox is selected, the 'JSON' field will be used to insert the record. • If the checkbox is not selected 'Table Fields' will be used to build the JSON to insert the record. In this case provide at least one of 'Variable Field Name' or 'Static Field Name' and the corresponding 'Field Value'.
4	JSON	In this field provide JSON in valid format to insert the record. Select a field name from the drop-down list or provide a variable; containing the JSON text. The field data type is String. **JSON sample syntax format:-** `{"fieldName1":"fieldValue1","fieldName2":"fieldValue2", "lookupFieldName3_targetField@odata.bind":`

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		"/entitySetNameOfTarget(guidFieldValue3)", "lookupFieldName4@odata.bind": "/entitySetNameOfTarget(guidFieldValue4)"} **Sample JSON:** {"customerid_account@odata.bind":"/accounts(0faa50fe-e7d0- 4e9d-bdfd-3aacc2d9cbdd)", "name":"Order8","shippingmethodcode":"4", "pricelevelid@odata.bind": "/pricelevels(10f883f4-8d0a- ea11-a811-000d3a1b1d16)"}
	Table Fields	If 'Accept Fields As JSON' is selected. Provide at least one 'Field Name' and 'Field Value'
1	Field Name	Click on the cell in the input table, to populate fields associated with the entity name. The field data type is String. This is mandatory.
2	Field Value	Specify the value of the respective field associated with the Field Name. The field data type is String. This is mandatory.
3	Targets	Click on the cell in the input table, to populate targets associated with the Field Name.

Output Tab:		
No.	Field Name	Description
	Output Fields (Tabular):	
1	Record ID	Specify an output field to hold the ID of the record created in Dynamics 365 CRM instance. Default value is RecordID. The field data type is String. This is mandatory.

14.4 Dynamics 365: Update Entity

14.4.1 Description

Dynamic365: Update Entity plugin step updates one or more Dynamics 365 entities matching the given query criterion.

Note: For lookup fields, provide the GUID of the selected target in the 'Field Value' column of 'Table Fields'. You can copy GUID from address bar with format -> id=c1852f57-6ab9-ec11-983f-000d3aca381e.

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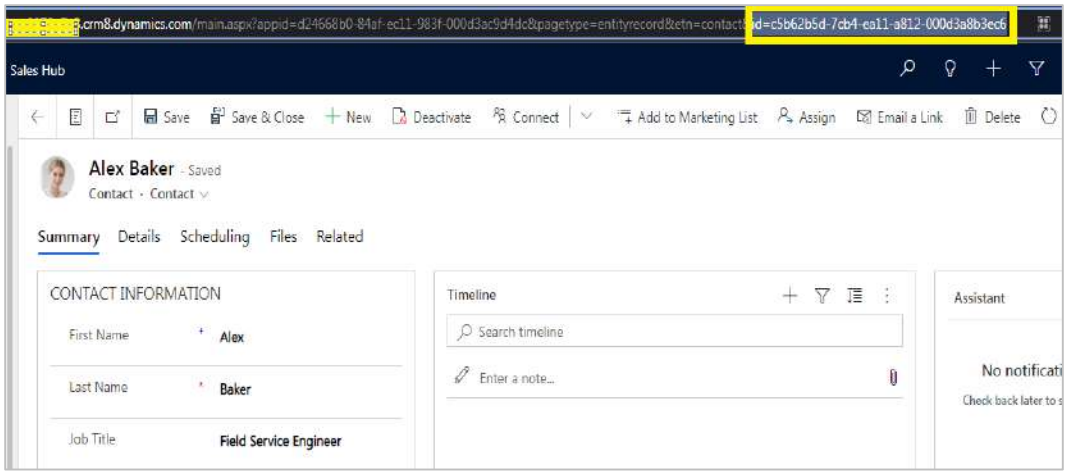

Limitations:
Following field types are not supported:

- In Table Fields, PartyList and Regarding lookup field types.
- In Table Fields, in custom lookup fields, lookup fields having different Logical names and Schema names will not work.
- File and Image field types are not supported.

14.4.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the Dynamics 365 CRM Instance. For example, https://XXXXX.crm8.dynamics.com The field data type is String. This is mandatory.
3	Tenant ID	Specify Tenant ID to authenticate Dynamics 365 CRM Instance. The field data type is String. This is mandatory. **Note:** To create Tenant ID refer plugin prerequisites.
4	Client ID	Specify Client ID to authenticate Dynamics 365 CRM Instance. The field data type is String. This is mandatory. **Note:** To create Client ID refer plugin prerequisites.
	Client Secret:	**Note:** To create Client Secret refer the plugin prerequisites.
5	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list.

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		Else enable checkbox for Client Secret field to appear as Text box.
6	Client Secret	Provide the Client Secret to authenticate Dynamics 365 CRM Instance. Client Secret is entered using a widget. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The field data type is String This field is mandatory.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Entity Name	Select an Entity name to update a specific record. The field data type is String. This is mandatory. **Note:** • User must have appropriate permissions in Dynamics 365 CRM instance to update a record through 'Dynamics 365: Update Entity' step. • User must be authorized to access specified entity name.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Entity names on the Dynamics 365 CRM instance.
3	Criteria Field	Provide a Criteria field name to search the record to be updated. The field data type is String. This is mandatory.
4	Button: Get	On click of this button, if the connection is successfully established it populates the list of fields associated with the Entity Name on the Dynamics 365 CRM instance.
5	Criteria Value	Value of the respective field to search the record. • Specify a query criterion that fetches a unique record or else set 'Update Multiple Records'=Yes. • An invalid query criterion throws a no records found error. Refer to References section in the plugin header for details.

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6	Update Multiple Records	Allowed Values: 'Yes' or 'No' If given 'Yes', multiple records matching specified criteria will be updated. Default value: No
7	Accept Fields As JSON	• If Checkbox is selected, the 'JSON' field below will be used to update the record. • If the checkbox is not selected 'Table Fields' will be used to build the JSON to update the record. In this case provide at least one of 'Variable Field Name' or 'Static Field Name' and the corresponding 'Field Value'.

8	JSON	In this field provide JSON in valid format to update the record. Select a field name from the drop-down list or provide a variable; containing the JSON text.
		
		JSON sample syntax format:-
		`{"fieldName1":"fieldValue1","fieldName2":"fieldValue2", "lookupFieldName3_targetField@odata.bind": "/entitySetNameOfTarget(guidFieldValue3)", "lookupFieldName4@odata.bind": "/entitySetNameOfTarget(guidFieldValue4)"}`
		
		Sample JSON:
		`{"customerid_account@odata.bind":"/accounts(0faa50fe-e7d0-4e9d-bdfd-3aacc2d9cbdd)", "name":"Order8","shippingmethodcode":"4", "pricelevelid@odata.bind": "/pricelevels(10f883f4-8d0a-ea11-a811-000d3a1b1d16)"}`

	Table Fields	If 'Accept Fields As JSON' is selected. Provide at least one 'Field Name' and 'Output Field'.
1	Field Name	Click on the cell in the input table, to populate fields associated with the entity name. The field data type is String. This is mandatory.
2	Field Value	Specify the value of the respective field associated with the Field Name. The field data type is String. This is mandatory.
3	Targets	Click on the cell in the input table, to populate targets associated with the Field Name.

Output Tab:		
No.	Field Name	Description
	Output Fields (Tabular):	

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1	Updated Record IDs	Specify an output field to hold valid the IDs of updated records. Default value: UpdatedRecordIDs The field data type is String.

15 FreshDesk

FreshDesk Plugin has been designed to perform tasks, such as create, delete, get, or update records on FreshDesk cloud instance.

Prerequisites

FreshDesk cloud instance with access details.

Note:

The number of API calls are based on subscription plan/API limit per endpoint.

https://support.freshdesk.com/en/support/solutions/articles/225439-what-are-the-rate-limits-for-the-api-calls-to-freshdesk

15.1 FreshDesk: Create Record

15.1.1 Description

FreshDesk: Create Record step creates a FreshDesk record.

15.1.2 References

To check the Field Value type required for the specified Field Name supported for the given Form Name, use the following links:

- https://developers.freshdesk.com/api/#filter_tickets
- https://developers.freshdesk.com/api/#create_ticket

15.1.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the FreshDesk cloud instance. For example, https://XXXXX.freshdesk.com. The field data type is String. This field is mandatory.
3	Accept value as variable/static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list.

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		Else enable checkbox for API Key field to appear as text box.
4	API Key	Specify the API Key to authenticate FreshDesk cloud instance. The field data type is String. This field is mandatory.
5	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	Specify the name of the form to create a specific record. The field data type is String. This field is mandatory.
2	Accept Fields As JSON	You can select the checkbox, if required. • If the Checkbox is selected, the 'JSON' field will be used to create the record. • If the checkbox is not selected 'Table Fields' will be used to build the JSON to create the record. The field data type is Checkbox. This field is mandatory.
3	JSON	Provide JSON in a valid format to create the record. For the JSON sample, see Annexure.
	Table Fields:	
1	Variable Field Name	Specify the value as a field or variable.
2	Static Field Name	Click the cell in the input table, fields associated with the form name will get populated.
3	Field Value	Specify the value of the respective field associated with the field name. The field data type is String. This field is mandatory.
4	Field Data Type	Specify the data type of the respective field associated with the field name. Allowed values: *'string', 'number', 'array of objects', 'array of strings', 'datetime', 'Integer', 'boolean', 'array of hashes', 'array', 'date'*.

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Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Record ID	Holds the ID of the record created in the FreshDesk cloud instance. Default value: RecordID

Note: The user must be authorized to access the specified form name.

15.1.4 Annexure

JSON sample syntax format

{"field1":integerValue1,"field2":"stringValue2", "field3":numberValue3,"field4": {arrayValue1, arrayValue2},"field5":["arrayOfHashKey1":arrayOfHashValue2],"field6":[arrayOfObjectValue1, arrayOfObjectValue2]", "field7": ["arrayOfStringValue1", "arrayOfStringValue2"], "field8": "booleanValue8", "field9":"dateValue9","field10":"dateTimeValue10"}

Sample JSON

- {"type":"Problem","description":"Test Create Ticket...","subject":"RPA Support","email":"tom@outerspace.com","priority":1,"status":2,"cc_emails":["ross@freshdesk.com","diana@freshdesk.com"],"due_by": "2021-10-09T13:11:43Z","fr_due_by": "2021-10-09T13:11:43Z""custom_fields":{"cf_custom_ticketsubject":"RPA"}}
- {"type":"Problem","description":"Test Create Ticket..."}
- {"email":"tom@outerspace.com","priority":1}
- {"cc_emails":["ross@freshdesk.com","diana@freshdesk.com"]}
- {"fr_due_by": "2021-10-09T13:11:43Z", "custom_fields":{"cf_custom_ticketsubject":"RPA"}}

15.2 FreshDesk: Delete Record

15.2.1 Description

FreshDesk: Delete Record step deletes one or more FreshDesk records matching the criteria query.

15.2.2 References

To check the Field Value type required for the specified Field Name supported for the given Form Name, use the following links:

- https://developers.freshdesk.com/api/#filter_tickets
- https://developers.freshdesk.com/api/#delete_a_ticket
- https://developers.freshdesk.com/api/#bulk_delete_tickets

15.2.3 Configurations

Configuration:		
No.	Field Name	Description

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1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the FreshDesk cloud instance. For example, https://XXXXX. freshdesk.com. The field data type is String. This field is mandatory.
3	Accept value as variable/static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as text box.
4	API Key	Specify the API Key to authenticate FreshDesk cloud instance. The field data type is String. This field is mandatory.
5	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	Specify the name of the form to get the matching records. The field data type is String. This field is mandatory.
2	Criteria Query	Provide the criteria query to fetch all FreshDesk records. For Criteria Query sample, see Annexure. The field data type is String. This field is mandatory. **Note:** You can fetch a maximum 300 records at a time.
3	Delete Multiple Records (Max: 300)	Select Yes or No. If you select Yes, multiple records matching the specified criteria is deleted. **Note:** • Default value is No. • You can delete a maximum 300 records at a time.

Output Tab:		
No.	Field Name	Description

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	Output Fields:	
1	Delete Record IDs	Holds the ID of the deleted records in the FreshDesk cloud instance. Default value: DeletedRecordIDs

15.2.4 Annexure

Criteria query sample syntax format

"(ticket_field:integer OR ticket_field:'string') AND ticket_field:boolean"

Sample criteria query

- priority: 3
- status: 3 or status: 4
- group_id: 11
- (type:'Question' OR type:'Problem') AND (due_by:>'2017-10-01' AND due_by:<'2023-10-07')

15.2.5 Known issues

- Of the 300 records retrieved using the criteria query some records may be duplicate records. [API behavior]
- Out of 300, only distinct records will be deleted.

15.3 FreshDesk: Get Record By ID

15.3.1 Description

FreshDesk: Get Record By ID step fetches a FreshDesk record by ID.

15.3.2 Prerequisites

FreshDesk cloud instance with access details.

15.3.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the FreshDesk cloud instance. For example, https://XXXXX. freshdesk.com. The field data type is String. This field is mandatory.
3	Accept value as variable/static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as text box.

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4	API Key	Specify or select the API Key to authenticate FreshDesk cloud instance. The field data type is String. This field is mandatory.
5	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	Specify the name of the form to get the matching records. The field data type is String. This field is mandatory.
2	Record ID	Fetch a FreshDesk record with given record ID. The field data type is String. This field is mandatory.
3	Get	Click this button to get the list of record IDs associated with the Form Name on the FreshDesk. This list is populated if the connection is successfully established. **Note:** The number of records returned per page is 30.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Field Name	On click of the cell in the output table, if the connection is successfully established it populates the list of fields associated with the Form Name and Criteria Query on the FreshDesk cloud instance. The field data type is String. This field is mandatory.
2	Output Field	Specify the valid values for the fields associated with the field name.

15.4 FreshDesk: Get Records Count

15.4.1 Description

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FreshDesh: Get Records Count step will retrieve the count of FreshDesk records matching the criteria query.

15.4.2 References

To check the Field Value type required for the specified Field Name supported for the given Form Name, use the following links:

- https://developers.freshdesk.com/api/#filter_tickets

15.4.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the FreshDesk cloud instance. For example, https://XXXXX. freshdesk.com. The field data type is String. This field is mandatory.
3	Accept value as variable/static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as text box.
4	API Key	Specify the API Key to authenticate FreshDesk cloud instance. The field data type is String. This field is mandatory.
5	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	Specify the name of the form to get the count of matching records. The field data type is String. This field is mandatory.
2	Criteria Query	Provide the criteria query to fetch all FreshDesk records. For sample criteria query, see Annexure.

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Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Total Records	Holds the count of records returned by given criteria. Default value: TotalRecords

15.4.4 Annexure

Criteria query sample syntax format

"(ticket_field:integer OR ticket_field:'string') AND ticket_field:boolean"

Sample criteria query

- priority:3
- status:3 OR status:4
- group_id:11
- (type:'Question' OR type:'Problem') AND (due_by:>'2017-10-01' AND due_by:<'2023-10-07')

15.5 FreshDesk: Get Records

15.5.1 Description

FreshDesk: Get Record step fetches all FreshDesk records matching the criteria query.

15.5.2 References

To check the Criteria Query [Criteria Value type required for the specified Criteria Field] supported for the given Form Name, use the following link:

- https://developers.freshdesk.com/api/#filter_tickets

15.5.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the FreshDesk cloud instance. For example, https://XXXXX. freshdesk.com. The field data type is String. This field is mandatory.
3	Accept value as variable/static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as text box.

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4	API Key	Specify the API Key to authenticate FreshDesk cloud instance. The field data type is String. This field is mandatory.
5	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	Specify the name of the form to get the matching records. The field data type is String. This field is mandatory.
2	Criteria Query	Provide the criteria query to fetch all FreshDesk records. For Criteria Query sample, see Annexure. The field data type is String. This field is mandatory. **Note:** You can fetch a maximum 300 records at a time.
3	Get Top N Records	Fetch the top N number of records returned by the criteria query. **Note:** You can fetch a maximum 300 records at a time.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Field Name	On click of the cell in the output table, if the connection is successfully established it populates the list of fields associated with the Form Name and Criteria Query on the FreshDesk cloud instance. The field data type is String. This field is mandatory.
2	Output Field	Specify the valid values for the fields associated with the field name.

15.5.4 Annexure

Criteria query sample syntax format

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"(ticket_field:integer OR ticket_field:'string') AND ticket_field:boolean"

Sample criteria query

- priority: 3
- status: 3 or status: 4
- group_id: 11
- (type:'Question' OR type:'Problem') AND (due_by:>'2017-10-01' AND due_by:<'2023-10-07')

15.5.5 Known issues

Of the 300 records retrieved using the criteria query some records may be duplicate records.

[API behavior]

15.6 FreshDesk: Update Record

15.6.1 Description

FreshDesk: Update Record step updates one or more FreshDesk records matching the criteria query.

15.6.2 References

To check the Field Value type required for the specified Field Name supported for the given Form Name, use the following links:

- https://developers.freshdesk.com/api/#filter_tickets
- https://developers.freshdesk.com/api/#update_ticket
- https://developers.freshdesk.com/api/#bulk_update_tickets

15.6.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the FreshDesk cloud instance. For example, https://XXXXX. freshdesk.com. The field data type is String. This field is mandatory.
3	Accept value as variable/static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as text box.
4	API Key	Specify the API Key to authenticate FreshDesk cloud instance. The field data type is String. This field is mandatory.

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5	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	Specify the name of the form to get the matching records. The field data type is String. This field is mandatory.
2	Criteria Query	Provide the criteria query to fetch all FreshDesk records. For sample criteria query, see Annexure. The field data type is String. This field is mandatory. **Note:** You can fetch a maximum 300 records at a time.
3	Update Multiple Records (Max: 300)	Select Yes or No. If you select Yes, multiple records matching the specified criteria are updated. **Note:** • Default value is No. • You can update a maximum 300 records at a time.

Content to Update Tab:		
No.	Field Name	Description
	Content to Update Fields	
1	Accept Fields As JSON	You can select the checkbox, if required. **Note:** • If the Checkbox is selected, the 'JSON' field will be used to create the record. • If the checkbox is not selected 'Table Fields' will be used to build the JSON to create the record. The field data type is Checkbox. This field is mandatory.
2	JSON	Provide JSON in a valid format to create the record. For the JSON sample, see Sample.

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		Note: This field is available only if the Accept Fields As JSON checkbox is selected.
	Table Fields:	
1	Variable Field Name	Select the value as a field or variable.
2	Static Field Name	Click the cell in the input table, fields associated with the form name will get populated.
3	Field Value	Select the value of the respective field associated with the field name. The field data type is String. This field is mandatory.
4	Field Data Type	Select the data type of the respective field associated with the field name. Allowed values: *'string', 'number', 'array of objects', 'array of strings', 'datetime', 'Integer', 'boolean', 'array of hashes', 'array', 'date'*.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Updated Record IDs	Holds the ID of the updated records in the FreshDesk cloud instance. Default value: UpdatedRecordIDs **Note:** You can update a maximum of 300 record IDs.

15.6.4 Annexure

Criteria query sample syntax format:

"(ticket_field:integer OR ticket_field:'string') AND ticket_field:boolean"

Sample criteria query

- priority: 3
- status: 3 or status: 4
- group_id: 11
- (type:'Question' OR type:'Problem') AND (due_by:>'2017-10-01' AND due_by:<'2023-10-07')

15.6.5 Sample

JSON sample syntax format

{"field1":integerValue1,"field2":"stringValue2", "field3":numberValue3,"field4": {arrayValue1, arrayValue2},"field5":["arrayOfHashKey1":arrayOfHashValue2],"field6":[arrayOfObjectValue1, arrayOfObjectValue2]", "field7": ["arrayOfStringValue1", "arrayOfStringValue2"], "field8": "booleanValue8", "field9":"dateValue9","field10":"dateTimeValue10"}

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Sample JSON

- {"type":"Problem","description":"Test Create Ticket...","subject":"RPA Support","email":"tom@outerspace.com","priority":1,"status":2,"cc_emails":["ross@freshdesk.com","diana@freshdesk.com"],"due_by": "2021-10-09T13:11:43Z","fr_due_by": "2021-10-09T13:11:43Z", "custom_fields":{"cf_custom_ticketsubject":"RPA"}}
- {"type":"Problem","description":"Test Create Ticket..."}
- {"email":"tom@outerspace.com","priority":1}
- {"cc_emails":["ross@freshdesk.com","diana@freshdesk.com"]}
- {"fr_due_by": "2021-10-09T13:11:43Z", "custom_fields":{"cf_custom_ticketsubject":"RPA"}}

15.7 FreshDesk: Upload Attachment

15.7.1 Description

FreshDesk: Upload Attachment step uploads an attachment to a FreshDesk record.

15.7.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the FreshDesk cloud instance. For example, https://XXXXX. freshdesk.com. The field data type is String. This field is mandatory.
3	Accept value as variable/static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as text box.
4	API Key	Specify the API Key to authenticate FreshDesk cloud instance. The field data type is String. This field is mandatory.
5	Test Connection	Verifies if the connection is established or not. **Note:** For the purpose of verification, fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. The Test Connection button will only work with static (hardcoded) values and environment variables.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	Specify the name of the form to get the matching records. The field data type is String. This field is mandatory. **Note:** • The user must be authorized to access the specified form name. • Files uploaded on contact form are reflected as avatar icons. • For Avatar image of the contact, the maximum file size is 5MB and the supported file types are .jpg, .jpeg, .jpe, and .png. • The total size of attachments should not exceed 20MB.
2	Record ID	Fetch a FreshDesk record with the provided record ID. The field data type is String. This field is mandatory.
3	Get	Click to populate the list of record IDs associated with the Form Name on FreshDesk. This list is populated if the connection is successfully established. **Note:** The number of records returned per page is 30.
4	Input File Path	Provide full file path to upload. To provide multiple file paths, use comma separated values. The field data type is String. This field is mandatory.
5	Browse	Click to select the files to upload.

16 Google Drive

Google Drive Plugin has been designed to perform tasks on Google Drive.

Prerequisites:

- Google developer console account should be created - https://console.developers.google.com/.
- APIs for Google Drive should be enabled.
- Client ID and Client Secret should be generated from the Credentials tab. In exchange for the Client ID and Client Secret, a Refresh token can be generated.

Note:

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- For information about Refresh Token expiry, see https://developers.google.com/identity/protocols/oauth2#expiration
- The Get button fetches list of file or folder that belong to the owner only.
- For information about Google Supported MIME Type, see https://developers.google.com/drive/api/v3/mime-types
  It is recommended that users *should not use* files or folders that are deleted or in trash or in the bin for any operations through Google Drive plugin**.**

References:

Google Drive documentation
https://developers.google.com/drive/api/v3

Refer Appendix 10: Google Refresh Token Generation for enabling APIs, creating Client ID and Client Secret and generating Refresh Token.

Table: Fetch File or Folder ID

1	**On Google Drive Right Click a file or folder and click Get Link on the popup menu. You may also copy the link.**
i.	**If folder link value is –** https://drive.google.com/drive/folders/1qGCkdoweiydqJc65qHMK-S5i7sN3eGi9?usp=sharing Then, folder ID is - 1qGCkdoweiydqJc65qHMK-S5i7sN3eGi9
ii.	**If file link value is –** https://drive.google.com/file/d/**0B7IdPsPouySIV21UYVJvdlJuNk1xamNlZ1RBQU01V3FGbFR3/view**?usp=sharing Then, file ID is the value between d/ and ? – 0B7IdPsPouySIV21UYVJvdlJuNk1xamNlZ1RBQU01V3FGbFR3
2	**Open file or folder**
i.	In case of folder copy the URL from the address bar - https://drive.google.com/drive/u/0/folders/**1qGCkdoweiydqJc65qHMK-S5i7sN3eGi9** everything after folders/ is the folder ID 1qGCkdoweiydqJc65qHMK-S5i7sN3eGi9

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ii.	In case of files (editable by google drive) copy the URL from the address bar - https://docs.google.com/spreadsheets/d/**1A5SoOX896KyQu1NdbqYeKanRz0-KKq16r6S8SOu503Y**/edit#gid=0 everything between d/ and /edit the file ID - 1A5SoOX896KyQu1NdbqYeKanRz0-KKq16r6S8SOu503Y

16.1 Copy File

Google Drive: Copy File step copies a file to the provided destination folder ID of Google Drive.

16.1.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. Client Secret is entered using a widget. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token.

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		Note: Refresh Token is entered using a widget. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Test Connection	Click Test Connection button to verify whether the connection is available or not. Client ID, Client Secret and Refresh Token are mandatory to authenticate Google Drive. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Source File ID	Specify the ID of the file, which you want to copy. The data type is String. This field is mandatory. Refer **Table: Fetch File or Folder ID** above to fetch the ID.
2	Get	Click to fetch the files available in Google Drive. The selected file's ID appears in the **Source File ID** field.
3	Destination Folder ID	It is an ID of the folder in which the copy of the source file has to be made. The data type is String. This field is mandatory.
4	Get	Click to fetch the folders available in Google Drive. The selected folder's ID appears in the **Destination Folder ID** field.
5	File Name After Copy	Specify a new name for the copied file. The data type is String. This field is optional.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Copied File ID	Returns the ID of the copied file.

16.2 Create File Or Folder

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Google Drive: Create File Or Folder step creates a file or folder on Google Drive.

16.2.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. Client Secret is entered using a widget. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token is entered using a widget. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Test Connection	Click Test Connection button to verify whether the connection is available or not. Client ID, Client Secret and Refresh Token are mandatory to authenticate Google Drive. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when

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		workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Parent Folder ID	Specify an ID of the folder in which file or folder is to be created. The data type is String. This field is mandatory. Refer **Table: Fetch File or Folder ID** above to fetch the ID.
2	Get	Click to fetch the folders available in Google Drive. The selected folder's ID appears in the **Parent Folder ID** field.
3	File or Folder Name	Specify the name of the file or folder which is to be created. The data type is String. This field is mandatory.
4	File Type	Specify the type of file you want to create. Allowed values are *Folder*, *Google Sheet, Google Slides*, or *Google Docs*. The data type is String. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	File Or Folder ID	Returns the ID of created file or folder.

16.3 Delete File Or Folder

Google Drive: Delete File Or Folder step deletes a file or folder on Google Drive.

16.3.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	

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3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. Refresh Token is entered using a widget. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	File or Folder ID	Specify ID of a file or a folder that has to be deleted from the Google Drive. Refer **Table: Fetch File or Folder ID** above to fetch the ID.
2	Get	Click to fetch the list of files or folders available in Google Drive, selected file's or folder's ID reflects in **File Or Folder ID** field.

16.4 Download File

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Google Drive: Download File step downloads a file or folder on Google Drive to the desired local path.

16.4.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. The data type is String. This field is mandatory. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. Refresh Token is entered using a widget. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.

Input Tab:		
No.	Field Name	Description

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	Input Fields:	
1	File ID	Specify the ID of a file or a folder to be downloaded from the Google Drive. The data type is String. This field is mandatory. Refer **Table: Fetch File or Folder ID** above to fetch the ID.
2	Get	Click to fetch the files available in Google Drive, selected file's ID reflects in the **File ID** field.
3	Output Folder Path	Specify the local Directory path where the file needs to be downloaded or alternately browse for the path. The data type is String. This field is mandatory.
4	Browse	Click to browse the path of the downloaded file.

Additional Input Tab:		
No.	Field Name	Description
	Additional Input Fields (Optional):	
1	Delete Output Folder Contents Before Downloading	Specify 'Yes' Or 'No'. Set 'Yes' to delete the contents of the output folder where the file is to be downloaded, else set 'No' to overwrite the duplicate file. Default value is 'No'. The data type is String.
2	Add Date Timestamp for Duplicate Files	Specify 'Yes' Or 'No'. Setting 'Yes' creates a new folder for the downloaded file with date and time stamp, else setting 'No' overwrites the duplicate file. Default value is 'No'. The data type is String.
3	Add File To Result	Specify 'Yes' Or 'No'. Set 'Yes' to add the file to the Request result on AutomationEdge UI. Default value is 'No'. The data type is String.

Output Tab:		
No.	Field Name	Description
	Output Field (Optional):	
1	File Overwritten	Returns 'Yes' if the file is overwritten else returns 'No'. The default value is FileOverwritten. The data type is String.

16.5 Move File Or Folder

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Google Drive: Move File Or Folder step moves a file or folder to the provided Destination Folder ID of Google Drive.

16.5.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. Client Secret is entered using a widget. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token is entered using a widget. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Test Connection	Click Test Connection button to verify whether the connection is available or not. Client ID, Client Secret and Refresh Token are mandatory to authenticate Google Drive. For the purpose of verification fields coming from previous steps

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		are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Source File or Folder ID	Specify an ID of the file or folder that you want to move. The data type is String. This field is mandatory. Refer **Table: Fetch File or Folder ID** above to fetch the ID.
2	Get	Click to fetch and populate the files and folders available in Google Drive. The selected file's or folder's ID appears in the **Source File Or Folder ID** field.
3	Destination Folder ID	It is an ID of the folder where the file or folder has to be moved.
4	Get	Click to fetch and populate the folders available in Google Drive. The selected folder's ID appears in the **Destination Folder ID** field.

16.6 Rename File Or Folder

Google Drive: Rename File Or Folder step renames a file or folder on Google Drive.

16.6.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application.

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		Client Secret is entered using a widget. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token is entered using a widget. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Test Connection	Click Test Connection button to verify whether the connection is available or not. Client ID, Client Secret and Refresh Token are mandatory to authenticate Google Drive. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Source File or Folder ID	Specify an ID of the file or folder that you want to rename. The data type is String. This field is mandatory. Refer **Table: Fetch File or Folder ID** above to fetch the ID.
2	Get	Click to fetch and populate the files and folders available in Google Drive. The selected file's or folder's ID appears in the **Source File Or Folder ID** field.
3	New Name	Specify a new name for the file or folder. The data type is String. This field is mandatory.

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16.7 Upload File

Google Drive: Upload File step uploads a file to Google Drive.

16.7.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. The data type is String. This field is mandatory. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. Refresh Token is entered using a widget. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.

Input Tab:		
No.	Field Name	Description

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	Input Fields:	
1	File To Upload	Specify the local file path (e.g. C:\Text.txt) from where file has to be uploaded. The data type is String. This field is mandatory.
2	Button: Browse	Click to browse the file to be uploaded.

Additional Input Tab:		
No.	Field Name	Description
	Additional Input Fields:	
1	Google Drive Folder ID	Specify the parent folder ID where the file has to be Uploaded, chooses root folder if left blank. The data type is String.
2	Get	Click to fetch the folders available in Google Drive, selected folder's ID reflects in **Google Drive Folder ID** field.
2	File Name After Upload (Rename)	Specify the file name that should be set after file upload. The existing file name is used if this field is left blank. The data type is String.
3	MIME Type After Upload	Specify the MIME type of the file that should be set after upload, if left blank the step code tries to identify the original MIME type. **Note**: This steps attempts file conversion provided it is a Google supported MIME Type. The data type is String. Please refer the following URL for Google Supported MIME Types: https://developers.google.com/drive/api/v3/mime-types

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Upload File ID	Specify an output field to hold the Returned ID of the uploaded file. The data type is String.

17 Google Sheets

Google Spreadsheets Plugin has been designed to perform tasks on spreadsheets on Google Drive.

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Prerequisites:

- Google developer console account should be created and subscribed - https://console.developers.google.com/.
- APIs for Google Drive and Google Spreadsheet should be enabled.
- Client ID and Client Secret should be generated from the Credentials tab. In exchange for the Client ID and Client Secret, a Refresh Token can be generated.

Note:

- Google Spreadsheets plugin steps read from Google Drive. Google Drive differentiates between Excel files and Google Spreadsheet files. However, Google Spreadsheets plugin steps support only Google Spreadsheet files.

References:

Google Spreadsheet documentation
https://developers.google.com/sheets/api

Refer Appendix 10: Google Refresh Token Generation for enabling APIs, creating Client ID and Client Secret and generating Refresh Token.

17.1 Append Row

17.1.1 Description

Google Spreadsheet: Append Spreadsheet Plugin Step appends rows to a spreadsheet on Google Drive.

17.1.2 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application.

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		Client Secret is entered using a widget. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. Refresh Token is entered using a widget. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Spreadsheet ID	Specify the unique ID allocated to the spreadsheet. This ID is the value between the "/d/" and the "/edit" in the URL of your spreadsheet. For example, Spreadsheet ID reference URL - For example, consider the following URL that references a Google Sheets spreadsheet: https://docs.google.com/spreadsheets/d/1CJnkal5pj3SLpv-HdmyguX/edit#gid=0 Then, Spreadsheet ID is: 1CJnkal5pj3SLpv- HdmyguX) as highlighted above.

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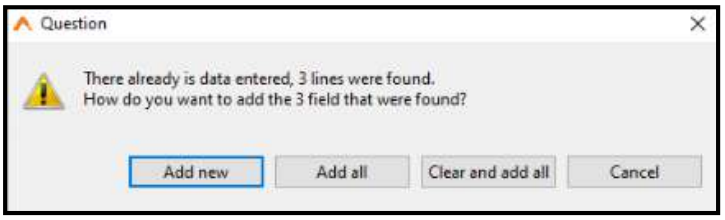
2	Sheet Name	The unique name of the sheet such as Sheet1, Sheet2 likewise.

Fields Tab:		
No.	Field Name	Description
	Button: Get Fields	Click this button to fetch the field values from previous steps.
1	Table Fields:	
	Name	Specify the field Names (or Columns) for the rows you wish to append. Names are populated by clicking the Get Fields button above from previous steps in the workflow stream. You may keep all field Names populated or remove some field names for the rows you wish to append to this sheet. There are other scenarios while working with this step. You may use the Get Fields button above to fetch field Names. You may click on this button again for any reasons such as new fields in the workflow stream etc. In such a case if data is already present in the step a pop-up window is displayed with four options as seen in the snapshot below.  You may choose to add only new rows, Add all rows again, Clear existing rows and add all rows or cancel Get Fields button.
2	Type	The data Type of field Names above. Type values are only for user information purposes on plugin window. **Note:** At least one combination of Name and Type should be provided.

17.2 Copy Sheet

Google Spreadsheet: Copy Sheet Plugin Step, copies a sheet from one spreadsheet to same or another spreadsheet on Google drive.

17.2.1 Configurations

No.	Field Name	Description

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1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description

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	Input Fields:	
1	Source Spreadsheet ID	Specify the Source Spreadsheet ID from which the sheet is to be copied. The data type is String. This field is mandatory. Note: **To get a spreadsheet ID:** In the URL, the spreadsheet ID is the value between "/d/" and "/edit" in the URL of the spreadsheet, as shown in the following image: For example, consider the following URL that refers a Google Sheets spreadsheet: https://docs.google.com/spreadsheets/d/1CJnkal5pj3SLpv-HdmyguX/edit#gid=0 Then the Spreadsheet ID is **1CJnkal5pj3SLpv- HdmyguX**.
2	Sheet ID	Specify the sheet ID of a sheet that is to be copied. The data type is String. This field is mandatory. Note: **To get a sheet ID that is to be copied:** i. Open the Excel book and click on the Sheet ID you want to copy. ii. Copy the **gid**. For example, in the following URL, the sheet ID is, gid=1858077604
3	Destination Spreadsheet ID	Specify the destination spreadsheet Id to which the sheet is to be copied. Follow the same method to fetch Spreadsheet ID as mentioned for Source Spreadsheet ID. The data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

17.3 Create Sheet

Google Spreadsheets: Create Sheet step, creates a new sheet in a spreadsheet on Google Drive.

17.3.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token.

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		Note: Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Spreadsheet ID	Specify the unique ID allocated to the spreadsheet. The data type is String. This field is mandatory. Note: **To get a spreadsheet ID:** In the URL, the spreadsheet ID is the value between "/d/" and "/edit" in the URL of the spreadsheet, as shown in the following image: For example, consider the following URL that refers a Google Sheets spreadsheet: https://docs.google.com/spreadsheets/d/1CJnkal5pj3SLpv-HdmyguX/edit#gid=0 Then the Spreadsheet ID is **1CJnkal5pj3SLpv- HdmyguX**.
2	Sheet Name	Specify a new sheet name to be created. The data type is String. This field is mandatory.
3	Index	Specify an Index to create a new sheet at a specified position. The data type is Number.

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		Note: If Index is not provided, then the sheet is created at the last position in the spreadsheet.

Header Tab:		
No.	Field Name	Description
	Header Fields:	
1	Header(s)	Specify the header name to be created. For multiple headers provide semi-colon (;) separated values to be written in a new sheet. The data type is String. Note: • If a Header is not provided or Invalid Header is provided, then the sheet is created without headers. • A blank header name is set, if two consecutive semi-colons (;;) are provided.
2	Row Index	Specify Row Index to write a header to specified row number. For example, if the header is to be written at row 1 of the newly created sheet then Row Index=0. The data type is Number. Note: The maximum value for the Row index should be 999 and the column index should be 25. The sheet will be created in Google if the values exceed, but the plugin will be aborted with an error.
3	Column Index	Provide Column Index to start writing header from the specified column. For example, if the header is to be written from Column A of the newly created sheet then Column Index=0. The data type is Number. Note: The maximum value for the Row index should be 999 and the column index should be 25. The sheet will be created in Google if the values exceed, but the plugin will be aborted with an error.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Sheet ID	Specify an output field to hold the Sheet ID of the created sheet. The date type is string. This field is mandatory.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

17.4 Create Spreadsheet

Google Spreadsheets: Create Spreadsheet step, creates a new spreadsheet on Google Drive.

17.4.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.

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6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Spreadsheet Name	Specify a new Spreadsheet name to be created. The data type is String. This field is mandatory. Note: A Work Sheet is created with the default name Sheet1.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Spreadsheet ID	Specify an output field to hold the Spreadsheet ID of the created Spreadsheet. The date type is string. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

17.5 Delete Sheet

Google Spreadsheets: Delete Sheet step, deletes a sheet in a spreadsheet on Google Drive.

17.5.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token.

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		Note: Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Spreadsheet ID	Specify a Spreadsheet ID from which a sheet is to be deleted. The data type is String. This field is mandatory. **Note:** **To get a spreadsheet ID:** In the URL, the spreadsheet ID is the value between "/d/" and "/edit" in the URL of the spreadsheet, as shown in the following image: For example, consider the following URL that refers a Google Sheets spreadsheet: https://docs.google.com/spreadsheets/d/1CJnkal5pj3SLpv-HdmyguX/edit#gid=0 Then the Spreadsheet ID is **1CJnkal5pj3SLpv- HdmyguX**.
2	Sheet ID	Specify the Sheet ID to be deleted. The date type is string. This field is mandatory. **Note:**

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		To get a sheet ID that is to be copied: i. Open the Excel book and click on the sheet ID you want to copy. ii. Copy the **gid**. For example, in the following URL, the sheet ID is, gid=1858077604

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

17.6 Get Sheet ID By Name

Google Spreadsheets: Get Sheet ID By Name step, gets the sheet Id of the provided sheet name from a spreadsheet on Google drive.

17.6.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.

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4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Spreadsheet ID	Specify a Spreadsheet ID of the spreadsheet on which the sheet is present. The data type is String. This field is mandatory. **Note:** **To get a spreadsheet ID:** In the URL, the spreadsheet ID is the value between "/d/" and "/edit" in the URL of the spreadsheet, as shown in the following image:

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		 For example, consider the following URL that refers a Google Sheets spreadsheet: https://docs.google.com/spreadsheets/d/1CJnkal5pj3SLpv-HdmyguX/edit#gid=0 Then the Spreadsheet ID is **1CJnkal5pj3SLpv- HdmyguX**.
2	Sheet Name	Specify the Sheet name to fetch its sheet ID, or click the Get button as mentioned below. The data type is String. This field is mandatory.
3	Button: Get	Click the Get button to get the list of sheet names in the Spreadsheet.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Sheet ID	Specify an output field to hold the returned Sheet ID. The date type is string. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

17.7 Read

17.7.1 Description

Google Spreadsheets: Read step reads a spreadsheet on Google Drive.

17.7.2 Configurations

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No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	Refer Prerequisites and References above to get the connection attributes.
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. Client Secret is entered using a widget. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. Refresh Token is entered using a widget. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Spreadsheet ID	Specify the unique ID allocated to the spreadsheet. This ID is the value between the "/d/" and the "/edit" in the URL of your spreadsheet. For example, Spreadsheet ID reference URL - For example, consider the following URL that references a Google Sheets spreadsheet: https://docs.google.com/spreadsheets/d/1CJnkal5pj3SLpv-HdmyguX/edit#gid=0 Then, Spreadsheet ID is: 1CJnkal5pj3SLpv- HdmyguX) as highlighted above.
2	Range	Range should be provided in A1 notation. This is a string like Sheet1!A1:B2, that refers to a group of cells in the spreadsheet, and is typically used in formulas.
3	Has Header?	Allowed values are 'Yes' or 'No'. Set "Yes" if header row is present in the retrieved data. If this option is set to 'Yes', then values present in all columns in the first row will be populated in Field Name in the Output tab below; else dummy column names such as Field_000, Field_001 and so on will be populated.

Output Tab:		
No.	Field Name	Description
1	Button: Get Output Fields	Click this button to populate header field names (or columns) to be read from spreadsheet in the tabular Field Names below. **Note:** On an ongoing basis please click Get Output Fields button to after any change in any of the above input fields.
	Table Fields:	
2	Field Name	Specify the Field Names (or columns) to fetch from the range specified in the input Tab. The Field Names are fetched by clicking the Get Output Fields button above. You may Keep all the Field Names retrieved or deleted the fields names not required. If 'Has Header' is set to Yes in the Input Tab, then values present in all columns in the first row are populated in the Field name.

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		If 'Has Header' is set to No, then the dummy column names such as Field_000, Field_001 and so on are populated. The following is true of the rows of data read from the range specified, • If Has Header=Yes and you wish to fetch the columns of rows data that do not have a value in the first row of header Field Name then alternatively provide an Output Field Name below, to match the columns of rows data. • In case of merged cells, the value is assigned to the top left cell. • In a row, if a cell is empty it is marked as **<null>,** and also in case there are no consecutive cells having data after that cell then the value of such cells is also marked as **<null>**. **Note:** At least one combination of Field Name and Output Field Name should be provided.
3	Output Field Name	You may specify desirable names for the Field Names above; especially when 'Has Header'=No and Field Names do not represent appropriate business names. **Note:** At least one combination of Field Name and Output Field Name should be provided.

18 Google Workspace

Google Workspace plugin has been designed to perform tasks with users, groups, and password in the Google Workspace.

Prerequisites

- Create Google developer console account. Use the following link to create the account, https://console.developers.google.com/.
- Enable APIs for Google Admin SDK.
- Client ID and Client Secret should be generated from the Credentials tab. In exchange for the Client ID and Client Secret, a Refresh token can be generated.

References

Google Workspace documentation, https://developers.google.com/admin-sdk/directory.

Note:

For creating Client ID, Client Secret, and generating Refresh Token, see Annexure 18: Google Token Generation.

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1.1 Google Workspace: Add Alias To User

Google Workspace: Add Alias To User step, adds an alias to the user present on the Google Workspace.

1.1.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be

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		accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User Primary/Alias Email Address Or Unique User ID	Select the user's primary email address, alias email address, or unique user ID. The data type is String. This field is mandatory.
2	Alias Email	Select the username for the alias email. The data type is String. This field is mandatory.
3	Domain	Select the domain for the alias email. The data type is String. This field is mandatory.
4	Button: Get	Click to get the list of available domain under the Google Workspace admin account.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

1.2 Google Workspace: Add Member To Group

Google Workspace: Add Member To Group step, adds a member to the group present on the Google Workspace.

1.2.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.

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	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. Note: Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	

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1	Group Primary/Alias Email Address Or Unique Group ID	Select the value of the Group's primary email address, alias email address, or unique Group ID. The data type is String. This field is mandatory.
2	Member Primary/Alias Email Address Or Unique Member ID	Select the value of the Member's primary email address, alias email address, or unique Member ID. The data type is String. This field is mandatory.
3	Role	Select the role to assign to the member. Available values are: Owner, Manager, and Member.
4	Delivery Settings	Select the delivery settings. Available values are: ALL_MAIL, DAILY, DIGEST, DISABLED, and NONE.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

1.3 Google Workspace: Add User

Google Workspace: Add User step, creates users on Google Workspace.

1.3.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list.

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		Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. Note: Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	First Name	Select the first name of the user. The data type is String. This field is mandatory.
2	Surname	Select the surname of the user. The data type is String. This field is mandatory.
3	Primary Email	Select the username for the primary email. The data type is String. This field is mandatory.

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4	Domain	Select the domain for the primary email. The data type is String. This field is mandatory.
	Button: Get	Click to get the list of the available domain under the Google Workspace admin account.
5	Password	Select the new password for user. The data type is String. This field is mandatory.
6	Ask User To Change Their Password When They Sign In	Select Yes or No. If you select Yes, users must change the password when they sign on again to the Google Workspace. If you select No, then users do not need to change their password.

Additional Input Tab:		
No.	Field Name	Description
	Additional Input Fields:	
1	Full Name	Select the user's full name.
2	Secondary Email	Select the secondary or the recovery email address of the user.
3	Phone Number	Select the recovery phone number of the user with the country code.
4	Organizational Unit Path	Select the organizational unit or path to sub-organizational units. Note: You can simply use "/" to denote root of the organizational unit or the path to sub organizational units.
5	Include In Global Address List	Select Yes or No. If you select Yes, include user to the global address list. However, if you select No, user will not be added to the global address list. Default value: No
6	IP Whitelisted	Select Yes or No. If you select Yes, whitelist the IP of the user. However, if you select No, if you do not want to whitelist the IP of the user. Default value: No
7	Suspended	Select Yes or No. If you select Yes, the user is suspended. Default value: No

User Information Tab:		
No.	Field Name	Description

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	Contact Information Fields:	
1	Field Name	Select the field name to display user information. Available values are: Email, Phone, and Address.
2	Type	Select the type for the respective field name. Available values for Email: Home, Work, Custom, and Other. Available values for Phone: Home, Work, and Mobile. Available values for Address: Home, Work, and Other.
3	Value	Select the Value with respect to the selected field name and the type.
	Employee Information Fields:	
1	Static Field Name	Select a static field name. Available values are: Employee ID, Job Title, Type of employee, Manager's Email, Department, Cost centre, Building ID, Floor name, and Floor section.
2	Variable Field Name	Select a variable field name. Available values are: Employee ID, Job Title, Type of employee, Manager's Email, Department, Cost centre, Building ID, Floor name, and Floor section.
3	Value	Specify the value with respect to the selected Field Name.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Unique User ID	Specify the user's unique ID. Default is: User's unique ID

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

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1.4 Google Workspace: Assign License

Google Workspace: Assign License step, assigns a license to user.

References:

- Google Workspace documentation: https://developers.google.com/admin-sdk/directory
- Google Workspace Products and SKUs: https://developers.google.com/admin-sdk/licensing/v1/how-tos/products

1.4.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a

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		drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Product ID	Specify a product's unique identifier. The data type is String. This field is mandatory.
2	SKU ID	Specify a product SKU's unique identifier. The data type is String. This field is mandatory.
3	User ID	Select the user's current primary email address. The data type is String. This field is mandatory. Note: If you're changing the user's primary email address: • Users may be unable to use Google Chat for up to three days. • Users' previous email will become an alternative email (email alias) so email delivery isn't interrupted.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

1.5 Google Workspace: Create Group

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Google Workspace: Create Group step, creates a group on Google Workspace.

1.5.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Name	Select the group name of the user. The data type is String. This field is mandatory.
2	Primary Group Email	Select the username for the primary group email. The data type is String. This field is mandatory.
3	Domain	Select the domain for the primary email. The data type is String. This field is mandatory.
	Button: Get	Click to get the list of the available domain under the Google Workspace admin account.
4	Description	Select the description of the group.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Unique User ID	Specify the group's unique ID. Default value: Group's unique ID

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

1.6 Google Workspace: Delete Group

Google Workspace: Delete Group step, deletes the Group from the Google Workspace.

Note: The step deletes the user from the Google Workspace without transferring the user's data.

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1.6.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:

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No.	Field Name	Description
	Input Fields:	
1	Group Primary/Alias Email Address Or Unique Group ID	Select the group's primary email address, alias email address, or unique group ID.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

1.7 Google Workspace: Delete User

Google Workspace: Delete User step, deletes the user from the Google Workspace without transferring the user's data.

1.7.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application.

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		If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User Primary/Alias Email Address Or Unique User ID	Select the user's primary email address, alias email address, or unique group ID.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message.

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		If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

1.8 Google Workspace: Has Member In Group

Google Workspace: Has Member In Group step, checks if the Member exists in a group present on the Google Workspace.

1.8.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token.

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		Note: Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Primary/Alias Email Address Or Unique Group ID	Select the Group's primary email address, alias email address, or unique Group ID. The data type is String. This field is mandatory.
2	Member Primary/Alias Email Address Or Unique Member ID	Select the Member's primary email address, alias email address, or unique Member ID. The data type is String. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Has Member	Specify the Boolean value for has member.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

1.9 Google Workspace: Remove License

Google Workspace: Remove License step, revokes a license of a user.

References:

- Google Workspace documentation: https://developers.google.com/admin-sdk/directory
- Google Workspace Products and SKUs: https://developers.google.com/admin-sdk/licensing/v1/how-tos/products

1.9.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.

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6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Product ID	Specify a product's unique identifier. The data type is String. This field is mandatory.
2	SKU ID	Specify a product SKU's unique identifier. The data type is String. This field is mandatory.
3	User ID	Select the user's current primary email address. The data type is String. This field is mandatory. Note: If you're changing the user's primary email address: • Users may be unable to use Google Chat for up to three days. • Users' previous email will become an alternative email (email alias) so email delivery isn't interrupted.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message.

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		If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

1.10 Google Workspace: Remove User From Group

Google Workspace: Remove User From Group step, removes a member from the group present on the Google Workspace.

1.10.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. **Note:** Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if

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		checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Primary/Alias Email Address Or Unique Group ID	Select the Group's primary email address, alias email address, or unique Group ID. The data type is String. This field is mandatory.
2	Member Primary/Alias Email Address Or Unique Member ID	Select the Member's primary email address, alias email address, or unique Member ID. The data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

1.11 Google Workspace: Reset Password

Google Workspace: Reset Password step, resets the password of the user present on the Google Workspace account.

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1.11.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	
3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. Note: Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:

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No.	Field Name	Description
	Input Fields:	
1	User Primary/Alias Email Address Or Unique User ID	Select the user's primary email address, alias email address, or unique user ID. The data type is String. This field is mandatory.
2	New Password	Select the new password for user. The data type is String. This field is mandatory.
3	Ask User To Change Their Password When They Sign In	Select Yes or No. If you select Yes, users can change their password on the next login. Default value: Yes

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

1.12 Google Workspace: Update User

Google Workspace: Update User step, updates the user information of the user present on the Google Workspace.

1.12.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify Client ID of the Google application. The data type is String. This field is mandatory.
	Client Secret:	

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3	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
4	Client Secret	Specify Client Secret of the Google application. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
	Refresh Token:	
5	Accept Values from fields	Leave checkbox unchecked to accept Secret Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Secret Key field to appear as Text box.
6	Refresh Token	Specify a Refresh Token to obtain a new Access Token. Note: Refresh Token expires if idle for 6 months. If checkbox above is enabled Refresh Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Refresh Token field appears as a drop down containing values from previous steps - to select from. The data type is String. This field is mandatory.
7	Button: Test Connection	Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state; only static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User Primary/Alias Email Address Or Unique User ID	Select the user's primary email address, alias email address, or unique user ID. The data type is String. This field is mandatory.
2	First Name	Select the first name of the user. The data type is String. This field is mandatory.
3	Surname	Select the surname of the user.

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		The data type is String. This field is mandatory.
4	Primary Email	Select the username for the primary email. The data type is String. This field is mandatory. Note: If you're changing the user's primary email address: • Users may be unable to use Google Chat for up to three days. • Users' previous email will become an alternative email (email alias) so email delivery isn't interrupted.
5	Domain	Select the domain for the primary email. The data type is String. This field is mandatory.
	Button: Get	Click to get the list of the available domain under the Google Workspace admin account.

Additional Input Tab:		
No.	Field Name	Description
	Additional Fields:	
1	Full Name	Select the user's full name.
2	Secondary Email	Select the secondary or the recovery email address of the user.
3	Phone Number	Select the recovery phone number of the user with the country code.
4	Organizational Unit Path	Select the organizational unit or path to sub-organizational units. Note: You can simply use "/" to denote root of the organizational unit or the path to sub organizational units.
5	Include In Global Address List	Select Yes or No. If you select Yes, include user to the global address list. However, if you select No, user will not be added to the global address list. Default value: No
6	IP Whitelisted	Select Yes or No. If you select Yes, whitelist the IP of the user. However, if you select No, if you do not want to whitelist the IP of the user. Default value: No
7	Suspended	Select Yes or No. If you select Yes, the user is suspended. Default value: No

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User Information Tab:		
No.	Field Name	Description
	Contact Information Fields:	
1	Field Name	Select the field name to display user information. Available values are: Email, Phone, and Address.
2	Type	Select the type for the respective field name. Available values for Email: Home, Work, Custom, and Other. Available values for Phone: Home, Work, and Mobile. Available values for Address: Home, Work, and Other.
3	Value	Select the Value with respect to the selected field name and the type.
	Employee Information	
1	Static Field Name	Select a static field name. Available values are: Employee ID, Job Title, Type of employee, Manager's Email, Department, Cost centre, Building ID, Floor name, and Floor section.
2	Variable Field Name	Select a variable field name. Available values are: Employee ID, Job Title, Type of employee, Manager's Email, Department, Cost centre, Building ID, Floor name, and Floor section.
3	Value	Specify the value with respect to the selected Field Name.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

19 Intune

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Microsoft Intune is a cloud-based service that focuses on mobile device management (MDM) and mobile application management (MAM). You control how your organization's devices are used, including mobile phones, tablets, and laptops. Intune plugin has been designed to perform Intune tasks.

Prerequisites:

- Create Intune instance with access details and Intune Credentials -
  On Azure Portal: https://portal.azure.com/

- Create Credentials for Intune:

  Steps to generate Credentials **(**Tenant ID and Client ID and Client Secret)**:**
  - ✓ Credentials for Intune include Tenant ID, Client ID and Client Secret.
  - ✓ Login to Azure AD with Global Administrator account type. Global Administrator account type can access all the managed content (Devices and Applications) APIs by creating an application.
  - ✓ Use the portal (portal.azure.com) to create an Azure AD Application and Service Principal (Global Administrator) that can access resources. **Note:** the Tenant ID and Client ID of the Application.
  - ✓ Create a new Application Secret/Client Secret.

- **The following permissions are required:**

Permission type	**Permission (from least to most privileged)**
Application	DeviceManagementManagedDevices.PrivilegedOperations.All, DeviceManagementManagedDevices.ReadWrite.All

Refer Appendix 11: Intune- Generate Client Credentials to generate Credentials and assign the permissions mentioned in the table above.

References:

- Manage Devices with Microsoft Endpoint: http://endpoint.microsoft.com/
- Intune Device Enrollment: https://docs.microsoft.com/en-us/mem/intune/enrollment/
- API Reference: https://docs.microsoft.com/en-us/graph/api/resources/intune-graph-overview?view=graph-rest-1.0
- https://docs.microsoft.com/en-us/mem/intune/
- https://docs.microsoft.com/en-us/azure/active-directory/develop/quickstart-configure-app-access-web-apis
- Supported operating systems and browsers in Intune
  https://docs.microsoft.com/en-us/mem/intune/fundamentals/supported-devices-browsers

Note:s:

- The Plugin has been tested on Android and Windows devices

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- Remote lock operation is not supported by 'Windows' devices, so Remote Lock By Device ID/Username plugins are not applicable for Windows devices.
- Device ID Type: 'Phone number' and 'IMEI' is only supported for cellular devices.

19.1 Intune: Delete Device By ID

19.1.1 Description

Intune: Delete Device By ID plugin step sends a Device Delete command to the devices identified by device ID and Deletes the device.

.

19.1.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Specify Tenant ID. The field data type is String. This is mandatory. **Note:** To create Tenant ID refer plugin prerequisites.
3	Client ID	Specify Client ID. The field data type is String. This is mandatory. **Note:** To create Client ID refer plugin prerequisites.
	Client Secret:	**Note:** To create Client Secret refer the plugin prerequisites.
4	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Provide the Client Secret. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or environment variables. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The field data type is String This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:

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No.	Field Name	Description
	Input Fields:	
1	Device ID Type	Specify type of Device ID of the Device to be deleted. Allowed values: 'Intune Device ID', 'Azure AD Device ID', 'IMEI', 'Serial number', 'Phone number'. The field data type is String This field is mandatory.
2	Device ID	Specify Device ID which is a unique identifier that identifies the device. The field data type is String This field is mandatory. **Note:** Device ID should be valid and must not be Zero (0).

19.2 Intune: Remote Lock Device By ID

19.2.1 Description

Intune: Remote Lock Device By ID plugin step locks a device in Intune remotely, by Device ID.

19.2.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Specify Tenant ID. The field data type is String. This is mandatory. **Note:** To create Tenant ID refer plugin prerequisites.
3	Client ID	Specify Client ID. The field data type is String. This is mandatory. **Note:** To create Client ID refer plugin prerequisites.
	Client Secret:	**Note:** To create Client Secret refer plugin prerequisites.
4	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Provide the Client Secret. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps.

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		The field data type is String This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Device ID Type	Specify type of Device ID for Device to be remote locked. Allowed values: 'Intune Device ID', 'Azure AD Device ID', 'IMEI', 'Serial number', 'Phone number'. The field data type is String This field is mandatory.
2	Device ID	Specify Device ID which is a unique identifier that identifies the device. The field data type is String This field is mandatory. **Note:** Device ID should be valid and must not be Zero (0).

19.3 Intune: Retire Device By ID

19.3.1 Description

Intune: Retire Device By ID plugin step retires a device in Intune by Device ID.

19.3.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Specify Tenant ID. The field data type is String. This is mandatory. **Note:** To create Tenant ID refer plugin prerequisites.
3	Client ID	Specify Client ID. The field data type is String. This is mandatory.

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		Note: To create Client ID refer plugin prerequisites.
	Client Secret:	**Note:** To create Client Secret refer plugin prerequisites.
4	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Provide the Client Secret. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The field data type is String This field is mandatory.
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Device ID Type	Specify type of Device ID of Device to be retired. Allowed values: 'Intune Device ID', 'Azure AD Device ID', 'IMEI', 'Serial number', 'Phone number'. The field data type is String This field is mandatory.
2	Device ID	Specify Device ID which is a unique identifier that identifies the device. The field data type is String This field is mandatory. **Note:** Device ID should be valid and must not be Zero (0).

19.4 Intune: Wipe Device By ID

19.4.1 Description

'Intune: Wipe Device by ID' plugin step wipes a device in Intune identified by Device ID.

19.4.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

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	Connection:	
2	Tenant ID	Specify Tenant ID. The field data type is String. This is mandatory. **Note:** To create Tenant ID refer plugin prerequisites.
3	Client ID	Specify Client ID. The field data type is String. This is mandatory. **Note:** To create Client ID refer plugin prerequisites.
	Client Secret:	**Note:** To create Client Secret refer plugin prerequisites.
4	Accept Values from fields	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Provide the Client Secret. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). The field data type is String This field is mandatory. If checkbox above is enabled Client Secret field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps.
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Device ID Type	Specify type of Device ID for Device wipe. Allowed values: 'Intune Device ID', 'Azure AD Device ID', 'IMEI', 'Serial number', 'Phone number'. The field data type is String This field is mandatory.
2	Device ID	Specify Device ID which is a unique identifier that identifies the device. The field data type is String This field is mandatory. **Note:** Device ID should be valid and must not be Zero (0).

20 Ivanti Service Manager

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Ivanti Service Manager plugin has been designed to perform tasks with business objects in Ivanti Service Manager.

Prerequisite

Ivanti Service Manager instance with access details.

20.1 Ivanti Service Manager: Create Business Object

Ivanti Service Manager: Create Business Object step, creates a business object record in Ivanti Service Manager.

Limitation: The service request business object record cannot be created using this plugin step since there is a different API endpoint provided to create service request.

References

- Documentation for creating an API Key: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Using-REST-API-Key.htm
- API documentation: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Create-a-Business-Object.htm

20.1.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Tenant URL	Tenant URL of Ivanti Service Manager instance. The data type is String. This field is mandatory.
3	Accept value as variable/static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.
4	API Key	Specify or select API Key generated for the tenant. If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down containing values from previous steps to select from. The data type is String. This field is mandatory.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Business Object	Specify the internal name of the Business Object for which record is to be created. The data type is String. This field is mandatory. **Note:** Locate the internal name using the following steps: i. Click on Settings icon at the right uppermost corner. ii. Select Business Objects under Build option. iii. In the Find box, type the display name of the Business Object and you can see the internal name enclosed in the bracket just under Display Name.
2	Accept Fields As JSON	Select the checkbox, to use the JSON field as an input to build JSON. If it is not selected, use the table input to build the JSON.
3	JSON	Select the JSON in a valid format to create a record. For sample JSON, see Sample. **Note:** This field is available only if Accept Fields As JSON checkbox is selected. If this field is available then it is a mandatory field.
	Table Fields	The table fields are available only if Accept Fields As JSON checkbox is not selected.
1	Variable Field Name	Select the field name as a field or variable.
2	Static Field Name	Select the fields associated with the business object.
3	Field Value	Valid values for the field associated with the field name.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Rec ID	Specify the output field to hold the Rec ID of the record created on successful plugin execution.

Common Buttons:

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No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

20.1.2 Sample

{"Category":"Compute","CreatedBy":"Admin","Description":"Test","Owner":"Andrew I. Smythe","OwnerTeam":"Application Development","TypeOfChange":"minor","Subject:"Test Record"}

20.2 Ivanti Service Manager: Delete Business Object

Ivanti Service Manager: Delete Business Object step, deletes a business object record in Ivanti Service Manager.

Limitation: The service request business object record cannot be deleted using this plugin step since there is a different API endpoint provided to create service request.

References

- Documentation for creating an API Key: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Using-REST-API-Key.htm
- API documentation: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Create-a-Business-Object.htm

20.2.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	

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2	Tenant URL	Tenant URL of Ivanti Service Manager instance. The data type is String. This field is mandatory.
	Accept value as variable/static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.
3	API Key	Specify or select API Key generated for the tenant. If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down containing values from previous steps to select from. The data type is String. This field is mandatory.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Business Object	Specify the internal name of the Business Object for which record is to be deleted. The data type is String. This field is mandatory. **Note:** Locate the internal name using the following steps: i. Click on Settings icon at the right uppermost corner. ii. Select Business Objects under Build option. iii. In the Find box, type the display name of the Business Object and you can see the internal name enclosed in the bracket just under Display Name.
2	Rec ID	Select rec ID of the record to be deleted.
	Button: Get	On clicking the Get button, Rec IDs associated with the business object will get populated. **Note:** Get button will not work for the previous step variables. The button will only work with static values and environment variables.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

20.3 Ivanti Service Manager: Search

Invanti Service Manager: Search step, fetches business object records based on the Full-Text (Keyword) / Criteria Query.

Limitation:

- The service request business object record cannot be searched using this plugin step since there is a different API endpoint provided to create service request.
- Few queries that have more than one operators (nested queries) may not provide correct output. For example, Priority eq '1' AND CauseCode eq 'Configuration' OR Approver eq 'AEApprover' AND Owner ne '$NULL'.
- If the query is to be provided as **Owner ne '$NULL' OR (Priority eq '1' AND Approver eq 'AEApprover')** as per the UI, it needs to be provided as **Priority eq '1' AND Approver eq 'AEApprover' OR Owner ne '$NULL'** in the plugin as well as API. However, in API adding brackets is not allowed hence user may get incorrect results.

References:

- Documentation for creating an API Key: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Using-REST-API-Key.htm
- API documentation:
  1. Search based on Full-Text: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Full-Text-Search-API.htm
  3. Search based on Criteria Query/Filter: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Get-Business-Object-by-Filter.htm

20.3.1 Configurations

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No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Tenant URL	Tenant URL of Ivanti Service Manager instance. The data type is String. This field is mandatory.
3	API Key	Specify or select API Key generated for the tenant. If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down containing values from previous steps to select from. The data type is String. This field is mandatory.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Business Object	Specify the internal name of business object for which search is to be executed. The data type is String. This field is mandatory.
2	Search Type	Select the type based on which the search is to be executed. Available options are: • Full-Text: On selection of this option, the Search Text field is enabled. • Criteria Query: On selection of this option, the Criteria Query field is enabled. • Both: On selection of this option, both, Search Text and Criteria Query fields are enabled. The data type is String. This field is mandatory.
3	Search Text	Specify the keyword based on which the full-text search is to be executed. **Note:** This field is mandatory, if Search Type is Full-Text or Both.
4	Criteria Query	Specify the criteria query/filter based on which the search is to be executed. **Note:** This field is mandatory, if Search Type is Criteria Query or Both.

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		For criteria query sample, see Sample Criteria Query.
5	Fetch Records Batch Size	Specify the batch size to fetch records, that is, number of records to be fetched in one batch. Default value: 25

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Field Name	Specify the field name to hold the records.
2	Output Field	Specify the output field to hold the Rec ID of the record created on successful plugin execution.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

20.3.2 Sample Criteria Query

- Priority eq '1'
- Status eq 'Active' AND Owner eq 'Alan Taylor'
- ActualCategory eq 'Backup' AND CauseCode eq 'Installation' OR Cost lt '100'

Note:

Operators to be used in Criteria Query:

Equal to	eq

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Not equal to	ne
Greater than	gt
Greater or Equal	ge
Less than	lt
Less or Equal	le

20.4 Ivanti Service Manager: Update Business Object

Ivanti Service Manager: Update Business Object step, updates a business object record in Ivanti Service Manager.

Limitation: The service request business object record cannot be updated using this plugin step since there is a different API endpoint provided to update service request.

References:

- Documentation for creating an API Key: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Using-REST-API-Key.htm
- API documentation: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Update-a-Business-Object.htm

20.4.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Tenant URL	Tenant URL of Ivanti Service Manager instance. The data type is String. This field is mandatory.
3	API Key	Specify or select API Key generated for the tenant.

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		If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down containing values from previous steps to select from. The data type is String. This field is mandatory.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Business Object	Specify the internal name of the Business Object for which record is to be updated. The data type is String. This field is mandatory. **Note:** Locate the internal name using the following steps: i. Click on Settings icon at the right uppermost corner. ii. Select Business Objects under Build option. iii. In the Find box, type the display name of the Business Object and you can see the internal name enclosed in the bracket just under Display Name.
2	Rec ID	Select the Rec ID of the record to be updated.
	Button: Get	Click to get the list of record IDs.
3	Accept Fields As JSON	Select the checkbox, to use the JSON field as an input to build JSON. If it is not selected, use the table input to build the JSON.
4	JSON	Select the JSON in a valid format to update a record. For sample JSON, see Sample. **Note:** This field is available only if Accept Fields As JSON checkbox is selected. If this field is available then it is a mandatory field.
	Table Fields	The table fields are available only if Accept Fields As JSON checkbox is not selected.
1	Variable Field Name	Select the field name as a field or variable. This is an optional field.
2	Static Field Name	On clicking the cell in the input table, fields associated with the business object will get populated.
3	Field Value	Select valid values for the field associated with the field name.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

20.4.2 Sample

{"Category":"Compute","CreatedBy":"Admin","Description":"Test","Owner":"Andrew I. Smythe","OwnerTeam":"Application Development","TypeOfChange":"minor","Subject:"Test Record"}

Note:

Operators to be used in Criteria Query:

Equal to	eq
Not equal to	ne
Greater than	gt
Greater or Equal	ge
Less than	lt
Less or Equal	le

20.5 Ivanti Service Manager: Upload Attachment

Ivanti Service Manager: Upload Attachment uploads one or more attachments to a business object record in Ivanti Service Manager.

References:

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- Documentation for creating an API Key: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Using-REST-API-Key.htm
- API documentation: https://help.ivanti.com/ht/help/en_US/ISM/2021/admin/Content/Configure/API/Upload-Attachments.htm

20.5.1 Configurations

No.	Field Name	Description
1	Step name	Name of the step as it appears in the workflow workspace. This name has to be unique in a single workflow.
	Connection:	
2	Tenant URL	Tenant URL of Ivanti Service Manager instance. The data type is String. This field is mandatory.
3	API Key	Specify or select API Key generated for the tenant. If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down containing values from previous steps to select from. The data type is String. This field is mandatory.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Business Object	Specify the internal name of the Business Object to which file is to be attached. The data type is String. This field is mandatory. **Note:** Locate the internal name using the following steps: i. Click on Settings icon at the right uppermost corner. ii. Select Business Objects under Build option. iii. In the Find box, type the display name of the Business Object and you can see the internal name enclosed in the bracket just under Display Name.
2	Rec ID	Select Rec ID of the record to which the attachment is to be uploaded.

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		The data type is String. This field is mandatory.
	Button: Get	Click to get Rec IDs associated with the business object. **Note:** This button will not work for the previous step variables. The button will only work with static values and environment variables.
3	File	Select path of the file to be attached to the business object record. The data type is String. This field is mandatory. **Note:** Multiple file paths can be provided in this field, separated by comma. For example, D:\test.txt, D:\test1.txt.
4	Browse…	Click to browse the file to be attached to the business object record.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

21 Jenkins

This plugin is designed to perform Jenkins actions. The tasks are handled by the plugin steps as discussed below.

Compatibility:

- This plugin has been tested on Jenkins ver. 2.176.2 (installed using jenkins.war)

Prerequisites:

- Jenkins instance and access details

This plugin is designed to perform Jenkins actions. The tasks are handled by the plugin steps as discussed below.

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Compatibility:

- This plugin has been tested on Jenkins ver. 2.176.2 (installed using jenkins.war)

Prerequisites:

- Jenkins instance and access details

21.1 Jenkins: Build Job

21.1.1 Description

Jenkins: Build Job step builds a job with parameters or without parameters.

21.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	URL	Provide URL of Jenkins to establish the connection. The data type is String. This field is mandatory.
3	Username	Provide a username with appropriate permissions to authenticate to a Jenkins instance. The data type is String. This field is mandatory.
	API Token:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept API Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Token field to appear as Text box.
5	API Token	Provide API Token generated on Jenkins instance to authenticate. The data type is String. This field is mandatory. API Token is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled API Token field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Job Name	Provide the Job Name to build. The data type is String. This field is mandatory.
2	Button: Get	Click on get Button to get a list of Jobs.
	Parameter Fields:	
2	Name	Provide names of parameters in the Jenkins job (Project). The data type is String. This field is mandatory.
3	Value	Provide values for the parameter names. The data type is String. This field is mandatory.

21.2 Jenkins: Delete Build

21.2.1 Description

Jenkins: Delete Build step deletes a build of a job.

21.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	URL	Provide URL of Jenkins to establish the connection. The data type is String. This field is mandatory.
3	Username	Provide a username with appropriate permissions to authenticate to a Jenkins instance. The data type is String. This field is mandatory.
	API Token:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept API Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Token field to appear as Text box.
5	API Token	Provide API Token generated on Jenkins instance to authenticate. The data type is String. This field is mandatory. API Token is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled API Token field appears as Text box and accepts static or variable values. Else

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		if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Button: Get	Click on get Button to get a list of Jobs.
2	Job Name	Select a Job Name for which you wish to delete a build. The data type is String. This field is mandatory.
3	Build Id	Provide the jobs build id to be deleted. The data type is Number. This field is mandatory. **Note:** If you don't have build Id and want to delete latest build of the job then enter **lastBuild** keyword for Build Id.

21.3 Jenkins: Delete User

21.3.1 Description

Jenkins Delete User step deletes a Jenkins user.

21.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	URL	Provide URL of Jenkins to establish the connection. The data type is String. This field is mandatory.
3	Username	Provide a username with appropriate permissions to authenticate to Jenkins instance. The data type is String. This field is mandatory.
	API Token:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.

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5	API Token	Provide API Token generated on Jenkins instance to authenticate. The data type is String. This field is mandatory. API Token is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled API Token field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User to Delete	Provide a User to be deleted. The data type is String. This field is mandatory.

21.4 Jenkins: Get Builds

21.4.1 Description

Jenkins: Get Builds step fetches builds of a job.

21.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	URL	Provide URL of Jenkins to establish the connection. The data type is String. This field is mandatory.
3	Username	Provide a username with appropriate permissions to authenticate to a Jenkins instance. The data type is String. This field is mandatory.
	API Token:	

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4	Accept Value as variable/static	Leave checkbox unchecked to accept API Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Token field to appear as Text box.
5	API Token	Provide API Token generated on Jenkins instance to authenticate. The data type is String. This field is mandatory. API Token is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled API Token field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Button: Get	Click on get Button to get a list of Jobs.
2	Job Name	Select a Job Name to get its builds. The data type is String. This field is mandatory.
3	Latest n… build	Provide a number n - to fetch the latest n builds of a job. The data type is Integer.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Name	Select the names of the Build attributes to be fetched. The data type is String. This field is mandatory.
2	Column	Specify an output column name to hold the value of the selected field. The data type is String. This field is mandatory.

21.5 Jenkins: Get Console Output

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21.5.1 Description

Jenkins Get Console Output step gets console output for a job build.

21.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	URL	Provide URL of Jenkins to establish the connection. The data type is String. This field is mandatory.
3	Username	Provide a username with appropriate permissions to authenticate to Jenkins instance. The data type is String. This field is mandatory.
	API Token:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	API Token	Provide API Token generated on Jenkins instance to authenticate. The data type is String. This field is mandatory. API Token is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled API Token field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Job Name	Provide a Job Name to get the console output for the build. The data type is String. This field is mandatory.
2	Button: Get	Click on get Button to get a list of Jobs.

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3	Build Id	Provide a Build id of the Job Name provided above for which you what console output. The data type is number. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Specify an output field to hold the result of step execution. The default value is Result. The field data type is String. This is mandatory.

21.6 Jenkins: Stop Build

21.6.1 Description

Jenkins: Stop Build step stops the build of a job.

21.6.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	URL	Provide URL of Jenkins to establish the connection. The data type is String. This field is mandatory.
3	Username	Provide a username with appropriate permissions to authenticate to a Jenkins instance. The data type is String. This field is mandatory.
	API Token:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept API Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Token field to appear as Text box.
5	API Token	Provide API Token generated on Jenkins instance to authenticate. The data type is String. This field is mandatory. API Token is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled API Token field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

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7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Button: Get	Click on get Button to get a list of Jobs.
2	Job Name	Select a Job Name for which you want to Stop the build. The data type is String. This field is mandatory.
3	Build Id	Provide Build id of Job which is to be Stopped. The data type is Number. This field is mandatory. **Note:** If you don't have Build Id and want to stop latest build of the job then enter **lastBuild** keyword for Build Id.

22 Jira

This plugin is designed to perform various tasks on a JIRA instance. These tasks are handled by the plugin steps as discussed below.

This plugin has been tested with JIRA-8.6.1, JIRA -8.0.2, JIRA-7.13.0 (On-Premise) and JIRA- (On-Cloud).

Prerequisites:

- JIRA instance and access details with appropriate permissions.
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.
- Get an API Key in case of on cloud instance.

  Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html

22.1 Jira: Add Comment

22.1.1 Description

JIRA Add Comment plugin step adds a new comment to an issue in On-premise and On-cloud version of a Jira instance.

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22.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and add a comment. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API Key	Password can be entered as Text (for static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Provide an API Key in case of on cloud instance. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description

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	Input Fields:	
1	Issue Key	Issue key of the issue for which comment is to be added. This field is mandatory.
2	Button: Get	Click to bring up the issue keys available as per the access permission of Username provided in Connection. **Note:** It will return maximum 1000 or 100 issues for on-premise and on-cloud instances respectively. This is an intentional limitation on JIRA applications to avoid performance-related issues such as an OutOfMemoryException.
3	Comment	Specify a Comment for the specific issue. This field is mandatory.

22.2 Jira: Add Label

22.2.1 Description

This plugin adds a label to an issue in on-premise or on-cloud version of a JIRA instance.

22.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and add a label. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API Key	Password can be entered as Text (for static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Provide an API Key in case of on cloud instance. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Issue Key	Issue key of the issue for which label is to be added. This field is mandatory. **Note:** REST API can get maximum of 1000 and 100 issues for on-premise and on-cloud instances respectively. This is an intentional limitation on JIRA applications to avoid performance-related issues such as an OutOfMemoryException.
2	Button: Get	Clicking on this button brings up the issue keys available as per the access permission of Username provided in Connection.
3	Label	Specify a label value to be added to an issue. This field is mandatory.

22.3 Jira: Add User to Group

22.3.1 Description

Jira: Add User To Group plugin step adds a user to a group on on-premise or on-cloud versions of a JIRA software instance.

Prerequisites:

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- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and change user password. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API Key	Provide password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:**

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		For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Username/Account ID	Username of the user to be added to a specific Group. The data type is String. This field is mandatory. **Note:** Account ID can be found in the URL of the cloud instance when you open user profile. (e.g. https://admin.atlassian.com/s/68f0ebf6b0dded/users/5e4d195e9706)
2	Group Name	Specify the Group name in which the user is to be added. Groups displayed on Get button is set to max limit of 100. The data type is String. This field is mandatory.
3	Button: Get	Clicking on this button brings up the list of Group Names. Groups displayed on the Get button are set to a max limit of 100.

22.4 Jira: Attach File to Issue

22.4.1 Description

This plugin attaches a file to an issue in on premise or on-cloud version of JIRA Software.

Prerequisites:

- JIRA instance (JIRA-8.0.2 (On-Premise) and JIRA (On-Cloud)) and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration.

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		In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and attach file to an issue. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API Key	Password can be entered as Text (for static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Provide an API Key in case of on cloud instance. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Issue Key	Issue Key of the issue to be deleted. **Note:** REST API can get maximum of 1000 and 100 issues for on-premise and on-cloud instances respectively. This is an intentional limitation on JIRA applications to avoid performance-related issues such as an OutOfMemoryException.

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2	Button: Get	Clicking on this button brings up the issue keys available as per the access permission of Username provided in Connection.
3	File	File path of the file to be attached to the issue.
4	Button: Browse File…	Clicking on this button brings up the dialog to browse the file which is to be attached to the issue.

22.5 Jira: Change User Password (Server)

22.5.1 Description

Jira Change User Password plugin step changes the user password in an instance of Jira Software.

Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and change user password. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Provide password of the username to authenticate to an on premise instance Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop

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		down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Username	Username of the user whose password is to be changed. The data type is String. This field is mandatory.
2	New Password	New password to be set for the specific user. The data type is String. This field is mandatory.

22.6 Jira: Create Group

Jira Create Group plugin step creates a group in an instance of Jira Software.

Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.6.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

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	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and create group. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API Key	Provide password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	

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1	Group Name	Name of the new Jira Group to be created. The data type is String. This field is mandatory. **Known Issue:** For cloud instance, if multiple groups are created within a short time span (say through Excel input or using a loop), it may give “Internal server error”. This issue can be minimized by adding an appropriate delay before this step.

22.7 Jira: Create Issue

22.7.1 Description

“Jira Create Issue” plugin step creates an issue in an on-premise or on-cloud version of a JIRA instance.

Limitations:

The following fields are unsupported: *Time Tracking*, *Original Estimate*, and *Remaining Estimate*.

Note: Supported format for **Date** type fields, such as **Due Date** is ‘*YYYY-MM-DD’*.

22.7.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and create issue. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.

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5	Password /API Key	Password can be entered as Text (for static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Provide an API Key in case of on cloud instance. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Accept Update fields as JSON	Enable checkbox to accept the fields to be updated in JSON format.
2	Update fields JSON	Select the field in the stream containing the JSON text. Sample JSON is shown below. {“Summary”:”sumaryfromAE”,”Project”:”SP”,”Priority”:”Medium”,”description”:”Dec from AE”,”Issue Type”:”Bug”} The JSON field can be any field in the stream or can be created using any step such as Generate Rows, Modified Java Script, Set field value to a constant etc.
	Tabular Fields:	
3	Variable Field Name	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable.
4	Static Field Name	Clicking on this column field brings a dialog with the list of available fields to create an issue.

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5	Field Value	Specify a Field value to hold the value of field name selected in Field Name column above. All the mandatory fields for creating an issue for a particular instance must be selected and the field values should be provided else the workflows throw error mentioning the mandatory field that is missing.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	ID	Output field to hold the ID of the issue created on successful plugin execution. The mandatory fields depend on the particular instance configurations.
2	Key	Output field to hold the key of the issue created on successful plugin execution Errors can be captured in the step error handling (right-click step and select error handling) to make the error message visible on AutomationEdge Requests.

22.8 Jira: Create Project

22.8.1 Description

Jira Create Project plugin step is designed to create a software or business project in an instance of JIRA software.

The project types seen in the screenshot below can also be chosen in the plugin options as described in the Input Tab table below.

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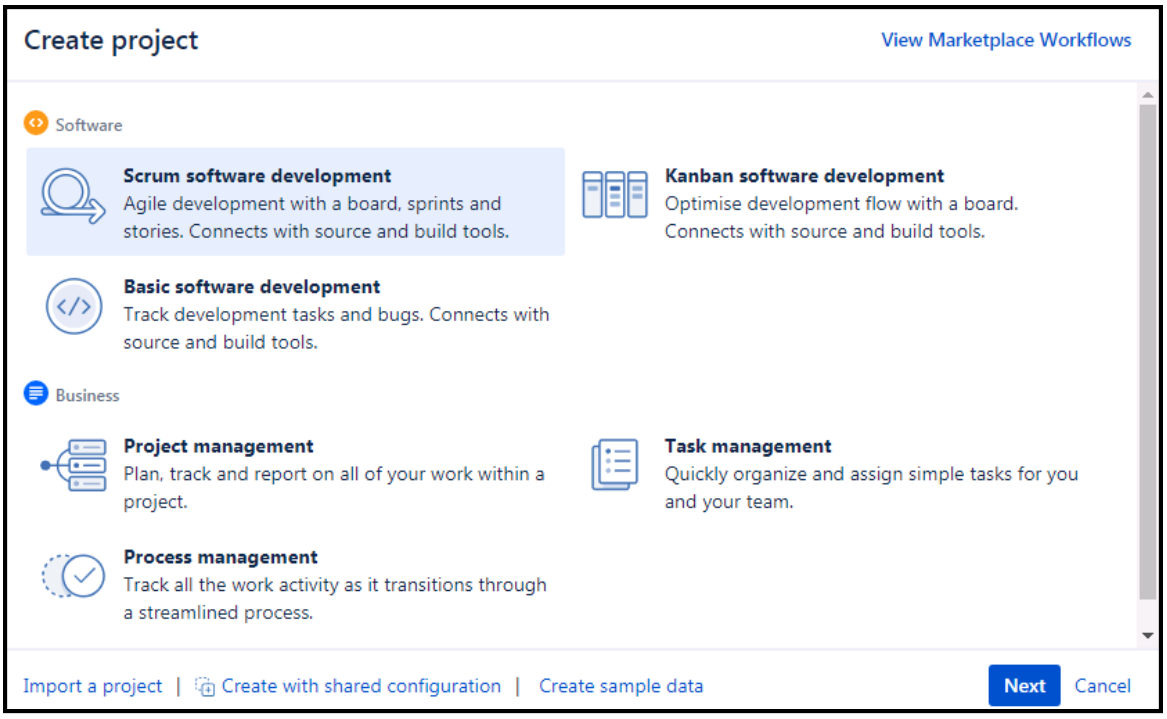

Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.8.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The JIRA instance name/IP/hostname should be provided.
3	Port	The port number of the JIRA instance should be provided.
4	Username	A username with appropriate permissions to authenticate to JIRA instance and create project. This field is mandatory.
	Password:	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password/API	Provide password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance

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		Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Project Key	Provide a project key for the new project.
2	Project name	Provide the name of the new project to be created.
3	Project type	Provide a project type. The list of project types can be populated using the Get button described below.
4	Button: Get	Clicking on this button brings up a list of project types (viz. software, ops, service_desk, business).
5	Project Template Key	Select a valid project Template Key based on the type of project selected. The list of Project Template Keys can be populated using the Get button described below.
6	Button: Get	Clicking on this button brings up a list of project Template Keys as below, • com.pyxis.greenhopper.jira:gh-scrum-template • com.pyxis.greenhopper.jira:gh-kanban-template • com.pyxis.greenhopper.jira:basic-software-development-template

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		• com.atlassian.jira-core-project-templates:jira-core-project-management • com.atlassian.jira-core-project-templates:jira-core-task-management • com.atlassian.jira-core-project-templates:jira-core-process-management
7	Project description	Provide the description of the new project to be created
8	Project lead(Username/Account ID)	Mention the Username(/Account ID) who will be set as the lead for the new project.(This will accept only valid users on JIRA)
9	Button: Get Username	Clicking on this button brings up the list of JIRA usernames.
10	URL	Provide a URL for online help

22.9 Jira: Delete Issue

Jira Delete Issue Plugin step deletes an issue in an instance of JIRA software.

Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.9.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and delete project. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API	Provide password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance

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		Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Issue Key	Specify an Issue Key of the issue to be deleted.
2	Button: Get	Clicking on this button brings up the issue keys available as per the access permission of Username provided in Connection.

22.10 Jira: Delete User

22.10.1 Description

Jira Delete User Plugin step is designed to delete a user in an instance of JIRA software.

Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.10.2 Configurations

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The JIRA instance name/IP/hostname should be provided.
3	Port	The port number of the JIRA instance should be provided.
4	Username	A username with appropriate permissions to authenticate to JIRA instance and create user. This field is mandatory.
	Password:	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password/API	Provide password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	

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1	Username/Account ID	Provide the Username/Account ID of the user to be deleted. The Username in case of server instance and Account ID in case of a cloud instance. The data type is string. This field is mandatory. **Note:** Account ID can be found in the URL of the cloud instance when you open user profile. (e.g. https://admin.atlassian.com/s/68f0ebf6b0dded/users/5e4d195e9706)
2	Button: Get Users	Click Get Users button to get the list of all available JIRA users.

22.11 Jira: Delete Project

22.11.1 Description

Jira Delete Project Plugin step deletes a JIRA project in an instance of JIRA software.

Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.11.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The JIRA instance name/IP/hostname should be provided.
3	Port	The port number of the JIRA instance should be provided.
4	Username	A username with appropriate permissions to authenticate to JIRA instance and delete project. This field is mandatory.
	Password:	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password/API	Provide password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Project Key/Id	Provide Project key or id of the project to be deleted.

22.12 Jira: Download Attachments

22.12.1 Description

This plugin step downloads all the attachments associated with a JIRA issue in an on premise or on-cloud version of JIRA instance.

Prerequisites:

- JIRA instance (JIRA-8.0.2 (On-Premise) and JIRA (On-Cloud)) and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.12.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g.

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		xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
2	Username	A username with appropriate permissions to authenticate to JIRA instance and attach file to an issue. This field is mandatory.
3	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API Key	Password can be entered as Text (for static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Provide an API Key in case of on cloud instance. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Issue Key	Issue Key of the issue to be deleted. **Note:** REST API can get maximum of 1000 and 100 issues for on-premise and on-cloud instance respectively. This is an

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		intentional limitation on JIRA applications to avoid performance-related issues such as an OutOfMemoryException.
2	Button: Get	Clicking on this button brings up the issue keys available as per the access permission of Username provided in Connection.
3	Output Folder Path	File path of the file to be attached to the issue.
4	Button: Browse Folder	Clicking on this button brings up the dialog to browse the path of an output folder to download attachments for the issue key specified.
5	Delete Output Folder Contents before	Mouse hover to see the allowed values “Yes”, “No”. Type Yes to delete output folder contents before downloading new files, otherwise type No
6	Add DataTimeStamp for Duplicate Files	Mouse hover on this field to see that the allowed values are “Yes” or “No”. Type Yes to Download files and add DataTimeStamp. This is useful in case of duplicate files.
7	Add File to Result	Allowed values: ‘Yes’ or ‘No’ Provide ‘Yes’ if you wish to provide a link to download the attachment on AutomationEdge else provide ‘No’.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Total Files	Specify a field name to hold the total files upon successful plugin execution. Default field name is “Total Files”. This field is mandatory.
2	Downloaded Files	Specify a field name to hold the number of the Downloaded Files.
3	Overwritten Files	Specify a field name to hold the total number of the Overwritten Files. Errors can be captured in the step error handling (right-click step and select error handling) to make the error message visible on AutomationEdge Requests.

22.13 Jira: Get Issue

22.13.1 Description

Jira Get Issue Plugin step gets an issue from an instance of JIRA software.

Prerequisites:

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- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.13.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and get issue. This field is mandatory.
	Password/AP Key:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API Key	Provide Password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Issue Key	Specify the issue key of an issue to get. The issue key can be chosen from a pop-up obtained by clicking the Get button next to it as described below. **Note:** REST API can get maximum of 1000 and 100 issues for on-premise and on-cloud instances respectively. This is an intentional limitation on JIRA applications to avoid performance-related issues such as an OutOfMemoryException.
2	Get	Clicking on this button brings up the issue keys available as per the access permission of Username provided in the Connection. **Note:** The latest 50 issues are displayed which is the default outcome of the REST call.

Output Tab:		
No.	Field Name	Description
	Output Fields:	Either JSON Output or Table Fields should be selected in the Output tab.
1	JSON Output	Enable checkbox to Get Issue fields as JSON text.

2	JSON Output Field	If 'JSON Out' checkbox is enabled, this field is activated. Provide a field to capture the JSON text.
		JSON text contains key-value pairs enclosed by double quotes (") enclosure with a colon separating them. Key value pairs de**Note:** field Ids and their values.
		
		Sample output JSON for field Id status in Issues is shown below.
		
		"status":{
		"self": "http://localhost:8003/rest/api/2/status/10000",
		"description":"",
		"iconUrl": http://localhost:8003/images/icons/status_generic.gif,
		"name": "To Do",
		"id": "10000";
		"statusCategory": {
		"self": "http://localhost:8003/rest/api/2/statuscategory/2",
		"id": 2,
		"key": "new",
		"colorName": "blue-gray",
		"name": "To Do"

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		} } **Note:** • At least one output field must be provided. Either using JSON or Table Fields. • The Field names and their respective Ids can be found using below REST call GET {Instance URL }/rest/api/2/field
	Table Fields:	
3	Field Name	On the click of this cell, field explorer appears with Issue Field Names (Display names). Select the fields whose values are to be fetched.
4	Output Field	Specify an output field to hold the field values.

22.14 Jira: Get Transition

22.14.1 Description

This plugin gets a list of the transitions possible for a provided issue (issue key) in an on premise or on-cloud version of JIRA instance.

Prerequisites:

- JIRA instance (JIRA-8.0.2 (On-Premise) and JIRA (On-Cloud)) and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.14.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
2	Username	A username with appropriate permissions to authenticate to JIRA instance and get Transitions. This field is mandatory.
	Password:	

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3	Password/API Key	Password can be entered as Text (for static value or environment variable). This field is mandatory. Provide an API Key in case of on cloud instance. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
4	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Issue Key	Specify an Issue Key whose transition status is to be retrieved. Clicking the Get button next to it retrieves the available issue keys as described below. **Note:** REST API can get maximum of 1000 and 100 issues for on-premise and on-cloud instances respectively. This is an intentional limitation on JIRA applications to avoid performance-related issues such as an OutOfMemoryException.
2	Button: Get	Click the Get button to retrieve the available issue keys as per the access permission of Username provided in Connection.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Transition Name	Output field to hold the Transition Name as a result of the step execution.
2	Transition ID	Output field to hold the Transition ID as a result of successful plugin execution. Default field name is “Result”. This field is mandatory.

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		Note: Errors can be captured in the step error handling (right-click step and select error handling) to make the error message visible on AutomationEdge Requests.

22.15 Jira: Link Issues

22.15.1 Description

Jira Link Issues Plugin step creates a link between two issues in an instance of JIRA software.

Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.15.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and get issue. This field is mandatory.
4	Password:	
	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API	Provide password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Issue Key	The Key of the inward issue for which link is to be created. The issue key can be chosen from a pop-up obtained by clicking the Get button next to it as described below. **Note:** REST API returns maximum of 1000 and 100 issues for on-premise and on-cloud instance respectively. This is an intentional limitation on JIRA applications to avoid performance-related issues such as an OutOfMemoryException.
2	Get	Clicking on this button brings up the issue keys available as per the access permission of Username provided in Connection.
3	Issue Link Type	Type of the link to be created between the two issues. Following are the issue link types, • is duplicated by • duplicates • clones • relates to • blocks • is cloned by • is blocked by The issue link type can be chosen from a pop-up obtained by clicking the Get button next to it as described below.

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4	Get	Clicking on this button brings up the available Issue Link Types.
5	Issue Key to be linked	The Key of the outward issue with which the link is to be created.
6	Get	Clicking on this button brings up the issue keys available as per the access permission of Username provided in Connection.

22.16 Jira: Perform Transition

22.16.1 Description

JIRA perform transition plugin step performs a transition of an issue in a JIRA instance.

Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.16.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
4	Username	A username with appropriate permissions to authenticate to JIRA instance and perform a transition. This field is mandatory.
	Password:	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password/API Key	Password can be entered as Text (for static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

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		Provide an API Key in case of on cloud instance. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Issue Key	Specify the Key of the issue on which transition is to be performed. **Note:** REST API can get maximum of 1000 and 100 issues for on-premise and on-cloud instances respectively. This is an intentional limitation on JIRA applications to avoid performance-related issues such as an OutOfMemoryException.
2	Button: Get	Click this button to get all Issue Keys available in the JIRA instance as per the access permission of Username provided in Connection.
3	Transition Name/ID	Specify the Name or ID of the transition to be performed. You may get the Name of the transition by clicking the Get button as described below.
4	Button: Get	Clicking on this button brings a dialog for all the Transitions Names possible for the provided issue.

Note: Errors can be captured in the step error handling (right-click step and select error handling) to make the error message visible on AutomationEdge Requests.

22.17 Jira: Remove Label

Jira Remove Label Plugin step removes a label value in an instance of JIRA software.

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Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.17.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and delete project. This field is mandatory.
4	Password:	
	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API	Provide password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:**

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		For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Issue Key	Specify an Issue Key of the issue to be deleted.
2	Button: Get	Clicking on this button brings up the issue keys available as per the access permission of Username provided in Connection.
3	Label	Specify a label value to be removed from an issue.

22.18 Jira: Remove Group

22.18.1 Description

Jira Remove Group Plugin step removes a specified group in an instance of JIRA software.

Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.18.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and remove a user from a group. This field is mandatory.
	Password:	

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4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API Key	Provide password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Name	Name of the group to be removed. The data type is String. This field is mandatory.
2	Button: Get	Clicking on this button brings up the list of groups. **Note:** Groups displayed on Get button is set to max limit of 100.

22.19 Jira: Remove User from Group

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Jira Remove User from Group Plugin Step removes a specified user from a group on on-premise or on-cloud versions of a JIRA software instance.

Prerequisites:

- JIRA instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

22.19.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The JIRA instance name/IP/hostname should be provided.
3	Port	The port number of the JIRA instance should be provided.
4	Username	A username with appropriate permissions to authenticate to JIRA instance and remove a user from a group. This field is mandatory.
	Password:	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password/API	Provide password of the username to authenticate in case of on premise instance and API Key in case of on cloud instance Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
7	Test Connection	Verifies whether the connection is established or not. **Note:**

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		For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Username/Account ID	Username/key of the user to be removed from a specific group. The Username in case of server instance and Account ID in case of a cloud instance. The data type is string. This field is mandatory. **Note:** Account ID can be found in the URL of the cloud instance when you open user profile. E.g. https://admin.atlassian.com/68f0ebf6b0dded/users/5e4d195e9706
2	Button: Get Username	Clicking on this button brings up the list of the usernames as per the access permissions of Username provided in Connection.
3	Group Name	Specify the group name from which the user is to be removed. **Note:** Groups displayed on the Get button are set to a max limit of 100.
4	Button: Get	Clicking on this button brings up a list of the groups as per the access permissions of the Username provided in Connection.

22.20 Jira: Update Issue

This plugin step updates a JIRA issue on on-premise or on-cloud versions of a JIRA instance.

Limitations:

The following fields are unsupported: *Time Tracking*, *Original Estimate*, and *Remaining Estimate*.

Note: Supported format for **Date** type fields, such as **Due Date** is '*YYYY-MM-DD*'.

22.20.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

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	Connection:	
2	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. xxx.xxx.xxx.xxx:Port). Port can be optional as per network configuration. In case of Cloud instance specify the JIRA instance URL (e.g. https://xxxx.atlassian.net/).
3	Username	A username with appropriate permissions to authenticate to JIRA instance and update issue. This field is mandatory.
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password/API Key	Password can be entered as Text (for static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Provide an API Key in case of on cloud instance. **Note:** Following is the link to find the steps to generate token for on-cloud JIRA instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html
6	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Issue Key	The key of an issue that is to be updated. This field is mandatory.

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2	Button: Get	Clicking on this button brings up the issue keys available as per the access permission of Username provided in Connection.
3	Accept Update fields as JSON	Enable checkbox to accept the fields to be updated in JSON format.
4	Update fields JSON	Select the filed in the stream containing the JSON text. Sample JSON is shown below: {“Summary”:”summaryfromAE”,”Project”:”SP”,”Priority”:”Medium”,”description”:” Dec from AE”,”Issue Type”:”Bug”} The JSON field can be any field in the stream or can be created using any step such as Generate Rows, Modified Java Script, Set field value to a constant etc.
	Tabular Fields:	
5	Variable Field Name	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable.
6	Field Name	Clicking on this column field brings a dialog with the list of available fields that can be updated in the issue and as per the access permission of Username provided in Connection.
7	Field Value	Provide an updated value for the field name selected in **Field Name** column above.

23 Jira Service Desk

23.1 Jira Service Desk: Create Customer Request

Jira Service Desk: Create Service Request plugin step creates a service request in Jira Service Desk.

Compatibility:
Jira Service Desk on Cloud and Jira v8.4.1 (JIRA Service Desk Application v4.4.1) on-premise

Prerequisites:

- JIRA Service Desk instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

Limitations:

The following fields are unsupported: *Time Tracking*, *Original Estimate*, and *Remaining Estimate*.

Note:

Supported format for **Date** type fields, such as **Due Date** is ‘*YYYY-MM-DD’*.

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23.1.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Server name or IP address with port of the JIRA Service Desk instance in case of on-premise (http://xx.xx.xx.xxx:8081). In case the on-premise instance has been customized provide the appropriate URL. Provide cloud URL in case of on-cloud instance (e.g.- https://xxxx.atlassian.net/secure/BrowseProjects.jspa)
4	Username	Specify a username to authenticate in a JIRA Service Desk instance having the permission to create a service request. This field is mandatory.
	Password:	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password/API Key	Provide password of the username to authenticate in case of on premise instance and API Key/token in case of on cloud instance. Following is the link to find the steps to generate the API token for cloud instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Test Connection	Click Test Connection button to Verify whether the connection is established or not. **Note:** For the purpose of Test Connection fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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		Once connection is established all requisite forms and fields in Input and Output fields are populated with the corresponding values from the Service Now instance. Once input and output field values are populated the connection fields may be replaced with previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Service Desk (Project Key)	Specify the key of the JIRA Service Desk Project for which a service request is to be created.
2	Button: Get	Clicking on this button populates the list of all the available JIRA Service Desk Projects in the provided JIRA Service Desk instance.
3	Request Type	Specify a Request type with which the service request is to be created.
4	Button: Get	Clicking on this button populates the list of all the available Request Types in the provided JIRA Service Desk instance.
5	Accept fields as JSON	Enable checkbox to accept the fields to be updated in JSON format.
6	JSON	Select the field in the stream containing the JSON text. The JSON field can be any field in the stream or can be created using any step such as Generate Rows, Modified Java Script, Set field value to a constant etc. Sample JSON (for Request Type: Request New Software) is shown below: {"Why do you need this?":"Laptop hangs","Summarize the request":"Laptop Slow","Attachment":""} **Note:** Provide Key:Value pair for all the mandatory fields. Only String and Number fields are allowed; other data types are not supported in the current release. You may upload attachments using “JIRA Attach File to Issue” step or download attachments using “JIRA Download Attachments” step.
	Table:	Choose fields and provide field values to create a Jira issue.
7	Variable Field Name	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable.

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8	Static Field Name	Clicking on this column field brings a dialog with the list of available fields to create a Service Request.
9	Field Value	Specify a Field value to hold the value of field name selected in Field Name column above. All the mandatory fields for creating a Service Request for a JIRA Service Desk instance must be selected and the field values should be provided else the workflow throws an error mentioning the mandatory field that is missing. Request Type and Summary are mandatory fields for all Service Requests. Some Service Requests may have additional mandatory fields.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Issue ID	Specify an output field to hold the Issue ID of the Service Request created upon successful plugin execution.
2	Issue Key	Specify an output field to hold the Issue key of the Service Request created on successful plugin execution.

23.2 Jira Service Desk: Update Customer Request

Jira Service Desk: Create Service Request plugin step creates a service request in Jira Service Desk.

Compatibility:
Jira Service Desk on Cloud and Jira v8.4.1 (JIRA Service Desk Application v4.4.1) on-premise

Prerequisites:

- JIRA Service Desk instance and access details
- **json-20180130.jar** must be present in lib folder of Process Studio as well as AE.

Limitations:

The following fields are unsupported: *Time Tracking*, *Original Estimate*, and *Remaining Estimate*.

Note:

Supported format for **Date** type fields, such as **Due Date** is '*YYYY-MM-DD*'.

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23.2.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Server name or IP address with port of the JIRA Service Desk instance in case of on-premise (http://xx.xx.xx.xxx:8081). In case the on-premise instance has been customized provide the appropriate URL. Provide cloud URL in case of on-cloud instance (e.g.- https://xxxx.atlassian.net/secure/BrowseProjects.jspa)
4	Username	Specify a username to authenticate in a JIRA Service Desk instance having the permission to create a service request. This field is mandatory.
	Password:	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password/API Key	Provide password of the username to authenticate in case of on premise instance and API Key/token in case of on cloud instance. Following is the link to find the steps to generate the API token for cloud instance: https://confluence.atlassian.com/cloud/api-tokens-938839638.html Password/API is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password/API field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description

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	Input Fields:	
1	Service Desk (Project Key)	Name of the Service Desk for which the service request is supposed to be updated.
2	Button: Get	Clicking on this button populates the list of all the available Service Desks in provided JIRA Service Desk instance.
3	Request Type	Specify a Request type with which the service request is to be updated.
4	Issue Key	Key of the issue to be updated.
5	Button: Get	Clicking on this button populates the list of all the available Request Types in the provided JIRA Service Desk instance.
6	Accept fields as JSON	Enable checkbox to accept the fields to be updated in JSON format.
7	JSON	Select the field in the stream containing the JSON text. The JSON field can be any field in the stream or can be created using any step such as Generate Rows, Modified Java Script, Set field value to a constant etc. Sample JSON (for Request Type: Request New Software) is shown below: {"Description":"Laptop Slow Speed","Summary":"Slows Down","Attachment":""} **Note:** Provide Key: Value pair for all the mandatory fields. Only String and Number fields are allowed; other data types are not supported in the current release. You may upload attachments using “JIRA Attach File to Issue” step or download attachments using “JIRA Download Attachments” step.
	Table:	Choose fields and provide field values to create a Jira issue.
8	Variable Field Name	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable.
9	Static Field Name	Clicking on this column field brings a dialog with the list of available fields to update a Service Request.
10	Field Value	Specify a Field value to hold the value of field name selected in Field Name column above. All the mandatory fields for creating a Service Request for a JIRA Service Desk instance must be selected and the field values should be provided else the workflow throws an error mentioning the mandatory field that is missing.

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		Request Type and Summary are mandatory fields for all Service Requests. Some Service Requests may have additional mandatory fields.

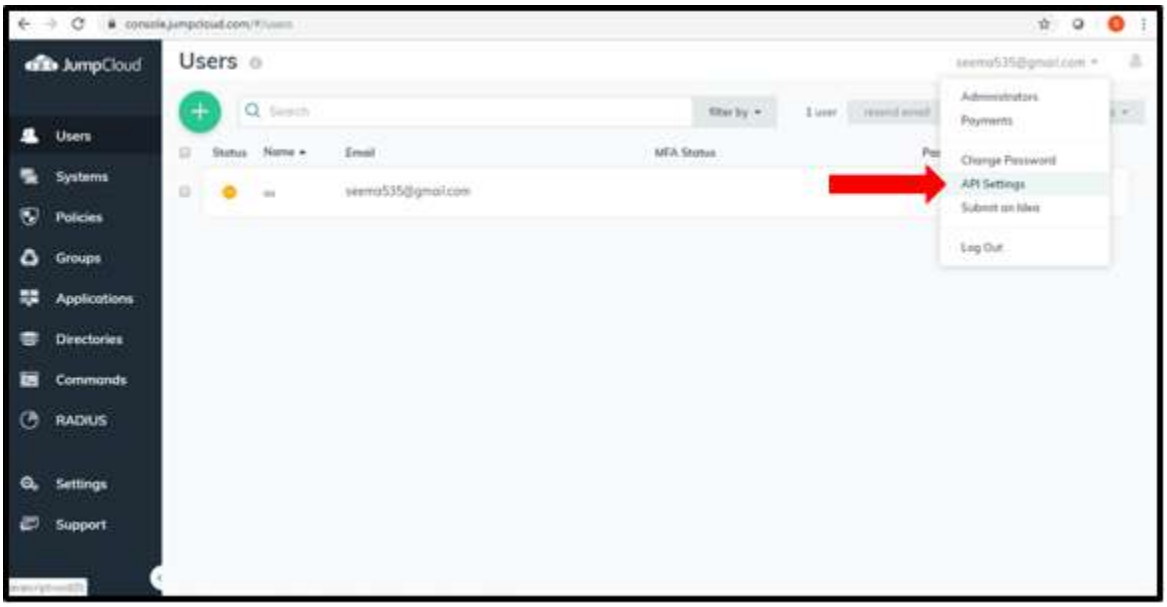
24 JumpCloud

JumpCloud plugin is used perform tasks in JumpCloud, which is a cloud based Directory-as-a-Service.

JumpCloud Compatibility: JumpCloud cloud instance

Prerequisites

- JumpCloud instance with access details.
- JumpCloud API Key: Login to JumpCloud as an Administrator. API Key is available in API settings.



24.1 JumpCloud: Create System User

24.1.1 Description

JumpCloud: Create System User plugin step creates a system user in JumpCloud.

24.1.2 Configurations

No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the JumpCloud instance (e.g. https://console.jumpcloud.com). This field is mandatory.
	API Key:	
3	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as text box.
4	API Key	Specify an API Key created on JumpCloud instance. **Note:** Login as an Administrator. API Key is available in API settings. This field is mandatory. API Key is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down to select fields from previous steps.
5	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Accept Fields As JSON	Select the checkbox to use the JSON field as an input to build JSON. Else, use the Table Fields to specify the input and build the JSON.
2	JSON	Specify JSON in a valid format to create a system user.
	Table Fields	The fields will be available if the Accept Fields As JSON checkbox is not selected.
3	Variable Field Name	Specify the field name as a field or variable.
4	Static Field Name	Click to populate associated fields with details.
5	Field Value	Specify the valid values for the fields associated with the field name. This is a mandatory field.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

24.2 JumpCloud: Create User Group

24.2.1 Description

JumpCloud: Create User Group plugin step creates a User Group in JumpCloud.

24.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the JumpCloud instance (e.g. https://console.jumpcloud.com). This field is mandatory.
	API Key:	
3	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	API Key	Specify an API Key created on JumpCloud instance. **Note:** Login as an Administrator. API Key is available in API settings. This field is mandatory. API Key is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down to select fields from previous steps.
5	Test Connection	Verifies whether the connection is established or not.

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		Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Name	Specify a new user group name to be created. This is a mandatory field.
2	Description	Specify a description for the new user group to be created.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

24.3 JumpCloud: Delete System User

24.3.1 Description

JumpCloud: Delete System User plugin step deletes a System User in JumpCloud.

24.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the baseURL of the JumpCloud instance (e.g. https://console.jumpcloud.com). This field is mandatory.
	API Key:	
3	Accept Values from fields	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list.

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		Else enable checkbox for API Key field to appear as Text box.
4	API Key	Specify an API Key created on JumpCloud instance. **Note:** Login as an Administrator. API Key is available in API settings. This field is mandatory. API Key is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down to select fields from previous steps.
5	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Username	Specify the Username of the system user to be deleted.
2	Button: Get	Click to get all the system users.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

24.4 JumpCloud: Delete User Group

24.4.1 Description

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JumpCloud: Delete User Group plugin step deletes a User Group in JumpCloud.

24.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify the base URL of the JumpCloud instance (e.g. https://console.jumpcloud.com). This field is mandatory.
	API Key:	
3	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	API Key	Specify an API Key created on JumpCloud instance. **Note:** Login as an Administrator. API Key is available in API settings. This field is mandatory. API Key is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled API Key field appears as Text box and accepts static values or variables. Else if checkbox above is disabled API Key field appears as a drop down to select fields from previous steps.
5	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Name	Specify the Group Name to be deleted.
2	Button: Get	Click to get all user groups.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

25 Linux

Linux plugin has been tested on,

Red Hat: Red Hat Enterprise Linux Server release 7.0 (Maipo) and Ubuntu: Ubuntu 16.04

Prerequisites:

Root user (administrator) can execute all the steps. However, for normal user consider the following,

In case of Red Hat Enterprise Linux Server release 7.0 (Maipo), when you want to run a command that requires root rights, **Linux** checks your username against the sudoers file. **Linux** is built with security in mind. The **sudoers file** is a **file Linux** Administrators use to allocate system rights to system users. This allows the administrator to control who does what. Necessary user entry is required in the 'sudoers' file and also, the 'sudoers' file must have the neccessary permissions to make these changes.

However, on Debian based systems e.g. Ubuntu if your process is started by super user, we won't be able to kill that process using this plugin because Ubuntu does not allow direct access to super user processes. This is applicable to Ubuntu 16.04 mentioned above.

25.1 Linux: Add User

25.1.1 Description

This Linux plugin step is used to create a new user in Linux operating system.

25.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Server IP of the Linux/Ubuntu Machine. This field is mandatory. Drop down is available.

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4	Port	The port number on which Machine is running. 22 is the default port. This field is mandatory.
5	Username	The username of the Linux / Ubuntu Machine (Root). Refer Prerequisites regarding user in the introduction to this plugin. This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password of the Linux/ Ubuntu Machine username to authenticate into the system. Password is entered using a widget. The widget handles both TextVar(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

Input Section:		
No.	Field Name	Description
	Input Fields:	
1	New Username	The name of the new user to be created. This field is mandatory.
2	New Password	The password of the new user to be created. This field is mandatory.

Output Section:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. This field is mandatory.

25.2 Linux: Delete User

25.2.1 Description

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Linux: Delete User plugin step deletes a user in Linux operating system.

25.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Server IP of the Linux/Ubuntu Machine. This field is mandatory. Drop down is available.
4	Port	The port number on which Machine is running. 22 is the default port. This field is mandatory.
5	Username	The username of the Linux / Ubuntu Machine (Root). Refer Prerequisites regarding user in the introduction to this plugin. This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password of the Linux/ Ubuntu Machine username to authenticate into the system. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

Input Section:		
No.	Field Name	Description
	Input Fields:	
1	Delete User Name	The name of the new user to be deleted. This field is mandatory.
2	Delete user's home Directory and mail spool	The field is dropdown. User can select either **Yes** or **No**

Output Section:		
No.	Field Name	Description
	Output Fields:	

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1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. This field is mandatory.

25.3 Linux: Get Disk Utilization

25.3.1 Description

Linux: Get Disk Utilization plugin step gets the amount of disk space used and available on Linux file systems.

25.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Server IP of the Linux/Ubuntu Machine. This field is mandatory. Drop down is available.
4	Port	The port number on which Machine is running. 22 is the default port. This field is mandatory.
5	Username	The username of the Linux / Ubuntu Machine (Root). Refer Prerequisites regarding user in the introduction to this plugin. This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password of the Linux/ Ubuntu Machine username to authenticate into the system. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

25.4 Linux: Get Service Status

25.4.1 Description

Linux: Get Service Status plugin step shows the status of a service on a Linux machine.

25.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Server IP of the Linux/Ubuntu Machine. The data type is String. This field is mandatory.
4	Port	The port number on which machine is running. 22 is the default port. The data type is Integer, This field is mandatory.
5	Username	The username of the Linux / Ubuntu Machine (Root). Refer Prerequisites regarding user in the introduction to this plugin. The data type is String. This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password of the Linux/ Ubuntu Machine username to authenticate into the system. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox

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		above is disabled Password field appears as a drop down to select fields from previous steps.

Input Section:		
No.	Field Name	Description
	Input Fields:	
1	Service Name	Specify the name of the service for which status is required. The data type is string. This field is mandatory.

Output Section:		
No.	Field Name	Description
	Output Fields:	
1	Result	Specify an output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. The data type is string. This field is mandatory.

25.5 Linux: Get Top N Processes

25.5.1 Description

Linux: Get Top N Processes plugin step gets the top N processes in Linux operating system.

25.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Server IP of the Linux/Ubuntu Machine. This field is mandatory. Drop down is available.
4	Port	The port number on which Machine is running. 22 is the default port. This field is mandatory.
5	Username	The username of the Linux / Ubuntu Machine (Root). Refer Prerequisites regarding user in the introduction to this plugin. This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password of the Linux/ Ubuntu Machine username to authenticate into the system.

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		Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

Input Section:		
No.	Field Name	Description
	Input Fields:	
1	Resource Type	Allowed values are CPU or Memory. This field is mandatory.
2	Number of Processes	Specify the number of top processes to retrieve. This field is mandatory.

Output Section:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. This field is mandatory.

25.6 Linux: Kill Process

25.6.1 Description

This step is used to kill a process on Linux OS based on the provided Process ID. There is an option provided for the user to forcefully kill a Process. The user has to select **Yes** or **No** from the dropdown. Forcefully kill will always work provided the user has the permission to kill the process.

25.6.2 Configuration

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Server IP of the Linux/Ubuntu Machine. This field is mandatory. Drop down is available.

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4	Port	The port number on which Machine is running. 22 is the default port. This field is mandatory.
5	Username	The username of the Linux / Ubuntu Machine (Root). Refer Prerequisites regarding user in the introduction to this plugin. This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password of the Linux/ Ubuntu Machine username to authenticate into the system. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

Input:		
No.	Field Name	Description
	Input Fields:	
1	Process ID	Holds the Process ID of the Process that has to be deleted. This field is mandatory.
2	Kill Forcefully	The Field is dropdown. User can select either **Yes** or **No** from the dropdown.

Output:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. This field is mandatory.

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This Plugin kills the process running on the Linux Machine by taking the Process ID as the input. By any chance if the status of that particular process is still active after successful execution of Plugin then there might be few possibilities.

- That particular Process is under the execution of system call(). It will be terminated once it finishes its execution.
- That Process is a Zombie Process. There is no harm if it is still alive, just try killing the Parent Process, it will be automatically terminated.
- You are not the owner of that Process.

25.7 Linux: Start Service

25.7.1 Description

This plugin is designed to start Linux Service.

25.7.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Server IP of the Linux/Ubuntu Machine. This field is mandatory. Drop down is available.
4	Port	The port number on which Machine is running. 22 is the default port. This field is mandatory.
5	Username	The username of the Linux / Ubuntu Machine (Root). Refer Prerequisites regarding user in the introduction to this plugin. This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password of the Linux/ Ubuntu Machine username to authenticate into the system. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox

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		above is disabled Password field appears as a drop down to select fields from previous steps.

Input:		
No.	Field Name	Description
	Input Fields:	
1	Service Name	The name of the service to be started. This field is mandatory.
2	Maximum time out (in seconds)	Execute the plugin up to given maximum time.
3	Check cycle time (in seconds)	Check cycle time up to given maximum time

Output:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. This field is mandatory.

25.8 Linux Stop Service

25.8.1 Description

This plugin is designed to stop Linux Service.

25.8.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Server IP of the Linux/Ubuntu Machine. This field is mandatory. Drop down is available.
4	Port	The port number on which Machine is running. 22 is the default port. This field is mandatory.
5	Username	The username of the Linux / Ubuntu Machine (Root). Refer Prerequisites regarding user in the introduction to this plugin. This field is mandatory.
	Password:	

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6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password of the Linux/ Ubuntu Machine username to authenticate into the system. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

Input:		
No.	Field Name	Description
	Input Fields:	
1	Service Name	The name of the service to be stopped. This field is mandatory.
2	Maximum time out (in seconds)	Execute the plugin up to given maximum time.
3	Check cycle time (in seconds)	Check cycle time up to given maximum time

Output:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. This field is mandatory.

25.9 Linux Restart Service

25.9.1 Description

This plugin is designed to restart Linux Service.

25.9.2 Configurations

No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	Server Name	Server IP of the Linux/Ubuntu Machine. This field is mandatory. Drop down is available.
4	Port	The port number on which Machine is running. 22 is the default port. This field is mandatory.
5	Username	The username of the Linux / Ubuntu Machine (Root). Refer Prerequisites regarding user in the introduction to this plugin. This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password of the Linux/ Ubuntu Machine username to authenticate into the system. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

Input:		
No.	Field Name	Description
	Input Fields:	
1	Service Name	The name of the service to be restarted. This field is mandatory.
2	Maximum time out (in seconds)	Execute the plugin upto given maximum time.
3	Check cycle time (in seconds)	Check cycle time up to given maximum time

Output:		
No.	Field Name	Description

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	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”. This field is mandatory.

25.10 Linux: Run Linux Commands

25.10.1 Description

This plugin is designed to execute Linux commands.

Prerequisite: Linux Instance with requisite User Access.

25.10.2 Configurations

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Session Name	Specify the session name to be used to run the Linux commands The data type is string. This field is mandatory.
	Write Linux Commands From Here*:	
2	Left Pane: Get Input Fields	It contains the field from the input stream in the workflow.
3	Right Pane	Specify the Linux Command(s) to be executed. The data type is string. This field is mandatory. **Notes:**

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		• Previous step fields or Variable can also be used as a parameter to commands. • If the complete response is not received within the provided time in 'Max Wait For Response' then an error occurs. • Provide semi-colon (;) separated commands to execute multiple commands as a batch. • Develop a workflow such that all Run Linux Command step in same workflow should be executed sequentially. • If multiple commands are executed as a batch, then a consolidated output is returned. **Known Issues:** After executing a command if any input key (i.e. Esc, Enter, etc.) is required to exit the output screen then write these commands in such a way that either the output is redirected to file or Linux variable, and then the output can be fetched by reading the file, or echo the variable.
4	Max Wait For Response(sec)	Specify the of time to wait for a response. It must be a positive numeric value. The default value is 1 sec. The data type is string.

Output Tab		
No.	Field Name	Description
	Output Fields:	
1	Response Field Name	Specify an output field to store the response. The default value for this field is "StdOut". The data type is string.

25.11 Linux: Start Session

25.11.1 Description

This plugin is designed to start a Linux session.

Note: The step is not a row generating step hence; it must be an intermediate step in a workflow.

Prerequisite: Linux Instance with requisite User Access.

25.11.2 Configurations

Input Tab:		
No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Server Name / IP Address	Specify the server or IP address of the machine of which you want to get the Session to execute a command(s). The data type is String. This field is mandatory.
2	Server Port	Specify the TCP/IP port on which ssh protocol lives on the server. The default is 22. The data type is Number. Note: If the non-numeric value is provided for Server Port the default Port value 22 is considered during execution
3	Timeout (In Seconds)	Specify the timeout in seconds. If set to a number larger than zero you can specify a non-default connection timeout. Default Value 0 seconds. The data type is Number.
4	Username	Specify the username to log in with. The data type is String. This field is mandatory.
	Password (Option 1):	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Specify the password of the user. Password is encrypted and is not stored in the .psw workflow file. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is String. Connection can be authenticated using username/Password or Private Key. Accordingly, this field can be mandatory or optional.
	Key-Pair Details (Option 2):	
7	Use Key	Specify Yes if you want to login using a private key. Allowed Values: 'Yes', 'No'. Default: No. The data type is String.
8	Private Key	If Yes is specified in Use Key above, specify the Private Key. The private part of a private/public RSA key-pair (see: ssh-keygen).

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		The data type is String. Connection can be authenticated using username/Password or Private Key. Accordingly, this field can be mandatory or optional.
9	Pass Phrase	Specify the optional pass-phrase used when the key-pair was generated. The data type is String.
	Proxy Details (if required):	
10	Proxy Host	Specify the proxy server host to use (name or IP address). The data type is String.
11	Proxy Port	Specify the proxy server port to use. The default value is 0. The data type is String.
12	Proxy Username	Specify the proxy username. The data type is String.
	Proxy Password:	
13	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
14	Proxy Password	Specify the Proxy Password. Proxy Password is encrypted and is not stored in the .psw workflow file. If checkbox above is enabled Proxy Password field appears as Text box. Else if checkbox above is disabled Proxy Password field appears as a drop down to select fields from previous steps. The data type is String.
15	Test Connection	Click to see if the supplied credentials are sufficient for logging into the SSH server. It shows an appropriate message dialog (Timeout, success or fail). Note: The Test Connection button does not work for previous step fields. The button only works with static values and environment variables.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Session Name*	Provide the name of the session to be created. This must be a unique name and there must be no running session with this name, else the step execution gives an error. This is also an output field as a session is created with this name. The field can also be set using a previous field or a variable. The data type is string. This field is mandatory.

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		Note: • The Session Name must be unique for each Linux: Start Session step used in the same workflow or Sub workflow • If multiple rows are passed to this step, it creates a session for each row, but session name must be unique, else an error is thrown.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button field values are checked. If any required field values are missing, then validation error message is displayed. If all the required field values are provided then it will save the field values.
2	Cancel	Click this button to cancel the window without saving any values.

25.12 Linux: Stop Session

25.12.1 Description

This step is designed to stop a running Linux session.

Note: The step is not a row generating step hence; it must be an intermediate step in a workflow.

Prerequisites:

Linux Instance with necessary User Access.

25.12.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Input Field:	
1	Session Name*	Provide the name of session created using the Linux: Start Session plugin step that is to be closed. The data type is string. This field is mandatory. Note:

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		• If the same session is to be used for processing multiple rows of business data; ensure that workflow is developed in such a way (e.g using Workflow executor or Loop steps etc.), that Linux: Stop step is used after all rows are processed.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button field values are checked. If any required field values are missing, then validation error message is displayed. If all the required field values are provided then it will save the field values.
2	Cancel	Click this button to cancel the window without saving any values.

26 Machine Learning

The following section covers four machine learning steps,

- Classification Model Builder
- Prediction
- Build Model For Intent Classification And Entity Extraction
- Intent Classification And Entity Extraction

The first two Machine Learning plugin steps namely ‘Classification Model Builder’ and ‘Prediction’ let you build a classification model and then use this model for prediction. These plugin steps solve classification type problem where value to be predicted takes a set of discrete values as opposed to continues values (when the value being predicted is a continuous variable, such problem is called as regression problem). Below are a few examples where these steps can be used,

  - Predict support group based on issue description
  - Predict customer churn based on past customer data
  - Predict occupational class of the person being insured based on various attributes of the person
  - Predict customers from your customer list which are likely to show interest in your new promotions

The last two Machine Learning plugin steps namely ‘Build Model for Intent Classification’ and Entity Extraction’ and ‘Intent Classification and Entity Extraction’ let you build a model for Intent Classification and Entity Extraction and then use this model for Intent Classification and Entity

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Extraction. Identification of Intent and entity has a huge variety of use cases in industry wherever there is a need to understand the intention behind the utterances from users and automate certain processes.

Prerequisites:

- **Use a system which has a minimum of 8GB RAM**.
- **AE Python setup (Python setup 3.6.1 or 3.8.10)**

  Note: Support is available for both, Python 3.6.1 and Python 3.8.10. However, you cannot use both versions simultaneously.

  For example, if you are currently using Python version 3.6.1 and want to use 3.8.10, then first close the current Process Studio instance, update the Python setup to version 3.8.10 and restart the Process Studio.

  Local AE Python setup steps:

  1. Download the AutomationEdge's Python distribution from the link provided in the mail.
  2. Close Process Studio instances and/or Agents where Machine Learning plugin is to be used.
  3. Create a folder by the name 'python' – case sensitive i.e., all letters in small case – in your <Process Studio root> and/or <Agent root> folders*.
  4. Unzip the downloaded file in the following location:

     <Process Studio root>/python/ and/or

     <Agent root>/python/

  5. Post completion of step three, your folder structure should now look like:

     <Process Studio root>/python/AE_Python<Version>

     For example, D:/process-studio/python/AE_Python3.8

     <Agent root>/python/AE_Python<Version>

     For example, D:/ae-agent/python/AE_Python3.8

  6. Start Process Studio instances and/or Agents wherever this change has been made. If you skipped Step 2, just restart the instances.

  * <Process Studio Root> is the main Process Studio folder once you have unzipped Process Studio <by default, the folder name is process-studio> and similarly <Agent home> is main agent folder after unzipping <named ae-agent>

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If you don't have a python setup on your machine and want to install a new python using our AE_Python.zip then either follow the above "Local AE Python setup steps" or the below steps:

Machine Level Python setup steps:

- Get Python Setup zip(Python38.zip) file from AutomationEdge
- Extract Python38
- Add the following filepaths to the PATH Environment Variable as below:
    - <path_till_python_directory>\Python38;<path_till_python_directory>\Python38\Scripts;

    Note: Perform Step 4 only if you are setting up Python 3.6.1, else proceed with Step 5.

- Create symbolic link for spacy en_core_web_sm model:
    - Traverse to below path:
      ..\Python38\lib\site-packages\spacy\data
      Delete folder/directory viz., en.
    - On Command line execute the following command to create symbolic link:
      python -m spacy link en_core_web_sm en --force
- For older generation Pentium machines hardware specific Tensorflow libraries
- Microsoft Visual Studio C++ distribution specific to Windows OS
- Steps viz., Intent Entity Model Builder and Intent Entity Prediction use Tensorflow libraries. For compilation of these Tensorflow libraries, the processing machine's processor requires, AVX –Instruction Set Extension support. You may refer your Processor manual to check for AVX support. (for e.g. in case of intel processor the details can be obtained from the following URL- https://ark.intel.com/content/www/us/en/ark.html#@Processors)

26.1 Classification Model Builder

26.1.1 Description

This step lets you build a classification model based on training data. One column or attribute of your data set can typically be considered as one feature. Features should ideally be independent. Features are also referred to as dimensions. Value which you want to predict is called label. This step can be used to build the model when features are either of Number type or String type or mixed.

26.1.2 Configurations

Configuration Tab		
No.	Field Name	Description
	Row Handling	

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1	Step name	Used to specify the name of the step. The step name should be unique within the workflow.
2	Number of Rows to Process	Can have following two values. • All • Batch Governs if all the rows of dataset are passed in one shot or they are batched. Typically if you are building model on a very large dataset, you can use Batch row processing.
3	Size	It has meaning only when Batch is selected for 'Number of Rows to Process'. If your dataset has 50,000 rows, 1,000 can be a good batch size candidate.
	Data Model Location	
4	Build using AE Model Version	Select the Python version you will use for building the model. **Note:** The Python version you select must be same as the version you have saved in the python folder or added to the environment variable path.
5	File name	Used to specify name and location of the file which will contain the model
	Algorithm	
6	Algorithm	Used to specify algorithm to be used for building the model. Step supports following algorithms • Linear SVC • SVC • Decision Tree Classifier • Random Forest Classifier • Logistic Regression • Multinomial NB • SGD Classifier • K Neighbors Classifier
7	Algorithm Parameters*	Based on the algorithm selected, corresponding algorithm parameters are shown. These are described in the last table of this plugin description.

Fields Tab		
No.	Field Name	Description

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	Fields	
1	Name	Name of the field
2	Incoming Type	Used to specify data type of the field. It can either be Number or String

3	Text Processing	All the classification algorithms work on vectors of numbers. Fields which are of type String need to be converted internally to numeric vectors and this cell lets you specify all the Text Processing attributes on that field. This cell can be clicked only for fields with String data type. Ensuing dialog when you click on it has two tabs.
		• First tab lets you specify one or more text processing options.
		  ○ Remove punctuation: removes standard punctuation marks from the text
		  ○ Remove Stop Words: removes stop words like 'the', 'as', 'in' etc.
		  ○ Additional Stop Words: this lets you choose a simple text file where every additional stop word is there on a separate line. These are your domain specific stop words.
		  ○ Lemmatization: this converts words like mice to mouse, houses to house etc.
		  ○ Stemming: this gets stem of the word no matter what word form is used in the text. So going, went, goes etc. would be converted to go
		• Second tab lets you Test your text processing options. In the text box next to 'Value:' you can type any text. Clicking on 'Test' button will give you the text in the text box next to 'Result:' taking into account text processing options you have selected.

When you are processing a feature of type string, as mentioned in 'Text Processing' section of above table, this feature needs to be converted into numeric features. Text Vectorization Tab governs how all string features get converted into numeric features. An n-gram is a contiguous sequence of n items from a given sample of text or speech. Table below shows how internally a string gets tokenized given different values of n-gram

No.	String	N Gram Start/End	Tokens
1	Weather today is good	1-1	'Weather', 'today', 'good'
2	Weather today is good	1-2	'Weather', 'today', 'good', 'Weather today', 'today good'

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3	Weather today is good	1-3	'Weather', 'today', 'good', 'Weather today', 'today good', 'Weather today good'
4	Weather today is good	2-3	'Weather today', 'today good', 'Weather today good'

*is treated as stop word and not considered

Text Vectorization Tab		
No.	Field Name	Description
1	N Gram start	Should be a numeric value with minimum of 1
2	N Gram end	Should be a numeric value greater than or equal to N Gram start
3	Vectorization	N-Gram operation tokenizes input string feature. Vectorization is the operation where these tokens are converted to numeric features which are needed by the algorithms. There are three types of vectorizers supported • Count Vectorizer: It counts the number of times a token shows up in the document and uses this value as its weight. • Tfidf Vectorizer: TF-IDF stands for “term frequency-inverse document frequency”, meaning the weight assigned to each token not only depends on its frequency in a document but also how recurrent that term is in the entire corpora. • Hashing Vectorizer: It is designed to be as memory efficient as possible. Instead of storing the tokens as strings, the vectorizer applies the hashing trick to encode them as numerical indexes. The downside of this method is that once vectorized, the features’ names can no longer be retrieved.

Evaluation Tab		
No.	Field Name	Description
1	Evaluation Type	Choose an Evaluation Algorithm Type from the drop down list as seen in the snapshot below, • None – Choose None if Evaluation is not needed • Train/Test Split – This Evaluation Algorithm splits the data into Train and Test as per parameters specified below.

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		The data we use is usually split into training data and test data. The training set contains a known output and the model learns on this data in order to be generalized to other data later on. We have the test dataset (or subset) in order to test our model's prediction on this subset. • Stratified k-Fold Cross-Validation – In this Evaluation Algorithm we split our data into k different subsets (or folds). We use k-1 subsets to train our data and leave the last subset (or the last fold) as test data. We then average the model against each of the folds and then finalize our model. After that we test it against the test set.
2	Test Percentage	For Train/Test Split: Data Types allowed: default value float, int or None, optional (default=None) • If float, should be between 0.0 and 1.0 and represent the proportion of the dataset to include in the test split. • If int, represents the absolute number of test samples. • If None, it will be set to 0.25.
3	Number of Folds	For Stratified k-Fold Cross-Validation: Data Types allowed: int, default=3 • Must be at least 2. Default value is 3.
4	Random State	For Train/Test Split: Data Types allowed: int, RandomState instance or None, optional (default=None) • If int, random_state is the seed used by the random number generator; • If RandomState instance, random_state is the random number generator; • If None, the random number generator is the RandomState instance used by np.random.
5	Shuffle	For Stratified k-Fold Cross-Validation: Data Types allowed: boolean, optional (default=True) • Whether to shuffle each class's samples before splitting into batches.
6	Evaluation Output File Name	Absolute html report output file path. For Train/Test Split:

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		Confusion Matrix [[1210 0] [183 0]] **Classification Report** **For Stratified k-Fold Cross-Validation:** **Stratified k-Fold Cross-Validation**

	precision	recall	f1-score	support
ham	0.87	1.00	0.93	1210
spam	0.00	0.00	0.00	183
micro avg	0.87	0.87	0.87	1393
macro avg	0.43	0.50	0.46	1393
weighted avg	0.75	0.87	0.81	1393

k-Fold	Stratified k-Fold Cross-Validation Score
1	0.8659849300322928
2	0.8659127625201939
3	0.8659127625201939
Average	0.8659368183575603

7	Add output filename to result	Enable checkbox to display downloadable link of html report output file on AE portal.

*The following rows list the algorithms along with a description and snapshots of corresponding parameters. The right hand column has the description of these parameters.

	Algorithm Description	**Algorithm Parameter Description**
1	Linear SVC: Firstly, by any chance if data is linearly separable in any dimension(s) of the features, undoubtedly, one should choose Linear SVM or Logistic Regression. Even though one might achieve similar results with the other complex algorithms, they are not recommended for two reasons; 1) Complexity often leads to more computation time 2) Overfitting Linear SVM is an extremely fast machine learning (data mining) algorithm for solving	**Loss:** It specifies the loss function. ‘hinge’ is the standard SVM loss (used e.g. by the SVC class) while ‘squared_hinge’ is the square of the hinge loss. In machine learning, **loss function** measures the quality of your solution, while **penalty function** is mainly responsible to minimize the misclassification error **(It** imposes some constraints on your solution for regularization). **C** is the penalty parameter of error term. It maximizes the kernel margin while keeping the misclassification error minimum. C is 1 by default and it’s a reasonable default choice. It works well for the majority of the common

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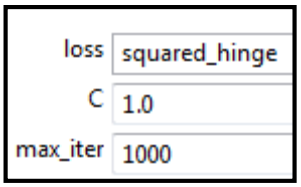
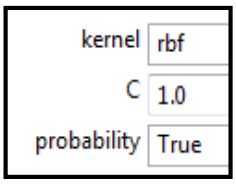
	multiclass classification problems from ultra large data sets. 	datasets. If you have a lot of noisy observations in the data set you should decrease it. Lower the C value, better the results are for noisy data and exactly opposite in case of clean data. **max_iter** (*int, default=1000)* is the maximum number of iterations to be run for convergence.
2	SVC: The objective of a Linear (kernel) SVC (Support Vector Classifier) is to fit to the training data provided, returning a "best fit" hyperplane that divides, or categorizes, your training data. From there, after getting the hyperplane, you can then feed some features to your classifier to see what the "predicted" class is.  SVC Use Cases: • Predicting if student passes/fails based on previous exam scores • Used mainly with numerical data and when there is a need for high classification accuracy without compromising on efficiency.	**Kernel** (*string, optional (default='rbf'))* Specifies the kernel type to be used in the algorithm. It must be one of 'linear', 'poly', 'rbf', 'sigmoid', 'precomputed' or a callable. If none is given, 'rbf' will be used. If a callable is given it is used to pre-compute the kernel matrix from data matrices; that matrix should be an array of shape (n_samples, n_samples). Currently, the plugin supports 'linear', 'poly' and 'rbf' as explained below, i. Linear Kernel works well only when the data is linearly separable (in any dimension of feature space). This hyperplane which is a learned model can be used for prediction. ii. RBF kernel of SVM especially might do a decent job in most of the other datasets that are non-linear. RBF is widely used kernel with Non Linear datasets. iii. Poly kernel is suitable if data is separable by higher order functions. Practical usage or benefits are pretty less. Hence it is not the most commonly used kernel. **C** is the penalty parameter. It maximizes the margin while keeping the misclassification error minimum. C is 1 by default and it's a reasonable default choice. It works well for the majority of the common datasets. If you have a lot of noisy observations in the data set you should

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		decrease it. Lower the C value, better the results are for noisy data and exactly opposite in case of clean data. **Probability:** This is a Boolean and optional. Choose True or False from the drop down list (default=False). It is about whether to enable probability estimates. This must be enabled prior to calling fit (Fit the SVM model according to the given training data).
3	Decision Tree Classifier: It is one of the predictive modeling approaches used in machine learning. Decision tree learning uses a decision tree to go from observations about an item to conclusions about the item's target value. Decision Tree Classifier Use Cases: • Decision Tree Classifier /Random Forest Classifier are predominantly used in recommendation systems/problem.	**max_depth:** It is an integer or None (default=None). max_depth is optional. The maximum depth of the tree. If None, then nodes are expanded until all leaves are pure.
4	Random Forest Classifier: Random Forest Classifier is ensemble algorithm. *Ensembled algorithms* are those which combine more than one algorithms of same or different kind for classifying objects. **Random Forest is a flexible, easy to use machine learning algorithm that produces, even without hyper-parameter tuning, a great result most of the time. It is also one of the most used algorithms, because it's simplicity and the fact that it can be used for both classification and regression tasks.**	**max_depth** *int or None, optional (default=None)*. It is the maximum depth of each tree in the Random Forest. If None, then nodes are expanded until all leaves are pure.

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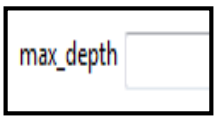
	RFC mainly overcomes some of the limitations that Decision Tree Classifiers has: • Only One tree and one decision for the entire data as well as feature set Overfitting. • Computational efficiency(not all cases) • Improper decision rules (in some cases) Random Forest Classifier Use Cases: ● Decision Tree Classifier /Random Forest Classifier are predominantly used in recommendation systems/problems. ● Predicting the risk(high/low/medium) of a loan application ● Predicting social media share scores etc.	
5	Logistic Regression: A classification model that uses a sigmoid function to convert a linear model's raw prediction into a value between 0 and 1. You can interpret the value between 0 and 1 in either of the following two ways: • As a probability that the example belongs to the positive class in a binary classification problem. • As a value to be compared against a classification threshold. If the value is equal to or above the classification threshold, the system classifies the example as the positive class. Conversely, if the value is below the given threshold, the system classifies the example as the negative class  Logistic Regression Use Cases:	C is the penalty parameter. It maximizes the margin while keeping the misclassification error minimum. C is 1 by default and it's a reasonable default choice. It works well for the majority of the common datasets. If you have a lot of noisy observations in the data set you should decrease it. Lower the C value, better the results are for noisy data and exactly opposite in case of clean data. **max_iter** (*int, default=1000)* is the maximum number of iterations to be run for convergence.

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	● Classifying words as nouns, pronouns, and verbs. ● Weather forecasting applications for predicting rainfall and weather conditions.	
6	Multinominal NB: Naive Bayes: The Naive Bayes classifier is a simple probabilistic classifier which is based on Bayes theorem with strong and naïve independence assumptions. MultinomialNB: A variant of Naive Bayes which is mainly used for text classification. This variation, estimates the conditional probability of a particular word/term/token given a class as the relative frequency of term t in documents belonging to class c. The multinomial Naive Bayes classifier is suitable for classification with discrete features (e.g., word counts for text classification). The multinomial distribution normally requires integer feature counts. However, in practice, fractional counts such as tf-idf (term frequency–inverse document frequency) may also work. Multinomial NB Use Cases: ● illness forecast ● Grouping information (blog posts etc.)	**alpha** (float, optional (default=1.0)) Additive (Laplace/Lidstone) smoothing parameter (0 for no smoothing).
7	SGD Classifier: Gradient descent is an optimization algorithm used to find the values of parameters (coefficients) of a function (f) that minimizes a cost function (cost). Gradient descent is best used when the parameters cannot be calculated analytically (e.g. using linear algebra) and must be searched for by an optimization algorithm.	**max_iter** (*int, default=1000)* is the maximum number of iterations to be run for convergence. In machine learning, **loss function** measures the quality of your solution, while **penalty function** is mainly responsible to minimize the misclassification error **(It** imposes some constraints on your solution for regularization). **penalty:** *string, 'l1' or 'l2' (default='l2')* Specifies the norm used in the penalization. The 'l2'

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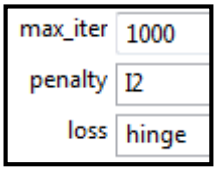
	In situations when you have large amounts of data, you can use a variation of gradient descent called stochastic gradient descent. **Stochastic Gradient Descent (SGD)** is a simple yet very efficient approach to discriminative learning of linear classifiers under convex loss functions such as (linear) Support Vector Machines and Logistic Regression.  SGD Classifier Use Cases: SGD has been successfully applied to large-scale and sparse machine learning problems often encountered in text classification and natural language processing.	penalty is the standard used in SVC. The 'l1' leads to coef_vectors that are sparse. **loss:** It specifies the loss function. Options are hinge, log, modified_huber, squared_hinge, perception.
8	K Neighbours Classifier: KNN is not really a training algorithm. K nearest neighbors is a simple algorithm that stores all available cases and classifies new cases based on a similarity measure (e.g., distance functions). In pattern recognition, the *k*-nearest neighbors algorithm (*k*-NN) is a non-parametric method used for classification and regression. In both cases, the input consists of the *k* closest training examples in the feature space. K Neighbors Classifier Use Cases: ● Retail analytics (Finding a similar product which customer is likely to buy or put in the basket).	**n_neighbours:** It defines the no. of nearest neighbors to be considered for prediction based on the distance.

26.1.3 Limitations:

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User may get a value conversion error in the scenario where the count of fields in the Microsoft Excel Input step differs from those that need to be passed to the ML: Model Builder step. The error occurs because of incorrect data type conversion in the Microsoft Excel Input step.

The workaround is:

- Ensure that the Microsoft Excel Input step has the same fields as that required in the ML: Model Builder step.
  OR
- Ensure data type of all fields is String.

Glossary:

- Loss: A measure of how far a model's **predictions** are from its **label**. Or, to phrase it more pessimistically, a measure of how bad the model is. To determine this value, a model must define a loss function. For example, linear regression models typically use **mean squared error** for a loss function, while logistic regression models use **Log Loss**.
- Penalty: A type of **regularization** that penalizes weights in proportion to the sum of the absolute values of the weights.
- Kernel: A classification algorithm that seeks to maximize the margin between **positive** and **negative classes** by mapping input data vectors to a higher dimensional space. For example, consider a classification problem in which the input dataset has a hundred features. To maximize the margin between positive and negative classes, a KSVM could internally map those features into a million-dimension space. KSVMs uses a loss function called **hinge loss**.
- Conversion: A convergence of a model's **predictions** to its **label**s.

26.2 Intent Entity Model Builder

Introduction:
Identification of Intent and entity has a huge variety of use cases in industry wherever there is a need to understand the intention behind the utterances from users and automate certain processes.

Following are the terminology used in this plugin.

Utterance: Anything the user says. For example, if a user types “What's the weather outside today in SanFrancisco ”, the entire sentence is the utterance.

Intent: An *intent* is the user’s intention. For example, if a user types “What's the weather outside today in San Francisco”, the user’s intent is to get the weather reports. Intents are given a name, often a verb and a noun, such as “getWeather”.

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Entity: An *entity* modifies a intent. For example, if a user types “What's the weather outside today in San Francisco”, the entities are “today” and “San Francisco”. Entities are given a name, such as “dateTime” and “location”. Entities are sometimes referred to as *slots*.

26.2.1 Description

This step builds a model for Intent Classification and Entity Extraction.

26.2.2 Configurations

No.	Field Name	Description
1	Step name	Specify the name of the step. Step names should be unique within a workflow.
	Input Fields:	
2	Build using AE Model Version	Select the Python version you will use for building the model. **Note:** The Python version you select must be same as the version you have saved in the **python** folder or added to the environment variable.
3	Use custom configuration file to build model?	Select this checkbox to enable ‘Custom Configuration FileName’ field below to provide a custom configuration file to build the model.
4	Custom Configuration FileName	This field is editable if the checkbox Use custom configuration files to build model? Is selected. A default configuration file is used to build the intent entity model. However, you may specify the path of a custom configuration file (.yml) here to build the model.

5	JSON Filename	Specify path of a JSON Filename containing Intent and Entities data.
		Sample JSON file contents:
		{
		"nlu_data": {
		"common_examples": [
		
		{
		"text": "i'm looking for a place to eat",
		"intent": "restaurant_search",
		"entities": []
		},
		{
		"text": "i'm looking for a place in the north of town",
		"intent": "restaurant_search",
		"entities": [

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		{
		"start": 31,
		"end": 36,
		"value": "north",
		"entity": "location"
		}
		]
		}
		}

6	Button: Browse	Click to browse for a JSON filename.
7	Model Directory Name	Specify or Browse for a Directory for the built Model file.
8	Button: Browse	Click to browse for a Model Directory.
	Output Field:	
9	Model Directory Field Name	Specify a fieldname to hold the complete path of the model (including the directory and model filename). The default value is outputModelDirectoryFieldName.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

26.3 Intent Entity Prediction

26.3.1 Description

This step predicts Intent Classification and Entity Extraction based on the model built in ‘Build Model for Intent Classification and Entity Extraction’ step.

26.3.2 Configurations

Model Tab

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No.	Field Name	Description
1	Step name	Specify the name of the step. Step names should be unique within a workflow.
	Input Fields:	
1	Predict using AE Model Version	Select the Python version you will use for building the model. **Note:** The Python version you select must be same as the version you have saved in the **python** folder or added to the environment variable.
2	Model Directory Name	Specify path of the model file built with 'Build model for Intent Classification and Entity Extraction' Step
3	Button: Browse	Click to browse for a Model file.
4	Input Data to Parse	Specify an input data (string) to be parsed for Intent Classification and Entity.
	Output Fields:	
5	Intent Field Name	Specify a fieldname to hold the Intent Field Name. The default value is intent.
6	Show intent confidence?	Enable checkbox to enable the Intent Confidence field below.
7	Intent Confidence Field Name	Specify a fieldname to hold Intent Confidence. The default value of the field name is intentConfidence.
8	Show Entities (in JSON format)?	Enable checkbox to enable the Entities field below.
9	Entities Field Name	Specify a fieldname to hold the Entities in JSON format. The default value of the field name is jsonEntities.
10	Show Intent Ranking (in JSON format)?	Enable checkbox to enable the Intent Ranking field below.
11	Intent Ranking Field Name	Specify a fieldname to hold the Intent Ranking in JSON format. All probable intents with confidence values (between 0 and 1), are generated in the JSON file. The default field name is jsonIntentRanking.

Common Buttons:		
No.	Field Name	Description

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	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

26.4 Prediction

26.4.1 Description

Prediction step lets you predict the label based on the model built in 'Classification Model Builder' step.

26.4.2 Configurations

Model Tab		
No.	Field Name	Description
1	Predict using AE Model Version	Select the Python version you will use for building the model. **Note:** The Python version you select must be same as the version you have saved in the **python** folder or added to the environment variable.
2	Model File	Used to specify path of the model file built with 'Classification Model Builder' Step
3	Load Model	Used to load the model and show all the relevant information of the model, like Algorithm, Vectorization algorithm, N Gram, Model parameters. All these values are read-only and only show you the values you had selected during 'Classification Model Builder' step

Field Mapping Tab		
No.	Field Name	Description
1	Feature	Feature name used during model building step
2	Type	Type of the feature, it can be either String or Number

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3	Field	Field name you want to map to the corresponding feature. It is important you map right field to a feature.
4	Text Preprocessing	If type is String, preprocessing options to be used to process the string. This is explained in detail in 'Classification Model Builder' step.
5	Target Field	Used to specify field name where value of the predicted label will be put
6	Prediction Confidence	Used to indicate if you would also want prediction confidence. This field is clickable only when algorithm used for model building supports prediction confidence
7	Prediction Confidence for all classes	Used to indicate if you would also like prediction confidence for all the classes. Say possible prediction values are 'A', 'B' and 'C', clicking this field will give you prediction confidence for all these labels/classes. This field is clickable only when algorithm used for model building supports prediction confidence

26.5 Regression Model Builder

26.5.1 Description

Regression Model Builder step builds a regression model based on training data.

26.5.2 Configurations

Model Tab		
No.	Field Name	Description
1	Step Name	Specify the name of the step. Step names should be unique within a workflow.
2	Number of Rows to Process	Select the number of rows that you want to process. Available options are: • All • Batch Governs if all the rows of dataset are passed in one shot or they are batched. Typically if you are building model on a very large dataset, you can use Batch row processing.

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3	Size	Select the batch size of the dataset. If your dataset has 50,000 rows, 1,000 can be a good batch size candidate. **Note:** You can specify a dataset, if you have selected Batch in the Number of Rows to Process field.
4	Build Using AE Model Version	Specify the AE model version. Available options are: Version 1.0 [Python 3.6] and Version 2.0 [Python 3.8]
5	File name	Specify the name of the file that contains the model.
6	Algorithm	Select the algorithm to build the model. Available algorithms are: • Linear Regression • Random Forest Regression • Support Vector Regression
7	Tuning Algorithms	Select the hyper tuning parameters. **Note:** Grid Search is supported currently.
8	Algorithm Parameters*	Provide / select the algorithm parameters. **Note:** The algorithm parameters available in the Alogrithm Parameters field depend on the selected algorithm. For more details, see Algorithms.

Field Mapping Tab		
No.	Field Name	Description
1	Name	Specify the name of the input field that needs to be passed for model building purpose
2	Incoming Type	Specify the data type of the field. The data type can be either string or number.
3	Text Preprocessing	All the classification algorithms work on vectors of numbers. Fields which are of type String need to be converted internally to numeric vectors and this cell lets you specify all the Text Processing attributes on that field. This cell can be clicked only for fields with String data type. Ensuing dialog when you click on it has two tabs.

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		• First tab lets you specify one or more text processing options. ○ **Remove punctuation:** removes standard punctuation marks from the text. ○ **Remove Stop Words:** removes stop words like 'the', 'as', 'in', and so on. ○ **Additional Stop Words:** choose a simple text file where every additional stop word is there on a separate line. These are your domain specific stop words. ○ **Lemmatization:** Converts words, such as mice to mouse, houses to house, and so on. ○ **Stemming:** Gets stem of the word no matter what word form is used in the text. Therefore, *going*, *went*, and *goes* is converted to *go*. • Second tab lets you Test your text processing options. In the text box next to 'Value:' you can type any text. Clicking on 'Test' button will give you the text in the text box next to 'Result:' taking into account text processing options you have selected.
4	Get Fields	Click to get values from the previous step.
5	Class/Target Field	Specify the target field for the regression.

When you are processing a feature of type string, as mentioned in 'Text Processing' section of above table, this feature needs to be converted into numeric features. Text Vectorization Tab governs how all string features get converted into numeric features. An n-gram is a contiguous © 2021 AutomationEdge Inc All Rights Reserved. This document is for your company's internal use only and may not be distributed to any third party. 240 of 565 Plugin Reference sequence of n items from a given sample of text or speech. Table below shows how internally a string gets tokenized given different values of n-gram.

String	N,Gram Start/End	Tokens
Weather today is good	1-1	'Weather', 'today', 'good'
Weather today is good	1-2	'Weather', 'today', 'good', 'Weather today', 'today good'
Weather today is good	1-3	'Weather', 'today', 'good', 'Weather today', 'today good', 'Weather today good'

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Weather today is good	2-3	'Weather today', 'today good', 'Weather today good'

*is treated as stop word and not considered

Text Vectorization Tab		
No.	Field Name	Description
1	N Gram start	Specify a numeric value with minimum of 1.
2	N Gram start	Specify a numeric value greater than or equal to N Gram start.
3	Vectorization	• N-Gram operation tokenizes input string feature. Vectorization is the operation where these tokens are converted to numeric features which are needed by the algorithms. There are three types of vectorizers supported • **Count Vectorizer:** It counts the number of times a token shows up in the document and uses this value as its weight. • **Tfidf Vectorizer:** TF-IDF stands for “term frequency-inverse document frequency”, meaning the weight assigned to each token not only depends on its frequency in a document but also how recurrent that term is in the entire corpora. • **Hashing Vectorizer:** It is designed to be as memory efficient as possible. Instead of storing the tokens as strings, the vectorizer applies the hashing trick to encode them as numerical indexes. The downside of this method is that once vectorized, the features’ names can no longer be retrieved.

Evaluation Tab		
No.	Field Name	Description
1	Evaluation Type	Choose an Evaluation Algorithm Type from the drop down list as seen in the snapshot below • None – Choose None if Evaluation is not needed • Train/Test Split – This Evaluation Algorithm splits the data into Train and Test as per parameters specified below. The data we use is usually split into training data and test data. The training set contains a known output and the model learns on this data in order to be generalized to other data later on. We have the test dataset (or subset) in order to test our model’s prediction on this subset.
2	Test Percentage	For Train/Test Split:

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		Data Types allowed: default value float, int or None, optional (default=None) • If float, should be between 0.0 and 1.0 and represent the proportion of the dataset to include in the test split. • If int, represents the absolute number of test samples. If None, it will be set to 0.25.
3	Random State	For Train/Test Split: Data Types allowed: int, RandomState instance or None, optional (default=None) • If int, random_state is the seed used by the random number generator; • If RandomState instance, random_state is the random number generator; • • If None, the random number generator is the RandomState instance used by np.random.
4	Evaluation Output File Name	• Absolute html report output file path.
5	Add output filename to result	• Enable checkbox to display downloadable link of html report output file on AE portal.

Algorithms

The following table lists the algorithms along with a description and snapshots of corresponding parameters.

No.	Algorithm Description	Algorithm Parameter Description
1	**Linear Regression:** LinearRegression fits a linear model with coefficients w = (w1, …, wp) to minimize the residual sum of squares between the observed targets in the dataset, and the targets predicted by the linear approximation.	NA
2	**Random Forest Regression:** A random forest is a meta estimator that fits a number of classifying decision trees on various sub-samples of the dataset and uses averaging to improve the predictive accuracy and	**n_estimators:** ***int, default=100*** The number of trees in the forest. **Criterion:** ***{"squared_error", "absolute_error", "poisson"}, default="squared_error"*** The function to measure the quality of a split. Supported criteria are "squared_error" for the mean squared error, which is equal to variance reduction as feature selection

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	control over-fitting. The sub-sample size is controlled with the max_samples parameter if bootstrap=True (default), otherwise the whole dataset is used to build each tree.	criterion, “absolute_error” for the mean absolute error, and “poisson” which uses reduction in Poisson deviance to find splits. Training using “absolute_error” is significantly slower than when using “squared_error”. **max_depth:** ***int, default=None*** The maximum depth of the tree. If None, then nodes are expanded until all leaves are pure or until all leaves contain less than min_samples_split samples. **min_samples_split:** ***int or float, default=2*** The minimum number of samples required to split an internal node: • If int, then consider min_samples_split as the minimum number. • If float, then min_samples_split is a fraction and ceil(min_samples_split * n_samples) are the minimum number of samples for each split. **min_samples_leaf:** ***int or float, default=1*** The minimum number of samples required to be at a leaf node. A split point at any depth will only be considered if it leaves at least min_samples_leaf training samples in each of the left and right branches. This may have the effect of smoothing the model, especially in regression. • If int, then consider min_samples_leaf as the minimum number. • If float, then min_samples_leaf is a fraction and ceil(min_samples_leaf * n_samples) are the minimum number of samples for each node. **min_weight_fraction_leaf:** ***float, default=0.0*** The minimum weighted fraction of the sum total of weights (of all the input samples) required to be at a leaf node. Samples have equal weight when sample_weight is not provided. **max_features:** ***{“auto”, “sqrt”, “log2”}, int or float, default=”auto”*** The number of features to consider when looking for the best split: • If int, then consider max_features features at each split. • If float, then max_features is a fraction and round(max_features * n_features) features are considered at each split.

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- If “auto”, then max_features=n_features.
- If “sqrt”, then max_features=sqrt(n_features).
- If “log2”, then max_features=log2(n_features).
- If None, then max_features=n_features.

Note: the search for a split does not stop until at least one valid partition of the node samples is found, even if it requires to effectively inspect more than max_features features.

max_leaf_nodes: ***int, default=None***

Grow trees with max_leaf_nodes in best-first fashion. Best nodes are defined as relative reduction in impurity. If None then unlimited number of leaf nodes.

min_impurity_decrease: ***float, default=0.0***

A node will be split if this split induces a decrease of the impurity greater than or equal to this value.

The weighted impurity decrease equation is the following:

```
N_t / N * (impurity - N_t_R / N_t * right_impurity
                    - N_t_L / N_t * left_impurity)
```

where N is the total number of samples, N_t is the number of samples at the current node, N_t_L is the number of samples in the left child, and N_t_R is the number of samples in the right child.

N, N_t, N_t_R and N_t_L all refer to the weighted sum, if sample_weight is passed.

Bootstrap: ***bool, default=True***

Whether bootstrap samples are used when building trees. If False, the whole dataset is used to build each tree.

oob_score: ***bool, default=False***

Whether to use out-of-bag samples to estimate the generalization score. Only available if bootstrap=True.

n_jobs: ***int, default=None***

The number of jobs to run in parallel. **fit**, **predict**, **decision_path** and **apply** are all parallelized over the trees. None means 1 unless in a **joblib.parallel_backend** context. -1 means using all processors. See Glossary for more details.

ccp_alpha: ***non-negative float, default=0.0***

Complexity parameter used for Minimal Cost-Complexity Pruning. The subtree with the largest cost complexity that

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		is smaller than ccp_alpha will be chosen. By default, no pruning is performed. See Minimal Cost-Complexity Pruning for details. **max_samples:** ***int or float, default=None*** If bootstrap is True, the number of samples to draw from X to train each base estimator. • If None (default), then draw X.shape[0] samples. • If int, then draw max_samples samples. • If float, then draw max_samples * X.shape[0] samples. Thus, max_samples should be in the interval (0.0, 1.0].
3	**Support Vector Regression:** The implementation is based on libsvm. The fit time complexity is more than quadratic with the number of samples which makes it hard to scale to datasets with more than a couple of 10000 samples. For large datasets consider using LinearSVR or SGDRegressor instead, possibly after a Nystroem transformer.	**Kernel:** ***{'linear', 'poly', 'rbf', 'sigmoid', 'precomputed'} or callable, default='rbf'*** Specifies the kernel type to be used in the algorithm. If none is given, 'rbf' will be used. If a callable is given it is used to precompute the kernel matrix. **Degree:** ***int, default=3*** Degree of the polynomial kernel function ('poly'). Ignored by all other kernels. **Gamma:** ***{'scale', 'auto'} or float, default='scale'*** Kernel coefficient for 'rbf', 'poly' and 'sigmoid'. • if gamma='scale' (default) is passed then it uses 1 / (n_features * X.var()) as value of gamma, • if 'auto', uses 1 / n_features. • **coef0:** ***float, default=0.0*** Independent term in kernel function. It is only significant in 'poly' and 'sigmoid'. **C:** ***float, default=1.0*** Regularization parameter. The strength of the regularization is inversely proportional to C. Must be strictly positive. The penalty is a squared l2 penalty. **Epsilon:** ***float, default=0.1*** Epsilon in the epsilon-SVR model. It specifies the epsilon-tube within which no penalty is associated in the training loss function with points predicted within a distance epsilon from the actual value. **Shrinking:** ***bool, default=True***

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		Whether to use the shrinking heuristic. See the User Guide. **max_iter:** ***int, default=-1*** Hard limit on iterations within solver, or -1 for no limit.

26.5.3 Limitations:

User may get a value conversion error in the scenario where the count of fields in the Microsoft Excel Input step differs from those that need to be passed to the ML: Model Builder step. The error occurs because of incorrect data type conversion in the Microsoft Excel Input step.

The workaround is:

- Ensure that the Microsoft Excel Input step has the same fields as that required in the ML: Model Builder step.
  OR
- Ensure data type of all fields is String.

26.6 Regression Prediction

26.6.1 Description

Regression Prediction step lets you predict the label based on the model built in 'Regression Model Builder' step.

26.6.2 Configurations

General tab		
No.	Field Name	Description
1	Step Name	Specify the name of the step. Step names should be unique within a workflow.
2	Model File	Specify path of the model file built with 'Regression Model Builder' Step. This is a mandatory step.
3	Load Model	Click to load the model and show all the relevant information of the model, like Algorithm, Vectorization algorithm, N Gram, Model parameters. **Note:** All the values are read-only and only show the values you had selected during 'Classification Model Builder' step. This is a mandatory step.

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Field Mapping tab		
No.	Field Name	Description
1	Feature	Feature name used during model building step
2	Type	Type of the feature, it can be either String or Number
3	Field	Field name you want to map to the corresponding feature. It is important you map right field to a feature.
4	Text Preprocessing	If type is String, preprocessing options to be used to process the string. This is explained in detail in 'Classification Model Builder' step.
5	Target Field	Used to specify field name where value of the predicted label will be put.

26.7 Similarity Lite

Build the model based on input training data. Then by using this model, predict the answer based on input query in the specified output field.

All processes are carried in one execution.

Note: Use the step when data is at minimum level based on the hardware configuration of the machine under consideration.

26.7.1 Description

The step is used to find the most similar sentences to the input query against the input given in a single sentence, paragraph, or text.

26.7.2 Configurations

General tab		
No.	Field Name	Description
1	Step Name	Specify the name of the step. Step names should be unique within a workflow.
2	Number of Rows to Process	Specify total number of rows to be taken as input. (Default value: 500)
3	Build using AE Model Version	Select from the dropdown that which Python version to use for build and prediction purpose.
4	Query	Specify which column/features to be considered for building model.

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5	Top n results	Specify number of rows closest to the original answer to be fetched as output.

Field Mapping tab		
No.	Field Name	Description
1	Feature / Name	Feature or name used during model building step.
2	Text Preprocessing	Preprocessing options to be used to process the text/string. Please refer "Classification Model Builder's" step documentation.
3	Target Field	Specify output field name in which prediction value will be put.

When you are processing a feature of type string, as mentioned in ‘Text Processing’ section of above table, this feature needs to be converted into numeric features. Text Vectorization Tab governs how all string features get converted into numeric features. An n-gram is a contiguous sequence of n items from a given sample of text or speech. Table below shows how internally a string gets tokenized given different values of n-gram

No.	String	N Gram Start/End	Tokens
1	Weather today is good	1-1	'Weather', 'today', 'good'
2	Weather today is good	1-2	'Weather', 'today', 'good', 'Weather today', 'today good'
3	Weather today is good	1-3	'Weather', 'today', 'good', 'Weather today', 'today good', 'Weather today good'
4	Weather today is good	2-3	'Weather today', 'today good', 'Weather today good'

*is treated as stop word and not considered

Text Vectorization Tab		
No.	Field Name	Description
1	N Gram start	Should be a numeric value with minimum of 1
2	N Gram end	Should be a numeric value greater than or equal to N Gram start
3	Vectorization	N-Gram operation tokenizes input string feature. Vectorization is the operation where these tokens are converted to numeric

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		features which are needed by the algorithms. There are three types of vectorizers supported • Count Vectorizer: It counts the number of times a token shows up in the document and uses this value as its weight. • Tfidf Vectorizer: TF-IDF stands for “term frequency-inverse document frequency”, meaning the weight assigned to each token not only depends on its frequency in a document but also how recurrent that term is in the entire corpora. • Hashing Vectorizer: It is designed to be as memory efficient as possible. Instead of storing the tokens as strings, the vectorizer applies the hashing trick to encode them as numerical indexes. The downside of this method is that once vectorized, the features’ names can no longer be retrieved.

27 ManageEngine SDP

ManageEngine SDP plugin steps have been designed to perform tasks in an instance of ManageEngine ServiceDesk Plus.

Prerequisites:

- ManageEngine ServiceDesk Plus instance with access details.

Auth Token and Refresh token:

Generate Auth Token for ON_PREMISE ManageEngine ServiceDesk deplyments and

Generate, Client ID, Client Secret and Refresh token for CLOUD deployments.

- Please refer Appendix 14: Managed Engine SDP – Generate Auth Token/Refresh Token for generating the refresh token and auth token.

References:

- Cloud API documentation and common error codes: https://www.manageengine.com/products/service-desk/sdpod-v3-api/SDPOD-V3-API.html
- On-premise API documentation: Login to ServiceDesk on-premise application using your admin user name and password -> click Admin -> API -> Documentation

Table Matrix: Manage Engine SDP steps and supported modules

Module / Plugin Step	Cloud		On-premise	
	Insert Record	**Update Record**	**Insert Record**	**Update Record**

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Request	✓	✓	✓	✓
Change	✓	✓	✓	✓
Project	✓	✓	✓	✓
Solution	✓	✓	✓	✓
Problem	✓	✓		
Release	✓	✓		
Custom	✓	✓		
User			✓	✓

27.1 Add Request Worklog

Compatibility: Add Request Worklog is compatible with ManageEngine Cloud; on Linux and Windows environments

Limitation:

Currently, worklog can only be created for ManageEngine SDP Cloud deployment.

Reference:

Cloud API documentation and common error codes:
https://www.manageengine.com/products/service-desk/sdpod-v3-api/SDPOD-V3-API.html

Known issue:

The step does not provide support input through Environment Variables.

27.1.1 Description

ManagedEngine SDP: Add Request Worklog step adds a worklog to an existing request in ManageEngine ServiceDesk Plus.

27.1.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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1	Deployment Type	Specify the Deployment type of the ManageEngine SDP instance. Select one from the dropdown i.e. either CLOUD or ON_PREMISE. **Note:** • Auth Token is displayed when Deployment Type is ON_PREMISE. • Client ID, Client Secret and Refresh Token are displayed when Deployment Type is CLOUD.
2	Base URL	Base URL of ManageEngine ServiceDesk Plus (e.g. https://sdpondemand.manageengine.com for on cloud instance) The data type is string. This field is mandatory.
3	Accept Values as variable/ static	Leave checkbox unchecked to accept Auth Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Auth Token field to appear as Text box.
4	Auth Token	Specify the API Key generated in ManageEngine ServiceDesk Plus instance. This field is visible when selecting the Deployment Type as “ON_PREMISE”. If checkbox above is enabled Auth Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Auth Token field appears as a drop down containing values from previous steps. The data type is secure string. This field is mandatory.
5	Accounts Server URL	Specify the Accounts Server URL specific Data Centre of ManageEngine SDP instance (https://www.manageengine.in/products/service-desk/sdpod-v3-api/getting-started/data-centers.html). **Note:** This field is visible when the Deployment Type is “CLOUD”.
6	Client ID	Specify the Client ID of the client created in the ManageEngine SDP developer console. The data type is string. Client ID, Client Secret and Refresh Token are displayed when Deployment Type is CLOUD.
	Client Secret:	
7	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.

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8	Client Secret	Specify the Client Secret of the client created in the ManageEngine SDP developer console. This field is visible when selecting the Deployment Type as “CLOUD”. The data type is secure string.
	Refresh Token:	
9	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
10	Refresh Token	Specify the Refresh Token generated from the access token. This field is visible when selecting the Deployment Type as “CLOUD”. The data type is secure string.
	Known Issues: • Even though the provided connection details may be valid, the “access_denied” error occurs intermittently for the cloud deployment. • HTTP-401 unauthorized error occurs intermittently due to a limitation from ManageEngine SDP cloud.	

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Accept Fields as JSON	Enable checkbox to accept field names as JSON input. In the JSON text you can have dynamic fields to insert rather than static fields to be provided in the Table Fields. Leave this unchecked to provide Table Fields as input.
2	JSON	The referenced field should have JSON text in a valid format to add a Worklog. About JSON text: If ‘Accept Fields as JSON’ checkbox is enabled this field is activated. Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (“) enclosure. Provide all the required or mandatory fields as well as other fields to be inserted as keys in the JSON. **Note:** The JSON could be from any input step such as Generate rows, Text File input, Excel Input Et al. JSON text can only be accepted from input fields from previous steps and not as files directly. JSON text can also be specified by a parameter already defined. The data type is string. This field is optional.

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		Sample JSON key value pairs:
		
		[
		{
		"displayName": "Service",
		"value": "HR Service Desk"
		},
		{
		"displayName": "Title",
		"value": "Test_KA10"
		}
		]
		
		Note:
		• The supported format to provide DateTime values is “MMM dd yyyy hh:mm a” (E.g. Apr 19 2021 10:00 am).
		• The supported format for date is “MMM dd yyyy” (e.g. Apr 19 2021).
		• JSON format for checkbox should be as “fieldName”: “[Option-1, Option-2]”.
		• For Multi-select fields provide comma separated values.

3	Request ID	ID of the Request for which worklog has to be added (One can get this ID from URL when we go to that particular request from ManageEngine SDP UI).
4	Button: Get	Click to get IDs of all the records of the provided form name/module name. Note: • The button will only work when static values or environment variables are provided for Connection details. Get button will not work if the previous step fields are provided for Connection. • On clicking get button, maximum 1000 worklog IDs are populated.
	Table Fields:	Table Fields are enabled if ‘Accept Fields as JSON’ checkbox is unchecked.
5	Variable Field Name	This field accepts values from previous fields in the stream/ environment variables or variables. **Note:** • One of either Variable Field Name or Static Field Name must be provided. If both are provided, then Static Field Name is taken

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		• The group type fields are not supported in this plugin step.
6	Static Field Name	On click of this cell, fields associated with the request worklog are populated. The data type is string. This field is optional
7	Field Value	Valid values for the field associated with the field name. The data type is string. This field is mandatory. **Note:** • The supported format to provide DateTime values is “MMM dd yyyy hh:mm a” (E.g. Apr 19 2021 10:00 am). • The supported format for date is “MMM dd yyyy” (e.g. Apr 19 2021). • Field format for checkbox should be - [Option-1, Option-2]. • For Multi-select fields provide comma separated values.

Output Tab		
No.	Field Name	Description
	Output Field:	
1	WorklogID	Output field to hold the ID of the Request Worklog created on successful plugin execution

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

27.2 Insert Record

27.2.1 Description

ManagedEngine SDP: Insert Record step inserts a record in a module in ManageEngine ServiceDesk Plus.

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Compatibility: Insert Plugin step works for on premise as well as cloud instances of Manage Engine SDP, on Linux and Windows environments.

References:

- Cloud API documentation and common error codes: https://www.manageengine.com/products/service-desk/sdpod-v3-api/SDPOD-V3-API.html
- On-premise API documentation: Login to ServiceDesk on-premise application using your admin user name and password -> click Admin -> API -> Documentation

27.2.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Deployment Type	Specify the Deployment type of the ManageEngine SDP instance. Select one from the dropdown i.e. either CLOUD or ON_PREMISE. **Notes:** • Auth Token is displayed when Deployment Type is ON_PREMISE. • Client ID, Client Secret and Refresh Token are displayed when Deployment Type is CLOUD.
2	Base URL	Base URL of ManageEngine ServiceDesk Plus (e.g. https://sdpondemand.manageengine.com for on cloud instance) The data type is string. This field is mandatory.
	Auth Token:	
3	Accept Values as variable/ static	Leave checkbox unchecked to accept Auth Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Auth Token field to appear as Text box.
4	Auth Token	Specify the API Key generated in ManageEngine ServiceDesk Plus instance. This field is visible when selecting the Deployment Type as “ON_PREMISE”. If checkbox above is enabled Auth Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Auth Token field appears as a drop down containing values from previous steps. The data type is secure string. This field is mandatory.

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5	Accounts Server URL	Specify the Accounts Server URL specific Data Centre of ManageEngine SDP instance (https://www.manageengine.in/products/service-desk/sdpod-v3-api/getting-started/data-centers.html). **Note:** This field is visible when the Deployment Type is “CLOUD”.
6	Client ID	Specify the Client ID of the client created in the ManageEngine SDP developer console. This field is visible when selecting the Deployment Type as “CLOUD”. The data type is string.
	Client Secret:	
7	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
8	Client Secret	Specify the Client Secret of the client created in the ManageEngine SDP developer console. This field is visible when selecting the Deployment Type as “CLOUD”. The data type is secure string.
	Refresh Token:	
9	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
10	Refresh Token	Specify the Refresh Token generated from the access token. This field is visible when selecting the Deployment Type as “CLOUD”. The data type is secure string.
	Known Issues: • Even though the provided connection details may be valid, the “access_denied” error occurs intermittently for the cloud deployment. • HTTP-401 unauthorized error occurs intermittently due to a limitation from ManageEngine SDP cloud.	

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Form Name	Select Form Name (Module name) for which record is to be inserted. The data type is string. This field is mandatory.

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		Supported Modules: • Supported primary modules for the cloud: Incident/Request, Problem, Change, Project, Solution, User, Release, and custom modules. • Supported primary modules for on premise: Incident/Request, Change, Project, Solution, User. Unsupported Modules: • There are few unsupported modules for on premise as well as cloud deployment such as Contracts, Purchases, Assets • The problem module is not supported in the on premise deployment. • Secondary modules or sub-forms are not supported in this plugin step.
2	Accept Fields as JSON	Enable checkbox to accept field names as JSON input. In the JSON text you can have dynamic fields to insert rather than static fields to be provided in the Table Fields. Leave this unchecked to provide Table Fields as input.
3	JSON	The referenced field should have JSON text in a valid format to insert a record. About JSON text: If 'Accept Fields as JSON' checkbox is enabled, this field is activated. Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (") enclosure. Provide all the required or mandatory fields as well as other fields to be inserted as keys in the JSON. **Note:** The JSON could be from any input step such as Generate rows, Text File input, Excel Input etc. JSON text can only be accepted from input fields from previous steps and not as files directly. JSON text can also be specified by a parameter already defined. The data type is string. This field is optional. Following is a Sample JSON text with key value pairs: [{ "displayName": "Service", "value": "HR Service Desk" }, {

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		<pre>"displayName": "Title",
		"value": "Test_KA10"
		}
		]</pre>
		Note:
		• The supported format to provide DateTime values is “MMM dd yyyy hh:mm a” (E.g. Apr 19 2021 10:00 am).
		• JSON format for checkbox should be as “fieldName”: “[Option-1, Option-2]”.
		• For Multi-select fields provide comma separated values.
		• The group type fields are not supported in this plugin step.
		• The supported format for date is “MMM dd yyyy” (e.g. Apr 19 2021).
		• In the User module of ManageEngine on premise, to set the “Purchase Approval Limit” as “Unlimited”, the expected value to be provided is -1.
		• In ManageEngine on premise, field “Requester allowed to view” accepts the value as the order of that element in the dropdown and not as the exact string of that element.

	Table Fields:	Table Fields are enabled if ‘Accept Fields as JSON’ checkbox is unchecked.
4	Variable Field Name	This field accepts values from previous fields in the stream/environment variables or variables (e.g. run-time parameters for Request fields. The data type is string. This field is optional. **Note:** One of either Variable Field Name or Static Field Name must be provided. If both are provided then Static Field Name is taken.
5	Static Field Name	On click of this cell, fields associated with the form name/module name are populated. The data type is string. This field is optional
6	Field Value	Valid values for the field associated with the field name. The data type is string. This field is mandatory. • The supported format to provide DateTime values is “MMM dd yyyy hh:mm a” (E.g. Apr 19 2021 10:00 am). • Field format for checkbox should be - [Option-1, Option-2]. • For Multi-select fields provide comma separated values. • The group type fields are not supported in this plugin step. • The supported format for date is “MMM dd yyyy” (e.g. Apr 19 2021).

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		• In the User module of ManageEngine on premise, to set the “Purchase Approval Limit” as “Unlimited”, the expected value to be provided is -1. • In ManageEngine on premise, field “Requester allowed to view” accepts the value as the order of that element in the dropdown and not as the exact string of that element.

Output Tab		
No.	Field Name	Description
	Output Field:	
1	ID	Output field to hold the ID of the Record created on successful plugin execution.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

27.3 Update Record

27.3.1 Description

ManagedEngine SDP: Update Record step updates a record in a module in ManageEngine ServiceDesk Plus.

Compatibility: Update Plugin step is compatible with on-premise as well as cloud instances of ManageEngine SDP and works on Linux and Windows environments.

References:

- Cloud API documentation and common error codes: https://www.manageengine.com/products/service-desk/sdpod-v3-api/SDPOD-V3-API.html

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- On-premise API documentation: Login to ServiceDesk on-premise application using your admin user name and password -> click Admin -> API -> Documentation

27.3.2 Configurations

General Tab:		
No.	Field Name	Description
	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Deployment Type	Specify the Deployment type of the ManageEngine SDP instance. Select one from the dropdown i.e. either CLOUD or ON_PREMISE. **Note:** • Auth Token is displayed when Deployment Type is ON_PREMISE. • Client ID, Client Secret and Refresh Token arev displayed when Deployment Type is CLOUD.
2	Base URL	Base URL of ManageEngine ServiceDesk Plus (e.g. https://sdpondemand.manageengine.com for on cloud instance) The data type is string. This field is mandatory.
	Auth Token:	
3	Accept Values as variable/ static	Leave checkbox unchecked to accept Auth Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Auth Token field to appear as Text box.
4	Auth Token	Specify the API Key generated in ManageEngine ServiceDesk Plus instance. This field is visible when selecting the Deployment Type as “ON_PREMISE”. If checkbox above is enabled Auth Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Auth Token field appears as a drop down containing values from previous steps. The data type is secure string. This field is mandatory.
5	Accounts Server URL	Accounts Server URL specific Data Centre of ManageEngine SDP instance (https://www.manageengine.in/products/service-desk/sdpod-v3-api/getting-started/data-centers.html). This field is visible when selecting the Deployment Type as “CLOUD”.

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6	Client ID	Specify the Client ID of the client created in the ManageEngine SDP developer console. This field is visible when selecting the Deployment Type as “CLOUD”. The data type is string.
	Client Secret:	
7	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
8	Client Secret	Specify the Client Secret of the client created in the ManageEngine SDP developer console. This field is visible when selecting the Deployment Type as “CLOUD”. The data type is secure string.
	Refresh Token:	
9	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
10	Refresh Token	Specify the Refresh Token generated from the access token. This field is visible when selecting the Deployment Type as “CLOUD”. The data type is secure string.
	Known Issue: • Even though the provided connection details may be valid, the “access_denied” error occurs intermittently for the cloud deployment. • HTTP-401 unauthorized error occurs intermittently due to a limitation from ManageEngine SDP cloud.	

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Form Name	Form Name (Module name) for which record is to be updated. Supported Modules: • Supported primary modules for the cloud: Incident/Request, Problem, Change, Project, Solution, Release, and custom modules. • Supported primary modules for on premise: Incident/Request, Change, Project, Solution, User. Unsupported Modules:

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		• There are few unsupported modules for on-premise as well as cloud deployment such as Contracts, Purchases, Assets. • The modules other than the supported ones listed above (in the Supported Modules) also comes under the unsupported modules. • The problem module is not supported in the on-premise deployment. • Secondary modules or sub-forms are not supported in this plugin step.
2	Accept Fields as JSON	Enable checkbox to accept field names as JSON input. In the JSON text you can have dynamic fields to insert rather than static fields to be provided in the Table Fields. Leave this unchecked to provide Table Fields as input.

3	JSON	The referenced field should have JSON text in a valid format to update a record.
		
		About JSON text:
		If 'Accept Fields as JSON' checkbox is enabled this field is activated. Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (") enclosure. Provide all the required or mandatory fields as well as other fields to be inserted as keys in the JSON.
		Note: The JSON could be from any input step such as Generate rows, Text File input, Excel Input etc. JSON text can only be accepted from input fields from previous steps and not as files directly. JSON text can also be specified by a parameter already defined.
		The data type is string. This field is optional.
		
		Sample JSON key value pairs:
		
		[
		{
		"displayName": "Service",
		"value": "HR Service Desk"
		},
		{
		"displayName": "Title",
		"value": "Test_KA10"
		}
		]
		
		Note:

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		• The supported format to provide DateTime values is “MMM dd yyyy hh:mm a” (E.g. Apr 19 2021 10:00 am). • JSON format for checkbox should be as “fieldName”: “[Option-1, Option-2]”. • For Multi-select fields provide comma separated values. • The group type fields are not supported in this plugin step. • The supported format for date is “MMM dd yyyy” (e.g. Apr 19 2021). • In the User module of ManageEngine on-premise, to set the “Purchase Approval Limit” as “Unlimited”, the expected value to be provided is -1. • In ManageEngine on-premise, field “Requester allowed to view” accepts the value as the order of that element in the dropdown and not as the exact string of that element.
4	ID	ID of the record to be updated (You can get this ID from URL when you go to that particular request from ManageEngine SDP UI).
5	Button: Get	Click to get the list of Request ID’s. **Note:** • The button will only work when static values or environment variables are provided for Connection details. Get button will not work if the previous step fields are provided for Connection details. • On clicking get button, maximum 1000 record IDs will get populated.
	Table Fields:	
6	Variable Field Name	This field accepts values from previous fields in the stream/environment variables or variables (e.g. run-time parameters for Request fields. The data type is string. This field is optional.
7	Static Field Name	On click of this cell, fields associated with the form name/module name are populated. The data type is string. This field is optional. **Note:** One of either Variable Field Name or Static Field Name must be provided. If both are provided then Static Field Name is taken.
8	Field Value	Valid values for the field associated with the field name. The data type is string. This field is mandatory.

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		Note: • The supported format to provide DateTime values is “MMM dd yyyy hh:mm a” (E.g. Apr 19 2021 10:00 am). • Field format for checkbox should be - [Option-1, Option-2]. • For Multi-select fields provide comma separated values. • The group type fields are not supported in this plugin step. • In the User module of ManageEngine on-premise, to set the “Purchase Approval Limit” as “Unlimited”, the expected value to be provided is -1. • In ManageEngine on-premise, field “Requester allowed to view” accepts the value as the order of that element in the dropdown and not as the exact string of that element.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

28 Microsoft Teams

Prerequisites:

- Azure AD instance with access details.
- Provide access (whitelist) to the following URLs through your firewall and network:
    a. https://graph.microsoft.com
    b. https://login.microsoftonline.com

Known Issues

Sometimes, you may see a temporary error related to the internet connectivity and network issues. The issue arises when the hostname is unresolved and the local server does not receive

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a response from an authoritative server. For example, you may see any of the following messages:

- login.microsoftonline.com.

OR

- This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server (login.microsoftonline.com)

28.1 Microsoft Teams: Add Member To Channel

28.1.1 Description

Microsoft Teams: Add Member To Channel plugin step adds a member to the channel.

28.1.2 References

For user permission details, see Microsoft Teams documentation at https://docs.microsoft.com/en-us/graph/api/channel-post-members?view=graph-rest-1.0&tabs=http.

28.1.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	offline_access , GroupMember.Read.All, Group.Read.All, Directory.Read.All, Group.ReadWrite.All, Directory.ReadWrite.All,Channel.ReadBasic.All, ChannelSettings.Read.All, ChannelSettings.ReadWrite.All,TeamMember.Read.All, TeamMember.ReadWrite.All, ChannelMember.ReadWrite.All

Note

- If multiple team names with the same name are present, then provide the Team ID or unique team name.
- The operation is allowed only for channels with a membership type value of private.
- Channel name cannot end with a period (.). The following special characters are not supported: ~#%&*{}+/\:<>?|'".

28.1.4 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Team Name/ID	Provide the Microsoft Teams team name or Team ID. The data type is String This field is mandatory.
2	Get	Click to list available teams in your user account.
3	Channel Name/ID	Provide the private channel name or id present in the team. The data type is String This field is mandatory.

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4	Get	Click to list private channels present in the team in your user account.
5	Email/User ID	Provide the email address or user id to add a member to the team. The data type is String This field is mandatory.
6	Get	Click to list available teams in your user account.
7	Role	Specify the allowed values to act. Allowed values are ‘member’ and ‘owner’. Default value is ‘member’.

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Membership ID	Provide output field name. Default value is ‘MembershipID’. The data type is String This field is mandatory.

28.2 Microsoft Teams: Add Member To Team

28.2.1 Description

Microsoft Teams: Add Member To Team plugin step adds a member to the team.

28.2.2 References

https://docs.microsoft.com/en-us/graph/api/team-post-members?view=graph-rest-1.0&tabs=http.

28.2.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	offline_access,GroupMember.Read.All, Group.Read.All, Directory.Read.All, Group.ReadWrite.All, Directory.ReadWrite.All,TeamMember.ReadWrite.All

Note

If multiple team names with the same name are present, then provide the Team ID or unique team name.

28.2.4 Configurations

Configuration:		
No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Team Name/ID	Provide the Microsoft Teams team name or Team ID. The data type is String This field is mandatory.
2	Get	Click to list available teams in your user account.

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5	Email/User ID	Provide the email address or user id to add a member to the team. The data type is String This field is mandatory.
6	Get	Click to list available teams in your user account.
7	Role	Specify the allowed values to act. Allowed values are ‘member’ and ‘owner’. Default value is ‘member’.

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Membership ID	Provide output field name. Default value is ‘MembershipID’. The data type is String This field is mandatory.

28.3 Microsoft Teams: Create Channel

28.3.1 Description

Microsoft Teams: Create Channel plugin step creates a channel in Microsoft Teams.

28.3.2 References

https://docs.microsoft.com/en-us/graph/api/channel-post?view=graph-rest-1.0&tabs=http.

28.3.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	Channel.Create, Group.ReadWrite.All**, Directory.ReadWrite.All**, GroupMember.Read.All, Group.Read.All, Directory.Read.All, Group.ReadWrite.All, Directory.ReadWrite.All

Note

- If multiple team names with the same name are present, then provide the Team ID or unique team name.
- Channel name cannot end with a period (.). The following special characters are not supported: ~#%&*{}+/\:<>?|'".

28.3.4 Configurations

Configuration:		
No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Team Name/ID	Provide the Microsoft Teams team name or Team ID. The data type is String This field is mandatory.
2	Get	Click to list available teams in your user account.

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5	New Channel Name	Provide a new channel name. The data type is String This field is mandatory.
6	Description	Provide a description of the channel.
7	Privacy	Specify the allowed values to act. Allowed values are ‘Standard’, ‘Private’, and ‘Shared’. Default value is ‘Standard’.
8	Favorite	Specify the allowed values to act. Allowed values are ‘Yes’ and ‘No’. Default value is ‘No’.

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Channel ID	Provide output field name. The default is ‘ChannelID’.

28.4 Microsoft Teams: List All Teams

28.4.1 Description

Microsoft Teams: List All Teams plugin step lists all teams.

28.4.2 Known Issues

Sometimes, you may see a temporary error related to the internet connectivity and network issues. The issue arises when the hostname is unresolved and the local server does not receive a response from an authoritative server. For example, you may see any of the following messages:

- login.microsoftonline.com.

OR

- This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server (login.microsoftonline.com).

28.4.3 References

For user permission details, see Microsoft Teams documentation at https://docs.microsoft.com/en-us/graph/api/group-list?view=graph-rest-1.0&tabs=http.

28.4.4 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)

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Delegated (work or school account)	offline_access,GroupMember.Read.All, Group.Read.All, Directory.Read.All, Group.ReadWrite.All, Directory.ReadWrite.All,Channel.ReadBasic.All

Note:
If multiple teams have same names, then provide the Team ID or unique team name.

28.4.5 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Visibility	Specify the allowed values to act. Values available are: • Private • Public • All Default value: *All*

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Teams	Provide the output field name. Default value: *Teams*

28.5 Microsoft Teams: List Associated Teams

28.5.1 Description

Microsoft Teams: List Associated Teams plugin step lists your associated teams.

28.5.2 References

https://docs.microsoft.com/en-us/graph/api/associatedteaminfo-list?view=graph-rest-1.0&tabs=http

28.5.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	offline_access, Team.ReadBasic.All, TeamSettings.Read.All, TeamSettings.ReadWrite.All

28.5.4 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Associated Teams	Provide output field name. Default value: AssociatedTeams

28.6 Microsoft Teams: List Channels

28.6.1 Description

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Microsoft Teams: List Channels plugin step lists channels from Microsoft Teams.

28.6.2 References

- https://docs.microsoft.com/en-us/graph/api/channel-list-members?view=graph-rest-1.0&tabs=http
- https://docs.microsoft.com/en-us/graph/query-parameters#select-parameter
- https://docs.microsoft.com/en-us/graph/query-parameters#filter-parameter

28.6.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	offline_access,GroupMember.Read.All, Group.Read.All, Directory.Read.All, Group.ReadWrite.All, Directory.ReadWrite.All,Channel.ReadBasic.All, ChannelSettings.Read.All, ChannelSettings.ReadWrite.All

Note

If multiple team names with the same name are present, then provide the Team ID or unique team name.

28.6.4 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.

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6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Team Name/ID	Provide the Microsoft Teams' team name or team ID. The data type is String This field is mandatory.
2	Get	Click to list available channels in your user account.
3	Select	Select query parameter to return a set of properties that are different than the default set for an individual resource or a collection of resources. With select, you can specify a subset or a superset of the default properties. For example, when retrieving the Channels, you can specify that only the **ID** and **displayName** properties be returned.
4	Filter	Use the filter query parameter to retrieve just a subset of a collection. For more information, click https://docs.microsoft.com/en-us/graph/query-parameters#filter-parameter The data type is String This field is mandatory.

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Channels	Provide output field name. Default value is ‘Channels’.

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28.7 Microsoft Teams: List Channel Members

28.7.1 Description

Microsoft Teams: List Channel Members plugin step lists channel members from Microsoft Teams.

28.7.2 References

For user permission details, see Microsoft Teams documentation at https://docs.microsoft.com/en-us/graph/api/channel-list-members?view=graph-rest-1.0&tabs=http.

28.7.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	offline_access,GroupMember.Read.All, Group.Read.All, Directory.Read.All, Group.ReadWrite.All, Directory.ReadWrite.All,Channel.ReadBasic.All, ChannelSettings.Read.All, ChannelSettings.ReadWrite.All, ChannelMember.Read.All, ChannelMember.ReadWrite.All

Note

- If multiple teams have same names, then provide the Team ID or unique team name.
- Channel name cannot end with a period (.). The following special characters are not supported: ~#%&*{}+/\:<>?|'".

28.7.4 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.

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5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Team Name/ID	Provide the Microsoft Teams team name or team ID. The data type is String This field is mandatory.
2	Get	Click to list available channel members in your user account.
3	Channel Name/ID	Provide the channel name or ID present in the team. The data type is String This field is mandatory.
4	Get	Click to list channels present in the team in your user account.

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Channel Members	Provide output field name. Default value: *ChannelMembers*

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28.8 Microsoft Teams: List Chats

28.8.1 Description

Microsoft Teams: List Chats plugin step lists chats from Microsoft Teams.

28.8.2 References

https://docs.microsoft.com/en-us/graph/api/chat-list?view=graph-rest-1.0&tabs=http

28.8.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	offline_access, Chat.ReadBasic, Chat.Read, Chat.ReadWrite

28.8.4 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.

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7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Filter	Use the filter query parameter to retrieve just a subset of a collection. For more information, click https://docs.microsoft.com/en-us/graph/query-parameters#filter-parameter The data type is String This field is mandatory.

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Chats	Provide output field name. Default value is ‘Chats’.

28.8.5 Known Issues

For Expand field the ‘lastMessagePreview’ property is not working. Error thrown is ‘Parsing OData Select and Expand failed: Could not find a property named 'lastMessagePreview' on type 'microsoft.graph.chat''.

28.9 Microsoft Teams: List Team Members

28.9.1 Description

Microsoft Teams: List Team Members plugin step is used to list team members.

28.9.2 References

- https://docs.microsoft.com/en-us/graph/api/team-list-members?view=graph-rest-1.0&tabs=http
- https://docs.microsoft.com/en-us/graph/query-parameters#select-parameter

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- https://docs.microsoft.com/en-us/graph/query-parameters#filter-parameter

28.9.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	offline_access,GroupMember.Read.All, Group.Read.All, Directory.Read.All, Group.ReadWrite.All, Directory.ReadWrite.All,Channel.ReadBasic.All, TeamMember.Read.All, TeamMember.ReadWrite.All

28.9.4 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not.

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		Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Team Name/ID	Provide the Microsoft Teams team name or Team ID. The data type is String This field is mandatory.
2	Get	Click to list available teams in your user account.
3	Select	Select query parameter to return a set of properties that are different than the default set for an individual resource or a collection of resources. With select, you can specify a subset or a superset of the default properties. For example, when retrieving the Team, you can specify that only the ID and displayName properties be returned.
3	Filter	Use the filter query parameter to retrieve just a subset of a collection. For more information follow the link: https://docs.microsoft.com/en-us/graph/query-parameters#filter-parameter

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Team Members	Provide output field name. Default value is ‘TeamMembers’.

28.10 Microsoft Teams: Remove Member From Channel

28.10.1 Description

Microsoft Teams: Remove Member From Channel plugin step is used to remove a member from the channel.

Note

- If multiple team names with the same name are present, then provide the Team ID or unique team name.
- The operation is allowed only for channels with a membership type value of private.

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- Channel name cannot end with a period (.). The following special characters are not supported: ~#%&*{}+/\:<>?|'".

28.10.2 References

https://docs.microsoft.com/en-us/graph/api/channel-delete-members?view=graph-rest-1.0&tabs=http

28.10.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	offline_access,GroupMember.Read.All, Group.Read.All, Directory.Read.All, Group.ReadWrite.All, Directory.ReadWrite.All,Channel.ReadBasic.All, ChannelSettings.Read.All, ChannelSettings.ReadWrite.All, TeamMember.Read.All, TeamMember.ReadWrite.All, ChannelMember.ReadWrite.All

28.10.4 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list.

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		Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Team Name/ID	Provide the Microsoft Teams team name or Team ID. The data type is String This field is mandatory.
2	Get	Click to list available teams in your user account.
3	Channel Name/ID	Provide the private channel name or id present in the team.
4	Get	Click to list private channels present in the team in your user account.
5	Email/Membership ID	Provide the email address or Membership ID to remove a member from the team.
6	Get	Click to list available teams in your user account.

28.11 Microsoft Teams: Remove Member From Team

28.11.1 Description

Microsoft Teams: Remove Member From Team plugin step is used to remove a member from the team.

Note

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- If multiple team names with the same name are present, then provide the Team ID or unique team name.
- The operation is allowed only for channels with a membership type value of private.

28.11.2 References

https://docs.microsoft.com/en-us/graph/api/channel-delete-members?view=graph-rest-1.0&tabs=http

28.11.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	offline_access,GroupMember.Read.All, Group.Read.All, Directory.Read.All, Group.ReadWrite.All, Directory.ReadWrite.All, TeamMember.Read.All, TeamMember.ReadWrite.All,

28.11.4 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.

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7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Team Name/ID	Provide the Microsoft Teams team name or Team ID. The data type is String This field is mandatory.
2	Get	Click to list available teams in your user account.
3	Email/Membership ID	Provide the email address or Membership ID to remove a member from the team.
4	Get	Click to list available teams in your user account.

28.12 Microsoft Teams: Send Message To Channel

28.12.1 Description

Microsoft Teams: Send Message To Channel plugin step sends a message to the channel.

28.12.2 References

https://docs.microsoft.com/en-us/graph/api/channel-post-messages?view=graph-rest-1.0&tabs=http

28.12.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	Channel.ReadBasic.All ChannelMessage.Read.All ChannelMessage.ReadWrite ChannelMessage.Send ChannelSettings.Read.All ChannelSettings.ReadWrite.All Directory.Read.All Directory.ReadWrite.All Group.Read.All Group.ReadWrite.All GroupMember.Read.All offline_access

Note:

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- If multiple team names with the same name are present, then provide the Team ID or unique team name.
- Channel name cannot end with a period (.). The following special characters are not supported: ~#%&*{}+/\:<>?|'"..

28.12.4 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Team Name/ID	Specify the Microsoft Teams team name or Team ID. The data type is String This field is mandatory.
2	Get	Click to list available teams in your user account.
3	Channel Name/ID	Specify all channel name or ID present in the team. The data type is String This field is mandatory.
4	Get	Click to list all channels present in the team in your user account.
5	Subject	Specify the subject of the message.
6	Message	Specify the message you want to send to the channel. The data type is String This field is mandatory.
7	Importance	Specify the allowed values to act. Allowed values: 'normal', 'high', or 'urgent'. Default is ‘normal’

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Message ID	Provide output field name. Default value is ‘MessageID’.

28.13 Microsoft Teams: Send Message To Chat

28.13.1 Description

Microsoft Teams: Send Message To Chat plugin step sends a message to the chat.

Note: The step sends a message to an already existing chat and does not create a new chat.

28.13.2 References

https://docs.microsoft.com/en-us/graph/api/chat-post-messages?view=graph-rest-1.0&tabs=http

28.13.3 Permissions

Following are the required permissions:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	offline_access, ChatMessage.Send, Chat.ReadWrite, Chat.ReadBasic, Chat.Read, Chat.ReadWrite

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28.13.4 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Select the Tenant ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
3	Client ID	Select the Client ID. For more details, see connection documentation. The field data type is String. This is a mandatory field.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret of Microsoft Teams application. Client Secret is entered using a widget. If the Accept Values as variable/static check box is selected, then the Client Secret field appears as text box and accepts static values or variables. Else, select Client Secret from the drop down list. The field data type is String. This is a mandatory field.
6	Accept Value as variable/static	Leave checkbox unchecked to accept Refresh Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
7	Refresh Token	Provide the Refresh Token provided by authorization grant flow. If the Accept Values as variable/static check box is selected, then the Refresh Token field appears as text box and accepts static values or variables. Else, select Refresh Token from the drop down list. The field data type is String. This is a mandatory field.
8	Test Connection	Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	

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1	Chat Name/ID	Specify the Microsoft Teams' Chat name or Chat ID. The data type is String This field is mandatory.
2	Get	Click to list available chat names or chat ID.
3	Message	Specify the message you want to send to the chat. The data type is String This field is mandatory.
4	Importance	Specify the allowed values to act. Allowed values: 'normal', 'high', or 'urgent'. Default is 'normal'

Output Tab:		
	Field Name	Description
	Output Fields:	
1	Message ID	Provide output field name. Default value is 'MessageID'.

29 MongoDB

Prerequisites

Valid MongoDB instance with credentials and appropriate permissions.

Note:

If you are using a language other than English, then apply double quotes to keys in JSON.

For Example:

{"जानकारी"

:

"वांछित"}

29.1 MongoDB: Create Document

29.1.1 Description

MongoDB: Create Document plugin step creates or inserts records in a specified collection.

29.1.2 Configurations

Configuration:		
No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Deployment Type	Deployment Type differentiates between on cloud or on premise instances. Select the type of deployment you require. Available values: On-Cloud or On-Premise. The data type is String. This field is mandatory.
3	Host Name	Specify the host name based on the type of deployment you selected. Therefore, if deployment type is On-Cloud specify the cluster name and for On-Premise specify the IP address of the machine. The data type is String. This field is mandatory.
4	Port	Specify the port number of the MongoDB instance. The default value is 27017. **Note:** Port number is mandatory for Deployment Type: On-Premise.
5	Username	Specify a username to access the database. The data type is String. This field is mandatory.
	Password:	
6	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Specify the password for the username. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is String. This field is mandatory.
8	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	

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1	Database Name	Select a database name to retrieve records. The data type is String. This field is mandatory.
2	Get	On click of this button, if connection is successfully established, it populates a list of database names on MongoDB Server.
3	Collection Name	Select the table name to retrieve records. The data type is String. This field is mandatory.
4	Get	On click of this button, if connection is successfully established, it populate a list of collections for the specified database.
5	Accept fields as JSON	Leave checkbox unchecked to accept JSON value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for JSON field to appear as a Text box.
6	JSON	Select a field name from the drop-down list or provide a variable; containing the JSON text. Provide JSON in a valid format with field records for insertion. The field data type is String. Sample JSON: {"name":"Ross","status":"2"}
	Table Fields:	Provide a JSON with records to insert or else select fields with corresponding values to insert in the tabular columns below.
7	Field Name	Double click to populate, fields associated with the form name. The data type is string. This field is mandatory. **Note:** For multilevel or nested JSON, use the JSON field.
8	Field Value	Specify valid values for the field associated with the field name.
9	Field Datatype	Specify a valid datatype from the provided list of field name and field value. Available data types: String, Int32, Int64, ObjectID, Double, Boolean, Null, Decimal128, and Date.

Output Tab:		
No.	Field Name	Description
1	Document ID	Specify an output field to hold the Document ID generated as a result of successful plugin execution. Default value: DocumentID

29.2 MongoDB: Delete Documents

29.2.1 Description

MongoDB: Delete Documents plugin step deletes records for specified criteria.

29.2.2 Configurations

Configuration:

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Deployment Type	Deployment Type differentiates between on cloud or on premise instances. Select the type of deployment you require. Available values: On-Cloud or On-Premise. The data type is String. This field is mandatory.
3	Host Name	Specify the host name based on the type of deployment you selected. Therefore, if deployment type is On-Cloud specify the cluster name and for On-Premise specify the IP address of the machine. The data type is String. This field is mandatory.
4	Port	Specify the port number of the MongoDB instance. The default value is 27017. **Note:** Port number is mandatory for Deployment Type: On-Premise.
5	Username	Specify a username to access the database. The data type is String. This field is mandatory.
	Password:	
6	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Specify the password for the username. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is String. This field is mandatory.
8	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description

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	Input Fields:	
1	Database Name	Select a database name to delete records. The data type is String. This field is mandatory.
2	Get	On click of this button, if connection is successfully established, it populates a list of database names on MongoDB Server.
3	Collection Name	Select the table name to delete records. The data type is String. This field is mandatory.
4	Get	On click of this button, if connection is successfully established, it populate a list of collections for the specified database.
5	Criteria Query	Specify a combination of static values or variables and the previous step. The Criteria Query expression uses MongoDB's JSON-like query language with query operators to perform query operations. **Note:** Query must be same as MongoDB Compass.

Output Tab:		
No.	Field Name	Description
1	Deleted Count	Specify an output field to hold the Deleted Count of records upon successful plugin execution. Default value: DeletedCount

29.3 MongoDB: Get Documents

29.3.1 Description

MongoDB: Get Documents plugin step gets the list of documents for the specified criteria.

Reference

https://www.mongodb.com/docs/manual/tutorial/query-documents/

29.3.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Deployment Type	Deployment Type differentiates between on cloud or on premise instances. Select the type of deployment you require.

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		Available values: On-Cloud or On-Premise. The data type is String. This field is mandatory.
3	Host Name	Specify the host name based on the type of deployment you selected. Therefore, if deployment type is On-Cloud specify the cluster name and for On-Premise specify the IP address of the machine. The data type is String. This field is mandatory.
4	Port	Specify the port number of the MongoDB instance. The default value is 27017. **Note:** Port number is mandatory for Deployment Type: On-Premise.
5	Username	Specify a username to access the database. The data type is String. This field is mandatory.
	Password:	
6	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Specify the password for the username. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is String. This field is mandatory.
8	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Database Name	Select a database name to retrieve records. The data type is String. This field is mandatory.
2	Get	On click of this button, if connection is successfully established, it populates a list of database names on MongoDB Server.
3	Collection Name	Specify the collection name from which you want to retrieve the documents.

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		The data type is String. This field is mandatory.
4	Get	On click of this button, if connection is successfully established, it populate a list of collections for the specified database.
5	Criteria Query	Specify a combination of static values or variables and the previous step. The Criteria Query expression uses MongoDB's JSON-like query language with query operators to perform query operations. **Note:** Query must be same as MongoDB Compass. **Sample Query:** 1. { status: "D" } 2. { status: { $in: ["A", "D"] } } 3. { status: "A", qty: { $lt: 30 } }
6	Batch Size	Specify the batch size to fetch the records. The default batch size is10. The data type is String. This field is mandatory.

Output Tab:		
No.	Field Name	Description
1	Output	Specify an output field to hold the result of the successful plugin execution. Default value: Result

29.4 MongoDB: Update Documents

29.4.1 Description

MongoDB: Update Documents plugin step updates documents with provided field name and field values on specified MongoDB instance.

Limitation:

The step supports only the following data types through table fields:

String, Int32, Int64, ObjectId, Double, Boolean, Date, Null, and Decimal128

Note:

- Field Datatype is Null and Field Value is not given by default it will take the value as "null".
- Field Datatype is String and Field Value is not given by default it will take the value as ""(empty string).

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29.4.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Deployment Type	Deployment Type differentiates between on cloud or on premise instances. Select the type of deployment you require. Available values: On-Cloud or On-Premise. The data type is String. This field is mandatory.
3	Host Name	Specify the host name based on the type of deployment you selected. Therefore, if deployment type is On-Cloud specify the cluster name and for On-Premise specify the IP address of the machine. The data type is String. This field is mandatory.
4	Port	Specify the port number of the MongoDB instance. The default value is 27017. **Note:** Port number is mandatory for Deployment Type: On-Premise.
5	Username	Specify a username to access the database. The data type is String. This field is mandatory.
	Password:	
6	Accept Values from fields	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Specify the password for the username. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is String. This field is mandatory.
8	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed. Static values and environment variables are allowed.

Database and Collection Tab:

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No.	Field Name	Description
	Input Fields:	
1	Database Name	Specify database name where you want to update a document. A database stores one or more collections of documents. The data type is String. This field is mandatory.
2	Get	On click of this button, if connection is successfully established, it populates a list of database names on MongoDB Server.
3	Collection Name	Specify the collection name where you want to udpate a document.
4	Get	On click of this button, if connection is successfully established, it populate a list of collections for the specified database.
5	Criteria Query	Specify a combination of static values or variables and the previous step. The Criteria Query expression uses MongoDB's JSON-like query language with query operators to perform query operations. **Note:** Query must be same as MongoDB Compass.
Connect To Update Tab:		
No.	Field Name	Description
	Input Fields:	
1	Accept fields as JSON	Leave checkbox unchecked to accept JSON value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for JSON field to appear as a Text box.
2	JSON	Select a field name from the drop-down list or provide a variable; containing the JSON text. Provide JSON in a valid format with field records to update. The field data type is String. Sample JSON: {"name":"Ross","status":"2"}
	Table Fields:	Provide a JSON with records to update or else select fields and values to update in the tabular columns below.
3	Field Name	Double click to populate, fields associated with the form name. The data type is string. This field is mandatory.
4	Field Value	Specify valid values for the field associated with the field name. The data type is string.
5	Field Datatype	Specify a valid datatype from the provided list of field name and field value. Available data types: String, Int32, Int64, ObjectID, Double, Boolean, Null, Decimal128, and Date.

Sample JSON with Examples:

Sample Syntax:

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{"field1":integerValue1,"field2":"stringValue2","field3":doubleValue3,"field4":booleanValue4,"field5":"dateValue5","field6":"nullValue6","field7":"hexaDecimalValue6"}"

Example1:

{"MobileNumber":951234567,"FirstName":"abc","salary":3000.45,"status":true,"AddedON":"2022-04-28","AddedON":"2021-06-23T08:30:00.000+00:00","MiddleName":NULL,
"ID":50d57312f08da4e79144bafb}";

Example2:

{ "item": "journal", "qty": 25, "size": { "h": 14, "w": 21, "uom": "cm" }, "status": "A" }

30 MSSQL Server

This plugin has several steps for MSSQL Server operations.

This plugin is tested on Microsoft SQL Server 2008 R2 on Windows.

Prerequisites:

1. SQL Server instance/port number and access details.
2. SQL Server Browser windows service must be enabled on remote machine.
3. **mssql-jdbc-7.0.0.jre8.jar** must be present in the lib folder of Process Studio Distribution and AutomationEdge Agent).

Following is a description of MSSQL steps.

30.1 Add Data files or Log files

30.1.1 Description

The plugin is designed to add Data file or Log file in MSSQL server database.

30.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The IP address of remote machine on which SQL server instance is present should be given. This field is mandatory.

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3	Instance Name	The instance name of the MSSQL server should be provided. If we provide Instance name, Port number field will get disabled. Either Port or Instance Name is mandatory.
4	Port	The port number of the MSSQL server should be provided. If we provide Port number, there is no need to provide Instance name. Port number should only be an integer. Port number field is disabled if an instance name is entered. Either Port or Instance Name is mandatory.
5	User Name	The username of MSSQL server to authenticate.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password to the username to authenticate. Validate username and password to authenticate to SQL server instance. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not. **NOTE:** Test Connection button does not work for Previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Database Name	Name of the Database on which the datafile/log file is to be created or Select from the list populated by clicking Get Database Button. This field is mandatory.
2	Button: Get database	Populates the list of database from the connected Instance.
3	Logical Name	Logical name of the data file or log file that is to be created. This field is mandatory.

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4	File Type	Acceptable values are Rows Data or Log. When value is Rows Data, a datafile will be created and when value is Log, log file is created. This field is mandatory.
5	File Group	Name of the file group for the File Type(Ex: Primary is the file group for Rows Data file type)
6	Button: Get File Group	Populates the list of file groups from the selected database.
7	Initial Size(in MB)	Size of the file should be mentioned in MB. This field is mandatory.
8	Folder Path	Specify the browsed folder path to create the file. This field is mandatory.
9	Button: Browse	Browse the folder path where the file needs to be created.
10	File Name	Specify the physical name of the data file or log file. This field is mandatory.

NOTE: Get Database, Get File Group and Browse button do not work for previous step variables. All the buttons work only with static values and environment variables.

Autogrowth:		
No.	Field Name	Description
	Autogrowth Fields:	
1	Enable Autogrowth	Acceptable values are “Yes” or “No”. These are visible when you hover over the field. When value is Yes, it is considered that you want to enable autogrowth for the file. If No is selected any entries made in the fields below is ignored.
	File Growth:	
2	Growth In Percent /In MB	Acceptable values are Percent or MB. If Percent is chosen then you specify growth value in percent below. If MB is chosen you are specifying an absolute value for file growth.
3	Value	Specify the value for growth of a file in percent or MB as chosen above.
	Maximum File Size:	
4	Unrestricted File Growth	Acceptable values are “Yes” or “No”. These are visible when you hover over the field. When value is Yes, it is considered that you want the Unlimited growth of the file. If Yes is selected any entries in the field below are ignored.
5	Restricted File Growth(in MB)	If Unrestricted File Growth is No, specify the Restricted size to the file in MB

Output Tab:

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No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution. This field is mandatory.

Known Errors:
When you select values for Instance name or Port field from a previous step input (i.e. Generate Rows or Microsoft Excel Input etc.) the corresponding Port or Instance name is disabled but may be unlocked when revisited

30.2 Assign Server Roles

30.2.1 Description

The plugin is designed to give server related roles to the particular login user to perform server operations.

30.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server name	The IP address of remote machine on which MSSQL server instance is present should be given.
3	Instance name	The instance name of the MSSQL server should be provided. If we provide Instance name, Port number field will get disabled.
4	Port	The port number of the MSSQL server should be provided. If we provide Port number, there is no need to provide Instance name. Port number should only be an integer.
5	Username	The login username of MSSQL server to authenticate.
6	Password	The password to the login username to authenticate. The step validates username and password to authenticate to SQL server instance.
	Button:	
7	Test Connection	Verifies whether the connection is established or not.

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		NOTE: Test Connection button does not work for Previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Server Roles	Name of the Server Roles which is to be given to the user. This plugin is designed to assign single server role at a time.
2	Get Roles Button	Clicking on this button brings a dialog for the available Roles on that particular SQL server instance
3	Login Users	The login user on which the role is to be applied.
4	Get Users Button	Clicking on this button brings a dialog for the available Login Users on that particular SQL server instance

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution

30.3 Create Database

30.3.1 Description

The step is used to create a database in MSSQL server.

30.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The Hostname/Server Name/IP of the MSSQL Server. This field is mandatory. Drop down is available.
3	Instance name	The instance name of MSSQL Server instance. One of the two fields Instance name or Port is mandatory. Only variables/static values are allowed.

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4	Port	The port number of the MSSQL Server. One of the two fields Instance name or Port is mandatory. Only variables/static values are allowed.
5	Username	A username of the MSSQL Server. This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Provide the password of the username of MSSQL Server. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not. **NOTE:** Test Connection button does not work for previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Database Name	The name of the new database to be created.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Output field to hold the result of successful plugin execution. This field is mandatory. Error Handling: Refer Appendix 1: Error Handling in IT Plugins

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30.4 Create Login User

30.4.1 Description

The plugin is designed to create login user for the MSSQL Server.
This plugin is only valid for SQL Server Authentication and not Windows Authentication.

30.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The IP address of remote machine on which SQL server instance is present should be given.
3	Instance Name	The instance name of the SQL server should be provided. If we provide Instance name, Port number field will get disabled.
4	Port	The port number of the SQL server should be provided. If we provide Port number, there is no need to provide Instance name. Port number should only be an integer.
5	User Name	A username of SQL server to authenticate.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	Provide the password of the username of MSSQL Server. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is available or not. **NOTE:** Test Connection button will not work for Previous step variables. Test Connection button will only work with static values and environment variables.

Input Tab:

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No.	Field Name	Description
	Input Fields:	
1	NewUser	Name of the User which is to be created for login.
2	Password	Password given to the user. But it must have complex & fulfill windows policy.

3	Enforced Password Policy	Acceptable values are “Yes” or “No”. User can select appropriate value as per requirement (Password policy is as per windows password policy). When it is set to Yes, it is considered that the password is enforced as per the policy in the system.
		
		• When input to this field is provided as workflow variable or static value then,
		  ○ If Yes is selected, the below two fields are auto populated with Yes. However, they can be set to No also.
		  ○ If No is selected the below two fields are auto populated with No.
		• However, when values are chosen from drop down choosing a field from previous steps, it does not auto populate “Enforced password Expiration” and “User Must Change Password on First Login”. The default values are the same as this field or user can set these values manually.

4	Enforced password Expiration	It manages the lifespan of the password as per Windows policy.
		
		Acceptable values are “Yes” or “No”. Default value is set as the value in the field above “Enforced Password Policy”.
		
		• When input to this field is provided as workflow variable or static value
		  ○ If Yes is set in this field the below field is auto populated with Yes. However, it can be set to No also.
		  ○ If No is selected the below field is auto populated with No. Only NO is valid in this case. Setting to Yes would cause runtime error.
		• However, when values are chosen from drop down to choose a field from previous steps, it does not auto populate “User Must Change Password on First Login”. User needs to set Yes/No.

5	User Must Change Password at Next Login	Acceptable values are “Yes” or “No”. When value is Yes it asks to user to change the password on the next login. • Default value is set as the value in the field above “Enforced Password Expiration”. If “Enforced Password Expiration” is No valid value is only No. If “Enforced

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		Password Expiration" value is Yes both Yes and No are valid. • When it is set to blank, it is considered as "Yes" while executing the workflow. • If the value is taken from previous fields that are empty then the plugin considers the value as Yes.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	The output field holds the result of successful plugin execution. Error Handling: Refer Appendix 1: Error Handling in IT Plugins

30.5 Delete Login User

30.5.1 Description

This Plugin is used to delete a Login User in Microsoft SQL Server.

Limitation:
This plugin is only valid for SQL Server Authentication and not Windows Authentication.

30.5.2 Configurations

No.	Field Name	Description
1	Server Name/IP	The Hostname/serve name/IP of the MSSQL database. This field is mandatory.
2	Instance name	The instance name of MS SQL Server instance. Either Instance or Port Number is mandatory.
3	Port Number	The port number of the MSSQL database. Port number should only be an integer. Port number will get disabled if an instance name is entered. Either Instance or Port Number is mandatory.
4	Username	The username having permission to take database backup (e.g.:- sa). This field is mandatory.
	Password:	
5	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Provide the password of the username of MSSQL Server. Password is entered using a widget. The widget handles both

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		Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
7	Test Connection	Verifies whether the connection is established or not. **NOTE:** Test Connection button does not work for Previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Login Username	Specify the Login Username that needs to be deleted. Login username is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution. This field is mandatory. Error Handling: Appendix 1: Error Handling in IT Plugins

30.6 Modify Data files or Log files

30.6.1 Description

The plugin is designed to modify Data file or Log file in MSSQL server database.

Following parameters can be modified:

1. Logical Name
2. Initial Size
3. Auto Growth

30.6.2 Configurations

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	Provide the hostname/server name/IP address of SQL server instance. This field is mandatory.
3	Instance Name	The instance name of the MSSQL server should be provided. If we provide Instance name, Port number field is disabled. Either Port or Instance Name is mandatory.
4	Port	The port number of the MSSQL server should be provided. If we provide Port number, there is no need to provide Instance name. Port number should only be an integer. Port number field is disabled if an instance name is entered. Either Port or Instance Name is mandatory.
5	User Name	The username of MSSQL server to authenticate.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password to the username to authenticate. Validate username and password to authenticate to SQL server instance. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not. **NOTE:** Test Connection button does not work for Previous step fields. Test Connection button only works with static values and workflow parameters/variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	

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1	Database Name	Name of the Database on which the datafile/log file is to be created or Select from the list populated by clicking Get Database Button. This field is mandatory.
2	Button: Get database	Populates the list of database from the connected Instance.
3	Logical Name	Name of the data file or log file that is to be modified. This field is mandatory.
4	Button: Get Logical Name	Populates the list of files from the selected database.
5	New Logical Name	New name to the specified data file or log file. If value entered then Logical file name will be changed to the specified name
8	Initial Size(in MB)	Size of the file should be mentioned in MB. If a value is provided, then it is considered that you want to modify the Initial Size of the file chosen above.

NOTE: Get Database, Get File Group and Browse button does not work for previous step variables. All the buttons work only with static values and environment variables.

Autogrowth Tab:		
No.	Field Name	Description
	Autogrowth Fields:	
1	Enable Autogrowth	Acceptable values are “Yes” or “No”. These are visible when you hover over the field. When value is Yes, it is considered that you want to enable Autogrowth for the file. If No is selected any entries made in the fields below is ignored.
	File Growth:	
2	Growth In Percent /In MB	Acceptable values are Percent or MB. If Percent is chosen then you specify growth value in percent below. If MB is chosen you are specifying an absolute value for file growth.
3	Value	Specify the value for growth of a file in percent or MB as chosen above.
	Maximum File Size:	
4	Unrestricted File Growth	Acceptable values are “Yes” or “No”. These are visible when you hover over the field. When value is Yes, you allow the Unlimited growth of the file. If Yes is selected any entries in the field below are ignored.
5	Restricted File Growth(MB)	If Unrestricted File Growth is No, specify the Restricted size to the file in MB

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Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Provide the name of an output field to hold the result of the successful plugin execution. This field is mandatory.

Known Issue:
When you select values for Instance name or Port field from a previous step input (i.e. Generate Rows or Microsoft Excel Input etc.) the corresponding Port or Instance name is disabled but may be unlocked when revisited

30.7 Reset Login User Password

30.7.1 Description

This Plugin is used to reset the password for the specified Login User of Microsoft SQL Server.

This plugin is only valid for SQL Server Authentication and not Windows Authentication.

30.7.2 Configurations

No.	Field Name	Description
1	Server Name/IP	The Hostname/serve name/IP of the MSSQL database. This field is mandatory.
2	Instance name	The instance name of MS SQL Server instance. Either Instance or Port Number is mandatory.
3	Port Number	The port number of the MSSQL database. Port number should only be an integer. Port number will get disabled if an instance name is entered. Either Instance or Port Number is mandatory.
4	Username	The username having permission to reset login user password (e.g. sa)
	Password:	
5	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	The password of the user to authenticate to MSSQL servers. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
7	Test Connection	Verifies whether the connection is established or not. **NOTE:** Test Connection button does not work for Previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Step Name	Name of the step. This name has to be unique in a single workflow.
2	Login Username	Specify the Login username to reset the password.
3	New Password	Specify the new password for the provided username

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Output field to hold the result of the successful plugin execution. This field is mandatory. Error Handling: Refer Appendix 1: Error Handling in IT Plugins

30.8 Shrink Database

30.8.1 Description

The plugin is designed to shrink database in SQL server. Most databases require some free space to be available for regular day-to-day operations. If you shrink a database repeatedly and notice that the database size grows again, this indicates that the space that was shrunk is required for regular operations.

30.8.2 Configurations

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The IP address of remote machine on which SQL server instance is present should be given.
3	Instance Name	The instance name of the MSSQL server should be provided. If we provide Instance name, Port number field will get disabled.
4	Port	The port number of the MSSQL server should be provided. If we provide Port number, there is no need to provide Instance name. Port number should only be an integer. Port number field is disabled if an instance name is entered.
5	Username	The username of MSSQL server to authenticate.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password to the username to authenticate. Validate username and password to authenticate to SQL server instance. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not. **NOTE:** Test Connection button does not work for Previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
1	Input Fields:	
2	Database	Name of the Database which to shrink. Field value is to be selected from the prompt by clicking on the Get databases button. This field is mandatory.
3	Button:	

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4	Select databases	Clicking on this button brings a dialog for the available databases on that particular SQL server instance. This field is mandatory. Select Database button does not work for previous step variables. Select Database button only works with static values and environment variables.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Output field to hold the result of the successful plugin execution. This field is mandatory. Error Handling: Refer Appendix 1: Error Handling in IT Plugins

30.9 Shrink Files

30.9.1 Description

The plugin is designed to shrink the size of the data and log files in the specified database of SQL server.

30.9.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The IP address of remote machine on which MSSQL server instance is present should be given.
3	Instance name	The instance name of the MSSQL server should be provided. If we provide Instance name, Port number field will get disabled.
4	Port	The port number of the MSSQL server should be provided. If we provide Port number, there is no need to provide Instance name. Port number should only be an integer.
5	User Name	The username of MSSQL server to authenticate.
	Password:	

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6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password to the username to authenticate. Validate username and password to authenticate to SQL server instance. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is available or not. Validates username and password to authenticate to MSSQL server instance. **NOTE:** Test Connection button will not work for Previous step variables. Test Connection button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Database	Name of the Database for which data or log file is to be shrinked. Field value is to be selected from the prompt by clicking on the Select database button.
2	Select database	Clicking on this button brings a dialog for the available databases on that particular SQL server instance.
3	File type	Type of the files to be deleted of a particular database i.e. Data files, Log files must be selected.
4	File name	Name of the file to be shrinked must be selected. Field value is to be selected from the prompt by clicking on the Select file button.
5	Select file	Clicking on this button brings a dialog for the available files of a particular database.

Output Tab:

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No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution. This field is mandatory. Error Handling: Refer Appendix 1: Error Handling in IT Plugins

30.10 Start SQL Agent Job

This plugin is designed to Start Agent Job to handle other automated tasks.

This step only ensures start of SQL agent job and not monitoring the completion of action(s) (successful execution) present in the job.

Prerequisites:

1. SQL Server instance and access details
2. SQL Server Browser service must be enabled on remote machine.
3. SQL Server Agent must be enabled.
4. **sqljdbc4-4.0.jar** must be present in lib folder of Process Studio as well as AE agent.
5. SQL Server has the following **msdb** database fixed database roles, which gives administrators control over access to SQL Server Agent. The roles are:
    - SQL Agent User Role
    - SQL Agent Reader Role
    - SQL Agent Operator Role

30.10.1 Description

This plugin is designed to Run or start Agent Job to handle other automated tasks.

30.10.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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2	Server Name/IP	The IP address of remote machine on which MSSQL server instance is present should be given.
3	Instance name	The instance name of the MSSQL server should be provided. If we provide Instance name, Port number field will get disabled.
4	Port Number	The port number of the MSSQL server should be provided. If we provide Port number, there is no need to provide Instance name.
5	Username	The username of MSSQL server to authenticate.
6	Password	The Password to the username to authenticate.
	Button:	
7	Test Connection	Verifies whether the connection is established or not. Validates username and password to authenticate to MSSQL server instance **NOTE:** Test Connection button does not work for Previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Job Name	Name of the job to start.
2	Button: Get	Clicking on this button brings a dialog for the available jobs on that particular SQL server instance Get Button will work for user having system admin's permission or having agent roles mentioned below with access on msdb.dbo.sysjobs table.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution

30.11 Stop SQL Agent Job

30.11.1 Description

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This plugin is designed to stop Agent Job of particular SQL server agent to handle other automated tasks.

30.11.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name/IP	The IP address or fully qualified domain name of the machine on which MSSQL server instance is present.
3	Instance name	The instance name of the MSSQL server should be provided. If we provide Instance name, Port number field will get disabled.
4	Port Number	The port number of the MSSQL server should be provided. If we provide Port number, there is no need to provide Instance name.
5	Username	The username of MSSQL server to authenticate.
6	Password	The Password to the username to authenticate.
	Button:	
7	Test Connection	Verifies whether the connection is established or not. Validates username and password to authenticate to MSSQL server instance **NOTE:** Test Connection button does not work for Previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Job Name	Name of the job to be stopped.
2	Button: Get	Clicking on this button brings a dialog for the available jobs on that particular SQL server instance Get Button will work for user having system admin's permission or having agent roles mentioned below with the access on msdb.dbo.sysjobs table.

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Output Tab:		
No.	Field Name	Description
1	Output Fields:	
2	Result	Output field to hold the result of the successful plugin execution

30.12 Unlock Login User

30.12.1 Description

This Plugin unlocks the Login User of Microsoft SQL Server.

Limitations:

This plugin is only valid for SQL Server Authentication and not Windows authentication.

30.12.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name/IP	The Hostname/serve name/IP of the MSSQL database.
3	Instance name	The instance name of MSSQL Server instance.
4	Port Number	The port number of the MSSQL database.
5	Username	The username having permission to take database backup (Ex:- sa)
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The password of the user to authenticate to MSSQL servers. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not. Validates username and password to authenticate to MSSQL server instance **NOTE:** Test Connection button does not work for Previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Login Username	Specify the Login Name which needs to be unlocked.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution.is field is mandatory. Error Handling: Refer Appendix 1: Error Handling in IT Plugins

31 MS Word

MS Word Plugin has been designed to perform operations with MS Word files.

31.1 MS Word: Convert To PDF

31.1.1 Description

MS Word: Convert to PDF plugin step converts one or more word documents to PDF files.

Compatibility: PDF 1.5 and above

Prerequisite: Ensure that MS Office version 2010 or higher is installed on the agent machine.

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Limitations:

- This step is not compatible with Linux OS.
- When uploading file on AutomationEdge server, the allowed file size is upto 200 MB. This is a limitation from AutomationEdge server side.

Note: This step should be preceded with a row generating step (e.g. Generate rows etc.)

31.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Input File/Directory	Specify the file path of the word file or a directory with word files to be converted to PDF. The word files with the following extensions are allowed: **.docx**, **.doc** and **.rtf**. The data type of this field is String. This field is mandatory. **Note:** Input File of type .docx does not support Runtime parameter of type File, on AE Server. Input File parameter can be provided as a srting Type to specify the full file path. This issue will be resolved in upcoming AE Releases.
2	Button: Browse File…	Click on this button brings up the dialog to browse the input file path.
3	Button: Folder…	Click on this button brings up the dialog to browse the intput directory path.
4	Output Directory	Specify the path of the directory where the output PDF files are to be generated. The data type of this field is String. This field is mandatory.
5	Button: Folder…	Click on this button brings up the dialog to browse the output directory path.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

31.2 MS Word: Mail Merge

31.2.1 Description

Mail merge plugin step creates multiple documents in bulk at once based on a template as a reference. These documents have identical layout, formatting, text, and graphics. The template has fieldnames (tags) which are replaced in each document. Hence, the documents vary for personalization.

You may import variable / personalized data from external sources such as database, excel or CSV file and other sources in Process Studio that can be passed as fields to this step to replace placeholders in the template file.

31.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

Fields:		
No.	Field Name	Description
	Input Fields:	
1	Word File (.docx)	Specify the full path of a Template word document containing data in the form of Field Names as placeholders (${fieldname}). Alternatively choose a field in the input stream or a variable containing the file path. Following is a sample word file template. Test ${Test} ${PageNo} This is regarding your confirmation of *${Designation}* position in vyom labs on ${Date}

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		Your DOJ is ${DOJ} and Employee Id : ${Employee ID} You will receive promotion letter by post at your address as follows, ${Address} Regards, HR Communication. **Note:** sometimes the format of placeholder is not applied to the replaced text.
2	Button: Browse…	Browse the Template word document containing Field Name placeholders.
	Tabular Fields:	
1	Button: Get Fields	Click on Get Fields button to populate 'Field Name' column with the placeholders from the template word document.
2	Field Name	Displays name of placeholders in the template word file populated using the Get Fields button. This is a read only column. The data type is String. This field is mandatory.
3	Field Value	Provide Valid values for the field associated with the field name. Alternately, choose a field name in the input stream from the drop down list or specify a variable containing a value for the Field Name. The input stream is usually populated from data sources such as database, excel or CSV, which will usually be the start step of a workflow containing Mail Merge step. Following is a sample Microsoft Exel Input step data. The data type is String. This field is mandatory.
4	Destination Directory	Specify a directory to store the generated output files. The data type is String. This field is mandatory.
5	Button: Browse	Click button to browse a destination directory to store the generated files.
6	Destination File Name	Specify the base name of the output files to be generated. The destination files base name can also be based on field name in the input stream or a variable. • If there are more than one files generated they are appended with _1, _2 and so on incrementally. • If the destination folder already contains one or more files with the same base name all the new files are appended incrementally.

MyName	MyDesignation	MyDate	MyDOJ	MyEmployeeID	MyAddress	MyTest	MySender	MyPageNo
ABC	SoftwareEngg	10-07-2019	15-01-2018	AE0176	GC	OLetter1	Sneha	15
DEF	Doctor	12-07-2019	15-11-2016	SIE092	Wadhva	OLetter2	Pallavi	9
GHI	Accountant	06-06-2012	23-05-2004	MAS07	MRCNagar	Medica3	Sudha	7

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		Generated files will always have the extension .docx, even if the file name is provided without any extension or with an extension other than '.docx'. The data type is String. This field is mandatory. **Note:** If user specifies filename as 'Sample', then the actual file generated could be 'Sample.docx'. (In case file already exists, then it will append '_1' (1, 2, 3. are incremental numbers) to the file name i.e. 'Sample_1.docx'.)

Note: This step should be preceded with a row generating step (e.g. Generate rows etc.)

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button field values are checked. If any required field values are missing then validation error message is displayed. If all the required field values are provided then it will save the field values.
2	Cancel	Click this button to cancel the window without saving any values.

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32 MySQLServer

MySQL Server plugin has been designed to perform tasks on MySQL database.

Compatibility:

- MySQL Server - instance and access details, Version 8.0.18 for 64 bit

Prerequisites:

- **MySQL-connector-java-8.0.28.jar** must be present in the lib folder of Process Studio as well as AutomationEdge Agent.

Known Errors:

For Server Port field if any random value is provided then it might not throw a proper error, as there is no validation done for this field to be an integer only.

32.1 MySQL Server: Create Database

32.1.1 Description

MySQL Server: Create Database step is used to create a new database in MySQL server.

32.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The server name of the MySQL Server instance. This field is mandatory.
3	Port	The port number of the MySQL Server. Only variables/static values are allowed. This field is mandatory.
4	Username	A username of the MySQL Server. This field is mandatory.
	Password:	
5	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Provide the password of the username of MySQL Server. This field is mandatory.

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		Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
7	Test Connection	Verifies whether the connection is established or not. **Note:** Test Connection button does not work for previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Step Name	The name of the step. The name must be unique in a single workflow.
2	Database Name	The name of the new database to be created.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

32.2 MySQL Server: Create User

32.2.1 Description

MySQL Server: Create User plugin step is designed to create a user in MySQL Server.

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32.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The Server Name of the MySQL Server. This field is mandatory.
3	Port	The port number of the MySQL Server. Only variables/static values are allowed. This field is mandatory.
4	Username	A username of the MySQL Server to authentic. This field is mandatory.
	Password:	
5	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Provide the password of the username of MySQL Server. This field is mandatory. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
7	Test Connection	Verifies whether the connection is established or not. **Note:** Test Connection button does not work for previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	

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1	New Username	Specify the name of a User which is to be created in MySQL Server.
2	Authentication Type	Specify the Authentication Type for the user. The allowed values are Sha256_password or caching_sha2_password.
3	Host name	Specify the Hostname/Server Name/IP address of the user's machine.
4	New Password	Specify the Password for the user.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

32.3 MySQL Server: Reset Password

32.3.1 Description

MySQL Server: Reset Password Plugin step resets the password of a specified Login User in MySQL Server.

32.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	The Server Name of the MySQL Server. This field is mandatory.
3	Port	The port number of the MySQL Server. Only variables/static values are allowed. This field is mandatory.

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4	Username	A username of the MySQL Server. This field is mandatory.
	Password:	
5	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Provide the password of the username of MySQL Server. This field is mandatory. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
7	Test Connection	Verifies whether the connection is established or not. **Note:** Test Connection button does not work for previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Username for password reset	Specify the Username to reset the password.
2	Host Name	Specify the Hostname/Server Name/IP address of the user's machine.
3	New Password	Specify the new password for the specified Username.

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

32.4 MySQL Server: Unlock User

32.4.1 Description

MySQL Server: Unlock User Plugin step unlocks a User in MySQL Server.

32.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server IP	The Hostname/Server Name/IP of the MySQL Server. This field is mandatory.
3	Port	The port number of the MySQL Server. Only variables/static values are allowed. This field is mandatory.
4	Username	A username of the MySQL Server. This field is mandatory.
	Password:	
5	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	Provide the password of the username of MySQL Server. This field is mandatory. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
7	Test Connection	Verifies whether the connection is established or not. **Note:** Test Connection button does not work for previous step fields. Test Connection button only works with static values and environment variables.
Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Username to unlock	Specify the Username to be unlocked.
2	Host Name	Specify the Hostname/Server Name/IP address of the user's machine.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

33 OCR

OCR Plugin steps have been designed to convert images to text with tools using Optical Character Recognition technology.

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33.1 OCR: Google Vision

33.1.1 Description

OCR: Google Vision plugin step detects and extracts text from an image and provides text output in JSON format.

Prerequisites:

- Create a Google Cloud Vision API key

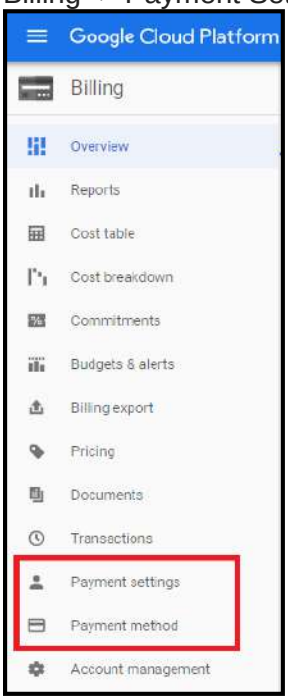
  https://cloud.google.com/docs/authentication/api-keys?hl=en&visit_id=637051029162974596-3924725435&rd=1#creating_an_api_key

- Add restrictions to API keys

  https://cloud.google.com/docs/authentication/api-keys#api_key_restrictions

- Fill the details under the following as seen in the snapshot below,

  Billing -> Payment Settings and Billing -> Payment Method for API Key to work.



33.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

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7	API Key:	
8	Accept Value as variable/static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.
9	API Key	Specify the API Key for authentication to Google Cloud Platform. This field is mandatory. API Key is encrypted and is not stored in the .psw file. API Key is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled API Key field appears as Text box. Else if checkbox above is disabled API Key field appears as a drop down to select fields from previous steps.
10	Button: Test Connection	Test connection with the API provided. Verifies whether the connection is available or not. **Note:** If the connection fields are provided from previous step, then Test Connection Button does not work.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Path/URL	Specify the path of the image file to be converted to text or click the Browse button to browse the file path.
2	Button: Browse	Clicking on this button brings up the dialog to browse the image file to be converted to text format.
3	Type	Specify an annotation features that support optical character recognition (OCR). Specify one of the following annotation features, • 'TEXT_DETECTION' detects and **extracts text from any image**. For example, a photograph might contain a street sign or traffic sign. The JSON includes the entire extracted string, as well as individual words, and their bounding boxes. • 'DOCUMENT_TEXT_DETECTION' also extracts text from an image, but the response is **optimized for dense text and documents**. The JSON includes page, block, paragraph, word, and break information.

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		• 'OBJECT_LOCALIZATION' Detects multiple objects in an image and provides information about the objects and where the object was found in the image.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Specify an output field to hold converted json text on successful plugin execution. The default value is OutputText.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

33.2 OCR: Tesseract

33.2.1 Description

OCR: Tesseract plugin step detects and extracts text from an image to a readable text type.
Supported image types: BMP, PNG, JPG, JPEG.

Compatibility: Tesseract version 4.0.0.

Prerequisites:

- Download tessdata(tesseract-ocr) version 4.0.0.
  https://github.com/tesseract-ocr/tessdata

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- After download, extract it and put it on the processing machine on a particular path. You will need to specify this path in the 'Data Folder Path' in the step.
- Install Microsoft Visual C++ Redistributable for Visual Studio 2015, 2017, and 2019 (32 bit & 64 bit)
    - https://aka.ms/vs/16/release/vc_redist.x64.exe or
    - https://aka.ms/vs/16/release/vc_redist.x86.exe

33.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Data Folder Path	Specify the Tesseract data folder path or click the Browse button to browse the folder path (data folder path is mentioned in the prerequisites). The data type is String. This field is mandatory.
2	Button: Browse	Clicking on this button brings up the dialog to browse the Tesseract data folder path.
3	File Path	Specify the path of the input image file to extract readable text. Alternately browse the file path. **Note:** Supported image types are BMP, PNG, JPG, JPEG The data type is String. This field is mandatory.
4	Button: Browse	Clicking on this button brings up the dialog to browse the image File path.
5	Language Code	Specify Language. (e.g. eng for English, hin for Hindi, urd for Urdu). Multiple languages can be passed. Add '+' sign to extract multi-language output. For language code refer URL: https://muthu.co/all-tesseract-ocr-options/ Default value is: eng. The data type is String.
6	Page Segment Mode	Select Page Segmentation Mode required as per the input file type. Allowed values are 0-13. The data type is String.

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		Please refer table below for a list of Page Segmentation Mode with a description.

Sr. No.	Page Segment Mode	Description
1	0	Orientation and script detection (OSD) only.
2	1	Automatic page segmentation with OSD.
3	2	Automatic page segmentation, but no OSD, or OCR.
4	3	Fully automatic page segmentation, but no OSD. (Default)
5	4	Assume a single column of text of variable sizes.
6	5	Assume a single uniform block of vertically aligned text.
7	6	Assume a single uniform block of text.
8	7	Treat the image as a single text line.
9	8	Treat the image as a single word.
10	9	Treat the image as a single word in a circle.
11	10	Treat the image as a single character.
12	11	Sparse text. Find as much text as possible in no particular order.
13	12	Sparse text with OSD.
14	13	Raw line. Treat the image as a single text line, bypassing hacks that are Tesseract-specific.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Output Text	Specify an output field to hold converted text on successful plugin execution. The default value is OutputText.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message.

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		If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

34 Office365

Office365 plugin steps have been created to perform tasks on O365.

Compatibility:

- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Microsoft Account with the required O365 App Authentication and Permissions (Refer Office 365 App Registration).
- Tenant ID, Client ID and Client Secret should be known for Authentication.
- Provide access (whitelist) to the following URLs through your firewall and network:
    - https://graph.microsoft.com
    - https://login.microsoftonline.com

References:

- https://docs.microsoft.com/en-us/graph/api/resources/groups-overview?view=graph-rest-1.0
- https://docs.microsoft.com/en-us/graph/api/group-post-members?view=graph-rest-1.0

34.1 Office 365: Add Member to Group

Compatibility:

- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Tenant ID, Client ID and Client Secret should be known.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration).
  Additionally, to Add Member to Group in Office365 following are the permissions needed.

Permission type	Permission (from least to most privileged)

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Application	GroupMember.ReadWrite.All, Group.ReadWrite.All, Directory.ReadWrite.All

References:

- https://docs.microsoft.com/en-us/graph/api/group-post-members?view=graph-rest-1.0&tabs=http
- https://github.com/microsoftgraph/microsoft-graph-docs/issues/4771
- https://github.com/microsoftgraph/microsoft-graph-docs/issues/546

Limitation:

Users can only be added to Office 365 Groups.

34.1.1 Description

Office 365: Add Member to Group plugin step adds an Office 365 user to a Group.

34.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
3	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is

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		disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Email/ID	Specify The Email address or Group ID of the group to which member is to be added. **Note:** • After successful execution, the added member takes some time to get reflected on the instance. • To add member to security group use Group ID as security group doesn't have email address. • We cannot add members to Mail-Enabled Security Group through the plugin step.
2	Button: Get	Click to display the list of all the available emails of the group.
3	User Email	Specify the email address of the user.
4	Button: Get	Click to display list of all the available emails of the user. **Note:** Get button fetches only top 100 User Emails.

34.2 Office 365: Assign License

Prerequisites:

Permission Type	Permission Name (from least to most privileged)
Application	User.ReadWrite.All, Directory.ReadWrite.All

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Additional References:

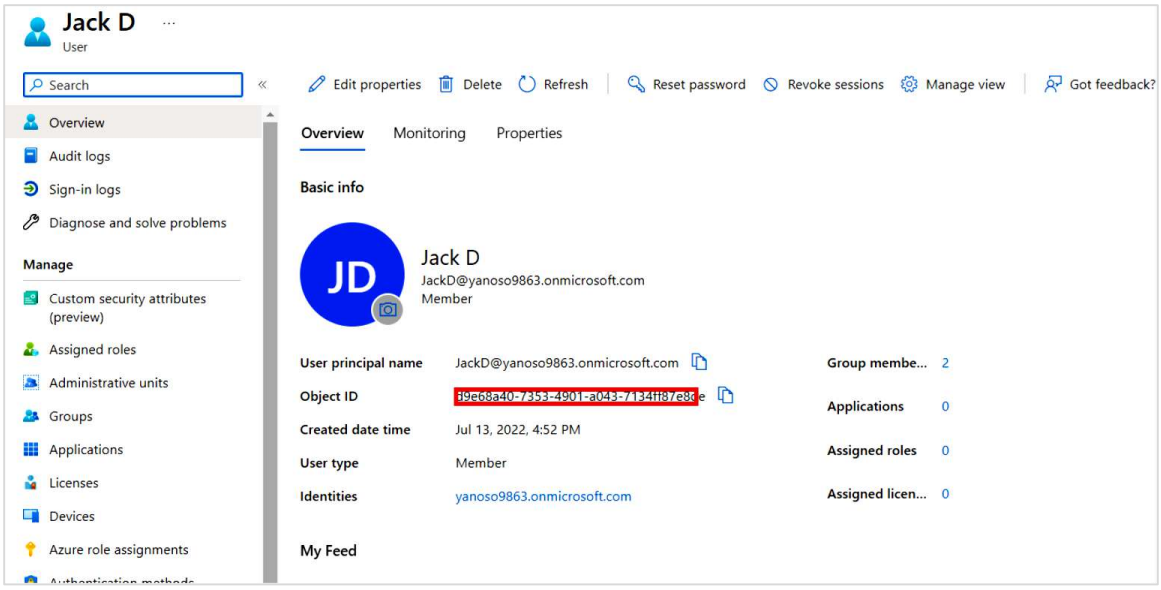
- https://docs.microsoft.com/en-us/graph/api/user-assignlicense?view=graph-rest-1.0

34.2.1 Description

Office 365: Assign License plugin step assigns a specified License to an Office 365 user.

Note:

- To generate the Tenant ID, Client ID, Client Secret, and provide permissions, see Appendix: O365 App Registration, Authentication and Permissions in Azure.
- Product names and service plan identifiers for licensing. Click the following link to get the Subscription name or SKU ID (**GUID**) and apps (**Service plans included**): https://learn.microsoft.com/en-us/azure/active-directory/enterprise-users/licensing-service-plan-reference
- To get the user ID, see the following screenshot:



34.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.

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3	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Step Name	Name of the step. This name has to be unique in a single workflow.
2	Subscription Name (SKU Name)	Select the subscriptions that is available on the tenant. The data type is string. This field is mandatory.
3	Button: Get	Displays list of all the available subscriptions.
4	User Email	Provide the email address of the user.
5	Button: Get	Click to Display the list of all the available user's emails. It Can only fetch the top 100 User Emails.
6	Apps To Be Disabled	Select the apps to be disabled under a particular license from the table. **Note:** In the Apps To Be Disabled table, if both cells contain values, priority is given to the Static Apps column cell.

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7	Variable Apps	Select input from a previous step or as workflow parameters in the column, which will set the apps to disable from the license to be assigned.
8	Static Apps	Click on a cell in the column, which will populate the apps to be disabled from the license to be assigned.

34.3 Office 365: Create Event

Prerequisite:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	Calendars.ReadWrite offline_access

34.3.1 Description

Office 365: Create Event plugin step creates the event on the user's calendar.

34.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Grant Type	Select the type of grant from Password Grant or Refresh Token. The data type is string. This field is mandatory. Note: It is recommended to select the grant type from Refresh Token.
3	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
4	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.

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6	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
7	Username	Specify the name of the user whose email attachments are to be downloaded.
8	Password	Specify the password for the provided user name.
9	Refresh Token	Specify the refresh token required to authenticate the details.
10	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Time Zone	Specify the applicable time zone. The data type is string. This field is mandatory. Note: Only Windows Standard Time Zones are supported.
2	Get	Click to select the time zone from the dialog.
3	Start Date	Select the date when the meeting is supposed to start. The data type is string. This field is mandatory. Note: Date format supported are ‘YYYY-MM-DD’ and ‘YYYY/MM/DD’.

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4	Start Time	Select the time when the meeting is supposed to start. The data type is string. This field is mandatory. Note: Time format supported is 'hh:mm aa'. Ex: 09:30 AM
5	End Date	Select the date when the meeting is supposed to end. The data type is string. This field is mandatory. Note: Date format supported are 'YYYY-MM-DD' and 'YYYY/MM/DD'.
6	End Time	Select the time when the meeting is supposed to end. The data type is string. This field is mandatory. Note: Time format supported is 'hh:mm aa'. Ex: 09:30 AM
7	Subject	Specify the subject of the event.
8	Location	Specify the location where meeting is supposed to happen.
9	Content	Specify the contents of the event.
10	Is Online Meeting	Specify if the meeting is online or not.
11	Online Meeting Provider	Specify the details of the online meeting provider.
12	Required Attendees Emails	Provide the list of emails of attendees required for the meeting.
13	Optional Attendees Emails	Provide the list of emails of optional attendees required for the meeting.
14	Resources Emails	Provide the resources that are required for the meeting.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Meeting ID	Specify the unique meeting ID.
2	Join URL	Specify the URL that the attendees must click to join the meeting. Note: For other domain, this step will not generate the join URL.

34.4 Office 365: Create Office 365 Group

Compatibility:

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- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Tenant ID, Client ID and Client Secret should be known.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration).
  Additionally, to Create Group in Office365 the following permissions are needed.

Permission type	Permission (from least to most privileged)
Application	Group.Create, Group.ReadWrite.All, Directory.ReadWrite.All

References:

https://docs.microsoft.com/en-us/graph/api/group-post-groups?view=graph-rest-1.0&tabs=cs

34.4.1 Description

Office 365: Create Office 365 Group plugin step creates an Office 365 Group.

34.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
3	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox

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		above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Name	Specify the name to display in the address book for the group.
2	Mail Nickname	Specify the mail alias for the group.
3	Group Description	Specify description of the Group.
4	Group Owner	Specify the group owner's name.
5	Get	Click to display list of available Group Owners.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Group Email	Output field to hold the email address of the group created. After successful execution, the created group takes some time to get reflected on the instance.

34.5 Office 365: Create Security Group

Compatibility:

- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Tenant ID, Client ID and Client Secret should be known.

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- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration).
  Additionally, for Office365Create Security Group step the following permissions are needed.

Permission type	Permission (from least to most privileged)
Application	Group.Create, Group.ReadWrite.All, Directory.ReadWrite.All

References:

- https://docs.microsoft.com/en-us/graph/api/group-post-groups?view=graph-rest-1.0&tabs=cs
- https://docs.microsoft.com/en-us/graph/api/resources/groups-overview?view=graph-rest-1.0#security-groups-and-mail-enabled-security-groups

34.5.1 Description

Office 365: Create Security Group plugin step creates a Security Group.

34.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
3	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo

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		(drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Name	Specify the name to display in the address book for the group. The data type is String. This field is mandatory.
2	Mail Nickname	Specify the mail alias for the group. The data type is String. This field is mandatory.
3	Group Description	Specify the description of the group. The data type is String. This field is optional.
4	Group Owner	Specify the Group Owner’s name. The data type is String. This field is optional.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Group ID	Specify an Output field to hold the ID of the Security Group created. The data type is String. This field is mandatory.

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		Note: After successful execution, it takes some time for the created group to get reflected on the instance.

34.6 Office 365: Create User

Compatibility:

- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Tenant ID, Client ID and Client Secret should be known.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration).
  Additionally, Office365 Create User Step needs the following permissions.

Permission type	Permission Name (from least to most privileged)
Application	User.ReadWrite.All, Directory.ReadWrite.All

References:
https://docs.microsoft.com/en-us/graph/api/user-post-users?view=graph-rest-1.0

34.6.1 Description

Office 365: Create User plugin step creates an Office 365 user.

34.6.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
3	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account.

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		Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Display Name	The name to display in the address book for the user. The data type is String. This field is mandatory.
2	First Name/ Given Name	First Name or Given Name of the user. The data type is String. This field is mandatory.
3	Last Name/ Surname	Last Name of the user. The data type is String. This field is mandatory.
4	Username	Unique user name given for the user. The data type is String. This field is mandatory.
5	Domain Name	Available domain name must be provided or selected from the list populated by clicking the get button. The data type is String. This field is mandatory. **Note:** User Principal name is a combination of User Name and Domain Name. User Principal Name is referred to in the error message returned from the API JSON when an existing User Name is provided while creating a new user.
6	Get	Displays list of available domains. The data type is String. This field is mandatory.
7	Password	Specify a password for the user for user is creation. The password must satisfy minimum requirements as specified by

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		the user's passwordPolicies property. By default, a strong password is required. The data type is String. This field is mandatory.
8	User Must Change Password At Next Logon	Allowed values are Yes or No. Provide Yes if the user must change the password on the next login; otherwise No. The data type is String. This field is mandatory.
9	Alias/ Mail Nick Name	The mail alias for the user. The data type is String. This field is mandatory.
	Settings:	
10	Account Enabled	Allowed values are Yes or No. Provide Yes if the account should be enabled; otherwise, No. The data type is String. This field is mandatory.
11	Select Location/ Usage Location	Specify a valid location e.g. "IN". The data type is String. For usageLocation field, it is mandatory to use the abbreviations for countries viz.IN for India and BT for Bhutan, etc. 1. The tool tip for Usage Location is "Enter ISO 3166-1 alpha-2 country code." 2. Reference: https://en.wikipedia.org/wiki/List_of_ISO_3166_country_codes

Contact Info Tab:		
No.	Field Name	Description
1	Street Address	Street location for the user. The data type is String. This field is optional.
2	State/ Province	State or province for the user. The data type is String. This field is optional.
3	Country Or Region	Country or region to which the user belongs. The data type is String. This field is optional.
4	Office Location	Office Location for the user. The data type is String. This field is optional.
5	City	City Location for the user. The data type is String. This field is optional.
6	Zip/ Postal Code	Postal code of the user. The data type is String. This field is optional.
7	Office Phone/ Business Phone	Office contact number for the user. The data type is String. This field is optional.

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8	Mobile Phone	Mobile number for the user. The data type is String. This field is optional.
9	Fax Number	Office Fax Number. The data type is String. This field is optional.
10	Email	The Email field sets the proxy address for the user, also known as primary SMTP address or the default reply address. The data type is String. This field is optional.
11	Alternate Email	The field Alternate Email sets the alternate email for the user. The data type is String. This field is optional.

Job Info Tab:		
No.	Field Name	Description
1	Job Title	Job designation for the user. The data type is String. This field is optional.
2	Department	Department of the user. The data type is String. This field is optional.
3	Company Name	The field Company Name sets the company name of the user. The data type is String. This field is optional.
4	Employee ID	The field Employee ID sets the employee ID of the user. The data type is String. This field is optional.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	User Email	Specify an output field to hold the email address of the user created. In case of step failure, the term userPrincipalName The user principal name (the combination of User Name and Domain Name) is referred in the error message returned from the API JSON when the existing User Name is provided while creating the new user.

34.7 Office 365: Delete Group

Compatibility:

- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

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Prerequisites:

- Tenant ID, Client ID and Client Secret should be known.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration).
  Additionally, Office365 Delete Group Step needs the following permissions.

Permission type	Permission Name (from least to most privileged)
Application	Group.ReadWrite.All

References:

https://docs.microsoft.com/en-us/graph/api/group-delete?view=graph-rest-1.0

34.7.1 Description

Office 365: Delete Group plugin step deletes an Office 365 group.

34.7.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
3	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.

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6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Email/ID	Email address of the group.
2	Button: Get	Displays list of all the available group's emails.

34.8 Office 365: Delete User

Compatibility:

- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Tenant ID, Client ID and Client Secret should be known.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration).
  Additionally, Office365 Delete User Step needs the following permissions.

Permission type	**Permission Name (from least to most privileged)**
Application	User.ReadWrite.All

References:

https://docs.microsoft.com/en-us/graph/api/user-delete?view=graph-rest-1.0

34.8.1 Description

Office 365: Delete User plugin step deletes an Office 365 user. After successful execution, the removed member takes some time to reflect on the instance.

34.8.2 Configurations

No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
3	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User Email	Email address of the user. The data type is String. This field is mandatory.
2	Button: Get	Click on Get button to display a list of all the available user's emails. It fetches only the top 100 User Emails.

34.9 Office 365: Download Email Attachment

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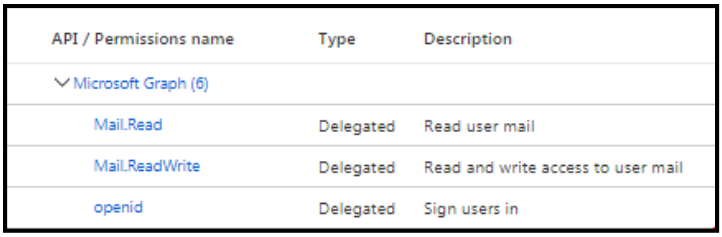
Compatibility:

- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Tenant ID, Client ID and Client Secret, 'Username and Password' or Refresh Token based on Grant Type should be known.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration or Appendix: Office 365 App Registration for Grant Type Refresh Token).
- For Office365 download emails attachment the following are the permissions needed. See the following image:



API / Permissions name	Type	Description
Microsoft Graph (6)		
Mail.Read	Delegated	Read user mail
Mail.ReadWrite	Delegated	Read and write access to user mail
openid	Delegated	Sign users in

Permission Type	Permission Name
Delegated	Mail.ReadWrite
Delegated	Openid

References:

https://docs.microsoft.com/en-us/graph/api/user-delete?view=graph-rest-1.0

34.9.1 Description

Office 365: Download Email Attachment plugin step downloads email attachments of an Office 365 user. This step also downloads an image that is not an attachment but part of the body of an email.

34.9.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Grant Type	Select the type of grant from Password Grant or Refresh Token. The data type is string. This field is mandatory. Note: It is recommended to select the grant type from Refresh Token.

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3	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
4	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	Client Secret generated in Microsoft Account.
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Username	Specify a Username whose Email Attachments are to be downloaded.
	Password:	
7	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
8	Password	Specify the Password for provided Username. If checkbox above is enabled Password field appears as a Text box and accepts static values or variable. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
9	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Message ID	Provide Message ID of the email for which attachments are to be downloaded. You may fetch Message ID using the O365: Email Message Input Step. The data type is String. This field is mandatory.
2	Attachment Folder	Specify the Folder path where mail attachments are to be saved. The data type is String. This field is mandatory. **Note:** If the folder is not present the complete folder path will be created.
3	Button: Browse	Click Get button to Browse the Attachment Folder path.

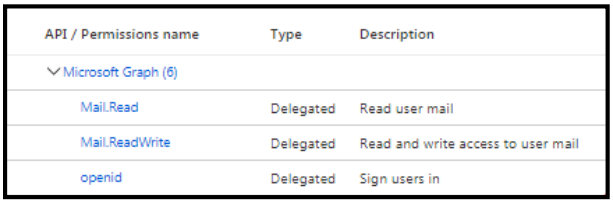
34.10 Office 365: Email Message Input

Compatibility:

- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Tenant ID, Client ID and Client Secret, 'Username and Password' or Refresh Token based on Grant Type should be known.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration or Appendix: Office 365 App Registration for Grant Type Refresh Token).
- Additionally, Office365 Email Messages Input Step needs the following permissions to fetch emails. See the following image:



Permission Type	API /Permission name
Delegated	Mail.ReadBasic, Mail.Read
Delegated	offline_access

References:

https://docs.microsoft.com/en-us/graph/api/user-delete?view=graph-rest-1.0

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34.10.1 Description

Office 365: Email Message Input plugin step fetches the mails for an Office 365 user.

34.10.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Grant Type	Select the type of grant from Password Grant or Refresh Token. The data type is string. This field is mandatory. Note: It is recommended to select the grant type from Refresh Token.
3	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
4	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. The data type is secure string. This field is mandatory.
6	Username	Username of the email account whose emails are to be fetched.
7	Password	Specify the Password for provided Username. The data type is secure string. This field is mandatory.
8	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Folder	Specify the folder of which emails are to be fetched. Provide folder name, such as, folder1/folder2/folder3…folder. The data type is String. This field is mandatory.

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		Note: It must be a valid email folder and the folder name must not contain slash(/).
2	Get	Displays a list of Folders for email account.
3	Retrieve	Select from the following retrieve options: • Get All Messages • Get unread messages.
4	Retrieve The Top ... Emails	Provide the positive integer value to fetch top n emails. This field is optional. Retrieve The Top ... Emails value is ignored if 'Fetch in Batches' below is 'Yes'.
5	Retrieve Emails In Reverse Order	Allowed values: 'Yes', 'No'. Provide 'Yes' to fetch in reverse order i.e. Old to New. This field is optional.
6	Mark As Read	Allowed values: 'Yes', 'No'. Provide 'Yes' if fetched mails are to be marked as read. This field is optional.
	Batch:	
7	Fetch in Batches	Allowed values: 'Yes', 'No'. Provide 'Yes' to fetch in batches. **Note:** • If Retrieve Emails In Reverse Order and Fetch In Batches both are selected then the batches are reversed. • Retrieve The Top ... Emails value is ignored if 'Fetch in Batches' below is 'Yes'.
8	Batch Size	This field is enabled if the checkbox above is selected. Provide the positive integer value for the size of the batch to be fetched. If 'Yes' is provided in 'Fetch in Batches' field above, a value must be provided.
9	Limit	Provide a positive integer which is an upper limit for the total number of emails to fetch. You may optionally provide a value if Yes is provided in field 'Fetch in Batches above.

Filters Tab:		
No.	Field Name	Description
	Header:	**Note:** If multiple filters are used from the below list, then AND operator is used for filters. The data type of all fields in the Header is String. The fields are optional.

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1	Sender	Provide the mail address to filter mails by Sender.
2	Recipient	Provide the mail address to filter mails by Recipient.
3	Subject	Provide the value to filter mails by Subject.
4	Category	Provide the value to filter mails by Category.
5	Has Attachments	Provide the value to filter the emails with attachments. Allowed value: ‘True’ or ‘False’.
6	Search Text	Provide the value to search the text in either of Body, Sender, or Subject.
	Received date:	
7	Condition	Select the condition to filter mail by received date. Allowed values are: 'None', 'Equal to', 'Smaller than', 'Greater than', 'Between...and...'. Date values below are not considered if Condition is ‘None’/Blank.
8	Date1	Provide the Date1 (yyyy-MM-dd) for the provided condition.
9	Date2	Provide the Date2 (yyyy-MM-dd) only if Between conditions is selected. **Note:** • Validate Date1 and Date2 based on the selected condition for Received Date. • Date values below are not considered if Condition is ‘None’/Blank. • Date1 value must be smaller than Date 2 value if Received Condition is 'Between...and...'; and if Date1 value is greater than Date 2 value then the workflow executes successfully without any output.

Output Tab:		
No.	Field Name	Description
1	Output Fields:	This is a tabular list.
1	Field Name	Click on a field in the Name column to open the Select Fields Name pop-up window explorer and select email properties to fetch You may select multiple properties. The data type is String. At least one field must be selected.
2	Output Field Name	Specify an Output Field Name to hold the corresponding value of the Field Name selected above.

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		The data type is String. This field is mandatory.
3	Keep HTML Tags in the Body	Select the checkbox if you want the HTML tags to be displayed for the mail body. **Note:** The checkbox is clear by default.

34.11 Office 365: Get Events

Prerequisite:

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	Calendars.Read, Calendars.ReadWrite offline_access
Application	Calendars.Read, Calendars.ReadWrite User.Read.All

34.11.1 Description

Office 365: Get Events plugin step fetches the event's information.

34.11.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Grant Type	Select the type of grant from Password Grant or Refresh Token or Client Credentials. The data type is string. This field is mandatory. Note: It is recommended to select the grant type from Refresh Token.
3	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
4	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list.

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		Else enable checkbox for Client Secret field to appear as Text box.
6	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
7	Username	Specify the user name (user email address).
8	Password	Specify the password for the provided user name.
9	Refresh Token	Specify the refresh token required to authenticate the details.
10	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Username	Specify the user name (user email address).
2	Start Date	Specify the date from which you want to fetch the events. The data type is string. This field is mandatory. Note: Date format supported are ‘YYYY-MM-DD’ and ‘YYYY/MM/DD’.
2	Start Time	Specify the time from which you want to fetch the events. The data type is string. This field is mandatory. Note: Time format supported is ‘hh:mm aa’. Ex: 09:30 AM

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3	End Date	Specify the date till which you need to fetch events. The data type is string. This field is mandatory. Note: Date format supported are 'YYYY-MM-DD' and 'YYYY/MM/DD'.
4	End Time	Specify the time till you need to fetch events. The data type is string. This field is mandatory. Note: Time format supported is 'hh:mm aa'. Ex: 09:30 AM

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Output JSON Field Name	Specify the output JSON field name.

34.12 Office 365: Move Email

Prerequisite:

Permission type	Permission (from least to most privileged)
Delegated	Mail.Read, offline_access

34.12.1 Description

Office 365: Move Email step moves the email from one folder to another.

34.12.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Grant Type	Select the type of grant from Password Grant (Not Recommended) or Refresh Token. The data type is string. This field is mandatory.
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
3	Client ID	Client ID of the Application created in Microsoft Account.

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		The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Username	Specify the username for which email attachments are to be downloaded.
7	Password	Specify the password for the specified username.
8	Refresh Token	Specify the refresh token to authenticate. **Note:** For MFA-enabled user account, select Grant Type as Refresh Token.
6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Message Id	Specify the message Id of the email which is to be moved. The data type is string. This field is mandatory.

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		Note: Message Id can be fetched using Office 365: Email Message Input plugin step.
2	Destination Folder	Select the destination folder where emails are to be moved. Provide the destination folder path, such as folder1/folder2/folder3…folder n. The data type is string. This field is mandatory. **Note:** The Move Email plugin step may not work for the Destination Folder having special characters in the folder name.
3	Button: Get	Click this button to display a windows pop-up with a list of the folders.

34.13 Office 365: Remove License

Compatibility:

- Office 365 (Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Appendix 5).
  Additionally, Office365 Remove License Step needs the following permissions.

Permission Type	Permission Name (from least to most privileged)
Application	User.ReadWrite.All, Directory.ReadWrite.All

References:

https://docs.microsoft.com/en-us/graph/api/user-assignlicense?view=graph-rest-1.0

34.13.1 Description

Office 365: Remove License plugin step removes a specified License from an Office 365 user.

Note:

- To generate the Tenant ID, Client ID, Client Secret, and provide permissions, see Appendix: O365 App Registration, Authentication and Permissions in Azure.
- Product names and service plan identifiers for licensing. Click the following link to get the Subscription name or SKU ID (**GUID**): https://learn.microsoft.com/en-us/azure/active-directory/enterprise-users/licensing-service-plan-reference

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34.13.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
3	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Subscription Name (SKU Name)	Subscriptions that is available on the tenant.
2	Button: Get	Displays list of all the available subscriptions.
3	User Email	Email address of the user.
4	Button: Get	Displays list of all the available user's emails.

34.14 Office 365: Remove Member from Group

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Compatibility:

- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Tenant ID, Client ID and Client Secret should be known.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration).
  Additionally, Office365 Remove Member from Group Step needs the following permissions.

Permission type	Permission (from least to most privileged)
Application	GroupMember.ReadWrite.All, Group.ReadWrite.All, Directory.ReadWrite.All

References:

- https://docs.microsoft.com/en-us/graph/api/group-delete-members?view=graph-rest-1.0
- https://github.com/microsoftgraph/microsoft-graph-docs/issues/4771
- https://github.com/microsoftgraph/microsoft-graph-docs/issues/546

34.14.1 Description

Office 365: Remove Member from Group plugin step removes an Office 365 user from a Group.

34.14.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
3	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account.

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		Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Group Email/ID	Specify the email address or Group ID of the group from which a user has to be removed.
2	Button: Get	Click this button to display a windows pop-up with list of all the available group's emails.
3	User Email	Email address of the user.
4	Button: Get	Click this button to display a windows pop-up with list of all the available User's Emails from the selected group. Can only fetch the top 100 User Emails on Get button. 1. After successful execution, the removed member takes some time to get reflected on the instance. 2. To remove member to security group use Group ID as the security group doesn't have an email address. 3. We cannot remove members of Mail-Enabled Security Group through the plugin step.

34.15 Office 365: Reset Password

Compatibility:

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- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Tenant ID, Client ID and Client Secret should be known.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration).
- To reset the password of user “Password Adminstrator” or “Helpdesk Administrator” permission from “Roles and administrators” should be given to the Application (O365 Azure AD). This permission may take some time to get reflected.
- Global administrator permission can reset the password for any user and all other administrators.
- Helpdesk administrators or Password administrators can reset passwords of other users who are non-administrators.

Additionally, Office365 Reset Password Step needs the following permissions.

Permission type	Permission (from least to most privileged)
Application	User.ReadWrite.All, Directory.ReadWrite.All, User.ManageIdentities.All

References:

- https://docs.microsoft.com/en-us/azure/active-directory/users-groups-roles/directory-assign-admin-roles#available-roles
- https://docs.microsoft.com/en-us/graph/api/user-update?view=graph-rest-1.0&tabs=http

34.15.1 Description

Office 365: Reset Password plugin step resets the password for a user in Office365.

Important: To use the step, you must add the registered app to the User Administrator role. Complete the following steps:

i) Go to **Azure Active Directory.**
ii) Select **Roles and administrators** → Search and click on **User administrator.**
iii) Click on **Add assignments** button.
iv) Go to **Select Member** → Click on **No member selected** button.
v) Search your registered app name → Select that app.
vi) Click on **next** button (you must have an active assignment) → Click on **Assign** button.

34.15.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

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	Connection:	
2	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
3	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
5	Client Secret	Specify the Client Secret generated in Microsoft Account. Client Secret is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
6	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. Note: For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	User Email	Specify the email address of the user whose password is to be reset. The data type of this field is string. This field is mandatory.
2	Button: Get	Click this button to display a windows pop-up with list of all the available user emails.
3	New Password	Specify the new password for the user. The password must satisfy minimum requirements as specified by the user's passwordPolicies property. By default, a strong password is required.

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		The data type of this field is string. This field is mandatory.
4	User Must Change Password At Next Logon	Allowed values are true or false. Provide true if the user must change the password on the next login; otherwise false. • This may take some time to get reflected. The data type of this field is string. This field is mandatory.

34.16 Office 365: Send Email

Compatibility:

- Office 365(Office 365 Business Premium License) and Microsoft Graph REST API v1.0

Prerequisites:

- Tenant ID, Client ID and Client Secret, 'Username and Password' or Refresh Token based on Grant Type should be known.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Office 365 App Registration or Appendix: Office 365 App Registration for Grant Type Refresh Token).
- Additionally, Office365 Send Email Step needs the following permissions. See the following image:

Permission	Type Permissions
Delegated	Mail.Send
Delegated	Openid

References:

https://docs.microsoft.com/en-us/graph/api/user-delete?view=graph-rest-1.0

34.16.1 Description

Office 365: Send Email plugin step sends emails, with one or multiple attachments.

34.16.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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2	Grant Type	Select the type of grant from Password Grant or Refresh Token. The data type is string. This field is mandatory. Note: It is recommended to select the grant type from Refresh Token.
3	Tenant ID	Tenant ID of Microsoft Account. The data type is string. This field is mandatory.
4	Client ID	Client ID of the Application created in Microsoft Account. The data type is string. This field is mandatory.
	Client Secret:	
5	Accept Value as variable/static	Leave checkbox unchecked to accept Client Secret value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Client Secret field to appear as Text box.
6	Client Secret	Specify the Client Secret generated in Microsoft Account. The data type is secure string. This field is mandatory. If checkbox above is enabled Client Secret field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Client Secret field appears as a drop down to select fields from previous steps.
7	Username	Specify the Username for sending emails.
	Password:	
8	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
9	Password	Specify the Password for provided Username. If checkbox above is enabled Password field appears as a Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory.
10	Button: Test Connection	Test connection with Client ID and Client Secret provided. Verifies whether the connection is established or not. **Note:** For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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General Tab:		
No.	Field Name	Description
	Destination Addresses:	
1	To	Provide a semicolon (;) separated list of email addresses to send mail. The data type is string. This field is optional. At least a value in any one of To, Cc or Bcc is mandatory.
2	Cc	Provide a semicolon (;) separated list of email addresses to send email as carbon copy (Cc). The data type is string. This field is optional. At least a value in any one of To, Cc or Bcc is mandatory.
3	Bcc	Provide a semicolon (;) separated list of email addresses to send email as Blind carbon copy (Bcc). The data type is string. This field is optional. At least a value in any one of To, Cc or Bcc is mandatory.
4	Message:	
4.a	Subject	Specify the subject of the email. The data type is string. This field is optional. At least a value in any one of Subject or Body is mandatory.
4.b	Body	Specify the Body of email. A value in any one of Subject or Body is mandatory. The data type is string. This field is optional. **Note:** HTML support is provided. However, due to security purposes, it is not recommended to provide the entire HTML body using the environment variable. You can form an HTML body using either Modified Java Script or using an HTML email template. The environment variables or fields can be used at the places of dynamic values in the email template.
4.c	Save Draft Email In Case Of Failure	Provide valid input for Saving the draft message. Allowed values are '*Yes*' and '*No*'. The default value is *No*.

Attachments Tab:		
No.	Field Name	Description
	Attachments:	
1	Is Multiple Attachments	To Allow multiple attachments provide value Yes else provide No. The data type is string. This field is optional.

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2	Attachment OR Paths of Attachments (JSON)	Provide file path to send a single file as an attachment or provide the JSON containing multiple entries of paths of attachments. You may type the JSON or fetch the JSON text from an environment variable or a previous field in the stream.
		The data type is string. If Yes is specified provide a JSON file with a list of attachments; If No is specified above, then provide an Attachment file path or leave this blank; else If the field above is blank i.e. no attachments leave this field blank.
		
		Sample JSON with path of Multiple Attachments:
		
		a) Sample JSON for multiple attachments JSON using double slash:
		
		`{`
		`"attachments":[`
		`{`
		`"filePath":"D:\\Folder\\abc.txt"`
		`},`
		`{`
		`"filePath":"D:\\Folder\\Capture.JPG"`
		`}`
		`]`
		`}`
		
		b) Sample JSON for Multiple Attachments JSON using forward slash:
		
		`{`
		`"attachments":[`
		`{`
		`"filePath":"D:/Folder/abc.txt"`
		`},`
		`{`
		`"filePath":"D:/Folder/Capture.JPG"`
		`}`
		`]`
		`}`

3	Browse	Browse a single Attachment file. The data type is string. This field is optional.

35 OneDrive

Prerequisites:

- Azure AD instance with access details.
- Appropriate user (Delegated) permissions. For more information, refer Microsoft Documentation as mentioned in references below.

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References:

- For information on application setup and refresh token refer Microsoft documentation link https://docs.microsoft.com/en-us/azure/active-directory/develop/quickstart-register-app#register-an-application

Refresh Token for connection to OneDrive

In One Drive Plugin Connection Configuration we need to provide connectivity details for a - OneDrive instance as mentioned in the table below.

Connection Details:

No.	Field Name	Datatype	Mandatory?	Description
1.	Client ID	String	--	Client ID provided by Azure Active Directory.
2	Refresh Token	String	Yes	Refresh Token provided by authorization grant flow discussed in sections below.
3	Test Connection	Button	--	Verifies whether the connection is established or not.

Following are the steps for generating refresh token for OneDrive plugins,

i. Register app for OneDrive on Azure AD, refer Appendix 12: OneDrive Refresh Token: Register app for OneDrive on Azure AD.
ii. Generate Refresh Token for OneDrive, refer Appendix 12: OneDrive Refresh Token: Generate Refresh Token OneDrive.

Get OneDrive Folder or File - Path

Folder or File – Path/ID is required in most OneDrive Plugin steps. Refer Appendix 13: OneDrive Folder/File Path to get path.

35.1 Copy File or Folder

35.1.1 Description

OneDrive: Copy File plugin step copies a file or folder in OneDrive.

Note:

- Support is provided for the Personal Drive, however, the displayed error message is not correct.
- When Rename value and non-existing Destination Folder Path is provided and Create Folder is No, then this step will execute successfully and rename the source item.

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- When non-existing Destination Folder Path is provided, Create Folder is No and Rename value is not provided, then this step will abort with error 'The specified item name already exists.'.

Prerequisite Permissions:

For Copy File or Folder step in OneDrive following are the permissions needed.

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	Files.ReadWrite, Files.ReadWrite.All
Delegated (personal Microsoft account)	Files.ReadWrite, Files.ReadWrite.All

Reference:

https://docs.microsoft.com/en-us/graph/api/driveitem-copy?view=graph-rest-1.0&tabs=http

35.1.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Select the client ID for which you want to copy a file or folder. For connecting with OneDrive, refer Appendix 1: OneDrive Refresh Token. Note: This field is mandatory for personal accounts.
3	Checkbox: Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token* value from a field - in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token* field to appear as Text box.
4	Refresh Token	Specify the Refresh Token provided by authorization grant flow. Generate and specify Refresh Token as detailed in Appendix 1: OneDrive Refresh Token. The data type is String. This field is mandatory.
5	Button: Test Connection	Verifies whether the connection is established or not.

Input Tab:		
No.	Field Name	Description

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	Input Fields:	
1	Source File Or Folder ID/Path	Provide OneDrive source file or folder id or path to copy file or folder in destination. The field data type is String. This is mandatory.
2	Destination Folder ID/Path	Specify the OneDrive folder id or path to copy file or folder. The field data type is String. This is mandatory. To specify OneDrive Path: For example, OneDrive path == https://organization-my.sharepoint.com/personal/xyz/Documents/demofolder/File.xlsx Provide == demofolder/File.xlsx To specify OneDrive Path to create folder: For example, OneDrive path == https://organization-my.sharepoint.com/personal/xyz/Documents/abc To create root folder == Documents/newfolder To create inner folder == abc/newfolder
3	File Or Folder Name After Copy (Rename)	Specify the name to rename the file or folder in destination location. The field data type is String.
4	Create Folder(if not exists)	Specify the allowed values to perform the action of creating folder. Allowed values are: Yes/No.

Known Issues

Sometimes, you may see a temporary error related to the internet connectivity and network issues. The issue arises when the hostname is unresolved and the local server does not receive a response from an authoritative server. For example, you may see any of the following messages:

- login.microsoftonline.com.

OR

- This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server (login.microsoftonline.com)

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35.2 Create Folder

35.2.1 Description

One Drive: Create Folder plugin step creates a folder on OneDrive.

Note:

- Support is provided for the Personal Drive, however, the displayed error message is not correct.

Prerequisite Permissions:

For Create Folder step in OneDrive following are the permissions needed.

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	Files.ReadWrite, Files.ReadWrite.All
Delegated (personal Microsoft account)	Files.ReadWrite, Files.ReadWrite.All

Reference:

https://docs.microsoft.com/en-us/graph/api/driveitem-post-children?view=graph-rest-1.0&tabs=http

35.2.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Select the client ID for which you want to create a folder. For connecting with OneDrive, refer connection documentation. Note: This field is mandatory for personal accounts.
3	Checkbox: Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token* value from a field - in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token* field to appear as Text box.
4	Refresh Token	Specify the Refresh Token provided by authorization grant flow.

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		Generate and specify Refresh Token as detailed in Appendix 1: OneDrive Refresh Token. The data type is String. This field is mandatory.
5	Button: Test Connection	Verifies whether the connection is established or not.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Folder Path	Provide OneDrive folder path and name of folder to be created. The field data type is String. This is mandatory. To specify OneDrive path to create folder: For example, OneDrive path == https://organization-my.sharepoint.com/personal/xyz/Documents/abc To create root folder == Documents/newfolder To create inner folder == abc/newfolder
2	Keep Both (if folder with same name exists, add numeric digit in folder name)	Specify from the allowed values (Yes/No) to perform the relevant action.

Output Tab:		
No.	Field Name	Description
	Output Fields	
1	Created Folder ID	Provide output field name. Default value: *CreatedFolderID*
2	Created Folder Path	Provide output field name. Default value: *CreatedFolderPath*

Known Issues

Sometimes, you may see a temporary error related to the internet connectivity and network issues. The issue arises when the hostname is unresolved and the local server does not receive a response from an authoritative server. For example, you may see any of the following messages:

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- login.microsoftonline.com.

OR

- This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server (login.microsoftonline.com)

35.3 Delete File Or Folder

35.3.1 Description

One Drive: Delete File or Folder plugin step deletes a file or folder on OneDrive.

Note:

Support is provided for the Personal Drive, however, the displayed error message is not correct.

Prerequisite Permissions:

For Delete File or Folder on OneDrive following Microsoft Graph permissions are required.

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	Files.ReadWrite, Files.ReadWrite.All
Delegated (personal Microsoft account)	Files.ReadWrite, Files.ReadWrite.All

Reference:

For Delete File Or Folder on OneDrive refer document: https://docs.microsoft.com/en-us/graph/api/driveitem-delete?view=graph-rest-1.0&tabs=http

35.3.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Select the client ID for which you want to delete a file or folder. For connecting with OneDrive, refer Appendix 1: OneDrive Refresh Token. **Note:** This field is mandatory for personal accounts.

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3	Checkbox: Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token* value from a field - in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token* field to appear as Text box.
4	Refresh Token	Generate and specify Refresh Token as detailed in Appendix 1: OneDrive Refresh Token. The data type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box (enter static value or environment variable). Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
5	Button: Test Connection	Verifies whether the connection is established or not.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	File or Folder ID/ Path	Provide OneDrive file/folder ID or path to delete file or folder. The field data type is String. This is mandatory. To delete a folder in root specify • Documents/ Else to delete a file/folder in any other path - Get OneDrive Path/ID as described in sections – • Refer Appendix 2: OneDrive Folder/File Path • You can use the 'Upload File' step to get Folder/File ID as an output of step execution. e.g. If OneDrive path == https://organization-my.sharepoint.com/personal/xyz/Documents/demofolder/File.xlsx Then provide, • Documents/demofolder/File.xlsx • demofolder/File.xlsx

35.4 Download File

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Prerequisite Permissions:

For Download File on OneDrive the following Microsoft Graph permissions are required.

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	Files.Read, Files.ReadWrite, Files.Read.All, Files.ReadWrite.All
Delegated (personal Microsoft account)	Files.Read, Files.ReadWrite, Files.Read.All, Files.ReadWrite.All

References:

- For Download File on OneDrive refer document. https://docs.microsoft.com/en-us/graph/api/driveitem-get-content?view=graph-rest-1.0&tabs=http
- For File conversion refer Microsoft documentation. https://docs.microsoft.com/en-us/onedrive/developer/rest-api/api/driveitem_get_content_format?view=odsp-graph-online

35.4.1 Description

One Drive: Download File step downloads a file on OneDrive.

Note: Support is provided for the Personal Drive, however, the displayed error message is not correct.

35.4.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Select the client ID for which you want to download a file. For connecting with OneDrive, refer Appendix 1: OneDrive Refresh Token. **Note:** This field is mandatory for personal accounts.
3	Checkbox: Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
4	Refresh Token	Generate and specify Refresh Token as detailed in Appendix 1: OneDrive Refresh Token. The data type is String. This field is mandatory.

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		If checkbox above is enabled Password field appears as Text box (enter static value or environment variable). Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
4	Button: Test Connection	Verifies whether the connection is established or not.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	OneDrive File ID/Path	Provide OneDrive file ID or path to download file. The field data type is String. This is mandatory. Simply specify filename if it is to be downloaded from root (i.e. Documents/) Else to download a file in any other path - Get OneDrive Path/ID as described in sections – • Refer Appendix 2: OneDrive Folder/File Path • You can use the 'Upload File' step to get Folder/File ID as an output of step execution. e.g. If OneDrive path is - https://organization-my.sharepoint.com/personal/xyz/Documents/demofolder/File.xlsx. Then, provide – • Documents/demofolder/File.xlsx or • demofolder/File.xlsx
2	Output Folder Path	Specify the folder to store the downloaded file. The field data type is String. This is mandatory.
3	Browse	On click of this button brings up the dialog to select the output folder path.

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<table>
<tr><td>4</td><td>Convert In Format</td><td>Specify the format in which the file is to be downloaded. The field data type is String.

For Supported file conversions refer URL mentioned in References.

Note: There are many supported file formats mentioned in Microsoft documentation. The following formats have been tested with expected results.

<table>
<tr><th>Supported source extensions for "pdf"</th><th>Supported source extensions for "jpg"</th><th>Supported source extensions for "html"</th></tr>
<tr><td>doc, docx, epub, eml, htm, html, md, msg, odp, ods, odt, pps, ppsx, ppt, pptx, rtf, tif, tiff, xls, xlsm, xlsx.</td><td>bmp, jpeg, jpg, png.</td><td>eml, md, msg.</td></tr>
</table>
</td></tr>
<tr><td>5</td><td>Delete Output Folder Contents Before Downloading</td><td>Specify from the allowed values: Yes/No.
The field data type is String. This is mandatory.</td></tr>
<tr><td>6</td><td>Add DateTimeStamp For Duplicate File</td><td>Specify from the allowed values: Yes/No.
The field data type is String. This is mandatory.</td></tr>
<tr><td>7</td><td>Add File To Result</td><td>Specify from the allowed values: Yes/No.
Specify Yes to make the file available for download on AutomationEdge server (through Requesuts menu) after workflow execution.
The field data type is String. This is mandatory.</td></tr>
<tr><td>8</td><td>Width</td><td>Provide the width of output JPG image (JPG width).
This field is mandatory for conversion to jpg. The field data type is String.</td></tr>
<tr><td>9</td><td>Height</td><td>Provide the height of output JPG image (JPG width).
This field is mandatory for conversion to jpg. The field data type is String.</td></tr>
</table>

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	File Overwritten?	Provide output field name to hold the value for file overwritten (Yes/No). Default is 'FileOverwritten'. The field data type is String.

35.5 Move File Or Folder

35.5.1 Description

One Drive: Move File or Folder step moves a file or folder in OneDrive.

Note:

- Support is provided for the Personal Drive, however, the displayed error message is not correct.
- When Rename value and non-existing Destination Folder Path is provided and Create Folder is No, then this step will execute successfully and rename the source item.

Prerequisite Permissions:

For Move File Or Folder step in OneDrive following are the permissions needed.

Permission type	**Permission (from least to most privileged)**
Delegated (work or school account)	Files.ReadWrite, Files.ReadWrite.All
Delegated (personal Microsoft account)	Files.ReadWrite, Files.ReadWrite.All

References:

https://docs.microsoft.com/en-us/graph/api/driveitem-move?view=graph-rest-1.0&tabs=http

35.5.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Select the client ID for which you want to list the drive item contents.

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		For connecting with OneDrive, refer connection documentation. Note: This field is mandatory for personal accounts.
3	Checkbox: Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token* value from a field - in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token* field to appear as Text box.
4	Refresh Token	Specify the Refresh Token provided by authorization grant flow. Generate and specify Refresh Token as detailed in Appendix 1: OneDrive Refresh Token. The data type is String. This field is mandatory.
5	Button: Test Connection	Verifies whether the connection is established or not.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Source File Or Folder ID/Path	Provide OneDrive source file or folder path or id to move file or folder in destination. The data type is String. This field is mandatory.
2	Destination Folder ID/Path	Specify the OneDrive folder path or id to move file or folder. The data type is String. This field is mandatory. To specify OneDrive Path: For example, OneDrive path == https://organization-my.sharepoint.com/personal/xyz/Documents/demofolder/File.xlsx Provide == demofolder/File.xlsx
3	Create Folder(if not exists)	Specify the allowed values to perform the action. Default value: Yes/No. The data type is String. To specify OneDrive Path to create folder: For example, OneDrive path == https://organization-my.sharepoint.com/personal/xyz/Documents/abc

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		To create root folder == Documents/newfolder To create inner folder == abc/newfolder
4	File Or Folder Name After Move (Rename)	Specify the name to rename the file or folder in destination location. The data type is String.
5	If File Or Folder Exists On OneDrive Path	Specify from allowed values: AutoRename, Overwrite, ThrowException The data type is String.

Output Tab:		
No.	Field Name	Description
	Output Fields	
1	Output File Or Folder ID	Provide output field name. Default value: *OutputFileOrFolderID*
2	Output File Or Folder Path	Provide output field name. Default value: *OutputFileOrFolderPath*

Known Issues

Sometimes, you may see a temporary error related to the internet connectivity and network issues. The issue arises when the hostname is unresolved and the local server does not receive a response from an authoritative server. For example, you may see any of the following messages:

- login.microsoftonline.com.

OR

- This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server (login.microsoftonline.com)

35.6 Rename File Or Folder

Permissions:

Rename File Or Folder step in OneDrive following are the permissions needed.

Permission type	Permission (from least to most privileged)

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Delegated (work or school account)	Files.ReadWrite, Files.ReadWrite.All
Delegated (personal Microsoft account)	Files.ReadWrite, Files.ReadWrite.All

References:

https://docs.microsoft.com/en-us/graph/api/driveitem-update?view=graph-rest-1.0&tabs=http

35.6.1 Description

One Drive: Rename File or Folder step renames a file or folder in OneDrive.

Note: Support is provided for the Personal Drive, however, the displayed error message is not correct.

This step cannot be used for rename or update root folder (i.e. Documents).

35.6.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Select the client ID for which you want to list the drive item contents. For connecting with OneDrive, refer connection documentation. Note: This field is mandatory for personal accounts.
3	Checkbox: Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token* value from a field - in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token* field to appear as Text box.
4	Refresh Token	Specify the Refresh Token provided by authorization grant flow. Generate and specify Refresh Token as detailed in Appendix 1: OneDrive Refresh Token. The data type is String. This field is mandatory.
5	Button: Test Connection	Verifies whether the connection is established or not.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	File Or Folder ID/Path	Provide OneDrive source file/folder path or id to rename file or folder. The data type is String. This field is mandatory. To specify OneDrive Path: For example, OneDrive path == https://organization-my.sharepoint.com/personal/xyz/Documents/demofolder/File.xlsx Provide == demofolder/File.xlsx
2	New Name	Specify the new name for file or folder. The data type is String. This field is mandatory.
3	If File Or Folder Exists On OneDrive Path	Specify from allowed values: AutoRename, Overwrite, ThrowException. **Note: Overwrite** only works with file. The data type is String.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Renamed Item Name	Specify the output field name. Default: *RenamedItemName*

Known Issues

Sometimes, you may see a temporary error related to the internet connectivity and network issues. The issue arises when the hostname is unresolved and the local server does not receive a response from an authoritative server. For example, you may see any of the following messages:

- login.microsoftonline.com.

OR

- This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server (login.microsoftonline.com)

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35.7 Upload File

Prerequisite Permissions:

For Upload File step on OneDrive the following Microsoft Graph permissions are required.

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	Files.ReadWrite, Files.ReadWrite.All
Delegated (personal Microsoft account)	Files.ReadWrite, Files.ReadWrite.All

References:

- For Upload File on OneDrive refer document.
- https://docs.microsoft.com/en-us/graph/api/driveitem-createuploadsession?view=graph-rest-1.0

35.7.1 Description

One Drive: Upload File Step uploads a file on OneDrive.

Note: Support is provided for the Personal Drive, however, the displayed error message is not correct.

35.7.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Select the client ID for which you want to download a file. For connecting with OneDrive, refer Appendix 1: OneDrive Refresh Token. **Note:** This field is mandatory for personal accounts.
3	Checkbox: Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Refresh Token field to appear as Text box.
4	Refresh Token	Generate and specify Refresh Token as detailed in Appendix 1: OneDrive Refresh Token. The data type is String. This field is mandatory. If checkbox above is enabled Password field appears as Text box (enter static value or environment variable). Else if

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		checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
5	Button: Test Connection	Verifies whether the connection is established or not.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	File To Upload	Provide file path to upload. The data type is String. This field is mandatory.
2	Browse	Click button to open the dialog to select the file path to upload.
3	OneDrive Folder Path	Specify the name of OneDrive folder path where the file is to be uploaded. The data type is String. This field is mandatory. To Upload File to root specify • Documents/ Else to upload File to any other path - Get OneDrive Path/ID as described in sections – • Refer Appendix 2: OneDrive Folder/File Path. • You can use the 'Upload File' step to get Folder/File ID as an output of step execution. e.g. If OneDrive path of the folder where *file is to be uploaded* is - https://organization-my.sharepoint.com/personal/xyz/Documents/demofolder Then provide, • Documents/demofolder or • demofolder e.g. If file is to be uploaded on a new folder(abc) that is to be created on OneDrive, and the path of the new folder abc is, If OneDrive path == https://organization-my.sharepoint.com/personal/xyz/Documents/abc If abc folder is to be created then provide, • Document/abc • abc

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4	Create Folder(if not exists)	Specify from allowed values: Yes/No. The data type is String.
5	File Name After Upload (Rename)	Specify the new name if file is to be renamed after upload. The data type is String.
6	If File Exists On OneDrive Path	Specify from allowed values: • AutoRename, • Overwrite • ThrowException. The data type is String.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Uploaded File ID	Specify a fieldname to hold the output - uploaded file id. Default is UploadedFileID. The data type is String.

36 Oracle

This plugin is designed to execute various operations on Oracle database.

This plugin has been tested with Oracle 12c on Windows OS.

Prerequisites:

1. Oracle 12c environment on Windows.
2. Sufficient privileges for operation to be done (preferably sysbda privileges/Dba user).
3. The pluggable database (PDB) should be open before performing any action on PDB.
4. **ojdbc6.jar** must be present in lib folder of Process Studio as well as AE agent.
5. For connecting to the Oracle Server, **OracleOraDB12homeTNSListene**r & **OracleServiceSID** should be started

36.1 Create User

36.1.1 Description

This plugin is used to create a new oracle user.

Prerequisites:

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1. Oracle 11g/12c environment on Windows
2. Oracle 12c environment on Linux.
3. Sufficient privileges to create the tablespace(preferably sysbda privileges).
4. **ojdbc6.jar** must be present in lib folder of Process Studio as well as AE agent.
5. While testing on Oracle 12c Windows/Linux the pluggable database should be open before performing any action.
6. For connecting to the Oracle Server, **OracleOraDB12homeTNSListene**r & **OracleServiceORCL** should be started

Limitations:

On Oracle 12C database the plugin works for only CDB (Container Database). It does not work for PDB (Pluggable Database).

36.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name/IP	The IP or fully qualified domain name of the Oracle database machine. This field is mandatory.
3	Port Number	The port number of the Oracle database. Port number should be a positive integer. This field is mandatory.
4	SID/ Service name	Unique database name or service name. This field is mandatory.
5	Username	The username having permission to create new User (Ex: -sysdba). This field is mandatory.
	Password:	
6	Accept Values from fields	Enable this checkbox to accept Password value from a field in the previous steps of the stream using a drop down list.
7	Password	The password for the Oracle username to authenticate. This field is mandatory. Password is entered using a widget called SecuredComboVar. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Password field appears as Text Var. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not. **NOTE:** Test Connection button does not work for previous step variables. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	New User	Username which is to be created. This field is mandatory.
2	New Password	Password for the new user to be created. This field is mandatory.

Advanced Input Tab:		
No.	Field Name	Description
	Advanced Input Fields:	
1	Default Table space	Name of the Default table space. If quota (K/M) is set then Default Tablespace is mandatory.
2	Temporary Table space	Name of the Temporary table space.
3	Quota Size	Provide a Quota size. Quota should be a positive integer. This field is mandatory.
4	Size Unit(K/M)	Provide a size unit for the quota value provided above. It can be K or M. This is visible in a tool tip as well. This field is mandatory.

NOTE:
The create user plugin executes successfully, for any combination of Temporary Tablespabe, Default tablespace and Quota fields" except when,

- Quota is provided and Default tablespace is missing.
  A popup window with error message "Invalid combination of Temporary Tablespabe, Default tablespace and Quota fields" is shown.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution

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36.2 Delete User

36.2.1 Description

The step is used to delete oracle user specified.

Limitations:

On Oracle 12C database the plugin works for only CDB (Container Database). It does not work for PDB (Pluggable Database).

36.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name/IP	The Hostname/serve name/IP of the Oracle database. This field is mandatory.
3	Port Number	The port number of the Oracle database. Port number should be a positive integer. This field is mandatory.
4	SID/ Service name	Unique database name or service name.
5	Username	The username having permission to Delete User (Ex:- sysdba). This field is mandatory.
	Password:	
6	Accept Values from fields	Enable this checkbox to accept Password value from a field in the previous steps of the stream using a drop down list.
7	Password	The password for the Oracle username to authenticate. This field is mandatory. Password is entered using a widget called SecuredComboVar. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not.

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		NOTE: Test Connection button does not work for previous step variables. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Username to delete	Username which is to be deleted from the database. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution

36.3 Create Tablespace

36.3.1 Description

This plugin is designed to create a Tablespace into Oracle Database installed on Windows Server and Linux Server OS. The Tablespace is created based on the below input criteria provided by the user.

1. SID/Service name of the Oracle Database.
2. Type of Tablespace.
3. Name of Tablespace.
4. Name and Size of Datafile.

Prerequisites

1. Oracle 11g/12c environment on Windows
2. Oracle 12c environment on Linux.
3. Sufficient privileges to create the tablespace (preferably sysbda privileges).
4. **ojdbc6.jar** must be present in lib folder of Process Studio as well as AE agent.
5. While testing on Oracle 12c Windows/Linux the pluggable database should be open before performing any action.

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6. For connecting to the Oracle Server, **OracleOraDB12homeTNSListene**r & **OracleServiceORCL** should be started

36.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name/IP	The IP or fully qualified domain name of the Oracle database machine. This field is mandatory.
3	Port Number	The port number of the Oracle database. Port number should only be a positive integer. This field is mandatory.
4	SID/ Service name	The SID/Service name of the Oracle database that uniquely identifies the database instance. This field is mandatory.
5	Username	The username of user having permission to create new Tablespace (Ex:- sysdba). This field is mandatory.
	Password:	
6	Accept Values from fields	Enable this checkbox to accept Password value from a field in the previous steps of the stream using a drop down list.
7	Password	The password for the Oracle username to authenticate. This field is mandatory. Password is entered using a widget called SecuredComboVar. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not. **NOTE:** Test Connection button does not work for previous step variables. Test Connection button only works with static values and environment variables.

Input Tab:

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No.	Field Name	Description
	Input Fields:	All input fields are mandatory.
1	Tablespace Type	The Type of Tablespace can be selected from options: Permanent/Temporary/Undo. This is visible in a tooltip.
2	Tablespace Name	The unique name of the tablespace to be created. Datafile Size and AutoExtend are mandatory.
3	Datafile Name	The unique datafile name. It is not required to mention the extensions of datafile in the plugin. It will be handled internally depend upon the type of tablespaces. Datafile size should not be Lesser than or equal to Zero. This field is mandatory.
4	Datafile size	The size of datafile greater than Zero (0) and should be entered. This field is mandatory.
	Size Unit(K/M/G/T)	A size unit such K, M, G or T should be provided in the Size Unit field for the Datafile size chosen above. This is visible in a tool tip as well. This field is mandatory.
5	AutoExtend	Automatically extends the size of datafile if set to 'ON'. It should be entered as On or Off. This is visible in a tool tip. This field is mandatory.
6	Tablespace status	The status of Tablespace can be 'Online/Offline' The default value is "Online". This is visible in a tool tip. It should be entered as Online or Offline.

Output Tab:		
No.	Field Name	Description
1	Output Fields:	
2	Result	Output field to hold the result returned from oracle.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.

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2	Cancel	On click of this button, it will cancel the window and do not save any values

36.4 Extend Tablespace

36.4.1 Description

This plugin is designed to extend a Tablespace by adding datafile or tempfile into Oracle Database located on Windows Server. The Tablespace is created based on the below input criteria provided by the user.

1. SID/Service name of the Oracle Database.
2. Name of Tablespace.
3. Name and Size of Datafile.
4. AutoExtend

Prerequisites:

1. Oracle 11g/12c environment on Windows
2. Oracle 12c environment on Linux.
3. Sufficient privileges to create the tablespace (preferably sysbda privileges).
4. **ojdbc6.jar** must be present in lib folder of Process Studio as well as AE agent.
5. While testing on Oracle 12c Windows/Linux the pluggable database should be open before performing any action.
6. For connecting to the Oracle Server, **OracleOraDB12homeTNSListene**r & **OracleServiceORCL** should be started

36.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
	Server Name/IP	The server name/IP of the Oracle database. Server Name is mandatory.
3	Port Number	The port number of the Oracle database. Port number should only be positive integer. Port Number is mandatory.
4	SID/ Service name	The SID of the Oracle database that uniquely identifies the database instance. SID is mandatory.
5	Username	The username having permission to create new Tablespace (Ex:- sysdba). Username is mandatory.

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	Password:	
6	Accept Values from fields	Enable this checkbox to accept Password value from a field in the previous steps of the stream using a drop down list.
7	Password	The password for the Oracle username to authenticate. This field is mandatory. Password is entered using a widget called SecuredComboVar. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text Var. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not. **NOTE:** Test Connection button does not work for previous step variables. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Tablespace Name	The unique datafile name. Tablespace Name is mandatory.
2	Datafile Name	The size of datafile greater than Zero (0M). It is not required to mention the extensions of datafile in the plugin. It will be handled internally depend upon the type of tablespaces. Datafile size should not be Lesser than or equal to Zero. Datafile Name is mandatory.
3	Datafile Size	Size of datafile automatically extends if Autoextend for datafile if set to 'ON' in the database. In this plugin Datafile size should not be Lesser than or equal to Zero. The size of datafile should be greater than Zero (0). Datafile Size is mandatory.
4	Size Unit(K/M/G/T)	A size unit such K, M, G or T should be provided in the Size Unit field for the Datafile size chosen above. This is visible in a tool tip as well. This field is mandatory.

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5	AutoExtend	Automatically extends the size of datafile if set to 'ON'. It should be entered as On or Off. This is visible in a tool tip. AutoExtend is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

36.5 Reset User Password

36.5.1 Description

This step resets the password of Oracle user on the given Oracle database.

Limitations:
On Oracle 12C database the plugin works for only CDB (Container Database) and not for PDB (Pluggable Database).

36.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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2	Server Name/IP	The Hostname/serve name/IP of the Oracle database. This field is mandatory.
3	Port Number	The port number of the Oracle database. Port number should be a positive integer. This field is mandatory.
4	SID/ Service name	Unique database name or service name.
5	Username	The username having permission to Delete User (Ex:- sysdba). This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password to the username to authenticate to Oracle database. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not.

NOTE: Test Connection button does not work for previous step variables. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Username for password reset	Username to reset password.
2	New Password	Provide the new password to be set.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution. Refer Appendix 1: Error Handling in IT Plugins

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36.6 Unlock User

36.6.1 Description

This step unlocks the specified Oracle user from the oracle database.

Limitations:
On Oracle 12C database the plugin works for only CDB (Container Database). It does not work for PDB (Pluggable Database).

36.6.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name/IP	The Hostname/serve name/IP of the Oracle database. This field is mandatory.
3	Port Number	The port number of the Oracle database. Port number should be a positive integer. This field is mandatory.
4	SID/ Service name	Unique database name or service name.
5	Username	The username having permission to Delete User (Ex:- sysdba). This field is mandatory.
	Password:	
6	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
7	Password	The Password to the username to authenticate to Oracle database. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
8	Test Connection	Verifies whether the connection is established or not.

NOTE: Test Connection button does not work for previous step variables. Test Connection button only works with static values and environment variables.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Username to unlock	Username of user account to be unlocked in the database. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution.

37 OTRS

Prerequisite:

- Provide access (whitelist) to the **Server Address** URL through your firewall and network.
- User must have OTRS server and login details, that is, the Username and Password to authenticate.

37.1 OTRS: Create Ticket

37.1.1 Description

OTRS: Create Ticket plugin step creates a ticket in OTRS.

37.1.2 Reference

https://doc.otrs.com/doc/api/otrs/8.0/Perl/Kernel/GenericInterface/Operation/Ticket/TicketCreate.pm.html

37.1.3 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Address	Specify the address of the OTRS server. For example, http://13.41.4.56. This field is mandatory.
3	UserName	Click the button to select the user name of the agent. This field is mandatory.

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4	Password	Specify the password for the agent. This field is mandatory.
	Button:	
5	Test Connection	Verifies whether the connection is established or not. NOTE: Test Connection button does not work for previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Accept Value of JSON	Select the checkbox, to use the JSON field as an input to build JSON. If it is not selected then, use table input to build the JSON. The checkbox is not selected, by default.
2	JSON	Provide JSON in a valid format to create a ticket. The data type is String. This field is optional. For the sample JSON. Sample JSON :- `{ "Ticket" : { "Title" : "some ticket title", "QueueID" : "ID of queue", "Queue" : "some queue name", "LockID" : "ID of lock", "Lock" : "some lock name", "TypeID" : "123", "Type" : "some type name", "ServiceID" : "123", "Service" : "some service name", "SLAID" : "123", "SLA" : "some SLA name", "StateID": "123", "State": "some state name", "PriorityID": "1", "Priority": "some priority name", "OwnerID": "123", "Owner": "some user login", "ResponsibleID": "123", "Responsible": "some user login", "CustomerUser" : "some customer user login" }, "Article" : { "CommunicationChannel" : "Email", "CommunicationChannelID" : "1", "IsVisibleForCustomer" : "1", "SenderTypeID" : "123", "SenderType" : "some sender type name", "AutoResponseType" : "some auto response type", "From" : "some from string", "To" : "some to string", "Cc" : "some cc string", "Bcc" : "some bcc string", "Subject" : "some Subject", "ContentType" : "some content type", "Body" : "some body", "MimeType" : "some mime type", "Charset" : "some charset", "HistoryType" : "some history type", "HistoryComment" : "Some history comment", "TimeUnit" : "123", "NoAgentNotify" : "1" } }`
	Table Fields	In case ‘Accept Value As JSON’ is not selected then give input using the table fields.

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3	Variable Field Name	Specify values from an environment variable or from a previous field or hardcoded name of the property you want to provide.
4	Static Field Name	Select the name of the field from the dropdown.
5	Field Value	Provide the value for the respective field name.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Ticket Number	Provide the ticket number of the created ticket. The default value is *TicketNumber*.
2	Ticket ID	Provide the ID of the created ticket. The default value is *TicketID*.

37.2 OTRS: Get Ticket

37.2.1 Description

OTRS: Get Ticket plugin step is used to get the information about a ticket in OTRS.

37.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Address	Specify the address of the OTRS server. For example, http://13.41.4.56. This field is mandatory.
3	UserName	Click the button to select the user name of the agent. This field is mandatory.
4	Password	Specify the password for the agent. This field is mandatory.
	Button:	
5	Test Connection	Verifies whether the connection is established or not. NOTE: Test Connection button does not work for previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Ticket ID	Specify the ID of the ticket in which you want to operate.

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Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Property Name	Select the property name of the field from the dropdown. Note**:** If the 'Output Field' for this respective field is not provided then the value of this field will be used to give the output through this field.
2	Output Field	If this field is provided, then that will be used to give output of step. Note: If left empty then 'Property Name' will be used to give the output through this field.

37.3 OTRS: Update Ticket

37.3.1 Description

OTRS: Update Ticket plugin step is used to update a ticket in OTRS.

37.3.2 Reference

https://doc.otrs.com/doc/api/otrs/8.0/Perl/Kernel/GenericInterface/Operation/Ticket/TicketUpdate.pm.html

37.3.3 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Address	Specify the address of the OTRS server. For example, http://13.41.4.56. This field is mandatory.
3	UserName	Click the button to select the user name of the agent. This field is mandatory.
4	Password	Specify the password for the agent. This field is mandatory.
	Button:	
5	Test Connection	Verifies whether the connection is established or not. NOTE: Test Connection button does not work for previous step fields. Test Connection button only works with static values and environment variables.

Input Tab:

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No.	Field Name	Description
	Input Fields:	
1	Ticket ID	Specify the ID of the ticket in which you want to operate. The data type is string. This field is mandatory.
2	Accept Value of JSON	Select the checkbox, to use the JSON field as an input to build JSON. If it is not selected then, use table input to build the JSON. The checkbox is not selected, by default.
2	JSON	Provide JSON in a valid format to create a ticket. The data type is String. This field is optional. For the sample JSON. Sample JSON :- `{ "Ticket" : { "Title" : "some ticket title", "QueueID" : "ID of queue", "Queue" : "some queue name", "LockID" : "ID of lock", "Lock" : "some lock name", "TypeID" : "123", "Type" : "some type name", "ServiceID" : "123", "Service" : "some service name", "SLAID" : "123", "SLA" : "some SLA name", "StateID": "123", "State": "some state name", "PriorityID": "1", "Priority": "some priority name", "OwnerID": "123", "Owner": "some user login", "ResponsibleID": "123", "Responsible": "some user login", "CustomerUser" : "some customer user login" }, "Article" : { "CommunicationChannel" : "Email", "CommunicationChannelID" : "1", "IsVisibleForCustomer" : "1", "SenderTypeID" : "123", "SenderType" : "some sender type name", "AutoResponseType" : "some auto response type", "From" : "some from string", "To" : "some to string", "Cc" : "some cc string", "Bcc" : "some bcc string", "Subject" : "some Subject", "ContentType" : "some content type", "Body" : "some body", "MimeType" : "some mime type", "Charset" : "some charset", "HistoryType" : "some history type", "HistoryComment" : "Some history comment", "TimeUnit" : "123", "NoAgentNotify" : "1" } }`
	Table Fields	In case ‘Accept Value As JSON’ is not selected then give input using the table fields.
3	Variable Field Name	Specify values from an environment variable or from a previous field or hardcoded name of the property you want to provide.
4	Static Field Name	Select the name of the field from the dropdown.
5	Field Value	Provide the value for the respective field name.

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38 PDF Utility

38.1 Decrypt PDF

38.1.1 Description

Decrypt PDF plugin step decrypts a pdf file.

38.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow. This field is mandatory.
	Input Fields:	
2	PDF Path	Provide the path of a pdf to decrypt. The data type is string. This field is mandatory.
3	Browse	Browse to select the PDF files to decrypt the password.
	Password:	
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Specify the password for the username. Password to remove password of a pdf file. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.

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2	Cancel	On click of this button, it will cancel the window and do not save any values.

38.2 Encrypt PDF

38.2.1 Description

Encrypt PDF plugin step encrypts a pdf file.

38.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow. This is a mandatory field.
	Input Fields:	
2	PDF Path	Provide the path of a pdf to encrypt. The data type is string. This field is mandatory.
3	Browse	Browse to select the PDF files to decrypt the password.
	Password:	
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Specify the password for the username. Password to remove password of a pdf file. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.

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2	Cancel	On click of this button, it will cancel the window and do not save any values.

38.3 Merge Multiple PDFs

38.3.1 Description

Merge multiple PDFs plugin step merges multiple PDF files.

Note: If any PDF is password protected, use the Decrypt PDF plugin step before passing the information to the step.

38.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow. This is mandatory field.
	Input Fields:	
2	Accept Values from folder	Check to enable the PDF Folder Path field. Else, leave unchecked to enter values in the Table Fields below.
3	PDF Folder Path	Specify the folder path containing the PDF files to merge. The data type is string. This field is mandatory.
4	Browse	Click to open a directory dialog box to select a directory containing PDF files.
	Table Fields:	Provide one or more input pdf files in a tabular list.
5	Variable Path	Select a field in pervious steps in the input stream or specify a workflow parameter or system variable for input pdf file path, in the rows.
6	Static Path	Click on the field to open the file explorer to browse the input pdf files, in the rows. **Note:** The preference is given to Static Path if both Variable Path and Static Path is provided in Table Fields.
7	Output PDF path	Specify an output path to store the merged pdf file.
8	Browse	Click to open a dialog to browse the directory to save the merged file.

Additional Input Tab		
No.	Field Name	Description

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	Input Field:	
1	Delete Output Folder Contents Before Downloading	Specify Yes to delete output folder contents before downloading. Allowed values: Yes or No. Default value: No
2	Add Date TimeStamp For Duplicate File	Specify Yes to add Date TimeStamp for duplicate files. Allowed values: Yes or No. Default value: No
3	Add File To Result	Specify Yes to add the downloaded files to result set and display download link on AutomationEdge. Allowed values: Yes or No. Default value: No **Note:** In Output File Path, if a path specified does not exists the step will create it.

Output Tab		
No.	Field Name	Description
	Output Field:	
1	File Overwritten	Specify an output field to hold the result whether file is overwritten or not. It returns Yes if the file is overwritten else No. Default value: FileOverwritten.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.

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2	Cancel	On click of this button, it will cancel the window and do not save any values.

38.4 Merge PDFs

38.4.1 Description

Merge PDFs plugin step merges two PDF files into one PDF.

Compatibility: PDF 1.5 and above

38.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	PDF 1 Path	Specify the file path of the first PDF file to be merged.
2	Button: Browse…	Clicking on this button brings up the dialog to browse the PDF file which is to be merged.
	PDF 1 Password:	
3	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept PDF Password from a field in the previous steps using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	Password	Provide PDF password if the pdf is password protected. If checkbox above is enabled Password field appears as Text box and you may provide a static value or variable. Else if checkbox above is disabled Password field appears as a drop down containing fields from previous steps. You may select the field containing the password value. If the pdf is not password protected and a password is provided it is ignored.
5	PDF 2 Path	Specify the file path of the second PDF file merged.

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6	Button: Browse…	Clicking on this button brings up the dialog to browse the PDF file which is to be merged.
	PDF 2 Password:	
7	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept PDF Password from a field in the previous steps using a drop down list. Else enable checkbox for Password field to appear as Text box.
8	Password	Provide PDF password if the pdf is password protected. If checkbox above is enabled Password field appears as Text box and you may provide a static value or variable. Else if checkbox above is disabled Password field appears as a drop down containing fields from previous steps. You may select the field containing the password value. If the pdf is not password protected and a password is provided it is ignored.
9	Output PDF Path	Specify the file path with filename to store the merged PDF file.
10	Button: Browse…	Clicking on this button brings up the dialog to browse the path of the output PDF.
	Output PDF Password:	
11	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept PDF Password from a field in the previous steps using a drop down list. Else enable checkbox for Password field to appear as Text box.
12	Password	Provide a password for the output PDF if desired and you wish to password protect the file. Password is encrypted and not stored in the workflow (.psw) file. If checkbox above is enabled Password field appears as Text box and you may provide a static value or variable. Else if checkbox above is disabled Password field appears as a drop down containing fields from previous steps. You may select the field containing the password value.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message.

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		If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

38.5 PDF To Image

38.5.1 Description

PDF: PDF To Image plugin step converts the pages of a pdf document to images of a given format.

Compatibility: PDF 1.5 and above

38.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Input PDF Path	Specify the file path of the PDF file to be converted to the image.
2	Button: Browse…	Clicking on this button brings up the dialog to browse the PDF file which is to be converted to specified image format.
	PDF Password:	
3	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept PDF Password from a field in the previous steps using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	Password	Provide PDF password if the pdf is password protected. Password is encrypted and not stored in the .psw file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is optional. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

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		If the pdf is not password protected and a password is provided it is ignored.
5	Pages	Page numbers of the pdf that are to be converted to the provided image format. This can be given as a comma separated integer value or range of page numbers (e.g. 1,2,4,10-15)
6	Output Image Format	Format of the output image. Allowed values are 'JPG', 'PNG', 'JPEG', 'BNP'
7	Resolution in DPI	Resolution in DPI for the output image to be downloaded. Resolution in DPI should be a positive integer and should not exceed 1200.
8	Output Folder Path	Specify the path of the folder where images for each page in the pdf are to be downloaded.
9	Button: Browse…	Clicking on this button brings up the dialog to browse the path of the output folder.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Number of Pages	Specify an output field to hold the number of PDF pages converted to image on successful plugin execution
2	Non-available Pages	Specify an output field to hold the page numbers of non-available PDF pages on successful plugin execution (page numbers will be displayed in comma separated integer values).
3	Error Pages	Specify an output field to hold the page numbers of erroneous PDF pages on successful plugin execution (page numbers will be displayed in comma separated integer values).

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.

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2	Cancel	On click of this button, it will cancel the window and do not save any values

38.6 PDF to Text

38.6.1 Description

PDF: PDF to Text plugin step converts a pdf type document to text.

Compatibility: PDF 1.5 and above

38.6.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Input PDF Path	Specify the path of the PDF file to be converted to text and to be stored as a text file. Alternatively, click the Browse button to browse the file path.
2	Button: Browse…	Clicking on this button brings up the dialog to browse the PDF file to be converted to text format.
	PDF Password:	
3	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept PDF Password from a field in the previous steps using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	PDF Password	Provide PDF password if the pdf is password protected. Password is encrypted and not stored in the .psw file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is optional. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. If the pdf is not password protected and a password is provided it is ignored.

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5	Keep Source Formatting	Select the checkbox to retain the source PDF formats in output text. Default status: Unchecked

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Result	Specify an output field to hold converted text upon successful plugin execution.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

38.7 Read PDF form

38.7.1 Description

Read PDF form plugin step reads text from a PDF form.

Compatibility: PDF 1.5 and above

Limitations:

- This step work only for editable PDF forms.
- This step does cannot be used for the PDFs that are split using any PDF split utility.

38.7.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

Input Tab:

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No.	Field Name	Description
	Input Fields:	
1	Input PDF Path	Specify the path of the PDF file to retrieve form data. Alternatively, click the Browse button to browse the file path. **Note:** • The pdf must be an editable PDF forms. • PDFs that are split using any PDF split utility cannot be used.
2	Button: Browse…	Clicking on this button brings up the dialog to browse the PDF file to retrieve form data.
	PDF Password:	
3	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept PDF Password from a field in the previous steps using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	PDF Password	Provide PDF password if the pdf is password protected. Password is encrypted and not stored in the workflow(.psw) file. If checkbox above is enabled Password field appears as Text box and you may provide a static value or variable. Else if checkbox above is disabled Password field appears as a drop down containing fields from previous steps. You may select the field containing the password value. If the pdf is not password protected and a password is provided it is ignored.

Output Tab:		
No.	Field Name	Description
	Tabular Output Fields:	
1	PDF Field Name	Click on this column field to bring up a dialog with the list of available form fields in the PDF. Select form fields in the table. The data type is String. This field is mandatory.
2	Output Field Name	Specify the name of an output field to hold the PDF form field value. The data type is String. This field is mandatory.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

38.8 Split PDF

38.8.1 Description

Split PDF plugin step splits a PDF document.

Compatibility: PDF 1.5 and above

38.8.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Input PDF Path	Specify full file path of the PDF file to be split. The data type is String. This field is mandatory.
2	Browse…	Click to browse the PDF file which is to be split.
3	PDF Password	Provide PDF password if the pdf is password protected. Password is encrypted and not stored in the workflow(.psw) file. If checkbox above is enabled Password field appears as Text box and you may provide a static value or variable. Else if checkbox above is disabled Password field appears as a drop down containing fields from previous steps. You may select the field containing the password value.

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		If the pdf is not password protected and a password is provided it is ignored.
4	Start Page	Specify the page number starting which the PDF is to be split. Start Page is a positive integer.
5	End Page	Specify the page number up to which the PDF is supposed to be split. End Page is a positive integer.
6	Split At Every X Page	The number specifies where to split the pages i.e., this will split the document after every X pages. Split At Every X Page is a positive integer.
7	Output Folder Path	Specify the Path of the folder where split PDFs are to be downloaded. The data type is String. This field is mandatory.
8	Browse…	Click button to browse the path of the output folder.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

39 Salesforce (REST)

Prerequisites:

- To get the Refresh Token, give Auth Scope (permission), **Perform requests at any time(refresh_token, offline_access)**, from the Salesforce instance.
- To get access to the Salesforce API, give **Manage user data via APIs(API)** permission.
- Provide access (whitelist) to the following URLs through your firewall and network.

  https://{{domainName}}.my.salesforce.com

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- Check the **SalesforceREST_TokenGeneration** document to create connected apps and refresh token.

References:

- Create Connected Apps

  https://docs.microfocus.com/UCMDB/11.0/cp-docs/docs/eng/doc_lib/Content/Remedyforce_CreateConnectedApps.htm

- Token Generation

  https://help.salesforce.com/s/articleView?id=sf.remoteaccess_oauth_web_server_flow.htm&type=5

39.1 Salesforce (REST): Create Record

39.1.1 Description

Salesforce (REST): Create Record step will create a Salesforce record.

References:

API – Create Record:

https://developer.salesforce.com/docs/atlas.en-us.api_rest.meta/api_rest/dome_sobject_create.htm

39.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Instance URL	Specify the instance URL of Salesforce instance. This field is mandatory.
2	Consumer Key/Client ID	Specify the connected app's consumer key which is found on the connected app's Manage Connected Apps page or from the connected app's definition. This field is mandatory.
3	Consumer Secret/Client Secret	Specify the connected app's consumer secret, which can be found on the connected app's Manage Connected Apps page or from the connected app's definition. This field is mandatory.
4	Refresh Token	Specify a Refresh Token to obtain a new Access Token. This field is mandatory.
5	Test Connection	Click to verify whether the connection is established or not.

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		Note: Test Connection will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Module	Select the module name to create a specific record. This field is mandatory.
2	Get	On click of this button, if the connection is successfully established it populates the list of Module names on the Salesforce instance. **Note:** Get button will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.
3	Accept fields as JSON	1. If the Checkbox is selected, the 'JSON' field will be used to create the record. 2. If the checkbox is not selected, 'Table Fields' will be used to build the JSON to insert the record.
4	JSON	Provide a valid JSON to insert the record. **Sample JSON for creating an Incident:** *{"Name":"CustomObject","Email":"abc@gmail.com","Checkbox":true,"Currency":12345678.90,"Number":1002,"Picklist_Single":"yes","Picklist_Multiple":"abc;pqr","URL":"https://www.google.com/","Geolocation_Latitude":18.511898,"Geolocation_Longitude":73.7830746,"DetectedDateTime":"2022-03-21T13:30:00.000+0000"}* **Sample Syntax:** *{"stringField1":"StringValue1","emailField2":"emailValue2","checkboxField3":checkboxValue3,"decimalField4":decimalValue4,"numberField5":numberValue5,"picklistSingleField6":"picklistSingleValue6","picklistMultipleField7":"value1;value2","urlField8":"urlValue8","dateTimeField9":"dateTimeField9"}*
	Table fields	Provide the details in the Table fields if you did not select the checkbox.
1	Variable Field Name	This field is an optional field that accepts the value from the previous field or run-time parameters.

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2	Static Field Name	On click in the input table, fields associated with the module name will populate.
3	Field Values	Value of the respective field associated with the field name. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Record ID	Output field to hold the result of the successful plugin execution. Default value: *RecordID*.

39.2 Salesforce (REST): Delete Record

39.2.1 Description

Salesforce (REST): Delete Record step deletes a single Salesforce record.

References:
API – Delete Record:

https://developer.salesforce.com/docs/atlas.en-us.api_rest.meta/api_rest/dome_delete_record.htm

39.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Instance URL	Specify the instance URL of Salesforce instance. This field is mandatory.
2	Consumer Key/Client ID	Specify the connected app's consumer key which is found on the connected app's Manage Connected Apps page or from the connected app's definition. This field is mandatory.
3	Consumer Secret/Client Secret	Specify the connected app's consumer secret, which can be found on the connected app's Manage Connected Apps page or from the connected app's definition. This field is mandatory.
4	Refresh Token	Specify a Refresh Token to obtain a new Access Token. This field is mandatory.
5	Test Connection	Click to verify whether the connection is established or not.

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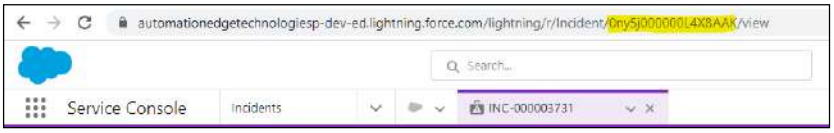
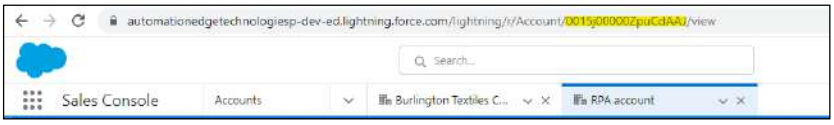
		Note: Test Connection will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Module	Select the module name from which to delete the record. This field is mandatory.
2	Get	On click of this button, if the connection is successfully established it populates the list of Module names on the Salesforce instance. **Note:** Get button will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.
3	Record ID	Specify the record ID of the record you want to delete. This field is mandatory. **Note:** Record ID can be found in the URL as shown in the following image: **For example:** a. Incident:  b. Account: 

39.3 Salesforce (REST): Get Records

39.3.1 Description

Salesforce (REST): Get Records step fetches all Salesforce record matching the criteria query.

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References:

- API – Get Records
  https://developer.salesforce.com/docs/atlas.en-us.api_rest.meta/api_rest/resources_queryall.htm

- SOQL Syntax
  https://developer.salesforce.com/docs/atlas.en-us.soql_sosl.meta/soql_sosl/sforce_api_calls_soql_select.htm

39.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Instance URL	Specify the instance URL of Salesforce instance. This field is mandatory.
2	Consumer Key/Client ID	Specify the connected app's consumer key which is found on the connected app's Manage Connected Apps page or from the connected app's definition. This field is mandatory.
3	Consumer Secret/Client Secret	Specify the connected app's consumer secret, which can be found on the connected app's Manage Connected Apps page or from the connected app's definition. This field is mandatory.
4	Refresh Token	Specify a Refresh Token to obtain a new Access Token. This field is mandatory.
5	Test Connection	Click to verify whether the connection is established or not. **Note:** Test Connection will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Specify Query	Select this check box to manually execute a query based on SOQL statements. By default, the checkbox is clear. **Note:** The SOQL Query field appears only if the checkbox is selected. Else, you need to enter details in Module and Query Condition fields.
2	Module	Select the module (table) from which you want to retrieve data.

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3	Get	Click to populate the list of module names on the Salesforce instance. **Note:** The list is populated if the connection is successfully established.
4	Query Condition	Enter any query filters you want to apply. Variables are allowed. **Query Condition** **Syntax:** *<<fieldName>>='<<fieldValue>>'* **Example:** *Subject='Rpaticket'* **Note:** • Users do not need to include **WHERE** in the **Query Condition** statement. • The output response does not display deleted records. However, if you want to view the deleted records use the following flag: **For example:** *Subject='Rest1'* ***AND isDeleted=true***
5	SOQL Query	Use the Salesforce Object Query Language (SOQL) to search Salesforce data for specific information. **Syntax:** *SELECT <<fieldName>> FROM <<moduleName>> WHERE <<fieldName>>='<<fieldValue>>'* **Example:** *SELECT IncidentNumber FROM Incident WHERE Subject='Rpaticket'* **Note:** To fetch/omit deleted records in the output response, use **isDeleted**. For example: • *SELECT Id, Subject FROM Incident WHERE Subject='Rest1' AND isDeleted=true* • *SELECT Id, Subject FROM Incident WHERE Subject='Rest1' AND isDeleted=false* • *SELECT Id,(SELECT Id FROM Contacts) FROM Account WHERE isDeleted=false*
6	Order By	Order By is used to control the order of the query results.
7	Get Top N Records	Fetch Top N records matching the criteria query.

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Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Display Name	Displays the list of fields (Display Name) associated with the Module.
2	Field Name	Displays the list of fields (Logical Name) associated with the Module.
3	Get Fields	On a click of this button, the Display Name and Field Name will be populated in the table.

39.4 Salesforce (REST): Update Record

39.4.1 Description

Salesforce (REST): Update Record step updates a single Salesforce record.

References:

API – Update Record

https://developer.salesforce.com/docs/atlas.en-us.api_rest.meta/api_rest/dome_update_fields.htm

39.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Instance URL	Specify the instance URL of Salesforce instance. This field is mandatory.
2	Consumer Key/Client ID	Specify the connected app's consumer key which is found on the connected app's Manage Connected Apps page or from the connected app's definition. This field is mandatory.
3	Consumer Secret/Client Secret	Specify the connected app's consumer secret, which can be found on the connected app's Manage Connected Apps page or from the connected app's definition. This field is mandatory.
4	Refresh Token	Specify a Refresh Token to obtain a new Access Token. This field is mandatory.
5	Test Connection	Click to verify whether the connection is established or not. **Note:**

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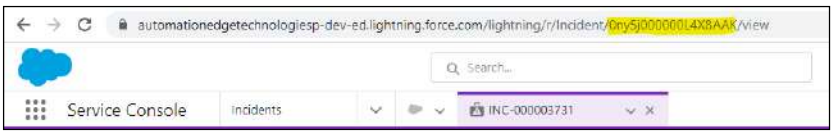
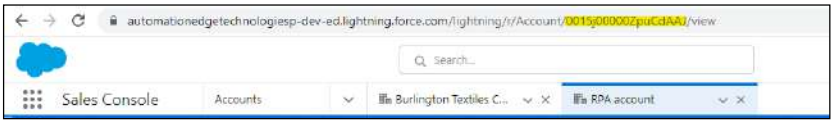
		Test Connection will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Module	Select the module name from which a specific record is to be updated. This field is mandatory.
2	Get	On click of this button, if the connection is successfully established it populates the list of Module names on the Salesforce instance.
3	Record ID	Specify the record ID of the record that is to be updated. This field is mandatory. **Note:** Record ID can be found in the URL as shown in the following image: **For example:** a. Incident:  b. Account: 
4	Accept fields as JSON	1. If the Checkbox is selected, the ‘JSON‘ field will be used to create the record. 2. If the checkbox is not selected, ‘Table Fields’ will be used to build the JSON to insert the record.
5	JSON	Provide a valid JSON to update the record. **Sample JSON for updating the record:** *{"Name":"CustomObject","Email":"abc@gmail.com","Checkbox":true,"Currency":12345678.90,"Number":1002,"Picklist_Single":"yes","Picklist_Multiple":"abc;pqr","URL":"https://www.google.com/","Geolocation_La*

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		titude":18.511898,"Geolocation_Longitude":73.7830746,"DetectedDateTime":"2022-03-21T13:30:00.000+0000"} **Sample Syntax:** *{"stringField1":"StringValue1","emailField2":"emailValue2","checkboxField3":checkboxValue3,"decimalField4":decimalValue4,"numberField5":numberValue5,"picklistSingleField6":"picklistSingleValue6","picklistMultipleField7":"value1;value2","urlField8":"urlValue8","dateTimeField9":"dateTimeField9"}*
	Table fields	Provide the details in the Table fields if you did not select the checkbox.
1	Variable Field Name	This field is an optional field that accepts the value from the previous field or run-time parameters.
2	Static Field Name	On click in the input table, fields associated with the module name will populate.
3	Field Values	Value of the respective field associated with the field name. This field is mandatory.

40 ServiceNow

Service now plugin steps are used to perform operations on ServiceNow forms such as Incident, Request, Problem, Change etc.

Compatibility: This plugin is compatible with ServiceNow – Jakarta, London Versions

Prerequisites:

- ServiceNow Login account and ServiceNow instance URL and credentials.
- Internet connectivity and access to ServiceNow instance from AutomationEdge Agent Machine.

40.1 Service Now: Create Service Request

40.1.1 Description

Service Now: Create Service Request plugin creates a ServiceNow service request.

Note:

- User must be authorized to access table: sys_dictionary for using test connection button.
- If the internet connection is down, then the response is blank and workflow is aborted.
- If the selected Field Name is mapped with any Lookup List on the backend, then it will accept only valid mapped values in the Field Value and the service request is created.

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But if an invalid value is provided to such Fields then the service request will be created without mapping any value to that field.

- If an invalid value is provided for the field type **Radio button**, then the invalid value is mapped as a new option in the radio button checklist.
- For search lookup fields, such as Users, Contacts, and Location provide the sys_id.

Limitations:

Catalog items with additional options available on multiple tabs are not supported.

40.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	ServiceNow Base URL	Specify URL of the Service Now Instance. (e.g. https://XXXXXX.service-now.com)
3	Username	Specify a username to authenticate to the Service-Now instance. This field is mandatory. • User must have appropriate permissions in ServiceNow to create a service request. • User must be authorized to access table: sys_dictionary
	Password:	
4	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	The Password to the username to authenticate to ServiceNow. Password is encrypted and not stored in the .psw file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and a Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box. Else if checkbox above is disabled Password a field appears as a drop down to select fields from previous steps.
	Button:	
6	Test Connection	Click Test Connection Button to verify whether the connection is established or not. ServiceNowBase URL, Username and Password fields are mandatory. Once connection is established

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		All requisite forms and fields in Input and Output fields are populated. **Note:** Test Connection button, does not work for fields coming from previous steps as these field values can only be accessed when workflow is in running state. Static values and environment variables are allowed. Once input and output field values are populated the connection fields may be replaced with previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Catalog Name	Specify the Catalog name in which the catalog item is present.
2	Get	Click to populate the list of catalog names available on the ServiceNow instance. **Note:** The field is populated if the connection is successfully established. The user must be authorized to access the specified catalog name.
3	Category Name	Specify the name of the category in which the catalog item is present.
4	Get	Click to populate the list of category names on the ServiceNow instance. **Note:** The field is populated if the connection is successfully established.
5	Subcategory Name	Specify the subcategory name in which the catalog item is present.
6	Get	Click to populate the list of Subcategory names on the ServiceNow instance. **Note:** The field is populated if the connection is successfully established.
7	Catalog Item Name	The Catalog Item name to create a service request. **Note:** Provide the correct hierarchy path of the parent Catalog/Category/Subcategory Name to get the list of all Catalog Item Names.
8	Get	Click to populate the list of Catalog Item names on the ServiceNow instance. **Note:** The field is populated if the connection is successfully established.

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9	Accept Fields As JSON	If the Checkbox is selected, the 'JSON' field will be used to create a service request. If the checkbox is not selected 'Table Fields' will be used to build the JSON to create a service request.
10	JSON	Provide JSON in a valid format to create a service request. **Note:** Provide a display name for the keys in the JSON. **Sample JSON:-** {"Additional software requirements":"Test data"," Adobe Acrobat":true}
	Table Fields	**Note:** If 'Static Field Name' and 'Variable Field Name', both are provided in the same row in 'Table Fields' then 'Static Field Name' will be considered to build the JSON to create a service request.
11	Variable Field Name	This field is optional and accepts the value as a field or variable. The data type is String. This field is optional.
12	Static Field Name	On click of the cell in the input table, fields associated with Catalog Item will populate. The data type is String. This field is optional.
13	Field Value	Valid values for the field associated with the field name.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Request Number	Holds the request number of a service request created in ServiceNow. Default value: RequestNumber
2	Sys ID	Holds the sys id of a service request created in ServiceNow. Default value: SysID
3	Result	Holds the result of a service request created in ServiceNow. Default value: Result

Confirmation Buttons:		
No.	Field Name	Description
1	OK	Click OK to confirm Delete operation. **Note:** User must have appropriate permissions in ServiceNow to create a request.
2	Cancel	Click Cancel to Cancel the operation.

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40.2 Service Now: Delete Record

40.2.1 Description

Service Now: Delete Record plugin step deletes a record in a selected Application in Service Now (e.g. Incident, Request, Problem, Change etc.). Users can delete a record from the selected Application based on user permissions.

40.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	ServiceNow Base URL	Specify URL of the Service Now Instance. (e.g. https://XXXXXX.service-now.com)
3	Username	Specify a username to authenticate to the Service-Now instance. This field is mandatory. • User must have appropriate permissions in ServiceNow to delete a record through 'ServiceNow: Delete Record' step. • User must be authorized to access table: sys_dictionary
	Password:	
4	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	The Password to the username to authenticate to ServiceNow. Password is encrypted and not stored in the .psw file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and a Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box. Else if checkbox above is disabled Password a field appears as a drop down to select fields from previous steps.
	Button:	
6	Test Connection	Click Test Connection Button to verify whether the connection is established or not. ServiceNowBase URL, Username and Password fields are mandatory. Once connection is established All requisite forms and fields in Input and Output fields are populated. **Note:** Test Connection button, does not work for fields coming from previous steps as these field values can only be accessed

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		when workflow is in running state. Static values and environment variables are allowed. Once input and output field values are populated the connection fields may be replaced with previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	A form name needs to be selected from the form explorer in which a document/record is to be deleted. A form explorer is opened by clicking the Get button. **Note:** Listeners on Form Name do not work for previous step variables, static values or environment variables.
2	Button: Get	Click Get Forms Button to open Form explorer window. Select a form from the form names displayed or filter form names using the filter field.
3	Criteria Field	Select a field from the Field Explorer window associated with the selected form.
4	Button: Get	Click button to open Field Explorer window populated with the list of fields associated with the Form Name on the ServiceNow instance.
5	Criteria Value	Specify the valid value for the selected field. If an invalid value is provided, then no result record is returned. Additionally, provide an appropriate value to this field so as to make a unique qualification that fetches a distinct Record. **Note:** This Criteria Fields and Criteria Value make a search query on the selected form. And if the number of records returned is exactly one then that record is deleted else the workflow is aborted.

Confirmation Buttons:		
No.	Field Name	Description
1	OK	Click OK to confirm Delete operation. **Note:** User must have appropriate permissions in ServiceNow to delete a record through ServiceNow Delete Plugin.
2	Cancel	Click Cancel to Cancel the operation.

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40.3 Service Now: Download Attachments

40.3.1 Description

Service Now: Download Attachment plugin step downloads all attachments associated with a ServiceNow record.

40.3.2 Configurations

Connection:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
2	ServiceNow Base URL	Specify URL of the Service Now Instance. (e.g. https://XXXXXX.service-now.com)
3	User Name	Specify a username to authenticate to the Service-Now instance. This field is mandatory. • User must have appropriate permissions in ServiceNow to Download Attachments through 'ServiceNow: Download Attachments' step. • User must be authorized to access table: sys_dictionary
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Provide the Cherwell Password for the user. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
7	Button: Test Connection	Click Test Connection Button to verify whether the connection is established or not. ServiceNowBase URL, Username and Password fields are mandatory. Once connection is established All requisite forms and fields in Input and Output fields are populated. **Note:** Test Connection button, does not work for fields coming from previous steps as these field values can only be accessed when workflow is in running state. Static values and environment variables are allowed. Once input and output field values are populated the connection fields may be replaced with previous step fields.

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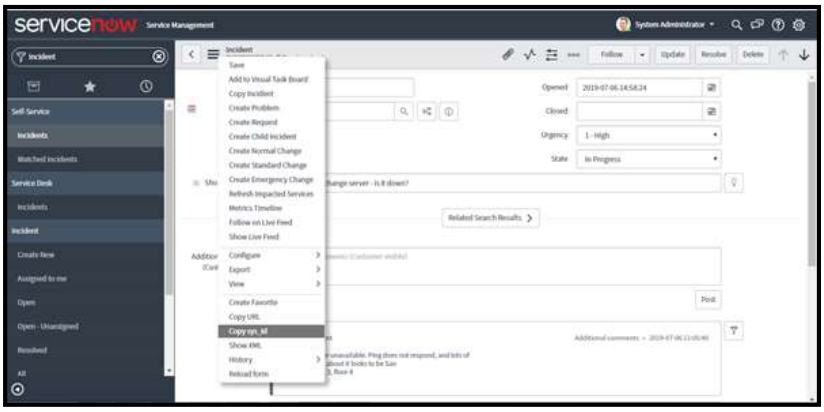
Input Fields:		
No.	Field Name	Description
1	Form Name	Select a Form name from the Form Explorer window for downloading all attachments associated with a record of this form**.** This field is mandatory.
2	Button: Get	Click Get Forms Button to open Form Explorer window with form names. Select a form name displayed or filter form names using the filter field.
3	Table Sys ID	The Sys ID of the record for which associated attachments need to be downloaded**.** The following screenshot shows that sys_id can be copied by right clicking on a particular record and clicking Copy sys_id option. 
4	Output Folder Path	Specify a folder path where files are to be downloaded or browse for a folder using the Browse File… button. Alternatively, when the folder path is coming from an input stream, you may select the field containing the folder path from the drop down list
5	Button: Browse Folder	Click this button to browse for a folder to download to a Cherwell Business Object file.
6	Delete Output Folder Contents before downloading	Allowed values: 'Yes', 'No'. Specify Yes to delete output folder contents before downloading else Specify No.
7	Add Date TimeStamp for Duplicate Files	Allowed values: 'Yes', 'No'. Specify Yes to add Date TimeStamp for Duplicate Files.
8	Add File To Result	Allowed values: 'Yes', 'No'. Specify Yes to add the downloaded files to result set and display download link on AE otherwise else select No.

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Output Tab:		
No.	Field Name	Description
1	Total Files	Specify a field name to store the total number of files in the Cherwell Business Object. This field is mandatory.
2	Downloaded Files	Specify a field name to store the number of Downloaded Files. This field is mandatory.
3	Overwritten Files	Specify a field name to store the number of Overwritten Files in the output folder. This field is mandatory.

Result:
There is no explicit output Result field in this plugin. Plugin results weather success or error can be captured using Set Workflow Result. Errors can be captured in error handling as discussed in Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

40.4 Service Now: Input

40.4.1 Description

Service Now: Input plugin step fetches chosen fields for all ServiceNow records matching criteria query.

40.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.

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	Connection:	
2	ServiceNow Base URL	Specify URL of the Service Now Instance. (e.g. https://XXXXXX.service-now.com)
3	Username	Specify a username to authenticate to the Service-Now instance. This field is mandatory. • User must have appropriate permissions in ServiceNow to fetch the selected fields. • User must be authorized to access table: sys_dictionary
	Password:	
4	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	The Password to the username to authenticate to ServiceNow. Password is encrypted and not stored in the .psw file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
6	Test Connection	Click Test Connection Button to verify whether the connection is established or not. ServiceNow Base URL, Username and Password fields are mandatory. Once connection is established All requisite forms and fields in Input and Output fields are populated. **Note:** Test Connection button, does not work for fields coming from previous steps as these field values can only be accessed when workflow is in running state. Static values and environment variables are allowed. Once input and output field values are populated the connection fields may be replaced with previous step fields.

Fields Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	A form name needs to be selected from the form explorer from which a document/record is to be retrieved. A form explorer is opened by clicking the Get Forms button.

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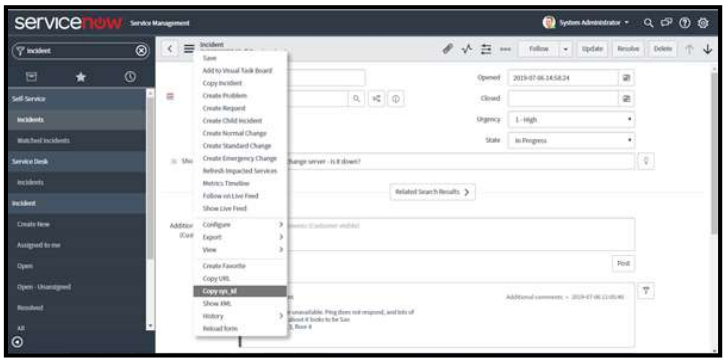
		Note: Listeners on Form Name do not work for previous step variables, static values or environment variables.
2	Button: Get	Click Get Forms Button to open Form explorer. Select a form from the form names displayed or filter form names using the filter field.
3	Criteria Query	Fetch all ServiceNow Records matching Criteria Query. You can create simple Criteria Query as shown in the following samples, • short_description=RPA Test • number= INC0010097 • sys_id= ef43c6d40a0a0b5700c77f9bf387afe3 The following screenshot shows that sys_id can be copied by right clicking ☰ on a particular record.  Alternatively create filters in SNOW UI and copy Criteria Query from the UI. This is especially useful for complex query criteria with one or more AND, OR criteria. The following is a screen shot of the Incident Application. You can see the filter sign on top of the column headings. It shoes the filter Active=True has been applied on All incidents.

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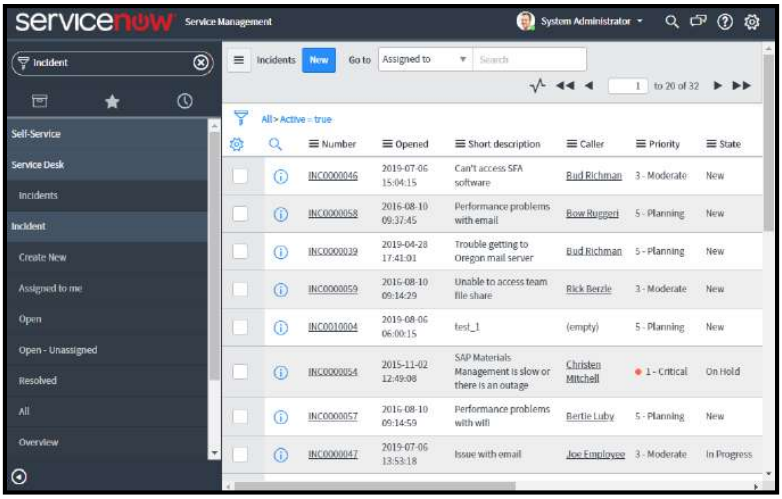
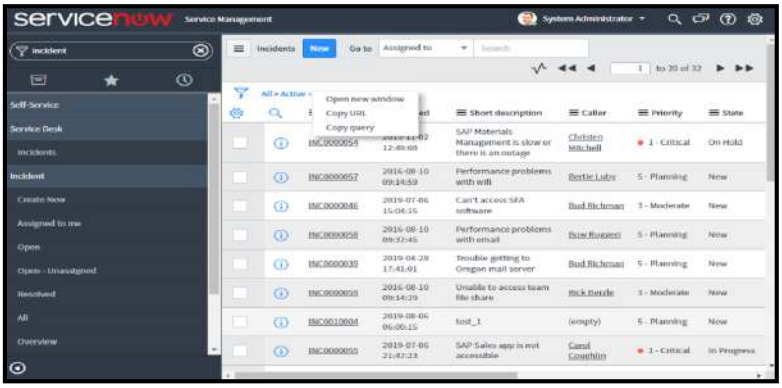


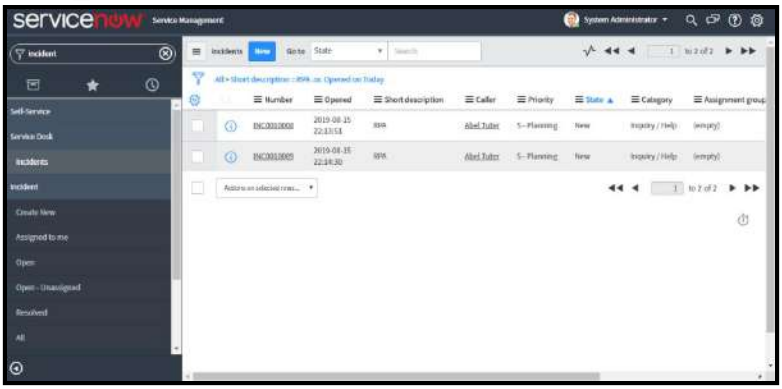
You may right click on the filter and click Copy query to copy the Criteria Query.



You may paste this as Criteria Query in the plugin step.

- active=true

You can now see the filtered list with filter applied: Short_description=RPA or Opened Today.



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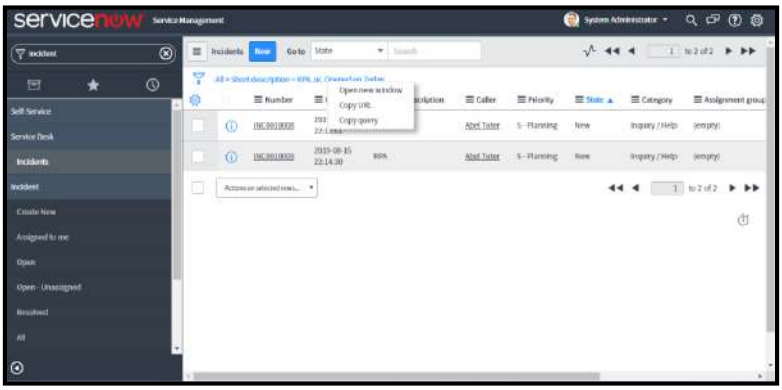
		Right click on the filter and click Copy query.  The Criteria query is as follows: short_description=RPA^ORopened_atONToday@javascript:gs.be ginningOfToday()@javascript:gs.endOfToday() You may now use it in the Plugin step. For a detailed description of how to create Criteria query in SNOW UI refer Appendix 5: Build Criteria Query in SNOW UI.
		Additional information for Criteria Query: To get the display value and/or the actual value of the field in the response, use the following query parameter in the Criteria Query: **sysparm_display_value={valid_value}**. **Valid values**: a] true: Returns the display values for all fields. b] false: Returns the actual values from the database of ServiceNow. c] all: Returns both actual and display values. Default value: false Syntax: <Criteria Query>&sysparm_display_value=<valid_value> Example query: number=INC0010001&sysparm_display_value=true There is no preferred method for setting sysparm_display_value. However, specifying the display value may cause performance issues since it is not reading directly from the database of ServiceNow and may include referencing other fields and records.

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		For more information on Service Now: Input step, see https://developer.servicenow.com/dev.do#!/reference/api/rome/rest/c_TableAPI#table-GET. • Sort records in ascending or descending order using the ORDERBY clause. See the following example: state=1^assignment_group=d625dccec0a700a222a0f7900d06^ORDERBYnumber state=1^assignment_group=d625dccec0a700a222a0f7900d06^ORDERBYDESCnumber
4	Fetch Records Batch Size	Input step will give the output based upon the batch size. By this provision, it will fetch the records in the provided batches. Default value: 10 **Note:** Very large **Fetch Records Batch Size** values can impact system performance.
5	Get Top N Records	Specify a value, which will fetch the top number of records in the provided batches.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Field Name	Click Field Name to populate the list of fields associated with the Form Name on the ServiceNow instance. The name of the particular field that has to be fetched should be selected. Multiple fields can be selected from the list displayed on click. The selected fields will be the output parameters of this plugin. **Note:** If selected field name is Lookup Field (caller_id, assigned to, etc.) then the field values for such fields is not displayed, the URL to get the actual value of that field is returned. The users can use Rest Client to fetch the actual values.
2	Output Field	The output field name to store the fields chosen in the Field Name. These output fields will hold the respective values of the Field name selected.

Confirmation Buttons:		
No.	Field Name	Description

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1	OK	Click OK to confirm Get (Fetch Records) operation. **Note:** User must have appropriate permissions in ServiceNow to fetch a record through ServiceNow Get Plugin.
2	Cancel	Click Cancel to Cancel the operation.

40.5 Service Now: Insert Record

40.5.1 Description

ServiceNow: Insert Record plugin step inserts a Record (e.g. Incident, Request, Problem, Change etc.) in ServiceNow application.

40.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	ServiceNow Base URL	Specify URL of the Service Now Instance. (e.g. https://XXXXXX.service-now.com)
3	Username	Specify a username to authenticate to the Service-Now instance. This field is mandatory. • User must have appropriate permissions in ServiceNow to insert a record through 'ServiceNow: Insert Record' step. • User must be authorized to access table: sys_dictionary
	Password:	
4	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	The Password to the username to authenticate to ServiceNow. Password is encrypted and not stored in the .psw file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	

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5	Test Connection	Click Test Connection Button to verify whether the connection is established or not. ServiceNow Base URL, Username and Password fields are mandatory. Once connection is established All requisite forms and fields in Input and Output fields are populated. **Note:** Test Connection button, does not work for fields coming from previous steps as these field values can only be accessed when workflow is in running state. Static values and environment variables are allowed. Once input and output field values are populated the connection fields may be replaced with previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	A form name needs to be selected from the form explorer in which a document/record is to be created. A form explorer is opened by clicking the Get Forms button. **Note:** Listeners on Form Name do not work for previous step variables, static values or environment variables.
2	Button: Get	Click Get Forms Button to open Form explorer. Select a form from the form names displayed or filter form names using the filter field.
3	Accept fields as JSON	Enable checkbox to accept field names as JSON input.
4	JSON	If 'Accept Fields as JSON' checkbox is enabled this field is activated. Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (") enclosure with a colon separating them. Key-value pairs de**Note:** fields and their values to populate. Provide all the required or mandatory fields as well as other fields to be updated as keys in the JSON. **Note:** • Lookup field values must exactly match existing values in the Service Now instance else it is ignored. • The JSON could be from any input step such as Generate rows, Text File input, Excel Input et al. In SNOW steps JSON text can only be accepted from input fields from previous steps and not as files directly. At least one input field must be provided. Either using JSON or Table Fields.

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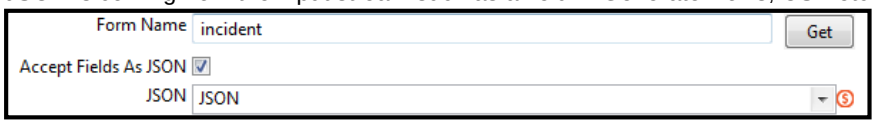
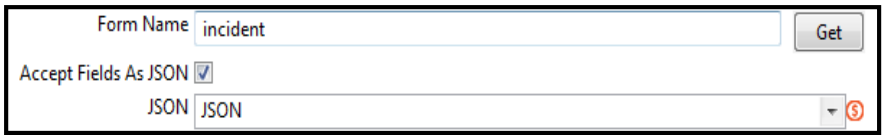
		Sample JSON text for inserting an Incident record: Following is a sample JSON for inserting a record in Incident form. This JSON text has one key-value pair denoting field and its value to populate. e.g. on Incident application there could be JSON field as shown below where field JSON is coming from the input stream such as a field in Generate Rows, CSV etc.  Sample value of JSON: {“short_description”:”Test_Incident”} Sample JSON text for inserting a Problem record: Following is a sample JSON for inserting a record in Problem form. This JSON text has one key-value pair denoting field and its value to populate.  For example for Problem {"short_description":"Hello There!","work_**Note:**s":"Test Inserting Record."}
	Tabular fields:	
5	Variable Field Name	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable.
6	Static Field Name	On click of this column field, it opens a dialog with the list of available form fields of the provided Form Name. The name of the fields to be inserted should be selected. Multiple fields can be selected from the list displayed on click. The selected field’s values below will be inserted in the record. Validation: The plugin validates field names from remedy server. If ‘Static Field Name’ and ‘Variable Field Name’, both are provided in the same row in ‘Table Fields’ then ‘Static Field Name’ will be considered to build the JSON to insert a record.
7	Field Value	Provide field values to be inserted in the corresponding chosen fields.

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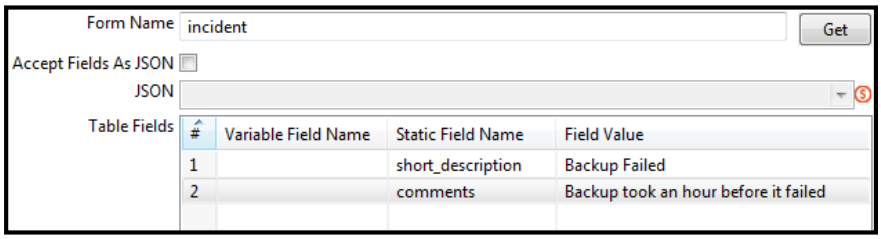
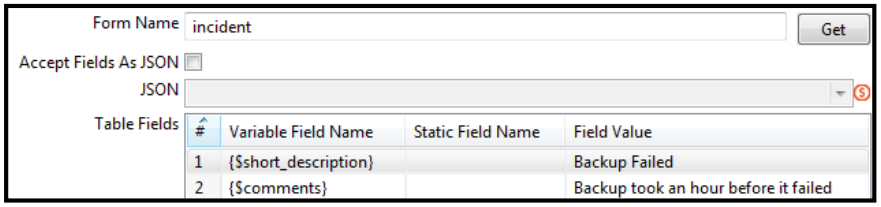
		Following, is a sample snapshot of input tab with Table Fields with Static Field Name.  Following, is a sample snapshot of input tab with Table Fields with Variable Field Name.  **Note:** If the selected Field Name is mapped with any Lookup List on the backend then, in that case, it will accept only valid mapped values in the Field Value and the ticket will be created. But if an invalid value is provided to such Fields then the ticket will take the default value mapped with that Field on the backend.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Record Number	Holds the document/record id of the request created in service-now.
2	Sys ID	Each record in the instance is identified by a unique 32-character GUID (Globally Unique ID) called a Sys ID (sys_id). Holds the sysid of the record created.
3	Result	Provide a field name to hold the result of the step.

Confirmation Buttons:		
No.	Field Name	Description
1	OK	Click OK to confirm Insert operation. **Note:** User must have appropriate permissions in ServiceNow to insert a record through ServiceNow Insert Plugin.

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2	Cancel	Click Cancel to Cancel the operation.

40.6 Service Now: Update Record

40.6.1 Description

Service Now: Update Record plugin step is designed to update a record in a ServiceNow Appllication such as Incident, Request, Problem, Change etc.

40.6.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	ServiceNow Base URL	Specify URL of the Service Now Instance. (e.g. https://XXXXXX.service-now.com)
3	Username	Specify a username to authenticate to the Service-Now instance. This field is mandatory. • User must have appropriate permissions in ServiceNow to update a record through 'ServiceNow: Update Record' step. • User must be authorized to access table: sys_dictionary
	Password:	
4	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	The Password to the username to authenticate to ServiceNow. Password is encrypted and not stored in the .psw file.Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
6	Test Connection	Click Test Connection Button to verify whether the connection is established or not. ServiceNow Base URL, Username and Password fields are mandatory. Once connection is established All requisite forms and fields in Input and Output fields are populated.

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		Note: Test Connection button, does not work for fields coming from previous steps as these field values can only be accessed when workflow is in running state. Static values and environment variables are allowed. Once input and output field values are populated the connection fields may be replaced with previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Form Name	A form name needs to be selected from the form explorer in which a document/record is to be updated. A form explorer is opened by clicking the Get Forms button. **Note:** Listeners on Form Name do not work for previous step variables, static values or environment variables.
2	Button: Get	Click Get Forms Button to open Form explorer. Select a form from the form names displayed or filter form names using the filter field.
3	Criteria Field	Double click on this field to get the list of fields associated with the selected form.
4	Button: Get	
5	Criteria Value	Specify the valid value for the selected field. If an invalid value is provided then no result record is returned. Additionally, provide an appropriate value to this field so as to make a unique qualification that fetches a distinct Record. **Note:** This Criteria Fields and Criteria Value will make a search query on the selected form. And if the number of records returned is exactly one then that record is updated else the workflow is aborted.
6	Accept fields as JSON	Enable checkbox to accept field names as JSON input.
7	JSON	If 'Accept Fields as JSON' checkbox is enabled this field is activated. Choose a field containing the JSON text. JSON text should contain key-value pairs enclosed by double quotes (") enclosure with a colon separating them. Key-value pairs de**Note:** fields and their values to populate. Provide all the required or mandatory fields as well as other fields to be updated as keys in the JSON. **Note:** • Lookup field values must exactly match existing values in the Service Now instance else it is ignored.

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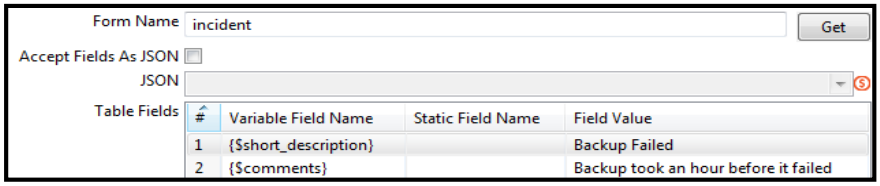
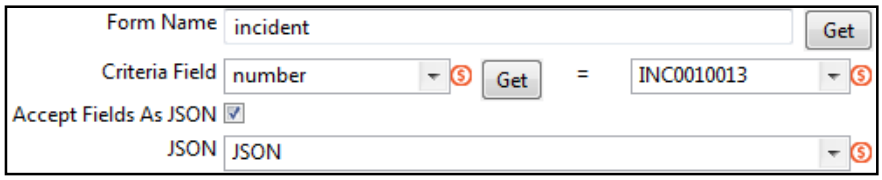
		• The JSON could be from any input step such as Generate rows, Text File input, Excel Input et al. In SNOW steps JSON text can only be accepted from input fields from previous steps and not as files directly. At least one input field must be provided. Either using JSON or Table Fields. Following is a sample JSON text for updating an Incident record: This JSON text has one key-value pair denoting field and its value to populate. e.g. on Incident application there could be JSON field as shown below where field JSON is coming from the input stream such as a field in Generate Rows, CSV etc.  Sample value of JSON for incident application: {“short_description”:”Test_JSON_update_Incident”} Following is a sample JSON for updating a record in Problem application. e.g. on Problem Application there could be JSON field as shown below, where field JSON is coming from the input stream such as a field in Generate Rows, CSV etc.  Sample value of JSON1for Problem application: {"short_description":"Hello There!","work_**Note:**s":"Test updating Record."}
	Table Fields:	
8	Variable Field Name	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable.
9	Static Field Name	On click of this column field, it opens a dialog with the list of available form fields of the provided Form Name. The name of the fields to be inserted should be selected. Multiple fields can be selected from the list displayed on click. The selected field’s values below will be inserted in the record. Validation: The plugin validates field names from remedy server.

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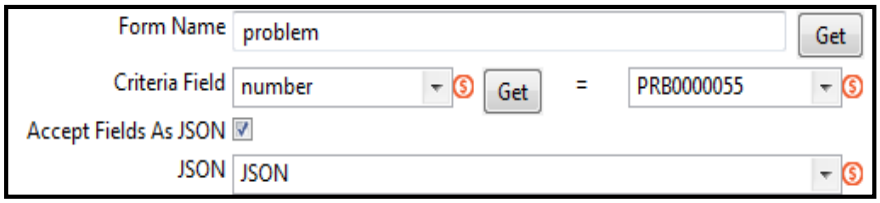
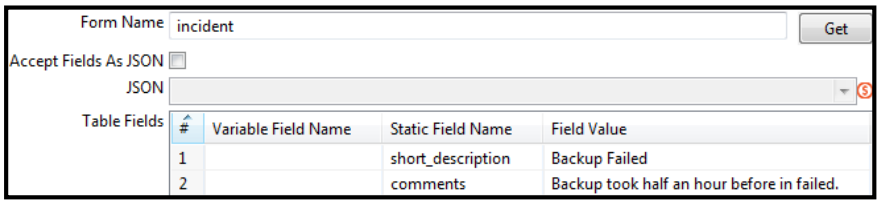
10	Field Value	Provide field values to be updated in the corresponding chosen fields. Following, is a sample snapshot of input tab with Table Fields with Static Field Name.  Following, is a sample snapshot of input tab with Table Fields with Variable Field Name.  **Note:** If the selected Field Name is mapped with any Lookup List on the backend then, in that case, it will accept only valid mapped values in the Field Value and the ticket will be created. But if an invalid value is provided to such Fields then the ticket will take the default value mapped with that Field on the backend.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	SysId Field Name	Each record in the instance is identified by a unique 32-character GUID (Globally Unique ID) called a Sys ID (sys_id). Holds the sysid of the record created.
2	Result	Provide a field name to hold the result of the step.

Confirmation Buttons:		
No.	Field Name	Description
1	OK	Click OK to confirm Update operation. **Note:** User must have appropriate permissions in ServiceNow to update a record through ServiceNow Update Plugin.

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2	Cancel	Click Cancel to Cancel the operation.

40.7 Service Now: Upload Attachment

40.7.1 Description

Service Now: Upload Attachment step is used to upload a file to a Service Now record.

40.7.2 Configurations

Connection:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
2	ServiceNow Base URL	Specify URL of the Service Now Instance. (e.g. https://XXXXXX.service-now.com)
3	User Name	Specify a username to authenticate to the Service-Now instance. This field is mandatory. • User must have appropriate permissions in ServiceNow to upload attachments through 'ServiceNow: Upload Attachments' step. • User must be authorized to access table: sys_dictionary
	Password:	
4	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Provide the Cherwell Password for the user. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as a Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
6	Button: Test Connection	Click Test Connection Button to verify whether the connection is established or not. ServiceNow Base URL, Username and Password fields are mandatory. Once connection is established All requisite forms and fields in Input and Output fields are populated. **Note:** Test Connection button, does not work for fields coming from previous steps as these field values can only be accessed

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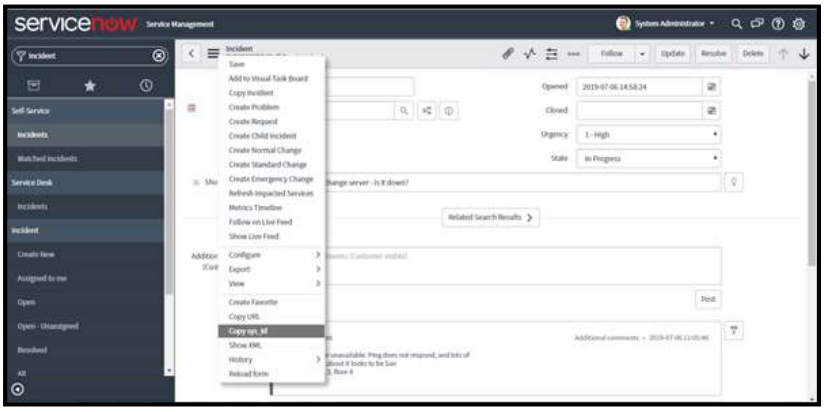
		when workflow is in running state. Static values and environment variables are allowed. Once input and output field values are populated the connection fields may be replaced with previous step fields.

Input Fields:		
No.	Field Name	Description
1	Form Name	Select a Form name from the Form Explorer window for which we need to upload an attachment.
2	Button: Get	Click this button, to populate the list of form names in the ServiceNow instance in the Form Explorer window.
3	Table Sys ID	The Sys ID of the record to which an attachment needs to be uploaded**.** The following screenshot shows that sys_id can be copied by right clicking ☰ on a particular record. 
4	Input File Path	• Provide the absolute file path for the file to be uploaded as an attachment. • Alternately, Browse the file using the Browse button. • Alternatively when the filename is coming from an input stream, you may select the field containing the filename from the drop down list.
5	Button: Browse	Click button to browse a file to be uploaded to a SNOW instance.

Result:
There is no explicit output Result field in this plugin. Plugin results weather success or error can be captured using Set Workflow Result. Errors can be captured in error handling as discussed in Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

41 SharePoint Online

SharePoint Online Plugin has been designed to perform and automate SharePoint Online operations.

Compatibility: SharePoint Online

Following sections describe the Plugin steps:

41.1 Copy File or Folder

41.1.1 Description

Copy File or Folder plugin step copies a file or folder from SharePoint online Document Library source path to a destination Document Library path on SharePoint Online.

41.1.2 Prerequisites

- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)

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Work or School account	Delegated	Files.ReadWrite, Files.ReadWrite.All, Sites.ReadWrite.All

41.1.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow. This is a mandatory field.
	Connection:	
2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field. If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path For example: firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field.
2	Source Document Library Name	Specify the name of source Document Library in which file or folder is present. This is a mandatory field.
3	Source File Or Folder Path	Specify the full source path of the file or folder. For example, .\:"Folder1/Example_1.txt", "Folder1/Folder2". This is a mandatory field.

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		Note: The source path will start from root of Document Library.
4	Destination Document Library Name	Specify the name of the destination Document Library in which file or folder is to be copied. This is a mandatory field.
5	Destination Folder Path	Specify the full destination path of folder. The path must start from the root of Document Library. For example,.\: "Folder1/Folder2". To copy at root, give path as '/'. This is a mandatory field.
	Additional Fields	
6	Create Folder (if not exist)	Create folder in the given document library if it does not exist. Default value: No
7	File Or Folder Name after Copy	Specify the name of file or folder after copy. **Note:** In case of file give name along with extension.

41.2 Create Document Library or List

41.2.1 Description

Document Library or List plugin step creates a Generic List and Document Library in a specified SharePoint Online site.

41.2.2 Prerequisites

- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	**Permission type**	**Permission (from least to most privileged)**
Work or School account	Delegated	Sites.Manage.All

41.2.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow. This is a mandatory field.
	Connection:	

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2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field. If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the sharepoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field. **Note:** For root site (Communication Site), no need to give {sharepoint site path}
2	Name	Select the name of the Document Library or List. This is a mandatory field.
3	Template Type	Select the type of template. Available values are: documentLibrary, genericList. This is a mandatory field.

Output Tab:	
Field Name	Description
Output Fields:	
List ID	Specify the ID of the created Document Library or List.

41.3 Create Folder

41.3.1 Description

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Create Folder plugin step creates folders at Document Library present in a specified site in SharePoint Online.

41.3.2 Prerequisites

- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)
Work or School account	Delegated	Files.ReadWrite, Files.ReadWrite.All, Sites.ReadWrite.All

41.3.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow. This is a mandatory field.
	Connection:	
2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field. If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:

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No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field. **Note:** For root site (Communication Site), no need to give {sharepoint site path}
2	Document Library Name	Select the name of Document Library in which you want to perform the operation. This is a mandatory field.
3	SharePoint Path	Path of Folder to create(from root of Document Library). (ex. : "Folder1'/Folder2" or "Folder1"). This is a mandatory field.

41.4 Delete Document Library or List

41.4.1 Description

Delete Document Library or List plugin step deletes a Document Library or List from the specified site in SharePoint Online.

41.4.2 Prerequisites

- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)
Work or School account	Delegated	Sites.Manage.All, Sites.FullControl.All

41.4.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow. This is a mandatory.
	Connection:	

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2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field. If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field. **Note:** For root site (Communication Site), no need to give {sharepoint site path}.
2	Document Library/List ID	Select ID of Document Library/List.

41.5 Delete File or Folder

41.5.1 Description

Delete File or Folder plugin step deletes a Document Library from the specified site in SharePoint Online.

41.5.2 Prerequisites

- SharePointOnline instance with access details.

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- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)
Work or School account	Delegated	Files.ReadWrite, Files.ReadWrite.All, Sites.ReadWrite.All

41.5.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow. This is a mandatory field.
	Connection:	
2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field. If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field.

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		Note: For root site (Communication Site), no need to give {sharepoint site path}
2	Document Library Name	Select the name of Document Library in which to perform operation. This is a mandatory field.
3	File Or Folder Path	Select the path of File or Folder to be deleted (from root of Document Library). (Example: "Folder1'/Folder2" or "Folder1/Example.txt"). This is a mandatory field.

41.6 Delete List Column

41.6.1 Description

Delete List Column plugin step deletes a column from the Generic List present in the specified site in SharePoint Online.

41.6.2 Prerequisites

- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)
Work or School account	Delegated	Sites.Manage.All, Sites.FullControl.All

41.6.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field.

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		If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field. **Note:** For root site (Communication Site), no need to give {sharepoint site path}.
2	List Name/ID	Select the name or ID of Generic List in which to perform operation. This is a mandatory field.
3	Column Name	Select the name of column to be deleted. This is a mandatory field.

41.7 Delete List Item

41.7.1 Description

Delete List Item plugin step deletes an Item from the Generic List present in a specified site in SharePoint Online.

41.7.2 Prerequisites

- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

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Account Type	Permission type	Permission (from least to most privileged)
Work or School account	Delegated	Sites.ReadWrite.All

41.7.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow. This is a mandatory field.
	Connection:	
2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field. If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field. **Note:** For root site (Communication Site), no need to give {sharepoint site path}
2	List Name/ID	Select the name or ID of Generic List in which to perform operation. This is a mandatory field.
3	Item ID	Select ID of item to be deleted. This is a mandatory field.

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41.8 Download File

41.8.1 Description

Download File plugin step downloads a file from the Document Library present in a specified site in SharePoint Online.

41.8.2 Prerequisites

- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)
Work or School account	Delegated	Files.Read, Files.ReadWrite, Files.Read.All, Files.ReadWrite.All, Sites.Read.All, Sites.ReadWrite.All

41.8.2.1 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow. This is a mandatory field.
	Connection:	
2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field. If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.

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5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field. **Note:** For root site (Communication Site), no need to give {sharepoint site path}
2	Document Library Name	Select the name of source Document Library in which file is present. This is a mandatory field.
3	SharePoint File Path	Select the full path (from root of Document Library). (ex: "Folder1/Example_1.txt", "Folder1/Folder2"). This is a mandatory field.
4	Output Folder Path	Select the local machine full folder path where file to be downloaded. If folders are not present, then WF will create the folder. This is a mandatory field. **Note:** If path is invalid then given folders will be created at Process Studio directory.

Additional Input tab:		
No.	Field Name	Description
	Input Fields:	
1	Delete Output Folder Contents before Downloading	Select the local folder from which all files and folder are deleted before downloading. Allowed value is ‘’Yes’’, ’’No’’.
2	Add DateTimeStamp for Duplicate Files	Select to add timestamp to newly downloaded folder if local folder contains same file name. If value is false, then file will be overwritten. Allowed value is ‘’Yes’’, ’’No’’.
3	Add File To Result	Select to add downloaded file in result of workflow. Allowed value is ‘’Yes’’, ’’No’’.

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Output tab:	
Field Name	Description
Output Fields:	
File Overwritten	Specify if file is overwritten and returns Yes else No.

41.9 Get List Items

41.9.1 Description

Get List Items plugin step gets items from the Generic List present in the specified site in SharePoint Online.

41.9.2 Prerequisites

- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)
Work or School account	Delegated	Sites.Read.All, Sites.ReadWrite.All
Personal Microsoft account	Delegated	Sites.Read.All, Sites.ReadWrite.All

41.9.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow. This is a mandatory field.
	Connection:	
2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field.

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		If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field. **Note:** For root site (Communication Site), no need to give {sharepoint site path}.
2	List Name/ID	Select the name or ID of Generic List for which you want to get items. This is a mandatory field.
3	Select Columns	Select if you want to get only specific columns then give name of those columns. Use comma (,) to give multiple columns. By default, this step will get all columns. If any column that does not exist in the result set, then it will be ignored.

Output tab:	
Field Name	Description
Output Fields:	
JSON Output	Specify the output JSON in this field. Default value is 'JSONOutput'.

41.10 Move File or Folder

41.10.1 Description

Move File or Folder plugin moves a file or folder from source path to destination path in same Document Library present in a specified site in SharePoint Online.

41.10.2 Prerequisites

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- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)
Work or School account	Delegated	Files.ReadWrite, Files.ReadWrite.All, Sites.ReadWrite.All

41.10.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify name of the step. This name has to be unique in a single workflow. This is a mandatory step.
	Connection:	
2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field. If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path

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		Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field. **Note:** For root site (Communication Site), no need to give {sharepoint site path}. This is a mandatory field.
2	Document Library Name	Select the name of Document Library in which file/folder is present. This is a mandatory field.
3	Source File or Folder Path	Select the full source path (from root of Document Library). (ex.\:"Folder1/Example_1.txt", "Folder1/Folder2"). This is a mandatory field.
4	Destination Folder Path	Select the full destination path of folder (from root of Document Library). (ex.\: "Folder1/Folder2"). To move at root give path as '/'. This is a mandatory field.

Additional Input tab:		
No.	Field Name	Description
	Input Fields:	
1	Create Folder (if not exist)	Select if you want create folder in given document library if it does not exist.
2	File Or Folder Name after Move	Select the name of moved file/folder. **Note:** In case of file, give full name along with extension.

41.11 Rename File or Folder

41.11.1 Description

Rename File or Folder plugin rename a File or Folder from Document Library present in a specified site in SharePoint Online.

41.11.2 Prerequisites

- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)

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Work or School account	Delegated	Files.ReadWrite, Files.ReadWrite.All, Sites.ReadWrite.All

41.11.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow. This is a mandatory field.
	Connection:	
2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field. If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.
4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field. **Note:** For root site (Communication Site), no need to give {sharepoint site path}.
2	Document Library Name	Select name of Document Library in which to perform operation. This is a mandatory field.

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3	File Or Folder Path	Select path of file or folder to be renamed (from root of Document Library). (ex.: "Folder1'/Folder2" or "Folder1/Example.txt"). This is a mandatory field.
4	New Name	Select the new name for same file or folder. This is a mandatory field.

41.12 Upload File

41.12.1 Description

Upload File plugin uploads a file from local machine to Document Library present in a specified site in SharePoint Online.

41.12.2 Prerequisites

- SharePointOnline instance with access details.
- Refresh Token generated using ClientID, which is generated after creating App in Azure AD.
- You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)
Work or School account	Delegated	Files.ReadWrite, Files.ReadWrite.All, Sites.ReadWrite.All

41.12.3 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Specify the name of the step. This name has to be unique in a single workflow. This is a mandatory field.
	Connection:	
2	Client ID	Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 17: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.
3	Accept value as variable/static	Select the checkbox if you want enter the Refresh Token name in the Refresh Token field. If you do not select the checkbox, then you can select the refresh token in the Refresh Token field.

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4	Refresh Token	Specify or select the Refresh Token generated using ClientID, which is generated after creating App in Azure AD. This is a mandatory field.
5	Test Connection	Verifies whether the connection is established or not. **Note:** This connection will not work for the previous step variables. The button will only work with static values and environment variables.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Site Relative URL	Select the SharePoint site-relative URL. {Tenant Name}.sharepoint.com:/{Sharepoint Site Path Ex-firstUser.sharepoint.com:/sites/TestingSite. This is a mandatory field. **Note:** For root site (Communication Site), no need to give {sharepoint site path}.
2	Document Library Name	Select name of Document Library in which to perform operation. This is a mandatory field.
3	File To Upload	Browse and select full local file path to be uploaded. (ex.\: "C:\\Temp\\Sample.txt"). This is a mandatory field.
4	SharePoint Folder Path	Select SharePoint path to upload the file at (from root of Document Library). (ex.\: "Folder1/Folder2"). To copy at root, give path as '/'. This is a mandatory field.

Additional Input tab		
No.	Field Name	Description
1	If File Exists on SharePoint	Select if file is already present at destination path. Allowed Values: 'fail', 'replace', 'rename'.

42 Smartsheet

Prerequisites:

Users must have:

- Smartsheet account with subscription, with an Administrative access.
- Access token. Go to the following link to generate your access token: https://smartsheet.redoc.ly/#section/API-Basics/Raw-Token-Requests

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42.1 Smartsheet: Add Columns

42.1.1 Description

Smartsheet: Add Columns step adds columns in the Smartsheet.

Reference:

- **API Documentation:** https://smartsheet.redoc.ly/tag/columns/#operation/columns-addToSheet
- **Allowed column type:** https://smartsheet.redoc.ly/tag/columns/#operation/columns-addToSheet

42.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Accept value as variable/static	Leave checkbox unchecked to accept Access Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Token field to appear as Text box.
2	Access Token	Generate the access token in your Smartsheet account. This field is mandatory.
3	Test Connection	Click to verify whether the connection is established or not. **Note:** Test Connection will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	SheetID	Provide the Sheet ID that uniquely identifies the Smartsheet. The field is mandatory.
2	Get	Click to fetch the list of available sheet ID.
3	Accept fields as JSON	3. If the Checkbox is selected, the ‘JSON‘ field will be used to add column(s). 4. If the checkbox is not selected ‘Table Fields’ will be used to build the JSON to add column(s).
4	JSON	Provide a valid JSON to insert the record.

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		Sample Syntax: [{"title": "New MultiPicklist Column 1","type": "MULTI_PICKLIST","options": ["First", "Second", "Third"],"index": 4},{"title":"New Date Column","type":"DATE","index":4}]
5	Table fields	Provide the details in the Table fields if you did not select the checkbox.
5.a	Column Name	Specify the name of the column title for which you want to set the column. The field is mandatory.
5.b	Data Type	Datatype of respective field associated with the Column Name. This field is mandatory. **Allowed Column types:** "CHECKBOX" , "CONTACT_LIST" , "DATE" , "MULTI_CONTACT_LIST", "MULTI_PICKLIST" , "PICKLIST" , "TEXT_NUMBER".
5.c	Display Order	Specify the column index or position. This number is zero-based. **NOTE:** If we provide multiple column names, then the display order value / number should be same.
5.d	Options	Specify the options if you have selected *MULTI_PICKLIST* or *PICKLIST* in the **Data Type** field.

42.2 Smartsheet: Append Row

42.2.1 Description

Smartsheet: Append Row step appends row in the Smartsheet.

Note: Execute the following API in the Postman and get the Column IDs from the response.
API URL: https://api.smartsheet.com/2.0/sheets/{{SmartSheetID}}

Reference:
https://smartsheet.redoc.ly/#section/CopyOrMoveRowResult-object

42.2.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Accept value as variable/static	Leave checkbox unchecked to accept Access Token value from a field in the previous steps of the stream using a drop down list.

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		Else enable checkbox for Access Token field to appear as Text box.
2	Access Token	Generate the access token in your Smartsheet account. This field is mandatory.
3	Test Connection	Click to verify whether the connection is established or not. **Note:** Test Connection will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Smartsheet ID*	Provide the Smartsheet ID that uniquely identifies the Smartsheet Subscription. This field is mandatory.
2	Accept fields as JSON	1. If the Checkbox is selected, the 'JSON' field will be used to insert the row at the top or bottom. 2. If the checkbox is not selected 'Table Fields' will be used to build the JSON to insert the row at the top or bottom.
4	JSON	Provide a valid JSON to insert the record. **Sample Syntax:** [{"toTop|toBottom":true,"cells": [{"columnId":columnIdValue, "value":"cellValue"},{"columnId":columnIdValue,"value":BooleanValue}]}] Example:[{"toTop":true, "cells": [{"columnId":6907388603197316, "value":"TestValue"},{"columnId":6907388603197318, "value":true}]}]";
5	Table fields	Provide the details in the Table fields if you did not select the checkbox.
5.a	Variable Field Name	This field is an optional field that accepts the value from the previous field or run-time parameters.
5.b	Static Field Name	On click in the input table, fields associated with the module name will populate.
5.c	Field Values	Value of the respective field associated with the field name. This field is mandatory.
6	To TOP*	Provide either *true* or *false*. If user selects: • *true* row is added at the top. • *false* row is added at the bottom.

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Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Row ID	Output field to hold the result of the successful plugin execution. Default value: *RowID*.

42.3 Smartsheet: Create Sheet In Folder

42.3.1 Description

Smartsheet: Create Sheet In Folder step creates a sheet in the Smartsheet folder.

Reference:
API Documentation: https://smartsheet.redoc.ly/tag/sheets/#operation/create-sheet-in-folder

42.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Accept value as variable/static	Leave checkbox unchecked to accept Access Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Access Token field to appear as Text box.
2	Access Token	Retrieve access token from OAuth token API call. This field is mandatory.
3	Test Connection	Click to verify whether the connection is established or not. **Note:** Test Connection will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Folder ID	Specify the ID of the folder in which you want to create the sheet. This field is mandatory. **Note:** To get the folder ID:

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		i. Access your Smartsheet account and select the folder in which you want to create the sheet. ii. Right-click on the selected folder, and click **Properties**. iii. In the properties dialog, copy the ID from the **Folder ID** field.
2	Include	Specify the additional parameters to create a sheet from a template. The parameters are specified as comma-separated list of elements that you can copy from the template. This field is optional. **Allowed values:** • *Attachments* • *cellLinks* • *data* • *discussions* • *filters* • *forms* • *ruleRecipients* • *rule* **OR** • *All* **Note:** If you specify *All*, then you cannot specify any other parameter. Therefore, specify appropriate parameter(s), as required.
3	Template Type	Specify or select the template type. This field is mandatory.
4	Get	Click to fetch and populate the list of available type of templates.
5	Sheet Name	Specify the name of the sheet to be created in Smartsheet. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Smartsheet ID	Output field to hold the result of the successful plugin execution. Default value: *Smrtsheet ID*

42.4 Smartsheet: Get Sheet

42.4.1 Description

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Smartsheet: Get Sheet step fetches all rows present in the Smartsheet.

References:
https://smartsheet.redoc.ly/#operation/getSheet

42.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Access Token	Generate the access token in your Smartsheet account. This field is mandatory.
2	Test Connection	Click to verify whether the connection is established or not. **Note:** Test Connection will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Smartsheet ID*	Provide the Smartsheet ID that uniquely identifies the Smartsheet Subscription. This field is mandatory.

Output Tab:		
No.	Field Name	Description
	Output Fields:	
1	Field Name	On clicking in the input table, fields associated with the Column name will populate.
2	Output Field Name	Value of the respective field associated with the field name.
3	Get Fields	Click to get all fields from the Smartsheet instance.

42.5 Smartsheet: Update Cell

42.5.1 Description

Smartsheet: Update Cell step updates content in the specified cell of Smartsheet.

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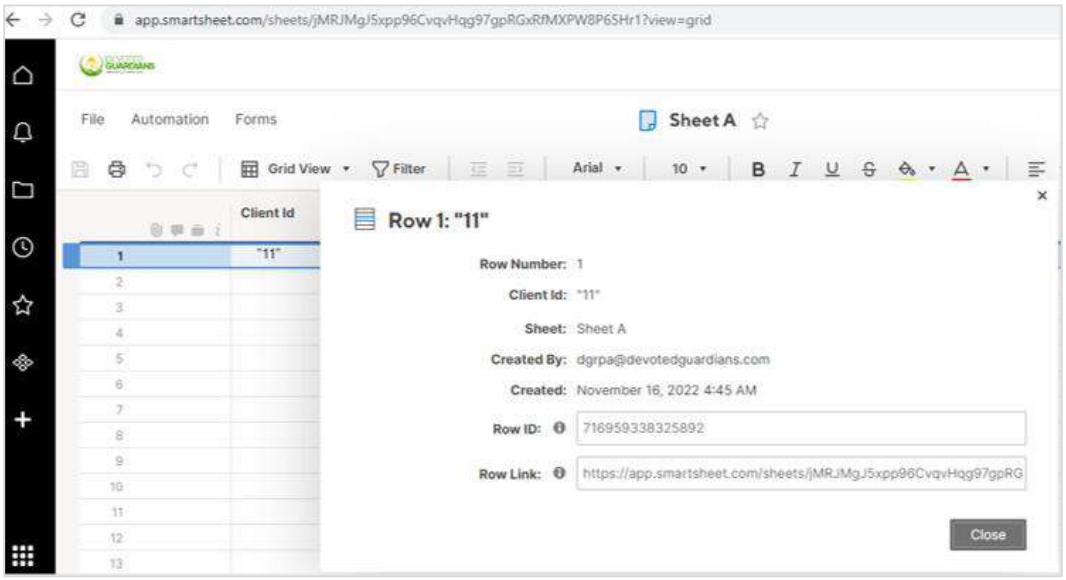
Note:

- To get the row ID, click on Serial number cell → Click (⋮) in the Row Menu → Select Properties → Copy the Row ID.



- Execute the following API in the Postman and get the Column IDs from the response.
  API URL: https://api.smartsheet.com/2.0/sheets/{{SmartSheetID}}

References:

https://smartsheet.redoc.ly/#operation/update-rows

42.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Access Token	Generate the access token in your Smartsheet account. This field is mandatory.
2	Test Connection	Click to verify whether the connection is established or not. **Note:** Test Connection will only work with static (hardcoded) values and environment variables. It will not work for the previous step fields.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Smartsheet ID	Provide the Smartsheet ID that uniquely identifies the Smartsheet Subscription. This field is mandatory.
2	Accept fields as JSON	1. If the Checkbox is selected, the 'JSON' field will be used to insert the row at the top or bottom. 2. If the checkbox is not selected 'Table Fields' will be used to build the JSON to insert the row at the top or bottom.
4	JSON	Provide a valid JSON to insert the record. **Sample Syntax:** [{"id":rowID, "cells": [{"columnId":columnIdValue, "value":"cellValue"}]}] Example: [{"id":"1950407805822852", "cells": [{"columnId":6907388603197316, "value":"TestValue"},{"columnId":6907388603197318, "value":true}]}]";
5	Table fields	Provide the details in the Table fields if you did not select the checkbox.
5.a	Variable Field Name	This field is an optional field that accepts the value from the previous field or run-time parameters.
5.b	Static Field Name	On click in the input table, fields associated with the module name will populate.
5.c	Field Values	Value of the respective field associated with the field name. This field is mandatory.
6	Row ID*	Select the row you want to update. This field is mandatory.
7	Get	Click to populate the list of Row Id in the Smartsheet.

43 SolarWinds

Solar Winds is a NOC monitoring tool

The steps of this plugin have been tested on SolarWinds Orion SAM 6.6 for Server and Application Monitoring (SAM)

Prerequisites:
Solarwinds instance and access details.
Running Solarwinds-Orion-SAM-6.6 instance with valid access details.

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43.1 Get Alerts

43.1.1 Description

The plugin is designed to get alerts of particular type either All Alerts or only Active Alerts.

Prerequisites: Solarwinds instance and access details

43.1.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	Provide the Solarwinds instance name/IP/hostname.
	Port	The port number of the Solarwinds instance should be provided. Port number should only be an integer.
3	Username	The username of Solarwinds instance to authenticate.
	Password:	
4	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	The Password to the username to authenticate. Password is encrypted and not stored in the .psw file. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

Input:		
No.	Field Name	Description
	Input:	
1	Alert Type(String)	Select Alert Type either All or Active. This field is mandatory.

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2	Button: Get Fields	Clicking on this button populates Alerts fields/attributes of the particular selected Alert Type in the 'Field Name' Field in the table below.
3	Field Name(String)	The name of the particular field/attribute that has to be fetched should be selected. Multiple fields can be selected from the list displayed on click. The selected fields will be the output parameters of this plugin. Choosing at least one field/attribute is mandatory. (e.g. for Active Alerts we could fetch fields/attributes such as, AlertActiveID, AlertObjectID,Acknowledged, AcknowledgedBy, AcknowledgedDataTime, Acknowledged**Note:**, TriggeredDateTime, TriggeredMessage, NumberOf**Note:**s, LastExecutedEscalationLevel (e.g. for All Alerts we could fetch fields/attributes such as, AlertObjectID, AlertID, EntityUri, EntityType, EntityCaption, EntityDetailsUrl, EntityNetObjectId, RelatedNodesUri, RelatedNodeUrl, RelatedNodeId, RelatedNodeDetsilsUrl, RelatedNodeCaption, RelatedEntityUri, RelatedEntityType, TriggeredCount, LastTriggeredDateTime, Context, AlertNode etc.)

NOTE:-

1. Get Fields button does not work for the previous step fields. The button only works with static values and environment variables.
2. Every time the "Alert Type field changes. The "Get Fields" button needs to be clicked and the field list needs to be updated accordingly.

43.2 Get Nodes

The plugin is designed to get nodes configured on SolarWinds.

Prerequisites: SolarWinds instance and access details.

43.2.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	Provide the Solarwinds instance name/IP/hostname.

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	Port	The port number of the Solarwinds instance should be provided. Port number should only be an integer.
3	Username	The username of Solarwinds instance to authenticate.
	Password:	
4	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	The Password to the username to authenticate. Password is encrypted and not stored in the .psw file. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

Input:		
No.	Field Name	Description
	Input:	
1	Button: Get Fields	Clicking on this button populates fields/attributes in the 'Field Name' Field in the table below for all the Server and Application Nodes.
2	Field Name (String)	The name of the particular field/attribute that has to be fetched should be selected in the table. Multiple fields can be selected from the list displayed above upon click. The selected fields will be the output parameters of this plugin. Choosing at least one field/attribute is mandatory. (e.g. for Nodes we could fetch fields/attributes such as, NodeID, NodeName, DisplayName, Category, NodeDescription, IP Address to name just a few.)

Note:-

1. Get Fields button does not work for the previous step fields. The button only works with static values and environment variables.
2. Every time the "Get Fields" button needs to be clicked and the field list needs to be updated accordingly.

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43.3 Acknowledge Alerts

43.3.1 Description

The plugin is designed to Acknowledge Alerts.

Prerequisites: Solarwinds instance and access details.

43.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection configuration:	
2	Server Name	Provide the Solarwinds instance name/IP/hostname.
3	Port	The port number of the Solarwinds instance should be provided. Port number should only be an integer.
4	Username	The username of Solarwinds instance to authenticate.
	Password:	
5	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	The Password to the username to authenticate. Password is encrypted and not stored in the .psw file.Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

Input:		
No.	Field Name	Description
	Input:	
1	AlertObjectID	AlertObjectID of the alert to be acknowledged. This field is not mandatory.

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2	Button: GetAlertObjectID	Clicking on this button populates the AlertObjectID's of the Alerts. This field is not mandatory.
3	Acknowledge **Note:**	Acknowledge **Note:** for the alert to be acknowledged. This field is not mandatory.

Note:-

3. Get Fields button does not work for the previous step fields. The button only works with static values and environment variables.
4. Every time the "Get Fields" button needs to be clicked and the field list needs to be updated accordingly.

Output:		
No.	Field Name	Description
1	Result	This is an output field to hold the result of the successful plugin execution (AlertObjectID has been handled successfully). Default Value is "Result" when no values for this field are passed.

43.4 Execute SWQL Query

The plugin is designed to execute Solarwinds SWQL queries

Prerequisites:
In addition to the general perquisites mentioned at SolarWinds plugin level, SWQL studio.

43.4.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Server Name	Provide the Solarwinds instance name/IP/hostname.
3	Port	The port number of the Solarwinds instance should be provided. Port number should only be an integer.
4	Username	The username of Solarwinds instance to authenticate.
	Password:	

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5	Checkbox: Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
6	Password	The Password to the username to authenticate. Password is encrypted and not stored in the .psw file. Password is entered using a widget. The widget handles both Text Var(static value or environment variable) and Combo(drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.
	Button:	
7	Test Connection	Test connection with username and password provided. Verifies whether the connection is available or not. Server name, Port number, username and password are mandatory. **Note:** Test Connection Button does not work if the connection fields are populated from previous steps.

Input Tab:		
No.	Field Name	Description
	Input Field:	
1	SWQL Query	The SWQL Query based on which required SolarWinds data will be retrieved. This field is mandatory. SWQL query should be valid. Following are some sample queries on different objects, • select top 1000 AlertActiveID, AlertObjectID, Acknowledged, AcknowledgedBy, AcknowledgedDateTime, Acknowledged**Note:**, TriggeredDateTime, TriggeredMessage, NumberOf**Note:**s, LastExecutedEscalationLevel From Orion.AlertActive • SELECT AlertHistoryID, EventType, Message, TimeStamp, AccountID, AlertActiveID, AlertObjectID, ActionID FROM Orion.AlertHistory

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		• SELECT NodeID, Caption, IPAddress, Status FROM Orion.Nodes ORDER BY Caption

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

44 TOPdesk

TOPdesk plugin steps have been designed to perform tasks in an instance of TOPdesk server.

Prerequisite

- TOPdesk instance with valid credentials.
- Valid Application Password (Token) generated from TOPdesk instance.
- Valid Admin and Supervisor SaaS permissions to generate application passwords and to perform necessary operations.

44.1 TOPdesk: Download Attachments

44.1.1 Description

TOPdesk: Download Attachments will download attachments associated with a TOPdesk incident.

Reference URL

https://developers.TOPdesk.com/explorer/?page=incident#/attachments/get_incidents_number__incidentNumber__attachments

44.1.2 Configurations

General Tab:

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Base URL of TOPdesk instance. (e.g. https://xxxx.TOPdesk.net for on cloud instance) The data type is string. This field is mandatory.
3	Username	Specify the username of the TOPdesk instance that has administrative permission to authenticate. The data type is string. This field is mandatory.
	Password:	
4	Accept Values as variable/ static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Application Password (Token)	Application Password (Token) of the TOPdesk instance is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory. **Steps to create password in TOPdesk:** To create password, go to the following URL: https://developers.TOPdesk.com/tutorial.html#show-collapse-usage-createAppPassword

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Incident Number / ID	Specify the incident ID or number of the file to download. The data type is string. This field is mandatory.
2	Output Folder Path	Specify the folder to store the downloaded file. The data type is string. This field is mandatory.
3	Browse	Click this button and select the output folder path.

Additional Input Tab

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No.	Field Name	Description
	Additional Input Fields:	
1	Delete Output Folder Contents Before Downloading	Specify Yes to delete output folder contents before downloading else specify No. Allowed values are: Yes or No Default value: No
2	Add DateTimeStamp For Duplicate File	Specify Yes to add Date TimeStamp for duplicate files. Allowed values are: Yes or No Default value: No
3	Add File To Result	Specify Yes to add the downloaded files to the result set and display the download link on AE otherwise else select No. Allowed values are: Yes or No Default value: No

Output Tab		
No.	Field Name	Description
	Output Field:	
1	Total Files	Specify the output field to hold the result of the successful plugin execution. The default label value for this field is “TotalFiles”.
2	Download Files	Specify the output field to hold the result of the successful plugin execution. The default label value for this field is “DownloadFiles”.
3	File Overwritten	Specify the output field to hold the result of the successful plugin execution. The default label value for this field is “FileOverwritten”.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

44.2 TOPdesk: Get Incidents

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44.2.1 Description

TOPdesk: Get Incidents step fetches the list of incidents for the specified criteria.

Reference URL

- https://developers.TOPdesk.com/explorer/?page=incident
- https://developers.TOPdesk.com/tutorial.html#query

44.2.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Base URL of TOPdesk instance. (e.g. https://xxxx.TOPdesk.net for on cloud instance) The data type is string. This field is mandatory.
3	Username	Specify the username of the TOPdesk instance that has administrative permission to authenticate. The data type is string. This field is mandatory.
	Password:	
4	Accept Values as variable/ static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Application Password (Token)	Application Password (Token) of the TOPdesk instance is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory. **Steps to create password in TOPdesk:** To create password, go to the following URL: https://developers.TOPdesk.com/tutorial.html#show-collapse-usage-createAppPassword

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Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Criteria Query	Specify the criteria query expression for the users TOPdesk query operator to perform query operations. Incidents matching the criteria query will be outputted in output. 1. status==secondLine 2. briefDescription=sw=PS 3. number==I2201-047 4. briefDescription=sw=PS;id==8ce6c299-2ed2-460d-82b5-4e9f93c13370
2	Fetch Records Batch Size	Fetch the records in the provided batch.
3	Get Top N Records	Fetch the Top N records matching the criteria query.

Output Tab		
No.	Field Name	Description
	Output Field:	
1	Incident Details	Hold the result of successful plugin execution. Default value: IncidentDetails

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

44.3 TOPdesk: Upload Attachment

44.3.1 Description

TOPdesk: Upload Attachment uploads an attachment for an incident on a specified TOPdesk incident.

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Note:

- The step does not support custom fields and other fields, such as phone number, mobile number, and email because the Metadata API call which provides the field details is not available. Field metadata is required to prevent hardcoding and develop a plugin step generically.
- Some Display Values on UI are not the same as that of Logical values in API. For example, the display value on UI for the Category field is Software but the Logical value (API) for that field (Category) is Software specific.

Reference URL

https://developers.TOPdesk.com/explorer/?page=incident#/incident/patch_incidents_id__id_

44.3.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Base URL of TOPdesk instance. (e.g. https://xxxx.TOPdesk.net for on cloud instance) The data type is string. This field is mandatory.
3	Username	Specify the username of the TOPdesk instance that has administrative permission to authenticate. The data type is string. This field is mandatory.
	Password:	
4	Accept Values as variable/ static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Application Password (Token)	Application Password (Token) of the TOPdesk instance is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory. **Steps to create password in TOPdesk:** To create password, go to the following URL: https://developers.TOPdesk.com/tutorial.html#show-collapse-usage-createAppPassword

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Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Incident Number/ID	Specify the incident number or ID of the file to be uploaded.
2	File To Upload	Specify the name of the file that is to be uploaded. Provide local file path of the file to upload.
3	Browse	Click the button to select the path of the file which is to be uploaded.

Output Tab	
Field Name	Description
Output Fields:	
Attachment ID	Specify the output field to hold the result of the successful plugin execution. The default label value is “AttachmentID”.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

45 Twilio

Twilio Plugin can be used for perform communication functions using Twilio Cloud Communications platform. Twilio allows software developers to programmatically make and receive phone calls, send and receive text messages, and perform other communication functions.

Prerequisites:

- Twilio instance with access details.
- Twilio API Credentials which includes, Account SID and Auth Token.

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- Twilio account with a sender number and appropriate access.

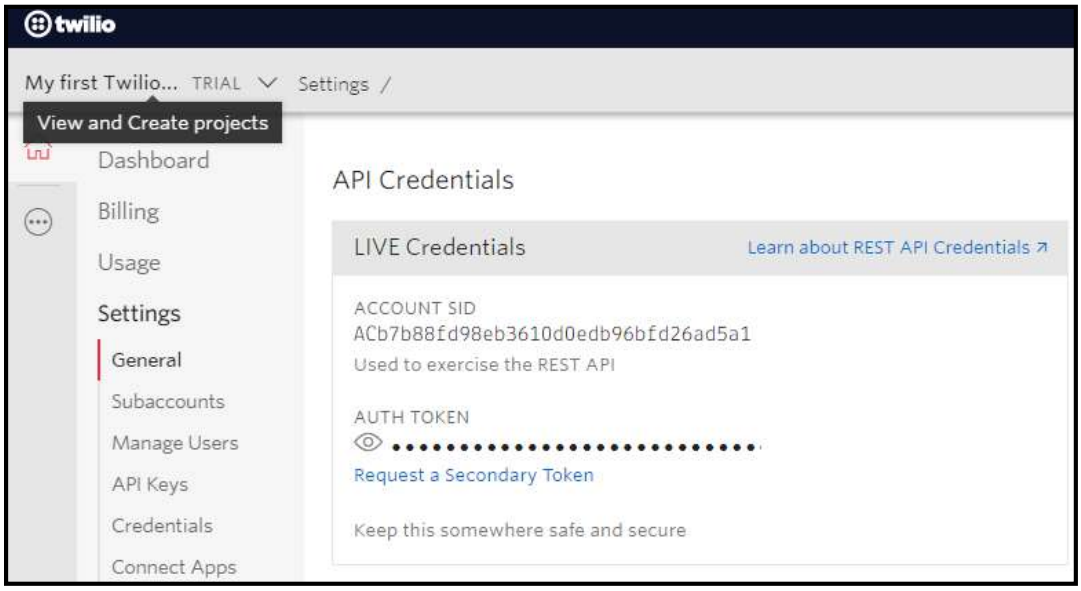
References

- https://www.twilio.com/docs/sms/send-messages
- https://www.twilio.com/docs/api/errors
- https://www.twilio.com/docs/glossary/what-e164

Trial Instance

In case you wish to get started with Trial instance

- You may obtain Trial API Credentials to begin with on www.twilio.com.
- In the General tab under Settings scroll to look for API Credentials.



- For prerequisites and appropriate access to send SMS using Twilio's Trial Account refer to the following URL: https://support.twilio.com/hc/en-us/articles/223134087-Twilio-s-Global-SMS-on-trial-accounts

45.1 Send SMS

45.1.1 Description

Twilio: Send SMS Plugin step sends a new outgoing message from Twilio phone number to an outside phone number.

45.1.2 Configurations

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No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Account SID	Specify 'Account SID' of a Twilio project that acts as a username. Account SID is used in URL as username parameter of REST call to send SMS. Error messages for invalid Account SID may vary.
	Auth Token:	Auth Token is the authentication for the Twilio project.
3	Accept value as variable/static	Leave checkbox unchecked to accept Auth Token from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Auth Token field to appear as Text box.
4	Auth Token	Specify the Auth Token of Twilio project/ that acts as a password. If checkbox above is enabled Auth Token field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Auth Token field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state. This field data type is String. This field is mandatory.

Input Tab:		
No.	Field Name	Description
	Input:	
1	Sender Number	Secify the Twilio phone number, shortcode or Messaging Service that sends this message. This must be a Twilio phone number that you own, formatted with a '+' and country code, e.g., +16175551212 (E.164 format). This field data type is String. This field is mandatory.
2	Receiver Number	Specify the destination phone number for your SMS message. Format this number with a '+' and country code, e.g. +16175551212 (E.164 format). This field data type is String. This field is mandatory.
3	Message Body	Specify the full text of the message you want to send, limited to 1600 characters. This field data type is String. This field is mandatory.

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Output Tab:		
No.	Field Name	Description
	Output:	
1	SID	Specify an output field to hold, a unique ID that is allotted to the message. This field data type is String. This field is mandatory.
2	Status	Specify an output field to hold, the current status of the message being sent. This field data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

46 VirusTotal

Prerequisites:

Must have VirusTotal Account and API Key.

Note: The plugin will work as per API quota allowances for a user.

46.1 VirusTotal: Get File Scan Report

46.1.1 Description

VirusTotal: Get File Scan Report plugin step will get the file scan report of the specified resource ID.

References:

- Documentation URL: https://developers.virustotal.com/reference/file-info
- URL for API Request: https://www.virustotal.com/api/v3/files/{id}

Note: The plugin will work as per API quota allowances for a user.

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46.1.2 Configurations

Configuration tab:		
No.	Field Name	Description
1	Step name	Specify a unique name for the step. The name has to be unique in a single workflow. This is a mandatory field.
2	Accept value as variable / static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.
3	API Key	Specify or select the unique, public API key generated after signing up the Virus Total account. This is a mandatory field.

Input tab:		
No.	Field Name	Description
1	ID	Select the resource ID. The resource can be the MD5, SHA-1 or, SHA-256 of a file for which you want to retrieve the most recent antivirus report. **Note:** Convert the file to SHA-256, SHA-1, or MD5 and select the generated ID.

Output tab:		
No.	Field Name	Description
1	JSON Output	Specify the output field to hold the result of the successful plugin execution. Default value: *JSONOutput*

46.2 VirusTotal: Get URL Scan Report

46.2.1 Description

VirusTotal: Get URL Scan Report step will get the URL scan report of the specified resource ID.

References:

- Documentation URL:
  - https://developers.virustotal.com/reference/url-info

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- https://developers.virustotal.com/reference/url#url-identifiers
- URL for API Request: https://www.virustotal.com/api/v3/urls/{id}

46.2.2 Configurations

Configuration tab:		
No.	Field Name	Description
1	Step name	Specify a unique name for the step. The name has to be unique in a single workflow. This is a mandatory field.
2	Accept value as variable / static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.
3	API Key	Specify or select the unique, public API key generated after signing up the Virus Total account. This is a mandatory field.

Input tab:		
No.	Field Name	Description
1	ID	Select the ID, which is a URL identifier or base64 representation of URL to scan. **Note:** The base64 representation is without padding.

Output tab:		
No.	Field Name	Description
1	JSON Output	Specify the output field to hold the result of the successful plugin execution. Default value: *JSONOutput*

46.3 VirusTotal: Scan File

46.3.1 Description

VirusTotal: Scan File plugin step scans the provided file against multiple antivirus software using www.virustotal.com.

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References:

- Documentation URL: https://developers.virustotal.com/reference/files-scan
- URL for API Request: https://www.virustotal.com/api/v3/files

46.3.2 Configurations

Configuration tab:		
No.	Field Name	Description
1	Step name	Specify a unique name for the step. The name has to be unique in a single workflow. This is a mandatory field.
2	Accept value as variable / static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.
3	API Key	Specify or select the unique, public API key generated after signing up the Virus Total account. This is a mandatory field.

Input tab:		
No.	Field Name	Description
1	File To Scan	Select the file you want to scan from the file path. **Note:** Allowed file size limit is 650MB.
2	Browse	Click to browse the file that you want to scan.

Output tab:		
No.	Field Name	Description
1	JSON Output	Specify the output field to hold the result of the successful plugin execution. Default value: *JSONOutput*

46.4 VirusTotal: Scan URL

46.4.1 Description

VirusTotal: Scan URL plugin step scans the provided URL against multiple antivirus software using www.virustotal.com.

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References:

- Documentation URL: https://developers.virustotal.com/reference/scan-url
- URL for API Request: https://www.virustotal.com/api/v3/urls

46.4.2 Configurations

Configuration tab:		
No.	Field Name	Description
1	Step name	Specify a unique name for the step. The name has to be unique in a single workflow. This is a mandatory field.
2	Accept value as variable / static	Leave checkbox unchecked to accept API Key value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for API Key field to appear as Text box.
3	API Key	Specify or select the unique, public API key generated after signing up the Virus Total account. This is a mandatory field.

Input tab:		
No.	Field Name	Description
1	URL To Scan	Specify the URL that needs to be scanned.

Output tab:		
No.	Field Name	Description
1	JSON Output	Specify the output field to hold the result of the successful plugin execution. Default value: *JSONOutput*

47 VMWare

VMWare Plugin can be used for managing VMware vSphere - vCenter server.

Compatibility: vSphere Web Client (Version 6.5.0.13000 Build 8024368)

Prerequisites:

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- vCenter Server with access details (Login credentials to authenticate VMware-vCenter server, vCenter port number)

- VMware certificate must be installed on the system where the plugin step needs to be executed. For the steps to install the certificate, refer Appendix 8: Install VMware certificate.

Get VM UUID, Resource ID, Target ID

Get VM UUID

- In most VMWare Plugin steps when you work on existing VMs you have to specify the VM Name or UUID.
  - VM Name/UUID can be fetched from vSphere vCenter. Login to vCenter server GUI,
  - Navigate to vCenter Host (in which VM is created) → Virtual Machines Tab containing tabular information of the VMs including VM Name.
  - In case VM UUID is not visible in the table,
    - Right Click on any column header
    - Click on the 'Show/Hide Columns' option and
    - Select UUID column to be displayed with each of the VM Name.
  - UUID is now visible in the table. You may fetch this UUID to use in the Plugin steps.

Get Compute Resource ID

- To find the 'Compute Resource ID', click on a Compute Resource (Host/Cluster/ResourcePool/vApp) on vSphere-vCenter and then click in the URL address bar.

  Scroll the URL in the address bar to copy the 'Compute Resource ID' in between '%253A' (which is preceded by the Compute Resource Type) and a '~'.

  Compute Resource Type preceding '%253A' is from one of the following.
  - HostSystem,
  - ClusterComputeResource,
  - ResourcePool,
  - VirtualApp

  Following are samples of Resource ID marked in yellow. **Note:** that Resource ID is is preceded by a %253A and followed by a ~. %253A must be which preceded by the desired Resource Type.

  You may copy the Compute Resource ID required as marked in yellow below.

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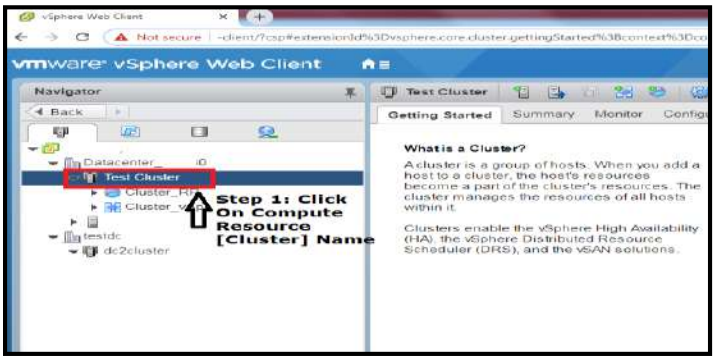
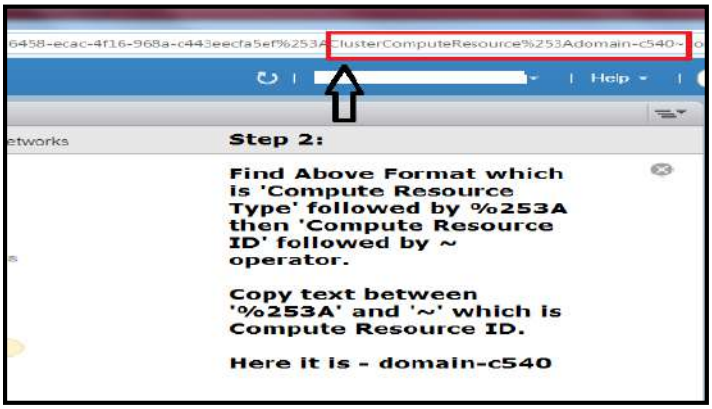
Host ID	HostSystem%253Ahost-528~
Cluster:	HostSystem%253Ahost-528~
ResourcePool	ResourcePool%253Aresgroup-545~
vApp:	ResourcePool%253Aresgroup-545~

The following screen shots depict how to get the Compute Resource ID of a Cluster Resource Type.

i. Select a cluster in the vSphere-vCenter as seen below.



ii. Once the Resource Type i.e. Cluster in this case is selected scroll the URL address bar to locate the Resource Type (ClusterComputeResource in this case). Then pick the Resource ID in between %253A and a ~.



Get Target ID

- To find the 'Target ID', click on a Target Location Type (Datacenter/VM Folder) on vSphere-vCenter and then click in the URL address bar.

  Scroll the URL in the address bar to copy the 'Target ID' in between '%253A' (which is preceded by the Target Location Type) and a '~'.
  Target Location Type preceding '%253A' is from one of the following.

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- Datacenter
- VM Folder

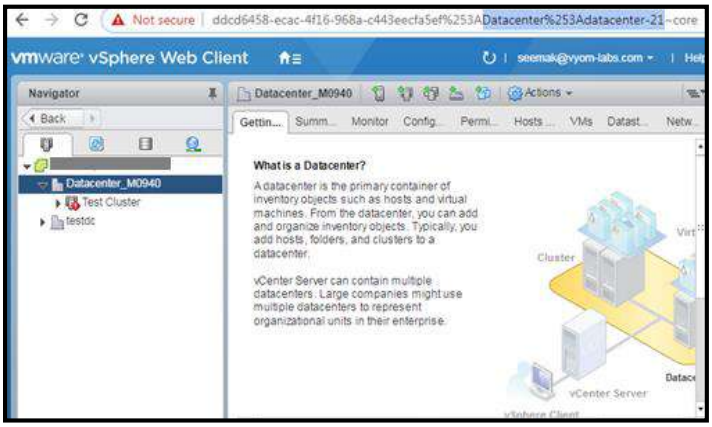
Following are samples of Target ID marked in yellow. **Note:** that Target ID is is preceded by a %253A and followed by a ~. %253A must be which preceded by the desired Target Location Type.You may copy the Target ID required as marked in yellow below.

Datacenter	Datacenter%253Adatacenter-21~
VM Folder	Folder%253Agroup-v381~

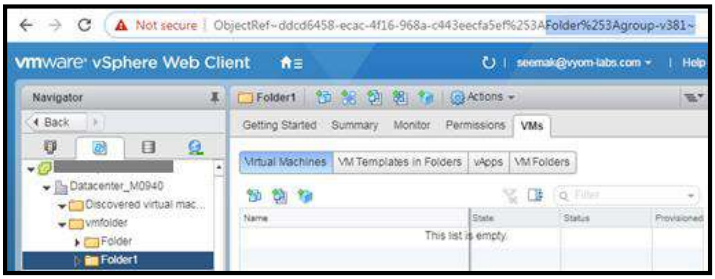
The following screen shots depict how to get the Target ID of a Datacenter Target Location Type.

iii. Select a Datacenter in the vSphere-vCenter as seen below.

iv. Once the Target Location Type, i.e. Datacenter in this case is selected scroll the URL address bar to locate the Target Location Type (Datacenter in this case). Then pick the Target ID in between %253A and a ~.



v. Similarly, once the Target Location Type i.e. VM Folder is selected scroll the URL address bar to locate the Target Location Type (Folder in this case). Then pick the Target ID in between %253A and a ~ as seen below.



Following is the list of VMWare Plugin steps,

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47.1 VMware: Convert Template to VM

VMware: Convert Template to VM plugin step converts a template to a virtual machine.

47.1.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in the Subject Alternative Name field of the certificate, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

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Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Template Name	Specify the Name of an existing Template to be converted to a Virtual Machine. **Note:** • If two or more templates with the same name appear in the vCenter Server inventory, then at the run time, the correct template object may not be used among duplicate template names. To resolve this issue, rename the duplicate template to a unique name for each entity • If Template name contains '%' special character then to execute the plugin step, provide Template name by replacing '%' character with '%25'
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Templates Names on the vCenter server.
3	Compute Resource Type	Specify compute resource type for converted VM. Allowed values: 'Cluster', 'Host', 'vApp', 'ResourcePool'.
4	Compute Resource Name/ID	Specify the Name/ID of a Compute Resource Type chosen above - for which the VM is to be created from template. **Note:s:** Refer Get Compute Resource ID in the VMWare Plugin introduction to get the 'Compute Resource ID'.
5	Button: Get	On click of this button, if the connection is successfully established it populates the list of computing resources based on the specified compute resource type.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

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47.2 VMware: Convert VM to Template

VMware: Convert VM to Template plugin step converts a virtual machine to a template.

47.2.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** • If vCenter IP is given instead of vCenter server name, it may throw certificate error, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format. In such a case vCenter IP entry must be present in the Subject Alternative Name field of the certificate.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when

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		workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of an existing VM which is to be converted to a template. The data type is String. This field is mandatory. **Note:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	Click of this button, to populate the list of Virtual Machine Names on the vCenter server (if the connection is successfully established). **Note:** If VM name contains '%' special character then on click of 'Get' button, the VM name is returned by replacing '%' character with '%25'. You may leave it like that.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

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47.3 VMware: Delete Snapshot

47.3.1 Description

VMware: Delete Snapshot plugin step deletes a specified snapshot optionally along with its child snapshots associated with a virtual machine.

47.3.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in the Subject Alternative Name field of the certificate, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not.

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		For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:			
No.	Field Name		Description
	Input Fields:		
1	Virtual Machine Name/UUID		Specify the Name/UUID of the virtual machine to which the snapshot to be deleted is associated. The data type is String. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get		On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server.
3	Optional Input Fields:		**Provide value for any one of the following only.**
	i	Snapshot Created Date	Specify the Snapshot Created Date of a snapshot that is to be deleted in specified date format. Date Format: EEEE, MMMM dd, yyyy h:mm:ss a Date Example: Tuesday, November 26, 2019, 12:01:36 PM The data type is String. This field is optional. **Note:** Provide value in Snapshot Created Date or Snapshot Name but not both.
	ii	Button: Get	On click of this button, if the connection is successfully established it populates the list of Snapshot Created Dates on the vCenter server.
	iii	Snapshot Name	Specify the Snapshot Name to be deleted. The data type is String. This field is optional.

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			Note: Provide value in Snapshot Created Date or Snapshot Name but not both.
	iv	Button: Get	On click of this button, if the connection is successfully established it populates the list of Snapshot Names on the vCenter server.
4	Delete Child Snapshots		Allowed values: 'Yes' or 'No'. If given "Yes" then all the child snapshots of the specified snapshot will be deleted. If given blank, then no child snapshots will be deleted. The data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.4 VMware: Delete All Snapshots

47.4.1 Description

VMware: Delete Snapshot plugin step deletes all Snapshots associated with a Virtual Machine on the specified vCenter server.

47.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	

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1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in the Subject Alternative Name field of the certificate, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Specify the password. Password is entered using a widget. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state. This field is mandatory.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine for which snapshot is to be created. The data type is String. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID.

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		• If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.5 VMware: Deploy VM from Template

47.5.1 Description

VMware: Deploy VM from Template plugin step deploys (creates) VM from a template available on the specified vCenter server.

47.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in the Subject Alternative Name field of the certificate, because the

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		certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Specify the password. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Template Name	Name of an existing template to be used to create a new VM. 'Template Name' must be unique. The data type is String. This field is mandatory. **Note:** • If two or more templates with the same name appear in the vCenter Server inventory, then at the run time, the correct template object may not be used among duplicate template names. To resolve this issue, rename the duplicate template to a unique name for each entity

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		• If Template name contains '%' special character then to execute the plugin step, provide Template name by replacing '%' character with '%25'
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Templates Names on the vCenter server.
3	New Virtual Machine Name	Name to be given to new virtual machine to be created. Name of a new virtual machine to be created. The data type is String. This field is mandatory.
4	Target Location Type	Target location type to create a new VM. Allowed values: 'Datacenter', 'VM Folder'. The data type is String. This field is mandatory.
5	Target Location Name/ID	Target location name to create a new VM. The data type is String. This field is mandatory. Refer GetTargetIDGet Target ID in VMWare Plugin introduction for the steps to fetch Target ID.
6	Button: Get	On click of this button, if the connection is successfully established it populates the list of target locations based upon the specified target location type.
7	Compute Resource Type	Compute resource type to create a new VM. Allowed values: 'Cluster', 'Host', 'vApp', 'ResourcePool'. The data type is String. This field is mandatory.
8	Compute Resource Name/ID	Compute resource name to create a new VM. The data type is String. This field is mandatory. **Note:s:** Refer Get Compute Resource ID in VMWare Plugin introduction for the steps to fetch Target ID.
9	Button: Get	On click of this button, if the connection is successfully established it populates the list of computing resource names based upon the specified compute resource type.
10	Datastore Name	Datastore name to create a new VM. The data type is String. This field is mandatory.
11	Button: Get	On click of this button, if the connection is successfully established it populates the list of datastore names on the vCenter server.
12	Power On Virtual Machine After Creation	Allowed values: 'Yes' or 'No'. If "Yes" then VM will be powered-on after creation. If given "No" then VM power status is off after creation. The data type is String. This field is mandatory.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.6 VMware: Get VM Properties

47.6.1 Description

VMware: Get VM Properties plugin step fetches the properties of a virtual machine.

47.6.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
2	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in the Subject Alternative Name field of the certificate, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
3	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
4	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
5	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.

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6	Password	Specify the password. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
7	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to fetch the properties. The data type is string. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server.

Ouput Tab		
No.	Field Name	Description
	Input Fields:	

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1	Accept Output as JSON	Enable checkbox to fetch property values as JSON output. Leave this unchecked to fetch Properties and their values as a tabular output fields.
2	JSON Output	Specify an output field name to hold all of the VM properties and their values in JSON format.
	Output Table Fields:	If 'Accept Fields as JSON' is not selected then the fields in this table are mandatory.
3	Field Name	On click of the cell in the output table, if the connection is successfully established it populates the list of VM properties. Select one or more properties as rows of the table. The data type is string. This field is optional.
4	Output Field	Specify an output field in each row to hold the returned values of the properties selected in the Field Name column.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.7 VMware: Increase Hard Disk Size

VMware: Increase Disk plugin step increases the hard disk size of a virtual machine on the specified vCenter server.

47.7.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	

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1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** • If vCenter IP is given instead of vCenter server name, it may throw certificate error, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format. In such a case vCenter IP entry must be present in the Subject Alternative Name field of the certificate. • Two or more virtual machines with the same name appear in the vCenter Server inventory. In this scenario, at the run time, the correct virtual machine object may not be used among duplicate virtual machine names. To resolve this issue, rename the duplicate virtual machine to a unique name for each entity.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description

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	Intput Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to which hard disk is attached to increase hard disk size. The data type is String. This field is mandatory. **Note:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server.
3	Hard Disk Name	Specify the name of the Hard Disk to increase size; attached to the specified VM. The data type is String. This field is mandatory.
4	Button: Get	On click of this button, if the connection is successfully established it populates the list of hard disk names attached with a virtual machine.
5	New Hard Disk Size	Specify the New Hard Disk Size to be given. 'New Hard Disk Size' should be greater than original size. 'New Hard Disk Size' should only be an integer. This field is mandatory.
4	Increase Size By Unit	Specify 'Increase Size By Unit', as 'MB' or 'GB' or 'TB'. Hard disk size is modified by the given size unit. The data type is String. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

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47.8 VMWare: Modify CPU Count

47.8.1 Description

VMware: Modify CPU Count Plugin step modifies the count of CPUs in a virtual machine.

47.8.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in the Subject Alternative Name field of the certificate, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	vCenter Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
	Button: Test Connection	Verifies whether the connection is available or not.

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		For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to modify CPU count. This field data type is String. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server. **Note:** If VM name contains '%' special character then on click of 'Get' button, the VM name is returned by replacing '%' character with '%25'. You may leave it like that.
3	New CPU Count	Specify the new CPU count. This field data type is integer. This field is mandatory. **Note:**s: 1. The maximum number of virtual CPUs that you can assign to a virtual machine depends on the number of logical CPUs on the host, the host license, and the type of guest operating system that is installed on the virtual machine. 2. When the virtual machine is Powered-Off, you can set any no. of CPUs through this plugin step (using REST API). But it will cause problems while powering on the virtual machine. Make sure the CPU count should not exceed the maximum no. of CPUs available on the vCenter portal.

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		3. To hot add multicore CPUs, verify that the virtual machine has hardware version 8. 4. Not all guest operating systems support CPU hot add and hot remove. You can disable these settings if not supported.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.9 VMWare: Modify CPU Properties

47.9.1 Description

VMware: Modify CPU Properties Plugin step modifies the CPU-related settings of a virtual machine.

Additional Prerequisites:

- The virtual machine should be powered off before executing this step. (If the virtual machine is powered on, this step does not provide any error and the changes will not be reflected after the execution of the step.)

47.9.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com)

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		Note: If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in the Subject Alternative Name field of the certificate, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	vCenter Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to modify properties. This field data type is String. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID.

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		• If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server. **Note:** If VM name contains '%' special character then on click of 'Get' button, the VM name is returned by replacing '%' character with '%25'. You may leave it like that.
3	Cores Per Socket	Specify the new number of cores per socket. This field data type is integer. This field is mandatory
4	Enable CPU Hot Add*	Allowed values: 'Yes' or 'No'. If 'Yes' is specified then 'CPU Hot Add' will be enabled. If 'No' is specified then 'CPU Hot Add' will be disabled.
5	Enable CPU Hot Remove*	Allowed values: 'Yes' or 'No'. If 'Yes' is specified then 'CPU Hot Remove' will be enabled. If 'No' is specified then 'CPU Hot Remove' will be disabled.

***Note:**s:

1. Hot-adding multi core virtual CPUs are supported only with hardware version 8 virtual machines. Not all guest operating systems support CPU hot add and hot remove. You cannot use these settings if the guest is not supported.
2. To use the CPU hot-add feature with hardware version 7 virtual machines, set the Number of cores per socket to 1.
3. Ensure that the VMware Tools is installed on the virtual machine for enabling hot plug (add/remove) functionality with Linux guest operating systems. Ensure that the virtual machine has a guest operating system that supports CPU hot plug.
4. You can set any number of Cores per Socket through this plugin step (uses REST API). But it will cause problems while powering on the virtual machine. Make sure the Cores Per Socket should not exceed the allowed limit.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.

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2	Cancel	Click this button, to cancel the window and does not save any values.

47.10 VMWare: Modify Memory Property

47.10.1 Description

VMware: Modify Memory Property Plugin step enables or disables the memory hot add property of a virtual machine.

47.10.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in the Subject Alternative Name field of the certificate, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	vCenter Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox

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		above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to modify CPU count. This field data type is String. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server. **Note:** If VM name contains '%' special character then on click of 'Get' button, the VM name is returned by replacing '%' character with '%25'. You may leave it like that.
3	Enable Memory Hot Add	Allowed values are - 'Yes' or 'No'. If 'Yes' is specified then 'Memory Hot Add' will be enabled. If 'No' is specified then 'Memory Hot Add' will be disabled. This field is mandatory. **Note:s:** 1. Ensure that the virtual machine is using hardware version 7 or later. 2. Ensure that the virtual machine has a guest operating system that supports memory hot-add functionality. 3. Ensure that VMware Tools is installed.

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Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.11 VMWare: Modify Memory Size

47.11.1 Description

VMware: Modify Memory Size Plugin step modifies the available memory size of a virtual machine.

47.11.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error, because the certificate contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.

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5	vCenter Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to modify CPU count. This field data type is String. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server. **Note:** If VM name contains '%' special character then on click of 'Get' button, the VM name is returned by replacing '%' character with '%25'. You may leave it like that.
3	New Memory Size.	Specify the new Memory Size. This field data type is integer. This field is mandatory.

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		Note:s: 1. Ensure that the virtual machine is using hardware version 7 or later. 2. The minimum memory size is 4MB for virtual machines that use BIOS firmware. Virtual machines that use EFI firmware require at least 96MB of RAM or they cannot power on. 3. When the virtual machine is Powered-Off, you can set any no. of memory size through with this plugin step (using REST API). If the virtual machine memory is greater than the host memory size, swapping occurs, which can have a severe effect on virtual machine performance. The memory size must be a multiple of 4MB. 4. Ensure that the virtual machine has a guest operating system that supports memory hot-add functionality.
4	Modify Size By Unit	Allowed values: 'MB' or 'GB'. Memory size will be modified in the given size unit. This field data type is string. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.12 VMWare: Power off VM

47.12.1 Description

VMware: Power Off VM plugin step powers off a powered-on or suspended virtual machine.

47.12.2 Configurations

No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error, because the certificate contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to Power Off. This field data type is String. This field is mandatory. **Note:s:**

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		• Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server. **Note:** If VM name contains '%' special character then on click of 'Get' button, the VM name is returned by replacing '%' character with '%25'. You may leave it like that.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.13 VMWare: Power On VM

47.13.1 Description

VMware: Power On VM powers on a powered-off or suspended virtual machine.

47.13.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	

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1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error, because the certificate contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to Power On. This field data type is String. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID.

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		• If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server. **Note:** If VM name contains '%' special character then on click of 'Get' button, the VM name is returned by replacing '%' character with '%25'. You may leave it like that.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.14 VMware: Rename Snapshot

47.14.1 Description

VMware: Rename Snapshot plugin step is designed to rename snapshot associated with VM on specified vCenter server.

47.14.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com)

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		Note: If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in the Subject Alternative Name field of the certificate, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to which the snapshot to be deleted is associated. The data type is String. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID.

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			• If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get		On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server.
3	Optional Input Fields:		
	i	Snapshot Created Date	Specify the Snapshot Created Date of a snapshot that is to be deleted in specified date format. Date Format: EEEE, MMMM dd, yyyy h:mm:ss a Date Example: Tuesday, November 26, 2019, 12:01:36 PM The data type is String. This field is optional. **Note:** Provide value in Snapshot Created Date or Snapshot Name but not both.
	ii	Button: Get	On click of this button, if the connection is successfully established it populates the list of Snapshot Created Dates on the vCenter server.
	iii	Snapshot Name	Specify the Snapshot Name to be deleted. The data type is String. This field is optional. **Note:** Provide value in Snapshot Created Date or Snapshot Name but not both.
	iv	Button: Get	On click of this button, if the connection is successfully established it populates the list of Snapshot Names on the vCenter server.
8	New Snapshot Name		Specify the new name for the specified Snapshot. The Snapshot Name must be unique. The data type is String. This field is mandatory.
9	Snapshot Description		Provide a short Description for Snapshot Rename. The data type is String. This field is optional.

Note:

Allowed combinations of values for the input fields viz., 'Snapshot Created Date' and 'Snapshot Name':

No.	Snapshot Created Date	Snapshot Name

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1	<Valid DateTime>	
2		<Valid SnapshotName>

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.15 VMware: Revert VM to Snapshot

VMware: Revert To Snapshot plugin step reverts a Virtual Machine to a specified snapshot of a virtual machine or to the latest (current) snapshot.

47.15.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** • If vCenter IP is given instead of vCenter server name, it may throw certificate error, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format. In such a case vCenter IP entry must be present in the Subject Alternative Name field of the certificate. • Two or more virtual machines with the same name appear in the vCenter Server inventory. In this scenario, at the run time, the correct virtual machine object may not be used among duplicate virtual machine names. To resolve this issue, rename the duplicate virtual machine to a unique name for each entity.

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2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to revert to a snapshot. The data type is string. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.

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2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server. **Note:** If VM name contains '%' special character then on click of 'Get' button, the VM name is returned by replacing '%' character with '%25'. You may leave it like that.
	Optional Input Fields:	**Provide any one of the following.**
3	Snapshot Created Date	Snapshot Created Date of a snapshot to revert. Date Format: EEEE, MMMM dd, yyyy h:mm:ss a Date Example: Tuesday, November 26, 2019, 12:01:36 PM The data type is string. This field is optional.
4	Button: Get	On click of this button, if the connection is successfully established it populates the list of Snapshot Created Dates on the vCenter server.
5	Snapshot Name	Specify Snapshot Name to revert VM to. 'Snapshot Name' must be unique. The data type is string. This field is optional.
6	Button: Get	On click of this button, if the connection is successfully established it populates the list of Snapshot Names on the vCenter server.
7	Revert VM To Latest (Current) Snapshot	Allowed Value: 'Yes'. If given "Yes" then a virtual machine will be reverted to the latest (current) snapshot state. If the field is blank, then 'No' is considered. The data type is string. This field is optional.

Note:

Allowed combinations of values for the input fields viz., 'Revert VM To Snapshot Created Date', 'Revert VM To Snapshot Name' and 'Revert VM To Latest (Current) Snapshot as depicted below.

As seen below only one of the following values can be provided.

No.	Revert VM To Snapshot Created Date	Revert VM To Snapshot Name	Revert VM To Latest (Current) Snapshot
1	<Valid DateTime>		
2		<Valid Name>	
3			<Yes>

Common Buttons:		
No.	Field Name	Description

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	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.16 VMWare: Shutdown VM

47.16.1 Description

VMware: Shutdown VM plugin step shuts down a virtual machine.

47.16.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error, because the certificate contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to shutdown. This field data type is String. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server. **Note:** If VM name contains '%' special character then on click of 'Get' button, the VM name is returned by replacing '%' character with '%25'. You may leave it like that.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation

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		error message else if all the required field values are provided then it will save the field values.
2	Cancel	Click this button, to cancel the window and does not save any values.

47.17 VMWare: Suspend VM

47.17.1 Description

VMware: Suspend VM plugin step suspends a virtual machine.

47.17.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error, because the certificate contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to

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		select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to suspend. This field data type is String. This field is mandatory. **Note:s:** • Refer Get VM UUID in the VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'.
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server. **Note:** If VM name contains '%' special character then on click of 'Get' button, the VM name is returned by replacing '%' character with '%25'. You may leave it like that.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	Click this button to check and save the field values. If any required field values are missing then it will display a validation error message else if all the required field values are provided then it will save the field values.

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2	Cancel	Click this button, to cancel the window and does not save any values.

47.18 VMware: Take VM Snapshot

47.18.1 Description

VMware: Take VM Snapshot plugin step takes a snapshot of a virtual machine's state.

47.18.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: https://vmware.example.com) **Note:** If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in the Subject Alternative Name field of the certificate, because the certificate mostly contains entry of vCenter server in FQDN (Fully Qualified Domain Name) format.
2	Port	Specify the vCenter server port. (Default port is 443). This field should be an integer and value should be less than 65536.
3	Username	Specify a Username to authenticate vCenter server.
	Password:	The password to authenticate vCenter server.
4	Accept value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
5	Password	Specify the password. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Password field appears as Text box and accepts static or variable values. Else if checkbox above is disabled Password field appears as a drop down to

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		select fields from previous steps. Please **Note:** that Field values can only be accessed when workflow is in running state.
6	Button: Test Connection	Verifies whether the connection is available or not. For the purpose of verification fields coming from previous steps are not allowed since field values can only be accessed when workflow is in running state. Static values and environment variables are allowed.

Input Tab:		
No.	Field Name	Description
	Input Fields:	
1	Virtual Machine Name/UUID	Specify the Name/UUID of the virtual machine to take a snapshot. The data type is string. This field is mandatory. **Note:s:** • Refer Get VM UUID**Error! Reference source not found.** in t he VMWare Plugin introduction for steps to fetch the VM UUID. • If two or more virtual machines with the same name appear in the vCenter Server inventory, then you may provide the UUID which is unique to each VM. • If VM name contains '%' special character then to execute the plugin step, provide VM name by replacing '%' character with '%25'
2	Button: Get	On click of this button, if the connection is successfully established it populates the list of Virtual Machine Names on the vCenter server.
3	New Snapshot Name	Specify the name of the New snapshot to be created. If no value is provided, a New snapshot is generated with the current date-time. Example: VM Snapshot 25/11/2019 03:35:09 PM
4	Snapshot Description	Provide a description for the snapshot.
5	Snapshot The Virtual Machine's Memory	Allowed values are: 'Yes' or 'No'. If the specified value is "Yes", then the memory state of the Virtual Machine is also saved with the Snapshot. **Note:** 'Snapshot The Virtual Machine's Memory' and 'Quiesce Guest File System' values are considered only if Virtual Machine is in running state.

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		Allowed combinations of values for 'Snapshot The Virtual Machine' and 'Quiesce Guest File System' are: **No.** / **Snapshot The Virtual Machine** / **Quiesce Guest File System** 1 / Yes / 2 / / Yes
6	Quiesce Guest File System	Allowed values: 'Yes' or 'No'. If the specified value is "Yes" then writing to the memory of Virtual Machine is stopped while creating the Snapshot. Also, refer **Note:** above.

48 Windows

Windows plugin has been designed to perform actions on a Windows machine.

Compatibility:

Windows 7, Windows Server 2008

Prerequisites:

- Enable WinRM Protocol and set trusted host list value to * on local as well as target system, refer Appendix 6: Power Shell Remote Connection.
- WMI access on local and target machine (Required for Windows: Create Event Log, Restart Machine and Shutdown Machine steps). This is discussed below.
- PowerShell version 5 and above. This is discussed below.

Following are the steps to **provide WMI access on local and target machines.**

1. Under Control Panel click Windows Firewall

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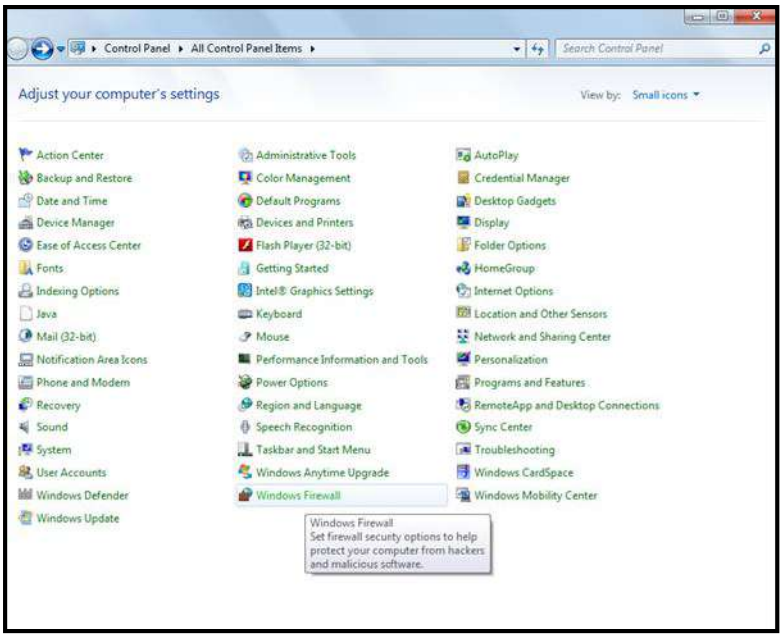
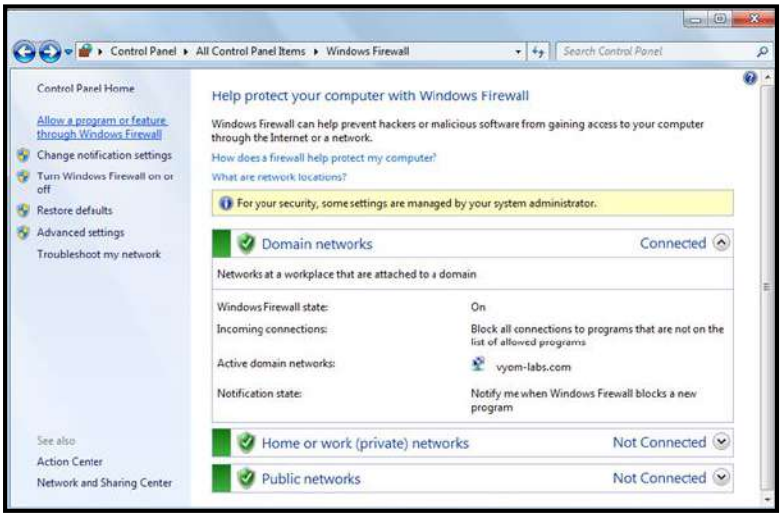


2. Click the link – Allow a program or feature through Windows Firewall.



3. Enable to allow Windows Management Instrumentation (WMI) at all levels as shown below.

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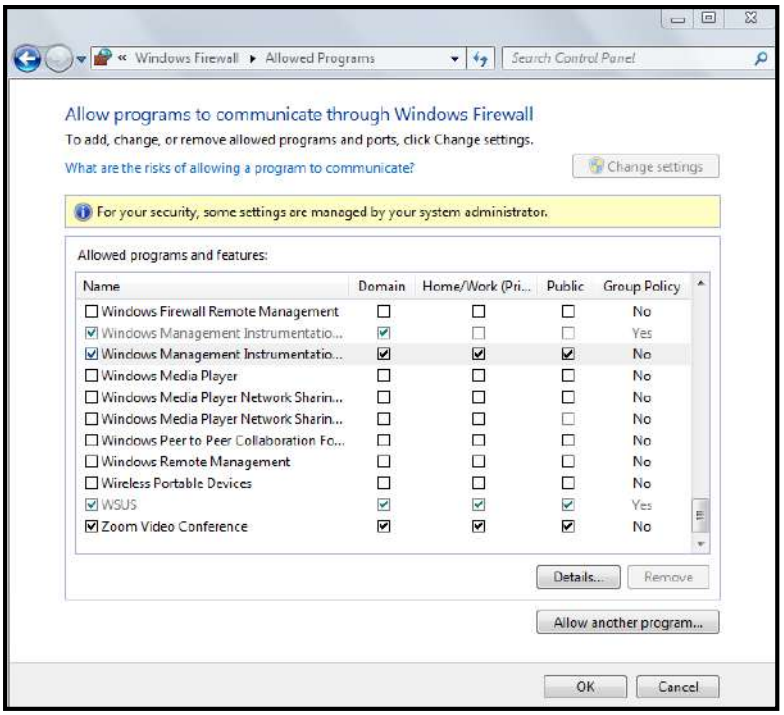

Following are the steps to **setup Power Shell version 5 or above,**

A. **Set PowerShell Execution Policy:**

1. Open PowerShell command prompt in Run as administrator mode (Go to **Start**-> Search **PowerShell** -> Right Click on **Windows PowerShell** -> Click **Run as administrator option**)
2. Change execution policy of computer to allow running PowerShell scripts by using below:
   command: Set-ExecutionPolicy unrestricted –Force
3. Check if execution policy is changed by using below command:
   command: Get-ExecutionPolicy

B. **Updating PowerShell Version:**

1. **Download Windows Management Framework from below url: (to update to Windows PowerShell version 5.1or higher)**
   https://www.microsoft.com/en-us/download/details.aspx?id=54616

   System requirements:
   - WMF 5.1 requires Microsoft .NET Framework 4.5 or above. You can install Microsoft .NET Framework 4.5 or above by following the instructions at Installing the .NET Framework.
   - Use a 64-bit version of Windows.
   - Need to restart machine once “Windows Management Framework 5.1“installation is completed.

   Note: Open PowerShell by right clicking and select Run As Administrator

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2. **Check if PowerShell version is updated to 5.1 or higher using below command:**
   Command: $PSVersionTable

Expected output:

```
Name                           Value
----                           -----
PSVersion                      5.1.14409.1005
PSEdition                      Desktop
PSCompatibleVersions           {1.0, 2.0, 3.0, 4.0...}
BuildVersion                   10.0.14409.1005
CLRVersion                     4.0.30319.42000
WSManStackVersion              3.0
PSRemotingProtocolVersion      2.3
SerializationVersion           1.1.0.1
```

48.1 Windows: Get Disk Utilization

48.1.1 Description

Windows: Get Disk Utilization plugin step returns the utilization of logical disks on a local or remote windows machine. This is a row generating step.

48.1.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Host	Provide the Hostname/Server Name/Fully Qualified Domain Name (FQDN)/IP address of Windows machine.
2	Username	Specify the username of Windows account to authenticate. You may also provide username in the format <Domain name>\username or <Computer name>\username. However if you need to connect to a remote machine you need to provide <Domain name>\username. This field is mandatory.
3	Password	Specify the Password of the Username. Password is stored in encrypted format in the AutomationEdge workflow file. This field is mandatory.

Output Tab:

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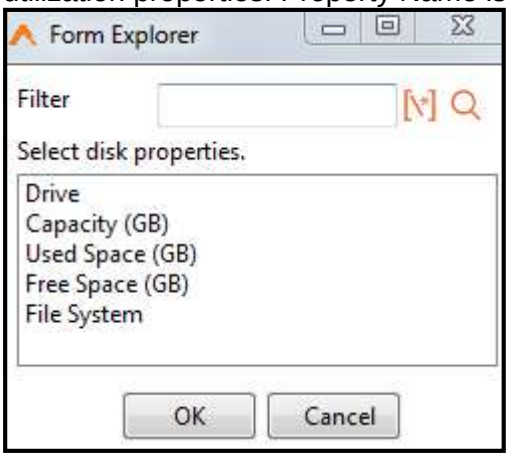
No.	Field Name	Description
	Output Fields Table:	
1	Property Name	Click this field to open a Form Explorer window with disk utilization properties. Property Name is mandatory.  Select Properties one by one in Property Name. At least one property is mandatory.
2	Output Field	Specify an output field to hold the result values for the property. The corresponding Output Field is mandatory.

48.2 Windows: Get Service Status

48.2.1 Description

Windows: Get Service Status plugin step gets the status of a service on a local or remote computer.

48.2.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Host	Provide the Hostname/Server Name/Fully Qualified Domain Name (FQDN)/IP address of Windows machine.
3	Username	Specify the username of Windows account to authenticate. You may also provide username in the format <Domain name>\username or <Computer name>\username. However, if you need to connect to a remote machine you need to provide <Domain name>\username. This field is mandatory.

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	Password:	
3	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	Password	Specify the password of the Windows Account. Password is encrypted and is not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. This field is mandatory.
5	Service Name	Specify the Service Name to get status. This field is a String.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Result	Output field to hold the result of the successful plugin execution. Default label value for this field is “Result”.

48.3 Windows: Pause Service

48.3.1 Description

Windows: Pause Service plugin step pause’s a service on a local or remote windows machine.

48.3.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Host	Provide the Hostname/Server Name/Fully Qualified Domain Name (FQDN)/IP address of Windows machine.
3	Username	Specify the username of Windows account to authenticate. You may also provide username in the format <Domain name>\username or <Computer name>\username.

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		However, if you need to connect to a remote machine you need to provide <Domain name>\username. This field is mandatory.
4	Password	Specify the Password of the Username. Password is stored in encrypted format in the AutomationEdge workflow file. This field is mandatory.
5	Service Name	Specify the Windows Service Name to be paused. Only Windows services that have a pause option can be specified. This field is a String. This field is mandatory. Make sure to get the Windows Service name by right clicking on the service and clicking Properties. Copy the 'Service name'

48.4 Windows: Restart Machine

48.4.1 Description

Windows: Restart Machine plugin step restarts a remote windows machine.
This step restarts the remote machine only. Do not use this step to restart local machine.

48.4.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Host	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of a remote Windows machine to be restarted. The data type is String. This field is mandatory.
3	Username	Specify the username of Windows account to authenticate. This field is mandatory.
	Password:	
3	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	Password	Specify the password of the Windows Account. Password is encrypted and is not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Password field appears as Text box. Else if checkbox

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		above is disabled Password field appears as a drop down to select fields from previous steps. This field is mandatory.
5	Force Restart	Force Restart. Allowed values are only " **'YES', 'NO'**". This field is mandatory. The data type is a String.

48.5 Windows: Restart Service

48.5.1 Description

Windows: Restart Service plugin step restarts a service on a local or remote windows machine.

48.5.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Host	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of Windows machine. This field is mandatory.
3	Username	Specify the username of Windows account to authenticate. This field is mandatory.
	Password:	
3	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	Password	Specify the password of the Windows Account. Password is encrypted and is not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. This field is mandatory.
5	Service Name	Specify the Service Name to be restarted. This field is mandatory. This field is a String.
6	Force Restart	Force Restart. Allowed values are only " **'YES', 'NO'**" **Note:** In case of exception a windows Return value does not occur if Force Stop option is YES. This field is mandatory. This data type is a String.

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48.6 Windows: Resume Service

48.6.1 Description

Windows: Resume Service plugin step resumes a paused service on a local or remote windows machine.

48.6.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Host	Provide the Hostname/Server Name/Fully Qualified Domain Name (FQDN)/IP address of Windows machine.
3	Username	Specify a Windows username to authenticate. You may also provide username in the format <Domain name>\username or <Computer name>\username. However if you need to connect to a remote machine you need to provide <Domain name>\username. This field is mandatory.
	Password:	
3	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	Password	Specify the Password of the Username. Password is stored in encrypted format in the AutomationEdge workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. This field is mandatory.
5	Service Name	Specify the Windows Service Name of a paused service to be resumed. Only Windows services that have pause and resume options can be specified. This field is a String. The field is mandatory.

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		Make sure to get the Windows Service name by right clicking on the service and clicking Properties. Copy the 'Service name'

48.7 Windows: Run DOS/PowerShell Commands

48.7.1 Description

Windows: Run DOS Commands plugin step executes DOS and PowerShell commands.

Note: This step is not a row generating step hence; it must be an intermediate step in a workflow.

48.7.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Input Fields:	
1	Session Name	Select a previously created Session Name using Start DOS Session plugin step. For example, Windows: Start DOS/PowerShell Session. This step should always be preceded with a Start DOS session plugin step to use a previously created session.
3	Script Box	Provide DOS or PowerShell commands or Script to execute. This data type is String. This field is mandatory. **Note:** • A combination of static values or variables and previous step field can be passed in the script box. • If you are passing multiple rows to multiple Run DOS Commands steps then the steps are executed in parallel, to run them sequentially use Loop steps or Workflow executor step. **Known Issues:** • If the command needs manual intervention, then it may stay in an infinite execution state. To avoid this use parameterized commands or suitable silent switches. • This step executes only those DOS commands which can be executed using PowerShell.
4	Liner	Shows cursor position in script box

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5	Max Wait For Response (In Seconds)	Provide timeout in seconds to execute the given command. The default value is 300 seconds.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Output	It will provide the script output (provides combined output if the script contains multiple commands). The default text is 'Output'

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button field values are checked. If any required field values are missing, then validation error message is displayed. If all the required field values are provided then it will save the field values.
2	Cancel	Click this button to cancel the window without saving any values.

48.8 Windows: Shutdown Machine

48.8.1 Description

Windows: Shutdown Machine plugin step shuts down a remote windows machine.

48.8.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Host	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of a remote Windows machine to be Shutdown. The data type is string. This field is mandatory.
3	Username	Specify the username of Windows account to authenticate. The data type is string. This field is mandatory.
	Password:	

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3	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box. The data type is string. This field is mandatory.
4	Password	Specify the password of the Windows Account. Password is encrypted and is not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is string. This field is mandatory.
5	Force Shutdown	Allowed values for Force Shutdown are "'**YES', 'NO'**". The data type is string. This field is mandatory.

48.9 Windows: Start DOS / PowerShell Session

48.9.1 Description

Windows: Start DOS Session starts a DOS session.

This step is not a row generating step hence; it must be an intermediate step in a workflow.

48.9.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Host Name*	Provide the Hostname/Server Name/Fully Qualified Domain Name (FQDN)/IP address of a Windows machine to start a session on. The data type is String. This field is mandatory.
2	Username	Specify the username of Windows account to authenticate. You may also provide username in the format <Domain name>\username or <Computer name>\username. However, if you need to connect to a remote machine you need to provide <Domain name>\username. The data type is String.
	Password:	
3	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list.

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		Else enable checkbox for Password field to appear as Text box.
4	Password	Specify the password of the Windows Account. Password is encrypted and is not stored in the .psw workflow file. If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. This field is mandatory.
5	Port	Specify Port of Remote WinRm. The default HTTP port is 5985 and the default HTTPS port is 5986.
6	Use SSL	Allowed values are "Yes", "No". Provide “Yes” if your server needs an SSL connection. Allowed values: "Yes", "No". The default is "No".
7	Timeout (In Seconds)	Specify timeout value in seconds. Default Value 300 seconds.
8	Test Connection	Click button to test the connection. It shows an appropriate message dialog (Timeout, success or fail). **Note:** The Test Connection button does not work for previous step variables. The button only works with static values and environment variables.

Output Tab:		
No.	Field Name	Description
	Output Field:	
1	Session Name*	Provide the name of the session to be created. This must be a unique name and there must be no running session with this name, else the step execution gives an error. This is also an output field as a session is created with this name. The field can also be set using a previous field or a variable. The data type is string. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button field values are checked. If any required field values are missing, then validation error message is displayed. If all the required field values are provided then it will save the field values.

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2	Cancel	Click this button to cancel the window without saving any values.

48.10 Windows: Stop DOS / PowerShell Session

48.10.1 Description

Windows: Stop DOS Session plugin step stops the provided running DOS session.
This step is not a row generating step hence; it must be an intermediate step in a workflow.

48.10.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Input Field:	
1	Session Name*	Provide the name of session created using the Windows: Start DOS Session plugin step that is to be closed. The data type is string. This field is mandatory. **Note:** If the same session is to be used for multiple rows, ensure that workflow is developed in such a way that Windows: Stop DOS/PowerShell Session step is executed after all rows are processed.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button field values are checked. If any required field values are missing, then validation error message is displayed. If all the required field values are provided then it will save the field values.
2	Cancel	Click this button to cancel the window without saving any values.

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48.11 Windows: Start Service

48.11.1 Description

Windows: Start Service plugin step starts a service on a local or remote windows machine.

48.11.2 Configurations

Input Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Host	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of Windows machine. This field is mandatory.
3	Username	Specify the username of Windows account to authenticate. This field is mandatory.
	Password:	
3	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box.
4	Password	Specify the Password of the Username. Password is stored in encrypted format in the AutomationEdge workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. This field is mandatory.
5	Service Name	Specify the Windows Service Name to be started. Make sure to get the Windows Service name by right clicking on the service and clicking Properties. Copy the 'Service name'

48.12 Windows: Stop Service

48.12.1 Description

Windows: Stop Service plugin step stops a service on a local or remote windows machine.

48.12.2 Configurations

Input Tab:		
No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Host	Provide the Hostname/Server Name/Fully Qualified Domain Name/IP address of Windows machine. The data type is string. This field is mandatory.
3	Username	Specify the username of Windows account to authenticate. The data type is string. This field is mandatory.
	Password:	
3	Accept Value as variable/static	Leave checkbox unchecked to accept Password value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Password field to appear as Text box. The data type is string. This field is mandatory.
4	Password	Specify the password of the Windows Account. Password is encrypted and is not stored in the .psw workflow file. Password is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). If checkbox above is enabled Password field appears as Text box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps. The data type is string. This field is mandatory.
5	Service Name	Specify the Service Name to be stopped. The data type is string. This field is mandatory.
6	Force Stop	Force Stop option. Allowed values are only "'**YES', 'NO'**". The data type is string. This field is mandatory. **Note:** In case of exception a windows Return value does not occur if Force Stop option is YES.

49 Zendesk

Zendesk plugin steps have been designed to perform tasks in an instance of Zendesk.

Prerequisite

- Zendesk instance with valid credentials.
- Valid permissions
- Valid API Token found on Zendesk instance.

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Compatibility

- Process Studio 7.3, AutomationEdge 7.3

Reference URLs

- https://developer.zendesk.com/rest_api/docs/support/tickets
- https://support.zendesk.com/hc/en-us/articles/226022787-Generating-a-new-API-token-

Limitations:

- **Non-availability of all ticket fields in APIs.**

  URL/API: /api/v2/ticket_fields.json

  - Most of the default fields like id, tags, followers, requester, created-date, etc. are not available through the above API.
  - As all fields are not returned, it is not possible to populate those field lists in the Create Ticket and Update Tickets plugin steps.
  - Even if we try to provide hard-coded field names, the record cannot be inserted due to the non-availability of the data type of those fields.

- **Fields display name and fields internal name is different for few fields.**

  For example, assignee - assignee_id, group- group_id, type - ticket_type.

- **Inconsistency in the error response body.**

  https://vyomlabs4037.zendesk.com/api/v2/search.json?query=solved:2020-30-07

  A. For unauthorized user


```
{
  "error": {
    "title": "Forbidden",
    "message": "You do not have access to this page. Please contact the account owner of this help desk for further help."
  }
}
```


  B. Invalid search criteria


```
{
  "error": "invalid",
  "description": "Invalid search: Illegal date value (yyyy-mm-dd expected): solved:2020-30-07"
}
```


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C. Incorrect Email or Token

{ "error": "Couldn't authenticate you"}

Due to such inconsistency, we need to handle it with a lot of custom code.

- **Values of option type fields are only accepted when passed in a small case in the request body.**
  - On the Zendesk form, the dropdown values of Type, Priority, and Status start with a capital case letter. But, in the APIs, those values are accepted ONLY in small case letters. Due to this, there are chances of getting a lot of Training type support tickets.
  - If wrong/ invalid value for lookup field such as Type, Priority, and Status is given, the API does not throw error. For example, { “priority”:”High”}. In this case the API runs successfully however, the value does not get inserted/updated on UI.
- **For update tickets only those tickets searched, will get updated.**
- **Updating or getting the tickets will take a few minutes to get indexed, after which they will be available through API.**

49.1 Zendesk: Create Ticket

49.1.1 Description

Zendesk: Create Ticket step creates a new ticket on the specified Zendesk instance.

49.1.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Select base URL of Zendesk server instance. For example, https://xxxx.zendesk.com for on cloud instance. The data type is string. This field is mandatory.
	Token:	
3	Accept Values as variable/ static	Leave checkbox unchecked to accept Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Token field to appear as Text box.
4	Access Token	Specify the API Token for the Zendesk instance. API Token is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Token field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory. **Steps to create Token in Zendesk:** To create token, go to the following URL: https://support.zendesk.com/hc/en-us/articles/226022787-Generating-a-new-API-token-
5	Test Connection	Click button to test the connection, if it is available or not.

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Accept Fields as JSON	Enable checkbox to accept field names as JSON input. In the JSON text you can have dynamic fields to insert rather than static fields to be provided in the Table Fields. Leave this unchecked to provide Table Fields as input.

2	JSON	JSON text should contain key-value pairs enclosed by double quotes (“) enclosure. Provide all the required or mandatory fields and other fields to be inserted as keys in the JSON.
		
		If ‘Accept Fields as JSON’ checkbox is enabled, this field is activated. Choose a field containing the JSON text.
		
		The data type is string. If ‘Accept Fields as JSON’ is selected this field is mandatory.
		
		Sample JSON key value pairs:
		The following sample contains one record. You may add more records in curly braces.
		
		[
		
		{
		"ticket": {
		"ticket_form_id": 5187651451037,
		"subject": "Test Ticket",
		"description": "Create Account RPA",

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```
"type": "incident",
"priority": "urgent",
"status": "pending",
"mailto:assignee":"kalwa@ex.com",
"custom_fields": [
  {
    "id": 5198494984861,
    "value": "This is text"
  },
  {
    "id": 5198450355869,
    "value": "yes"
  },
  {
    "id": 5076417961501,
    "value": [
      "rpasupport1",
      "rpasupport2"
    ]
  },
  {
    "id": 5198502388125,
    "value": "1235726439.890"
  },
  {
    "id": 5198538098461,
    "value": "234"
  },
  {
    "id": 5198470684957,
    "value": "2022-04-28"
  },
```


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		{
		"id": 5198451690397,
		"value": true
		}
		]
		}
		}
		]

3	Form Name	Select the name of the form to be selected to update a ticket.
4	Get	Click the button to populate the list of form names on the Zendesk instance.
	Table Fields:	If 'Accept Fields as JSON' is not selected then the fields in this table are mandatory.
5	Variable Field Name	Select values from previous fields in the stream/environment variables or run-time variables.
6	Static Field Name	On click in the input table, fields associated with the ticket creation will populate.
7	Field Values	Select valid values of the respective field associated with the field name. The data type is string. This field is mandatory.

Output Tab		
No.	Field Name	Description
	Output Field:	
1	Ticket ID	Specify an output field to hold Ticket ID created on successful plugin execution. The default value for this field is TicketID.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.

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2	Cancel	On click of this button, it will cancel the window and do not save any values.

49.2 Zendesk: Delete Ticket

Zendesk: Delete step deletes an existing ticket on the specified Zendesk instance.

49.2.1 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Select base URL of Zendesk server instance. For example, https://xxxx.zendesk.com for on cloud instance The data type is string. This field is mandatory.
	Token:	
3	Accept Values as variable/ static	Leave checkbox unchecked to accept Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Token field to appear as Text box.
4	Access Token	Specify the API Token for the Zendesk instance. API Token is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory. If checkbox above is enabled Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Token field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory. **Steps to create token in Zendesk:** To create token go to the following URL, https://support.zendesk.com/hc/en-us/articles/226022787-Generating-a-new-API-token-
5	Test Connection	Click button to test the connection, if it is available or not.

Input Tab		
No.	Field Name	Description

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	Input Fields:	
1	Ticket ID	Specify the ticket ID of the file to download. The data type is string. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

49.3 Zendesk: Download Attachments

Zendesk: Download attachments for a ticket on a specified Zendesk ticket.

49.3.1 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Select base URL of Zendesk server instance. For example, https://xxxx.zendesk.com for on cloud instance The data type is string. This field is mandatory.
	Token:	
3	Accept Values as variable/ static	Leave checkbox unchecked to accept Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Token field to appear as Text box.
4	Accept Token	Specify the API Token for the Zendesk instance. API Token is entered using a widget. The widget handles both Text (static value or environment variable) and Combo (drop down containing values from previous steps). This field is mandatory.

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		If checkbox above is enabled Token field appears as Text box and accepts static values or variables. Else if checkbox above is disabled Token field appears as a drop down to select fields from previous steps. The data type is secure string. This field is mandatory. **Steps to Create Token in Zendesk:** To Create Token go to the following URL, https://support.zendesk.com/hc/en-us/articles/226022787-Generating-a-new-API-token-
5	Test Connection	Click button to test the connection, if it is available or not.

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Ticket ID	Specify the ticket ID of the file to download. The data type is string. This field is mandatory.
2	Output Folder Path	Specify the folder to store the downloaded file. The data type is string. This field is mandatory.
3	Browse	Click this button to select the output folder path.

Additional Input Tab		
No.	Field Name	Description
	Additional Input Field:	
1	Delete Output Folder Contents Before Downloading	Specify Yes to delete output folder contents before downloading else Specify No. Allowed values: Yes or No. Default value: No
2	Add DateTimeStamp For Duplicate File	Specify Yes to add Date TimeStamp for duplicate files. Allowed values: Yes or No. Default value: No
3	Add File To Result	Specify Yes to add the downloaded files to the result set and display the download link on AE otherwise else select No. Allowed values: Yes, No. Default value: No

Output Tab		
No.	Field Name	Description

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	Output Field:	
1	Total Files	Specify the output field to hold the result of the successful plugin execution. The default label value for this field is “TotalFiles”.
2	Download Files	Specify the output field to hold the result of the successful plugin execution. The default label value for this field is “DownloadFiles”.
3	File Overwritten	Specify the output field to hold the result of the successful plugin execution. The default label value for this field is “FileOverwritten”.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

49.4 Zendesk: Get Tickets

49.4.1 Description

Zendesk: Get Tickets step gets the tickets matching the criteria query.

Limitations:

- All ticket fields are not visible in the get ticket fields list.
- If you provide incorrect or invalid values in the lookup fields or custom lookup fields, the API does not throw an error.
- The tickets do not come in sequence.
- Update Ticket: Only those records are updated that are searched.

Reference: https://developer.zendesk.com/api-reference/ticketing/tickets/tickets/

49.4.2 Configurations

General Tab:		
No.	Field Name	Description

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1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify base URL of Zendesk server instance. For example, https://xxxx.zendesk.com for on cloud instance The data type is string. This field is mandatory.
3	Access Token	Access token retrieved from OAuth token API call.
4	Test Connection	Click button to test the connection, if it is available or not.

Input Tab:		
No.	Field Name	Description
1	Criteria Query	Fetch all Zendesk tickets matching the criteria query. For sample criteria query, see https://developer.zendesk.com/api-reference/ticketing/ticket-management/search/.
2	Fetch Records Batch Size	Specify the batches based on which the step will fetch the records.
3	Get Top N Records	Fetch the Top N records matching the criteria query.

Output Tab:		
No.	Field Name	Description
1	JSON Output	Output field to hold the result of the successful plugin execution. Default label value for this field is “JSONOutput”.

49.5 Zendesk: Get Tickets Count

49.5.1 Description

Zendesk: Get Tickets Count step gets the tickets count matching the criteria query.

49.5.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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2	Base URL	Specify base URL of Zendesk instance. For example, https://xxxx.zendesk.com for on cloud instance. The data type is string. This field is mandatory.
	Token:	
3	Accept Values as variable/ static	Leave checkbox unchecked to accept Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Token field to appear as Text box.
4	Access Token	Access token retrieved from OAuth token API call.
5	Test Connection	Click to verify whether the connection is established or not.

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Criteria Query	Fetches all Zendesk tickets matching the criteria query. Sample criteria query: Syntax: fieldname:fieldvalue Example: subject: AEPS priority< 2 custom_field_5076335924765:yes

Output Tab		
No.	Field Name	Description
	Output Field:	
1	Total Tickets	Holds the count of records returned by the criteria query. Default value: TotalRecords.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message.

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		If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values

49.6 Zendesk: Update Ticket

49.6.1 Description

Zendesk: Update Ticket step updates an existing ticket on a Zendesk instance.

49.6.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify base URL of Zendesk instance. For example, https://xxxx.zendesk.com for on cloud instance. The data type is string. This field is mandatory.
	Token:	
3	Accept Values as variable/ static	Leave checkbox unchecked to accept Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Token field to appear as Text box.
4	Access Token	Access token retrieved from OAuth token API call.
5	Test Connection	Click to verify whether the connection is established or not.

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Ticket ID	Select ticket ID for which you want to update the tickets.
2	Accept Fields as JSON	Enable checkbox to accept field names as JSON input. In the JSON text you can have dynamic fields to insert rather than static fields to be provided in the Table Fields. Leave this unchecked to provide Table Fields as input.
3	JSON	JSON text should contain key-value pairs enclosed by double quotes (“) enclosure. Provide all the required or mandatory fields and other fields to be inserted as keys in the JSON.

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		If 'Accept Fields as JSON' checkbox is enabled, then this field is activated. Choose a field containing the JSON text.
		
		The data type is string. If 'Accept Fields as JSON' is selected this field is mandatory.
		
		Sample JSON key value pairs:
		The following sample contains one record. You may add more records in curly braces.
		[
		{
		"subject": "My printer is on fire!",
		"status":"open"
		}
		]

4	Form Name	Select the name of the form to be selected to update the ticket.
5	Get	Click to populate the list of form names on the Zendesk instance.
	Table Fields:	If 'Accept Fields as JSON' is not selected then the fields in this table are mandatory.
6	Variable Field Name	Select values from previous fields in the stream/environment variables or variables. For example, run-time parameters for incident fields.
7	Static Field Name	On click of this cell, fields associated with the form (incident in this case) are displayed. **Note:** One of either Variable Field Name or Static Field Name must be provided. If both are provided then Static Field Name is taken.
8	Field Value	Select valid updated values for the field associated with the field name. The data type is string. This field is mandatory.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.

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2	Cancel	On click of this button, it will cancel the window and do not save any values

49.7 Zendesk: Upload Attachment

49.7.1 Description

Zendesk: Upload Attachment step uploads an attachment to an existing ticket on a Zendesk instance.

49.7.2 Configurations

General Tab:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify base URL of Zendesk instance. For example, https://xxxx.zendesk.com for on cloud instance. The data type is string. This field is mandatory.
	Token:	
3	Accept Values as variable/ static	Leave checkbox unchecked to accept Token value from a field in the previous steps of the stream using a drop down list. Else enable checkbox for Token field to appear as Text box.
4	Access Token	Access token retrieved from OAuth token API call.
5	Test Connection	Click to verify whether the connection is established or not.

Input Tab		
No.	Field Name	Description
	Input Fields:	
1	Ticket ID	Specify an existing ticket ID to upload the attachment. The data type is string. This field is mandatory.
2	File Name	Specify the name of the file you want to upload. The data type is string. This field is mandatory.
	Button: Get	Click to populate the file name field.
3	Comment	Specify a comment related to uploading an attachment.

Common Buttons:

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No.	Field Name	Description
	Buttons:	
1	OK	On click of this button. It will check the field values. If any required field values are missing, then it will display validation error message. If all the required field values are provided then it will save the field values.
2	Cancel	On click of this button, it will cancel the window and do not save any values.

50 ZohoDesk

Prerequisite:

- Zoho Desk Account with Subscription with administrative access.
- Refresh Token should be known.

Note:

Access Token: Using a Refresh Token a client can create up to 10 access tokens in a span of 10 minutes. If the limit is reached, the access token creation is blocked for 10 minutes.

50.1 Zoho Desk: Create Ticket

50.1.1 Description

Zoho Desk: Create Ticket plugin step creates a new ticket on the specified Zoho Desk instance.

References:

- https://desk.zoho.com/DeskAPIDocument#Tickets#Tickets_Createaticket
- https://desk.zoho.com/DeskAPIDocument#OauthTokens

Important information:

1. **Getting Department ID:**
    a. Log on to your Zoho Desk account.
    b. Click on the cog wheel in the top-right corner to open the **Settings** menu or press **S**.
    c. Under the **GENERAL** section, click the **Departments** menu.
    d. Click on the *default department name* link under the **ACTIVE** tab.
    e. Go to the browser URL area and copy the last part, that is, the *Long number format* of an URL.

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2. **Getting Contact ID:**
    a. Log on to your Zoho Desk account.
    b. Click on the cog wheel in the top-right corner to open the **Settings** menu or press the **S**.
    c. Under the **CUSTOMERS** section, click on any default **Contact Name**.
    d. Go to the browser URL area and copy the last part, that is, the *Long number format* of an URL.
3. **Getting Layout ID:**
    a. Log on to your Zoho Desk account.
    b. Click on the cog wheel in the top-right corner to open the **Settings** menu or press the **S**.
    c. Under the **CUSTOMIZATION** section, click the **Layouts and Fields** menu.
    d. Click on any layout **Name** link under.
    e. Go to the browser URL area and copy the last part, that is, the *Long number format* of an URL.

50.1.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify a base URL of Zoho Desk instance. The field data type is String. This is mandatory.
3	Client ID	Specify the client ID of Zoho Desk instance. The field data type is String. This is mandatory.
4	Client Secret	Specify the client secret of the Zoho Desk instance. The field data type is String. This is mandatory.
5	Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list. Else select the checkbox for the Refresh Token field to appear as Text box.
6	Refresh Token	Retrieve the refresh token from OAuth token API call. The field data type is Secure String. This is mandatory.
7	Test Connection	Click Test Connection button to verify whether the connection is available or not.

Input tab:		
No.	Field Name	Description
1	Accept Field As JSON	Select the checkbox, if you want to use the field to create the ticket. Else, specify the details in the Table Fields to create the ticket.

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2	JSON	Provide JSON in a valid format to create the ticket. For example, {"departmentId": "95549000000010772", "contactId": "95549000000146144", "subject": "Here's your first ticket", "layoutId": "95549000000011350"}
	Input table: Specify the details if you have not selected the Accept Field As JSON checkbox.	
2.a	Variable Field Name	Specify the value from the previous field or run-time parameters.
2.b	Static Field Name	Click in the input table, fields associated with Create Ticket are populated.
2.c	Field Values	Specify value of the respective field associated with the field name.
3	Form Name	Select the name of the form to set the Form or Layout. The field data type is String. This is mandatory.
4	Get	Click to populate the list of form names in Zoho Desk.

Output tab:		
No.	Field Name	Description
1	Ticket ID	Holds the result of the successful plugin execution. Default value: *TicketID*

50.2 Zoho Desk: Delete Ticket

50.2.1 Description

Zoho Desk: Delete Ticket plugin step deletes an existing ticket on the specified Zoho Desk instance.

References:

- https://desk.zoho.com/DeskAPIDocument#Tickets#Tickets_MoveTicketstotrash
- https://desk.zoho.com/DeskAPIDocument#OauthTokens

50.2.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify a base URL of Zoho Desk instance. The field data type is String. This is mandatory.
3	Client ID	Specify the client ID of Zoho Desk instance. The field data type is String. This is mandatory.

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4	Client Secret	Specify the client secret of the Zoho Desk instance. The field data type is String. This is mandatory.
5	Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list. Else select the checkbox for the Refresh Token field to appear as Text box.
6	Refresh Token	Retrieve the refresh token from OAuth token API call. The field data type is Secure String. This is mandatory.
7	Test Connection	Click Test Connection button to verify whether the connection is available or not.

Input tab:		
No.	Field Name	Description
1	Ticket ID	Specify the ticket ID for which you want to delete the ticket. The field data type is String. This is mandatory.

50.3 Zoho Desk: Download Attachments

50.3.1 Description

Zoho Desk: Download Attachments plugin step downloads attachments for a ticket on a specified Zoho Desk instance.

References:

- https://desk.zoho.com/DeskAPIDocument#Articles_Downloadarticletranslationattachment
- https://desk.zoho.com/DeskAPIDocument#OauthTokens

50.3.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify a base URL of Zoho Desk instance. The field data type is String. This is mandatory.
3	Client ID	Specify the client ID of Zoho Desk instance. The field data type is String. This is mandatory.
4	Client Secret	Specify the client secret of the Zoho Desk instance. The field data type is String. This is mandatory.
5	Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list.

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		Else select the checkbox for the Refresh Token field to appear as Text box.
6	Refresh Token	Retrieve the refresh token from OAuth token API call. The field data type is Secure String. This is mandatory.
7	Test Connection	Click Test Connection button to verify whether the connection is available or not.

Input tab:		
No.	Field Name	Description
1	Ticket ID	Specify the ticket ID from which you want to download the attachments. The field data type is String. This is mandatory.
2	Output Folder Path	Specify the folder to store the downloaded file. The field data type is String. This is mandatory.
3	Browse	Click to bring up the dialog to select the output folder path.
	Additional Input tab:	
4	Delete Output Folder Contents Before Downloading	Specify *Yes* to delete output folder contents before downloading else specify *No*. Allowed values: Yes, No Default value: No
5	Add DateTimeStamp For Duplicate File	Specify *Yes* to add Date TimeStamp for duplicate files. Allowed values: *Yes*, *No*. Default value: *No*
6	Add File To Result	Specify *Yes* to add the downloaded files to the result set and display the download link on AE, else select *No*. Allowed values: *Yes*, *No*. Default value: *No*

Output tab:		
No.	Field Name	Description
1	Total Files	Specify the output field to hold the result of the successful plugin execution. Default value: TotalFiles
2	Download Files	Specify the output field to hold the result of the successful plugin execution. Default value: *DownloadedFiles*
3	Overwritten Files	Specify the output field to hold the result of the successful plugin execution. Default value: *Overwrittenfiles*

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50.4 Zoho Desk: Get Tickets

50.4.1 Description

Zoho Desk: Get Tickets plugin step fetches the tickets matching the criteria query.

References:

- https://desk.zoho.com/DeskAPIDocument#Tickets#Tickets_Getaticket
- https://desk.zoho.com/DeskAPIDocument#OauthTokens

50.4.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify a base URL of Zoho Desk instance. The field data type is String. This is mandatory.
3	Client ID	Specify the client ID of Zoho Desk instance. The field data type is String. This is mandatory.
4	Client Secret	Specify the client secret of the Zoho Desk instance. The field data type is String. This is mandatory.
5	Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list. Else select the checkbox for the Refresh Token field to appear as Text box.
6	Refresh Token	Retrieve the refresh token from OAuth token API call. The field data type is Secure String. This is mandatory.
7	Test Connection	Click Test Connection button to verify whether the connection is available or not.

Input tab:		
No.	Field Name	Description
1	Form Name	Select the name of the form to set the Form or Layout. The field data type is String. This is mandatory.
2	Criteria Query	Fetches all Zoho Desk tickets matching the criteria query. For example, subject= "Test Ticket" The field data type is String. This is mandatory. **Note:** NOT, AND, and OR operators are not supported for criteria queries.

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3	Fetch Records Batch Size	Specify the record batch size, which will give the output. The provision will fetch the records in the provided batches.
4	Get Top N Records	Fetch the Top N records matching the criteria query.

Output tab:		
No.	Field Name	Description
1	Field Name	Click in the input table, fields associated with the Form Name will populate.
2	Output Field Name	Holds value of the respective field associated with the field name.
3	Get Fields	Click to get the field names and output field names.

50.5 Zoho Desk: Update Ticket

50.5.1 Description

Zoho Desk: Update Ticket plugin step updates an existing ticket on a specified Zoho Desk instance.

References:

- https://desk.zoho.com/DeskAPIDocument#Tickets#Tickets_Updateaticket
- https://desk.zoho.com/DeskAPIDocument#OauthTokens

50.5.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Base URL	Specify a base URL of Zoho Desk instance. The field data type is String. This is mandatory.
3	Client ID	Specify the client ID of Zoho Desk instance. The field data type is String. This is mandatory.
4	Client Secret	Specify the client secret of the Zoho Desk instance. The field data type is String. This is mandatory.
5	Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list. Else select the checkbox for the Refresh Token field to appear as Text box.

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6	Refresh Token	Retrieve the refresh token from OAuth token API call. The field data type is Secure String. This is mandatory.
7	Test Connection	Click Test Connection button to verify whether the connection is available or not.

Input tab:		
No.	Field Name	Description
1	Ticket ID	Specify the ticket ID for which you want to update the tickets. The field data type is String. This is mandatory.
2	Accept Field As JSON	Select the checkbox, if you want to use the field to update the ticket. Else, specify the details in the Table Fields to update the ticket.
3	JSON	Provide JSON in a valid format to update the ticket. For example, {"subject": "ZohoDesk Ticket Demo"}
	Input table: Specify the details if you have not selected the Accept Field As JSON checkbox.	
2.a	Variable Field Name	Specify the value from the previous field or run-time parameters.
2.b	Static Field Name	Click in the input table, fields associated with Update Ticket are populated.
2.c	Field Values	Specify value of the respective field associated with the field name.
3	Form Name	Select the name of the form to set the Form or Layout. The field data type is String. This is mandatory.
4	Get	Click to populate the list of form names in Zoho Desk.

50.6 Zoho Desk: Upload Attachment

50.6.1 Description

Zoho Desk: Upload Attachment plugin step upload an attachment to an existing ticket on a specified Zoho Desk instance.

References:

- https://desk.zoho.com/DeskAPIDocument#Uploads#Uploads_Uploadfile
- https://desk.zoho.com/DeskAPIDocument#OauthTokens

50.6.2 Configurations

Configuration:		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	

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2	Base URL	Specify a base URL of Zoho Desk instance. The field data type is String. This is mandatory.
3	Client ID	Specify the client ID of Zoho Desk instance. The field data type is String. This is mandatory.
4	Client Secret	Specify the client secret of the Zoho Desk instance. The field data type is String. This is mandatory.
5	Accept value as variable/static	Leave checkbox unchecked to accept Refresh Token value from a field in the previous steps of the stream using a drop down list. Else select the checkbox for the Refresh Token field to appear as Text box.
6	Refresh Token	Retrieve the refresh token from OAuth token API call. The field data type is Secure String. This is mandatory.
7	Test Connection	Click Test Connection button to verify whether the connection is available or not.

Input tab:		
No.	Field Name	Description
1	Ticket ID	Specify the ticket ID for which you want to upload the attachment. The field data type is String. This is mandatory.
2	File Name	Specify the file which you want to upload on the ZohoDesk instance. The field data type is String. This is mandatory.
3	Public	Specify *true* or *false*. If a user provides: • *true*: attachment is marked as Public • *false*: attachment is marked as Private
4	Browse	Click to bring up the dialog to select the Input file path.

Output tab:		
No.	Field Name	Description
1	Attachment ID	Holds the result of the successful plugin execution. Default value: *AttachmentID*

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IV. Appendices

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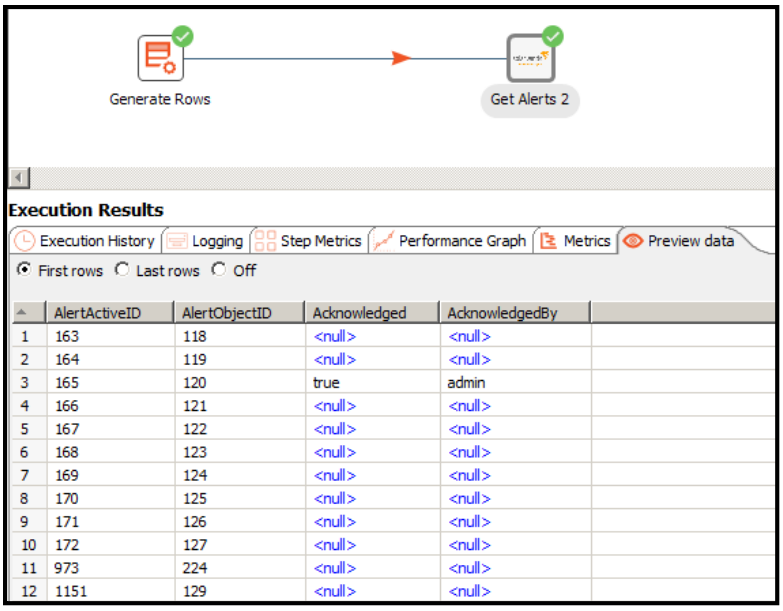
1 Appendix 1: Error Handling in IT Plugins

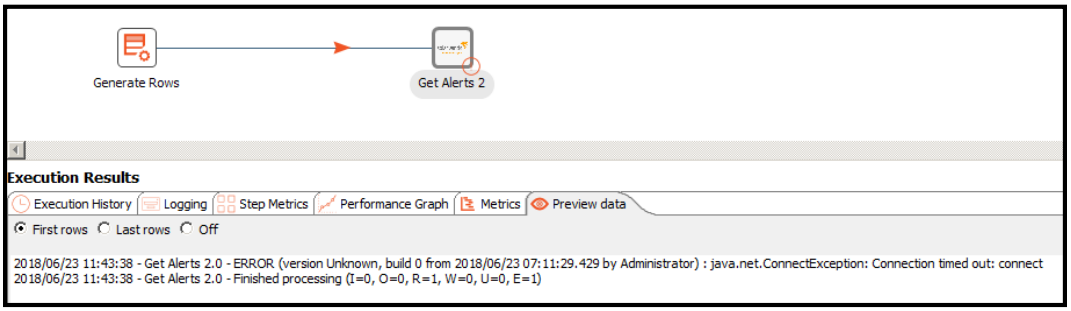
This appendix describes Error Handling for IT plugins.

1. Upon Successful execution of steps in Process Studio a workflow completes successfully and any output fields data is displayed.

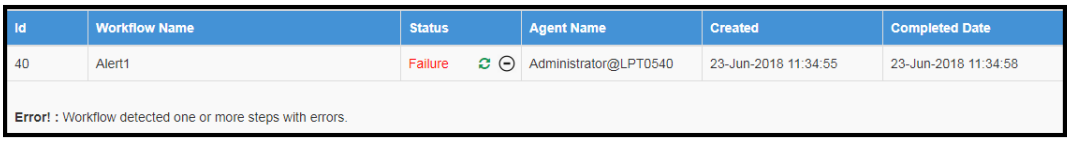


	AlertActiveID	AlertObjectID	Acknowledged	AcknowledgedBy
1	163	118	<null>	<null>
2	164	119	<null>	<null>
3	165	120	true	admin
4	166	121	<null>	<null>
5	167	122	<null>	<null>
6	168	123	<null>	<null>
7	169	124	<null>	<null>
8	170	125	<null>	<null>
9	171	126	<null>	<null>
10	172	127	<null>	<null>
11	973	224	<null>	<null>
12	1151	129	<null>	<null>

2. In case any step fails the workflow aborts.



3. On AutomationEdge the Error Message displayed is- Workflow detected one or more steps with errors.



Id	Workflow Name	Status	Agent Name	Created	Completed Date
40	Alert1	Failure	Administrator@LPT0540	23-Jun-2018 11:34:55	23-Jun-2018 11:34:58

Error! : Workflow detected one or more steps with errors.

4. To get the exact error message as displayed in Process Studio error handling needs to be done in the process studio workflow as shown below.
    - Add two Set Workflow Result steps as seen below, one for workflow success and the other one for error handling.

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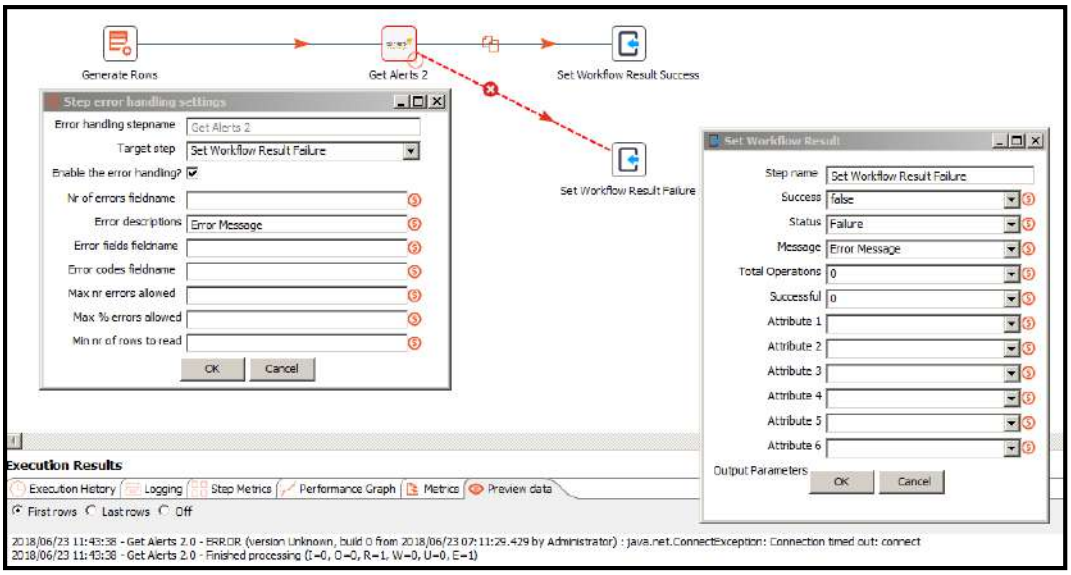
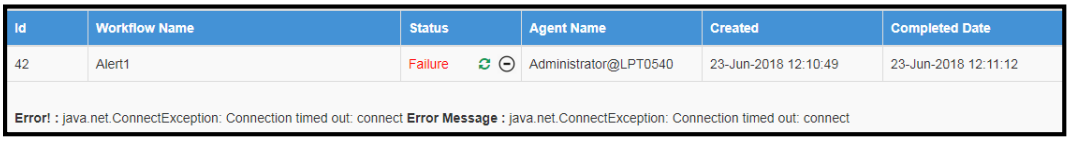
- Now right click the IT Plugin step (Alert) and provide a name for Error Descriptions field (In this case 'Error Message).
- In the Set Workflow Result Failure select this field, 'Error Message' from the Message drop down combo box.



5. If the workflow is now published on AutomationEdge and run, it displays the complete error message as shown below.



2 Appendix 2: PowerShell Setup- Active Directory

2.1 Prerequisites for Active Directory on client machine

1. PowerShell Version 5 and above.
2. Active Directory role installed on Server Manager on targeted server
3. 'ActiveDirectory' module on localhost and AD server
4. Sufficient Privileges for Active Directory Server

2.2 Set PowerShell Execution Policy

1. Open PowerShell command prompt in Run as Administrator mode:

   Go to **Start**-> Search **PowerShell** -> Right Click on **Windows PowerShell** -> Click **Run as Administrator option**

2. Change execution policy of computer to allow running PowerShell scripts by using below: **command**: Set-ExecutionPolicy unrestricted –Force.

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3. Check if execution policy is changed by using below command: **command**: Get-ExecutionPolicy.

2.3 Updating PowerShell Version

1. **Download Windows Management Framework from below url :(Windows PowerShell version 5.1)**
   https://www.microsoft.com/en-us/download/details.aspx?id=54616

   System requirements:
   WMF 5.1 requires Microsoft .NET Framework 4.5 or above. You can install Microsoft .NET Framework 4.5 or above by following the instructions at Installing the .NET Framework.
   Use a 64-bit version of Windows. Support for the 32-bit version the Microsoft Azure Active Directory Module for Windows PowerShell was discontinued in October, 2014.
   Need to restart machine once “Windows Management Framework 5.1 “installation is completed.
   Note: Open PowerShell by right clicking and select Run As Administrator option and use below commands on that terminal to proceed with module installation.
2. **Check if PowerShell version is updated to 5.1 using below command:**

   Command: $PSVersionTable
   Expected output:

Name	Value
---	---
PSVersion	5.1.14409.1005
PSEdition	Desktop
PSCompatibleVersions	{1.0, 2.0, 3.0, 4.0...}
BuildVersion	10.0.14409.1005
CLRVersion	4.0.30319.42000
WSManStackVersion	3.0
PSRemotingProtocolVersion	2.3
SerializationVersion	1.1.0.1

2.4 Modules required for Active Directory Plugins:

Module name: ActiveDirectory

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Use below command to check available modules via powershell(Open powershell with run as Administrator mode) :

command: Get-Module -ListAvailable -Name ActiveDirectory

Expected output:

Directory: C:\Windows\system32\WindowsPowerShell\v1.0\Modules

ModuleType	Version	Name	ExportedCommands
Manifest	1.0.0.0	ActiveDirectory	{Get-ADRootDSE, New-ADObject, Rename-ADObject, Move-ADObject...}

In normal Windows Desktop OS Active Directory module needs to be installed and setup. In case of Windows Server OS Active Directory module can be setup using Add features in Server Manger.

In the following sections we describe Active Directory module setup on both Windows Desktop OS and Windows Server OS.

2.5 Install Active Directory Module on Windows Desktop OS

If Active Directory module is not already installed on Windows Desktop OS following are the steps for Active Directory module installation and setup.

2.5.1 Prerequisites

You can use the following versions of Windows:

- Windows 10, Windows 8.1, Windows 8 or Windows 7 Service Pack 1 (SP1)

2.5.2 Step 1: Install required software

Note: These steps are required once on your computer, not every time you connect.

1. Requires Microsoft .NET Framework 4.5 or above. You can install Microsoft .NET Framework 4.5 or above by following the instructions at Installing the .NET Framework.
2. Download and install RSAT (Remote Server Administration Tools) for supported windows version by referring below locations:

   Note: Need to restart machine once RSAT is installed

   Download locations for RSAT:

   - Remote Server Administration Tools for Windows 10
   - Remote Server Administration Tools (RSAT) for Windows 8.1
   - Remote Server Administration Tools (RSAT) for Windows 8

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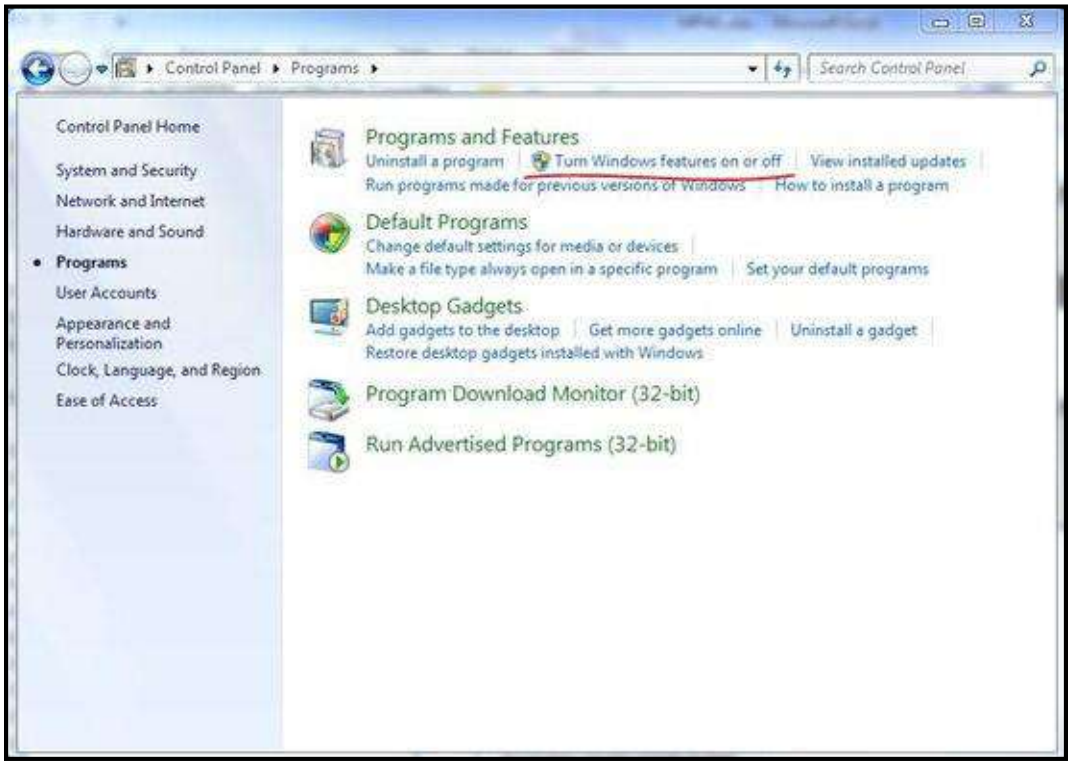
- Remote Server Administration Tools (RSAT) for Windows 7 with SP1 (both x86 and x64)
- Remote Server Administration Tools (RSAT) for Windows Vista 32-bit (x86)
- Remote Server Administration Tools (RSAT) for Windows Vista 64-bit (x64)

2.5.3 Step 2: Enable Tools

You must enable the tools that you want to use by using Control Panel. To do this, click **Start**, click **Control Panel**, click **Programs and Features**, and then click **Turn Windows features on or off**.

In the RSAT releases for Windows 10, Windows 8.1, and Windows 8, tools are again all enabled by default. You can open **Turn Windows features on or off** to disable tools that you don't want to use. In RSAT for Windows 10, Windows 8.1, and Windows 8, you access GUI-based tools on the **Tools** menu from within the Server Manager console.



For RSAT on Windows Vista and Windows 7, you must enable the tools for the roles and features that you want to manage after you run the downloaded installation package.

Note: You don't have to do this for RSAT on Windows 8 or later versions.

To install Active Directory on Windows Vista and Windows 7, click on **Remote Server Administration Tools**, click on **Role Administration Tools**, check the **AD DS and AD LDS Tools** option and click on **OK**.

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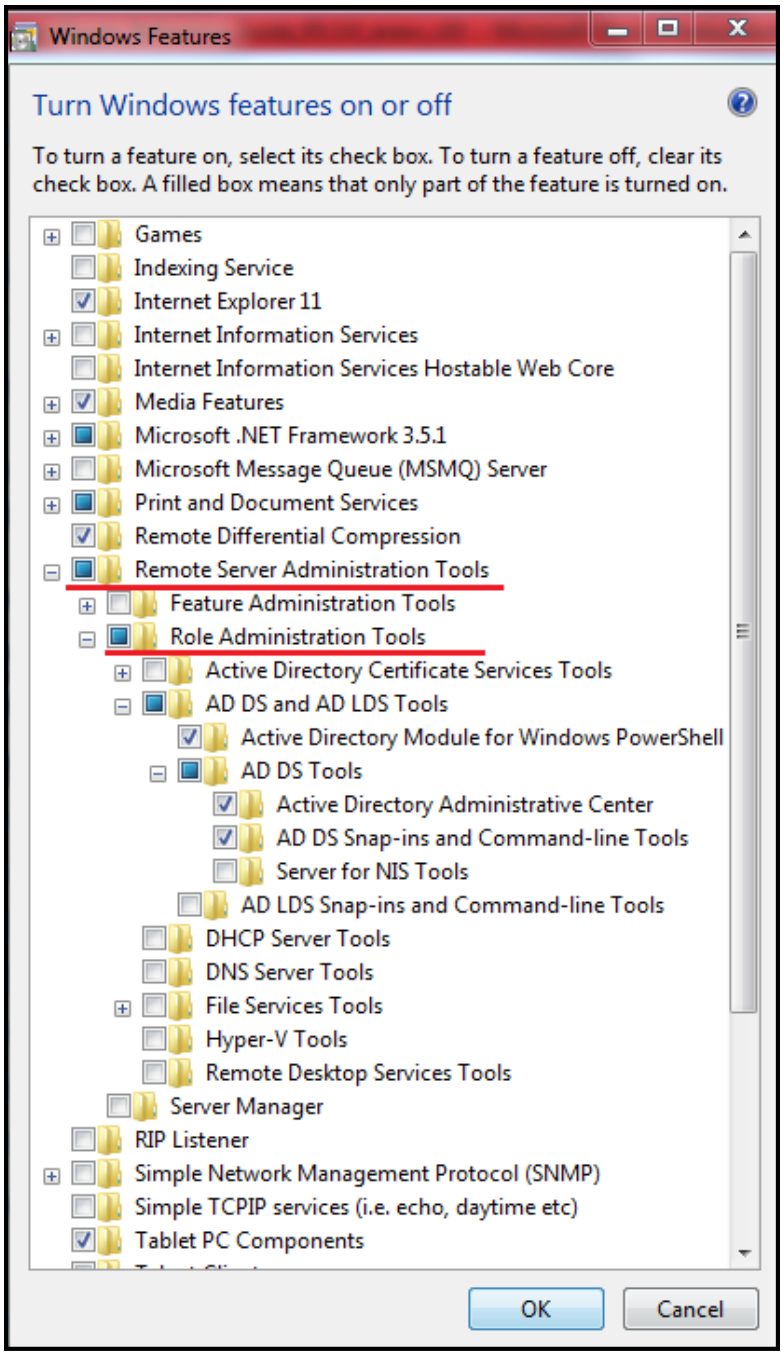

2.6 Install ActiveDirectory Module on Windows Server OS

2.6.1 Prerequisites

You can use the following versions of Windows:

- Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, or Windows Server 2008 R2 SP1

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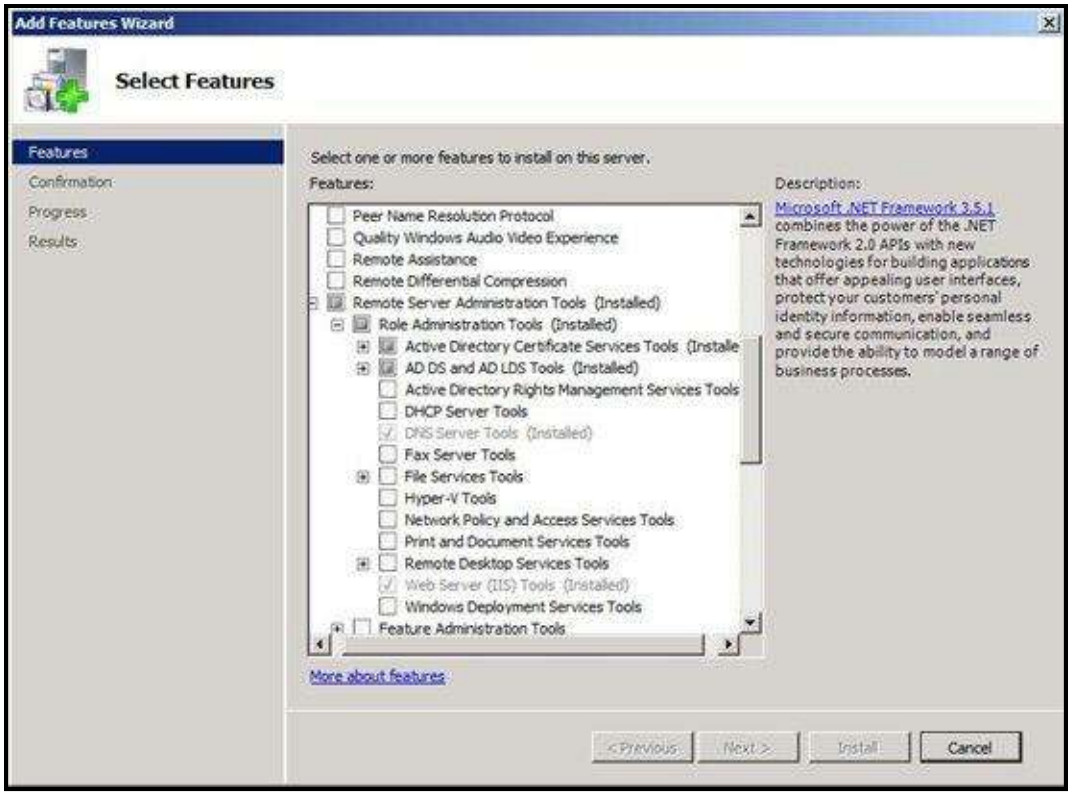
2.6.2 Step 1: Install required software

Note: These steps are required once on your computer, not every time you connect.

- Requires Microsoft .NET Framework 4.5 or above. You can install Microsoft .NET Framework 4.5 or above by following the instructions at Installing the .NET Framework.

2.6.3 Step 2: Enable Tools

If you have to install management tools on Windows Server 2008, Windows Server 2008 R2, Windows Server 2012, or Windows Server 2012 R2 for specific roles or features that are running on remote servers, you don't have to install additional software. Start the Add Features Wizard in Windows Server 2008 or Windows Server 2008 R2 or the Add Roles and Features Wizard in Windows Server 2012 and later versions. Then, on the **Select Features** page, expand **Remote Server Administration Tools**, and then select the tools that you want to install. Complete the wizard to install your management tools.



2.6.4 Step 3: Confirm Module Availability

Use below command to check available modules via powershell (Open powershell with run as Administrator mode):

command: Get-Module -ListAvailable -Name ActiveDirectory

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Expected output:

Directory: C:\Windows\system32\WindowsPowerShell\v1.0\Modules

ModuleType	Version	Name	ExportedCommands
Manifest	1.0.0.0	ActiveDirectory	{Get-ADRootDSE, New-ADObject, Rename-ADObject, Move-ADObject...}

3 Appendix 3: PowerShell Setup - Azure AD

3.1 Pre-requisites for Microsoft Azure use cases:

1. Download Windows Management Framework from below url: (Windows PowerShell version 5.1**)**

   https://www.microsoft.com/en-us/download/details.aspx?id=54616

2. **System Requirements:**
   - WMF 5.1 requires Microsoft .NET Framework 4.5 or above. You can install Microsoft .NET Framework 4.5 or above by following the instructions at Installing the .NET Framework.
   - Use a 64-bit version of Windows. Support for the 32-bit version the Microsoft Azure Active Directory Module for Windows PowerShell was discontinued in October, 2014.
   - Need to restart machine once “Windows Management Framework 5.1” installation is completed.

NOTE: Open PowerShell by right clicking and select Run as Administrator option and use below commands on that terminal to proceed with module installation.

3.2 Check if PowerShell version is 5.1 using below command:

Command: $PSVersionTable

Expected output:

```
Name                           Value
----                           -----
PSVersion                      5.1.14409.1005
PSEdition                      Desktop
PSCompatibleVersions           {1.0, 2.0, 3.0, 4.0...}
BuildVersion                   10.0.14409.1005
CLRVersion                     4.0.30319.42000
WSManStackVersion              3.0
PSRemotingProtocolVersion      2.3
SerializationVersion           1.1.0.1
```

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3.3 Install AzureRM module for Microsoft Azure:

Download **AzureRM** Module using below command: (Choose option as Yes i.e. Y or option A i.e. Yes To All option while installing module when there is any prompt for input)

Use below command to install module:

Command: Install-Module AzureRM

3.4 Import AzureRM Module using below command:

Command: Import-Module AzureRM
Check if AzureRM module is installed using below command:

Command: Get-Module -ListAvailable -Name AzureRM
Expected output:

```
    Directory: C:\Program Files\WindowsPowerShell\Modules


ModuleType Version    Name                                ExportedCommands
---------- -------    ----                                ----------------
Script     5.0.1      AzureRM                             {Add-AzureAnalysisServicesAccount, Add-
AzureKeyVaultCertificate, Add-AzureKeyVaultCertificateContact, Add-AzureK...
```

Below sub-modules will be required to run Microsoft Azure use cases:
Once **AzureRM** module is installed, it also installs sub-modules. Check if all modules and sub-modules are installed properly using below command:

Command: Get-Module -ListAvailable
Expected output:

```
    Directory: C:\Program Files\WindowsPowerShell\Modules


ModuleType Version    Name                                ExportedCommands
---------- -------    ----                                ----------------
Script     5.1.1      Azure                               {Get-AzureAutomationCertificate, Get-
AzureAutomationConnection, New-AzureAutomationConnection, Remove-AzureAutom...
Script     0.5.0      Azure.AnalysisServices              {Add-AzureAnalysisServicesAccount, Restart-
AzureAnalysisServicesInstance, Export-AzureAnalysisServicesInstanceLo...
Script     4.0.2      Azure.Storage                       {Get-AzureStorageTable, New-
AzureStorageTableSASToken, New-AzureStorageTableStoredAccessPolicy, New-AzureStorage...
Script     4.0.0      Azure.Storage                       {Get-AzureStorageTable, New-
AzureStorageTableSASToken, New-AzureStorageTableStoredAccessPolicy, New-AzureStorage...
Binary     2.0.0.131  AzureAD                             {Add-AzureADApplicationOwner, Get-
AzureADApplication, Get-AzureADApplicationExtensionProperty, Get-AzureADApplic...
Script     5.0.1      AzureRM                             {Add-AzureAnalysisServicesAccount, Add-
AzureKeyVaultCertificate, Add-AzureKeyVaultCertificateContact, Add-AzureK...
Script     0.5.0      AzureRM.AnalysisServices            {Resume-AzureRmAnalysisServicesServer,
Suspend-AzureRmAnalysisServicesServer, Get-AzureRmAnalysisServicesServer,...
Script     5.0.1      AzureRM.ApiManagement               {Add-AzureRmApiManagementRegion, Get-
AzureRmApiManagementSsoToken, New-AzureRmApiManagementHostnameConfiguration...
```

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```
Script  0.1.0   AzureRM.ApplicationInsights     {Get-AzureRmApplicationInsights, New-
AzureRmApplicationInsights, Remove-AzureRmApplicationInsights, Set-AzureRmA...
Script  4.0.0   AzureRM.Automation              {Get-AzureRMAutomationHybridWorkerGroup, Get-
AzureRmAutomationJobOutputRecord, Import-AzureRmAutomationDscNodeCo...
Script  4.0.1   AzureRM.Backup                  {Backup-AzureRmBackupItem, Enable-
AzureRmBackupContainerReregistration, Get-AzureRmBackupContainer, Register-Azu...
Script  4.0.1   AzureRM.Batch                   {Remove-AzureRmBatchAccount, Get-
AzureRmBatchAccount, Get-AzureRmBatchAccountKeys, New-AzureRmBatchAccount...}
Script  0.14.0  AzureRM.Billing                 {Get-AzureRmBillingInvoice, Get-AzureRmBillingPeriod}
Script  4.0.0   AzureRM.Cdn                     {Get-AzureRmCdnProfile, Get-
AzureRmCdnProfileSsoUrl, New-AzureRmCdnProfile, Remove-AzureRmCdnProfile...}
Script  0.9.0   AzureRM.CognitiveServices       {Get-AzureRmCognitiveServicesAccount, Get-
AzureRmCognitiveServicesAccountKey, Get-AzureRmCognitiveServicesAccoun...
Script  4.0.1   AzureRM.Compute                 {Remove-AzureRmAvailabilitySet, Get-
AzureRmAvailabilitySet, New-AzureRmAvailabilitySet, Update-AzureRmAvailabili...
Script  0.3.0   AzureRM.Consumption             Get-AzureRmConsumptionUsageDetail
Script  0.1.0   AzureRM.ContainerInstance       {New-AzureRmContainerGroup, Get-
AzureRmContainerGroup, Remove-AzureRmContainerGroup, Get-AzureRmContainerInstanc...
Script  0.3.0   AzureRM.ContainerRegistry       {New-AzureRmContainerRegistry, Get-
AzureRmContainerRegistry, Update-AzureRmContainerRegistry, Remove-AzureRmCont...
Script  4.0.1   AzureRM.DataFactories          {Remove-AzureRmDataFactory, Get-
AzureRmDataFactoryRun, Get-AzureRmDataFactorySlice, Save-AzureRmDataFactoryLog...}
Script  0.3.0   AzureRM.DataFactoryV2          {Set-AzureRmDataFactoryV2, Get-
AzureRmDataFactoryV2, Remove-AzureRmDataFactoryV2, Set-AzureRmDataFactoryV2Linked...
Script  4.0.0   AzureRM.DataLakeAnalytics       {Get-AzureRmDataLakeAnalyticsDataSource,
New-AzureRmDataLakeAnalyticsCatalogCredential, Remove-AzureRmDataLakeAn...
Script  5.0.0   AzureRM.DataLakeStore          {Get-AzureRmDataLakeStoreTrustedIdProvider,
Remove-AzureRmDataLakeStoreTrustedIdProvider, Remove-AzureRmDataLake...
Script  4.0.0   AzureRM.DevTestLabs            {Get-AzureRmDtlAllowedVMSizesPolicy, Get-
AzureRmDtlAutoShutdownPolicy, Get-AzureRmDtlAutoStartPolicy, Get-AzureR...
Script  4.0.0   AzureRM.Dns                    {Get-AzureRmDnsRecordSet, New-
AzureRmDnsRecordConfig, Remove-AzureRmDnsRecordSet, Set-AzureRmDnsRecordSet...}
Script  0.2.0   AzureRM.EventGrid              {New-AzureRmEventGridTopic, Get-
AzureRmEventGridTopic, Set-AzureRmEventGridTopic, New-AzureRmEventGridTopicKey...}
Script  0.5.0   AzureRM.EventHub               {New-AzureRmEventHubNamespace, Get-
AzureRmEventHubNamespace, Set-AzureRmEventHubNamespace, Remove-AzureRmEventHu...
Script  4.0.1   AzureRM.HDInsight              {Get-AzureRmHDInsightJob, New-
AzureRmHDInsightSqoopJobDefinition, Wait-AzureRmHDInsightJob, New-AzureRmHDInsight...
Script  4.0.0   AzureRM.Insights               {Get-AzureRmMetricDefinition, Get-AzureRmMetric,
Remove-AzureRmLogProfile, Get-AzureRmLogProfile...}
Script  3.0.0   AzureRM.IotHub                 {Add-AzureRmIotHubKey, Get-
AzureRmIotHubEventHubConsumerGroup, Get-AzureRmIotHubConnectionString, Get-AzureRmIot...
Script  4.0.1   AzureRM.KeyVault               {Add-AzureKeyVaultCertificate, Set-
AzureKeyVaultCertificateAttribute, Stop-AzureKeyVaultCertificateOperation, Ge...
Script  4.0.0   AzureRM.LogicApp               {Get-AzureRmIntegrationAccountAgreement, Get-
AzureRmIntegrationAccountCallbackUrl, Get-AzureRmIntegrationAccount...
Script  0.16.0  AzureRM.MachineLearning        {Move-AzureRmMlCommitmentAssociation, Get-
AzureRmMlCommitmentAssociation, Get-AzureRmMlCommitmentPlanUsageHistor...
Script  0.2.0   AzureRM.MachineLearningCompute  {Get-AzureRmMlOpCluster, Get-
AzureRmMlOpClusterKey, Test-AzureRmMlOpClusterSystemServicesUpdateAvailability, Upd...
Script  0.2.0   AzureRM.MarketplaceOrdering     {Get-AzureRmMarketplaceTerms, Set-
AzureRmMarketplaceTerms}
Script  0.8.0   AzureRM.Media                 {Sync-AzureRmMediaServiceStorageKeys, Set-
AzureRmMediaServiceKey, Get-AzureRmMediaServiceKeys, Get-AzureRmMediaS...
Script  5.0.0   AzureRM.Network               {Add-
AzureRmApplicationGatewayAuthenticationCertificate, Get-
AzureRmApplicationGatewayAuthenticationCertificate,...
Script  4.0.0   AzureRM.NotificationHubs       {Get-AzureRmNotificationHub, Get-
AzureRmNotificationHubAuthorizationRules, Get-AzureRmNotificationHubListKeys, G...
```

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```
Script  4.0.0   AzureRM.OperationalInsights      {New-
AzureRmOperationalInsightsAzureActivityLogDataSource, New-
AzureRmOperationalInsightsCustomLogDataSource, Di...
Script  4.0.0   AzureRM.PowerBIEmbedded         {Remove-
AzureRmPowerBIWorkspaceCollection, Get-AzureRmPowerBIWorkspaceCollection, Get-
AzureRmPowerBIWorkspaceCol...
Script  4.1.1   AzureRM.profile                 {Disable-AzureRmDataCollection, Disable-
AzureRmContextAutosave, Enable-AzureRmDataCollection, Enable-AzureRmCont...
Script  4.0.1   AzureRM.RecoveryServices        {Get-AzureRmRecoveryServicesBackupProperty,
Get-AzureRmRecoveryServicesVault, Get-AzureRmRecoveryServicesVaultSe...
Script  4.0.1   AzureRM.RecoveryServices.Backup  {Backup-
AzureRmRecoveryServicesBackupItem, Get-AzureRmRecoveryServicesBackupManagementServer,
Get-AzureRmRecover...
Script  0.2.1   AzureRM.RecoveryServices.SiteRec... {Edit-
AzureRmRecoveryServicesAsrRecoveryPlan, Get-AzureRmRecoveryServicesAsrAlertSetting, Get-
AzureRmRecoverySer...
Script  4.0.1   AzureRM.RedisCache            {Remove-AzureRmRedisCachePatchSchedule,
New-AzureRmRedisCacheScheduleEntry, Get-AzureRmRedisCachePatchSchedule, ...
Script  0.3.0   AzureRM.Relay                 {New-AzureRmRelayNamespace, Get-
AzureRmRelayNamespace, Set-AzureRmRelayNamespace, Remove-AzureRmRelayNamespace...}
Script  5.0.0   AzureRM.Resources             {Get-AzureRmProviderOperation, Remove-
AzureRmRoleAssignment, Get-AzureRmRoleAssignment, New-AzureRmRoleAssignmen...
Script  0.16.0  AzureRM.Scheduler             {Disable-AzureRmSchedulerJobCollection, Enable-
AzureRmSchedulerJobCollection, Get-AzureRmSchedulerJobCollection,...
Script  4.0.0   AzureRM.ServerManagement      {Invoke-
AzureRmServerManagementPowerShellCommand, Get-AzureRmServerManagementSession, New-
AzureRmServerManagemen...
Script  0.5.0   AzureRM.ServiceBus            {New-AzureRmServiceBusNamespace, Get-
AzureRmServiceBusNamespace, Set-AzureRmServiceBusNamespace, Remove-AzureRmS...
Script  0.3.0   AzureRM.ServiceFabric         {Add-AzureRmServiceFabricApplicationCertificate,
Add-AzureRmServiceFabricClientCertificate, Add-AzureRmServiceFa...
Script  5.0.1   AzureRM.SiteRecovery          {Get-AzureRmSiteRecoveryFabric, New-
AzureRmSiteRecoveryFabric, Remove-AzureRmSiteRecoveryFabric, Stop-AzureRmSit...
Script  4.0.1   AzureRM.Sql                   {Get-AzureRmSqlDatabaseTransparentDataEncryption,
Get-AzureRmSqlDatabaseTransparentDataEncryptionActivity, Set-A...
Script  4.0.1   AzureRM.Storage               {Get-AzureRmStorageAccount, Get-
AzureRmStorageAccountKey, New-AzureRmStorageAccount, New-AzureRmStorageAccountKe...
Script  4.0.1   AzureRM.StreamAnalytics       {Get-AzureRmStreamAnalyticsFunction, Get-
AzureRmStreamAnalyticsDefaultFunctionDefinition, New-AzureRmStreamAnaly...
Script  4.0.0   AzureRM.Tags                  {Remove-AzureRmTag, Get-AzureRmTag, New-
AzureRmTag}
Script  4.0.0   AzureRM.TrafficManager        {Disable-AzureRmTrafficManagerEndpoint, Enable-
AzureRmTrafficManagerEndpoint, Set-AzureRmTrafficManagerEndpoint,...
Script  4.0.0   AzureRM.UsageAggregates       Get-UsageAggregates
Script  4.0.0   AzureRM.Websites              {Get-AzureRmAppServicePlan, Set-
AzureRmAppServicePlan, New-AzureRmAppServicePlan, Remove-AzureRmAppServicePlan...}
Binary  1.0.0.1 PackageManagement             {Find-Package, Get-Package, Get-
PackageProvider, Get-PackageSource...}
Script  1.0.0.1 PowerShellGet                 {Install-Module, Find-Module, Save-Module, Update-
Module...}
```

3.5 Azure VM plugins parameters:

1. Subscription Id:
   - Goto portal.azure.com. Login with your credentials. Goto “Subscriptions” tab on the left hand side and copy the “Subscription Id”.

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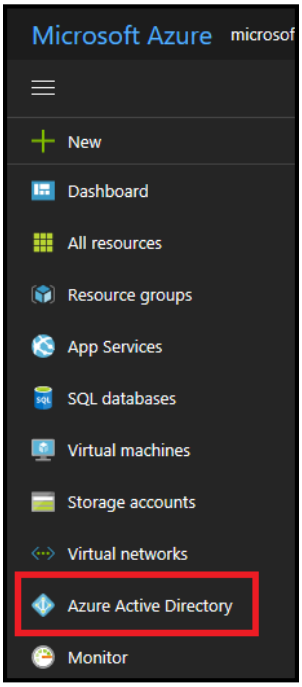
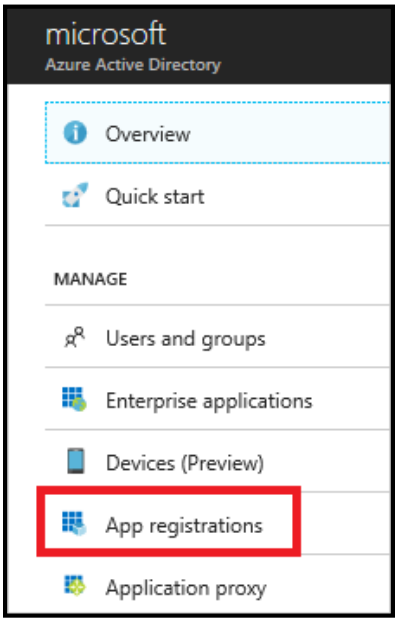
2. Client Id and Authentication Key:
   - Create an Azure Active Directory application.
   - Select Azure Active Directory.



   - Select **App registrations**.



   - Select **New application registration**.

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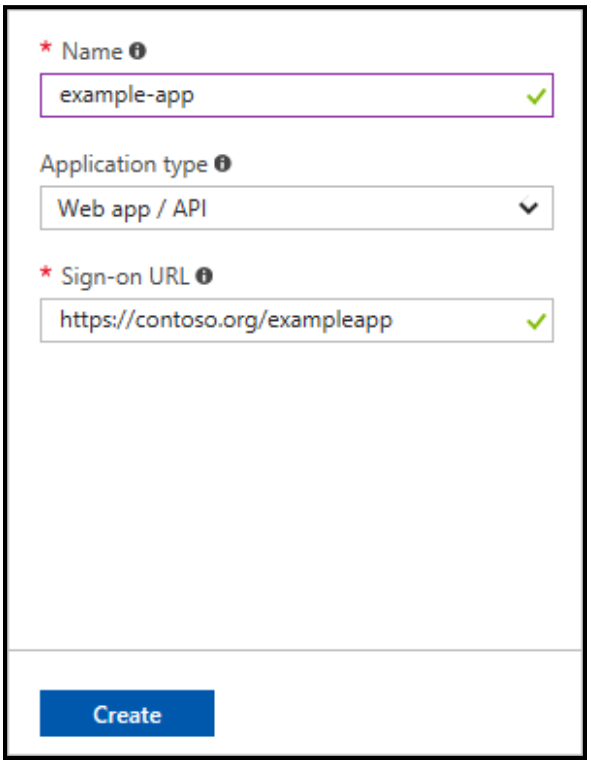
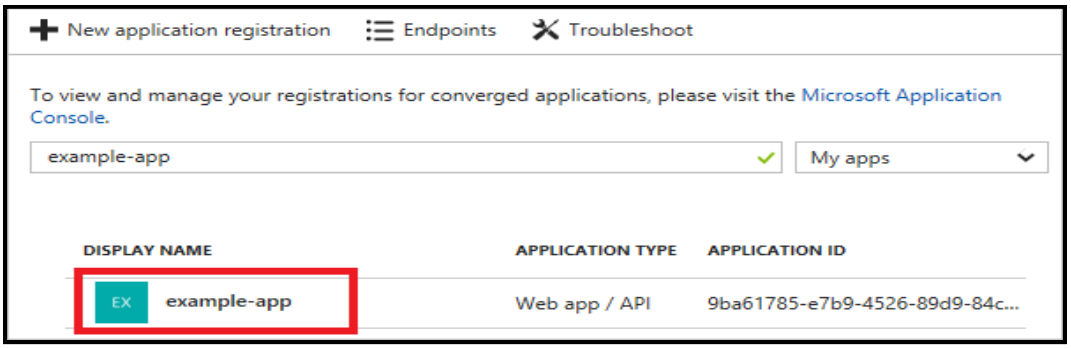
- Provide a name and URL for the application. Select **Web app / API** for the type of application you want to create. You cannot create credentials for a **Native** application; therefore, that type does not work for an automated application. After setting the values, select **Create**.



You have created your application.

- From **App registrations** in Azure Active Directory, select your application.



- Copy the **Application ID** and store it in your application code. This is your "Client Id".

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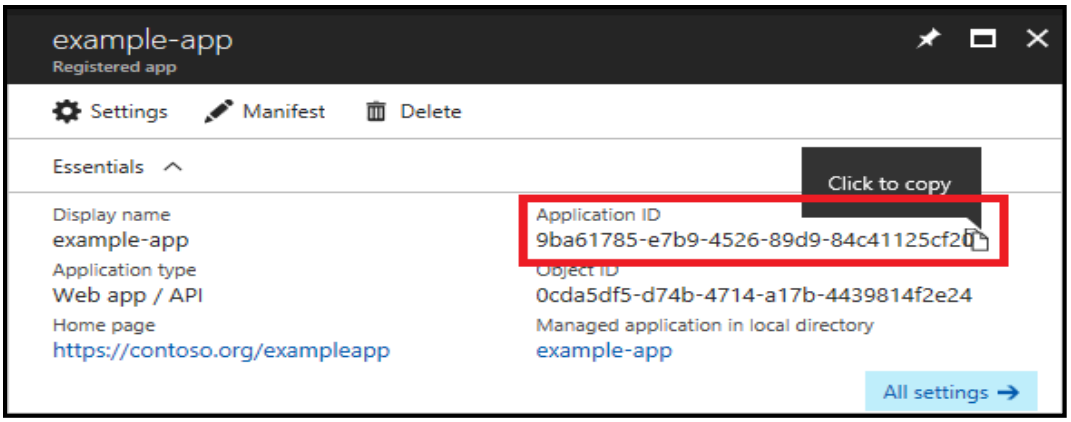
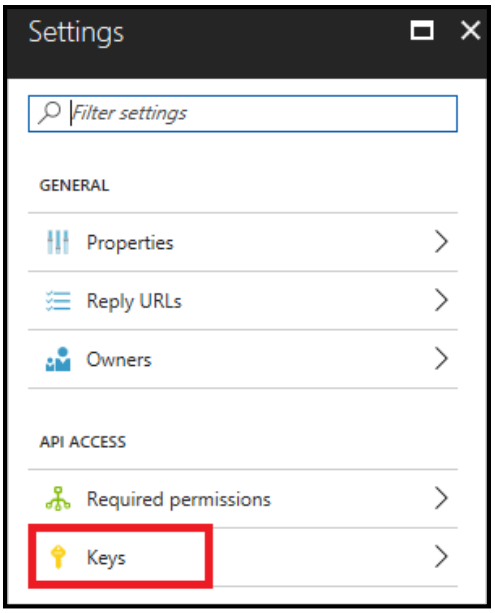
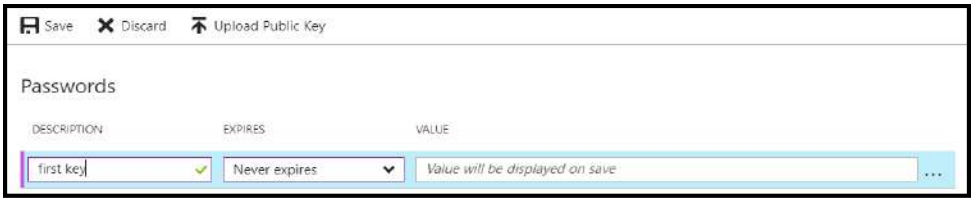


- To generate an authentication key, select Settings option as shown in above image and then select **Keys**.



- Provide a description of the key, and duration for the key. When done, select **Save**.



- After saving the key, the value of the key is displayed. Copy this value because you are not able to retrieve the key later. You provide the key value with the application ID to log in as the application. Store the key value where your application can retrieve it.
- Users can generate keys as per their requirements. I.e for 1 year, 2 years and never expiring key.

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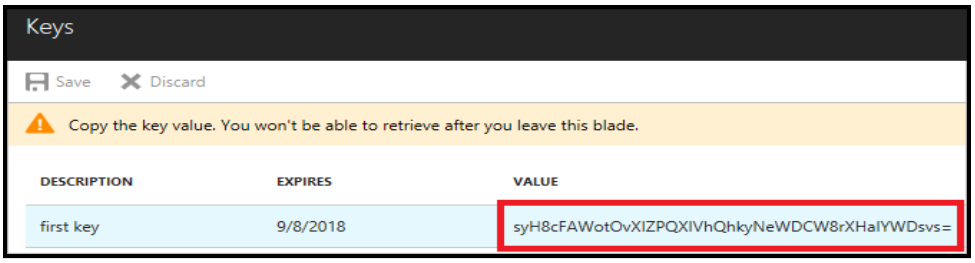
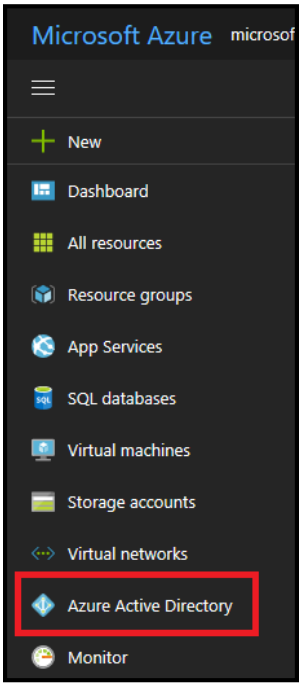


3. Get Tenant Id:
   - Select **Azure Active Directory**.



   - To get the tenant ID, select **Properties** for your Azure AD tenant.

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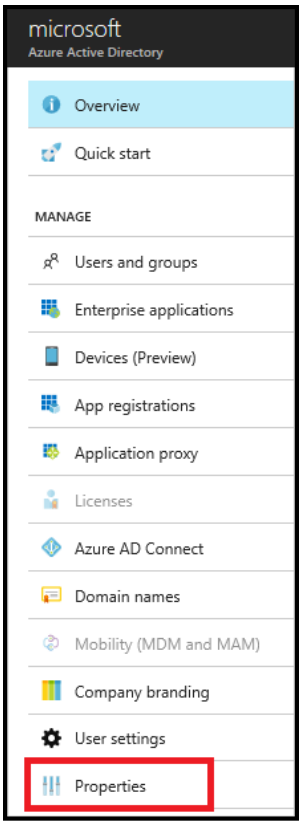
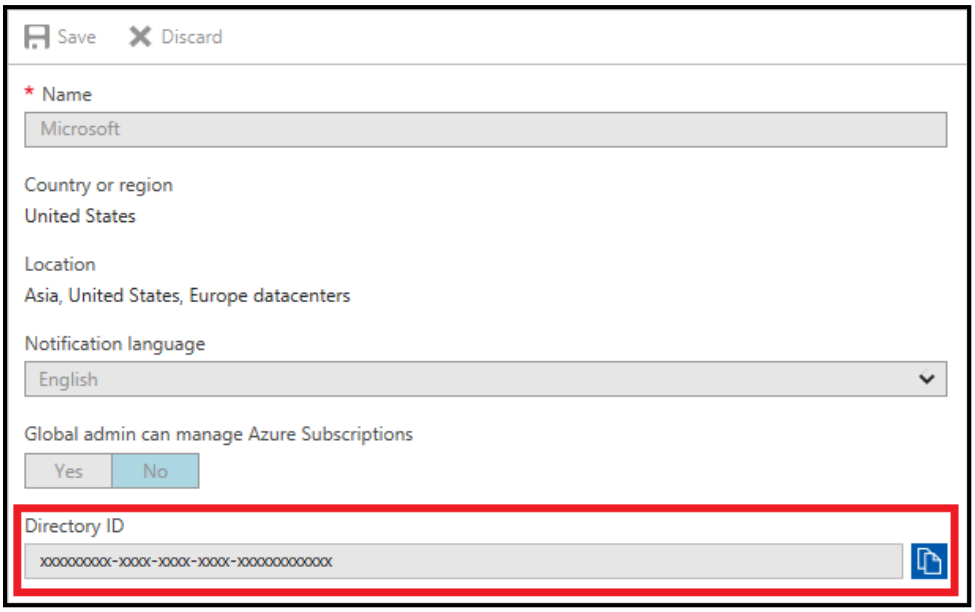


- Copy the **Directory ID**. This value is your tenant ID.



4. Assign application to role:
   To access resources in your subscription, you must assign the application to a role. Decide which role represents the right permissions for the application.

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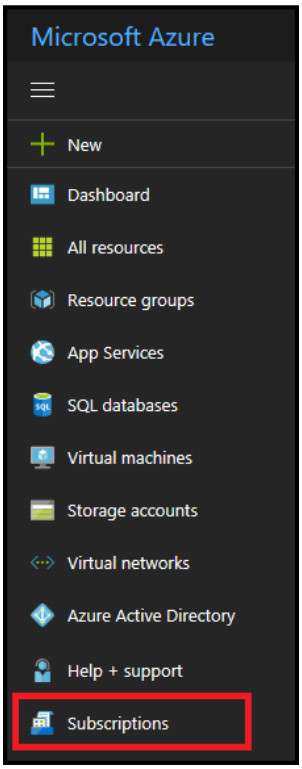
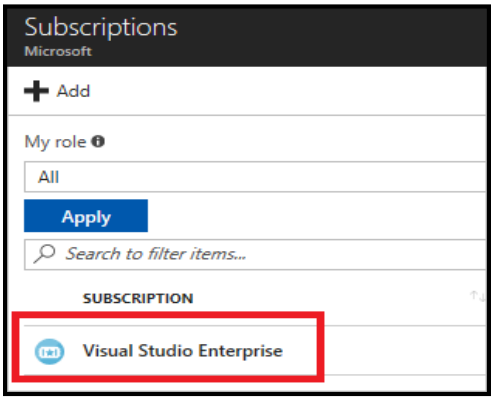
You can set the scope at the level of the subscription, resource group, or resource. Permissions are inherited to lower levels of scope. For example, adding an application to the Reader role for a resource group means it can read the resource group and any resources it contains.

- Navigate to the level of scope you wish to assign the application to. For example, to assign a role at the subscription scope, select **Subscriptions**. You could instead select a resource group or resource.



- Select the particular subscription (resource group or resource) to assign the application to.



- Select **Access Control (IAM)**.

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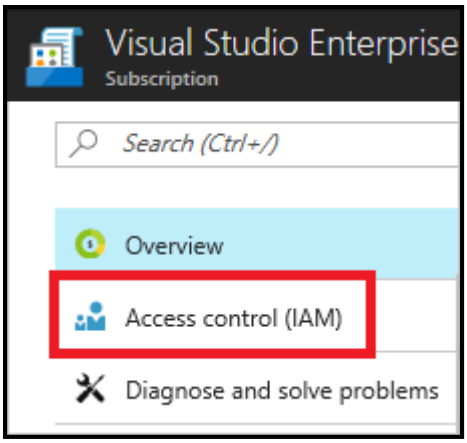
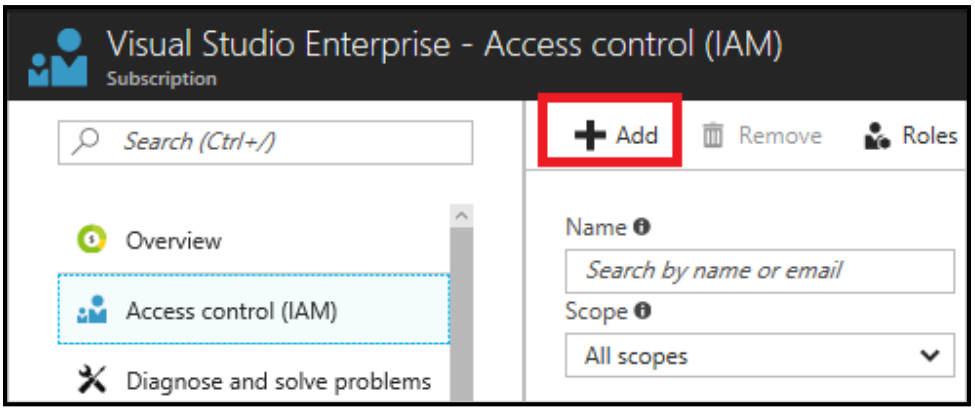
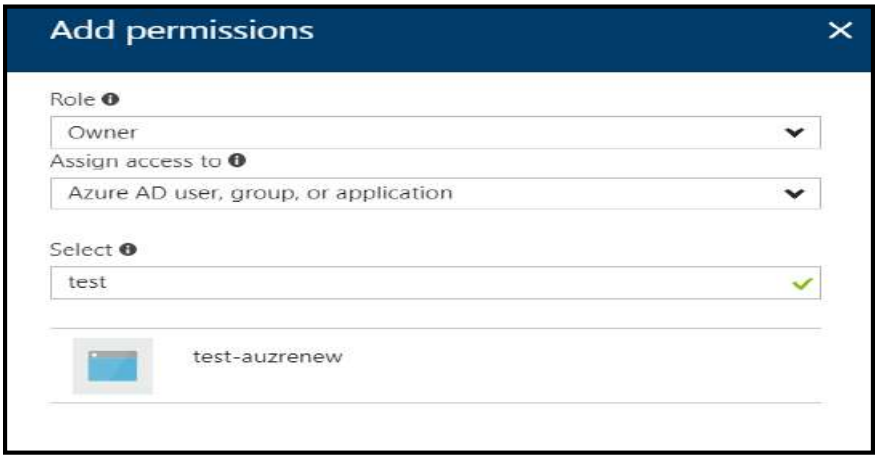


- Select Add



- Select the role you wish to assign to the application.



- Search for your application, and select it.
- Select **Save** to finish assigning the role. You see your application in the list of users assigned to a role for that scope.

For More Clarifications you can refer: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-create-service-principal-portal

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4 Appendix 4: PowerShell Setup - Office 365

4.1 Pre-requisites for Microsoft Office365 use cases:

What do you need to know before you begin?

1. Estimated time to complete: 5 minutes
2. You can use the following versions of Windows:
   Windows 10, Windows 8.1, Windows 8 or Windows 7 Service Pack 1 (SP1)
   Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, or Windows Server 2008 R2 SP1

   Note: Use a 64-bit version of Windows. Support for the 32-bit version the Microsoft Azure Active Directory Module for Windows PowerShell was discontinued in October, 2014.

3. The Office 365 work or school account that you use for these procedures needs to be a member of an Office 365 admin role. For more information, see About Office 365 admin roles.

4.2 Step 1: Check if required module is installed

Note: Open PowerShell from start menu and use below commands for further process.

1. **Check if "MSOnline" module is installed by using below command :**

   Command: Get-Module -ListAvailable -Name MSOnline

   Expected output:

```
    Directory: C:\Windows\system32\WindowsPowerShell\v1.0\Modules


ModuleType Version    Name                                ExportedCommands
---------- -------    ----                                ----------------
Manifest   1.1.166.0  MSOnline                            {Get-MsolDevice, Remove-
MsolDevice, Enable-MsolDevice, Disable-MsolDevice...}
```

2. **Import Module using below command :**
   Command: Import-Module -Name MSOnline

4.3 Step 2: Install required software

These steps are required once on your computer, not every time you connect.

However, you'll likely need to install newer versions of the software periodically.

Install the 64-bit version of the Microsoft Online Services Sign-in Assistant: Microsoft Online Services Sign-in Assistant for IT Professionals RTW.

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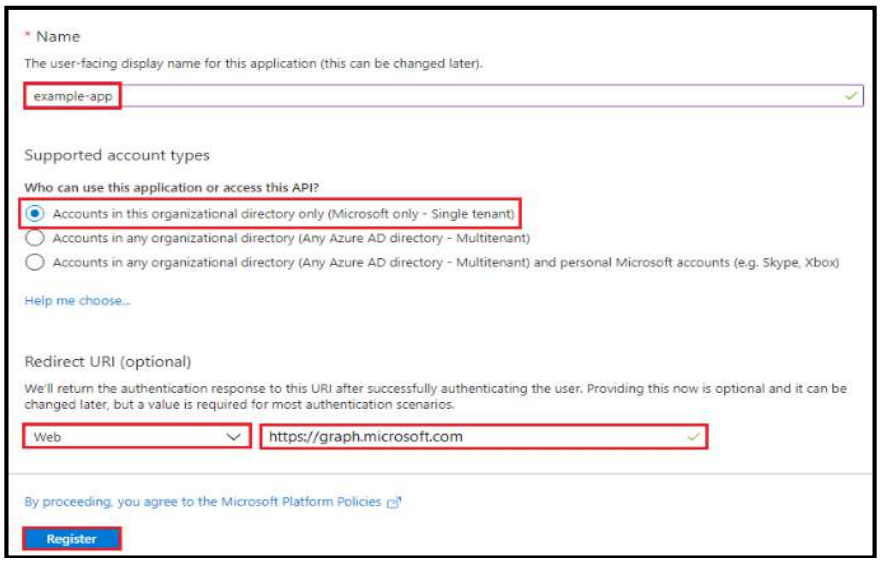
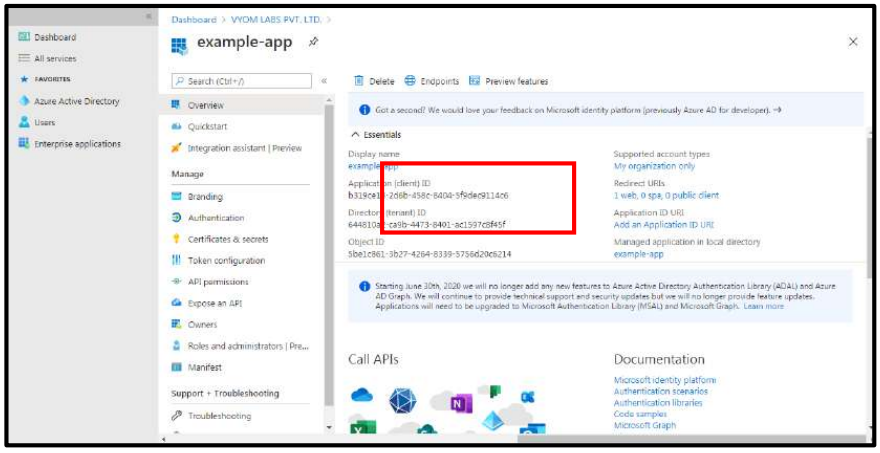
4.4 Office 365 App Registration & Permissions in Azure AD

4.4.1 Register App

1. Sign in to your Azure Account through the [Azure portal](#).
2. Select the **Azure Active Directory**.
3. Select **App registrations**.
4. Select an App created for AutomationEdge Plugin steps or alternatively, Select **New registration**.
5. Name the application. Select a supported account type, which determines who can use the application.
6. Additionally, for email related steps- Download Email Attachments, Email Message Input and Send Email, under **Redirect URI**, select **Web** for the type of application you want to create. For example, https://automationedge.com as seen in the screenshot below. Select **Register**.



7. Upon registration fetch Tenant ID and Client ID for the App as seen below.



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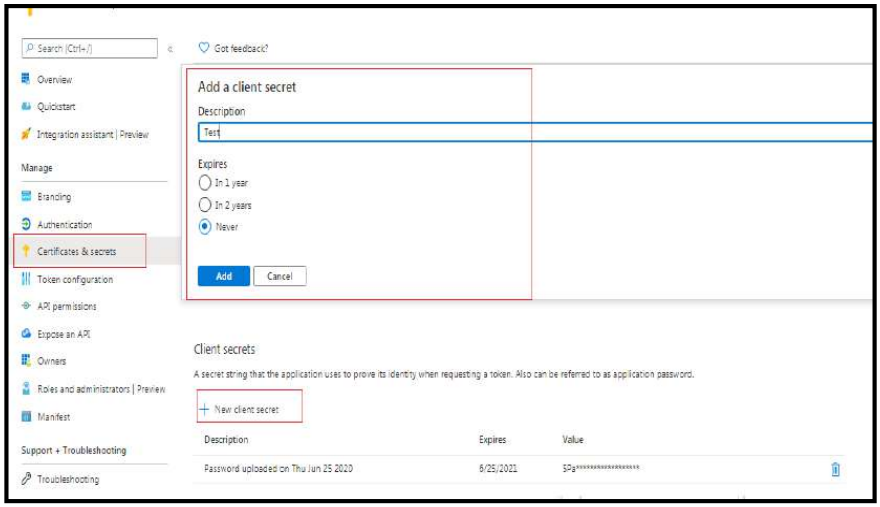
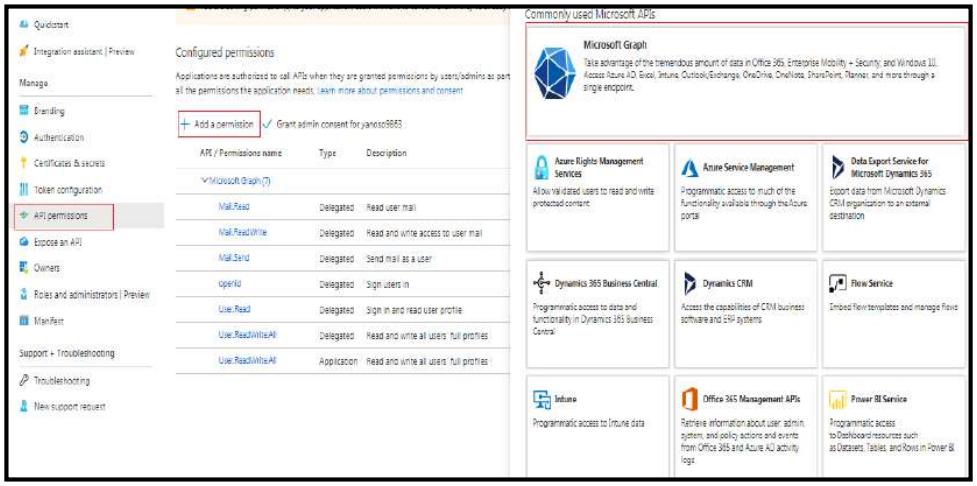
4.4.2 Creating Client Secret

1. Click on Certificates and secrets
2. Click on New client secret
3. Enter Description
4. Select one of Expires Radio Button



4.4.3 Provide API Permission

1. Click on API Permission.
2. Click on Add Permission.
3. Click ‘Microsoft Graph’ as highlighted below on the top right corner.



4. Click ‘Delegated Permissions’ or ‘Application permissions’ as required and as mentioned in the Plugin Step documentation.
5. Provide all required permissions for the Plugin steps to execute. The permissions required are mentioned in the Plugin steps.

4.5 Consent for Permission to App

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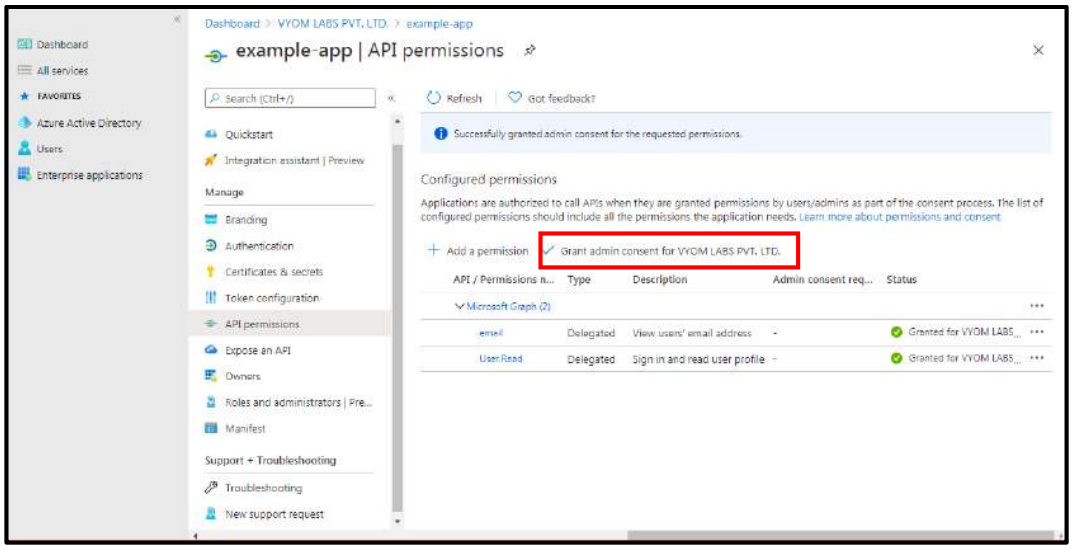
4.5.1 Grant admin consent

You need to Grant Admin consent to the app to access all accounts data, for all Plugin steps except email related steps.

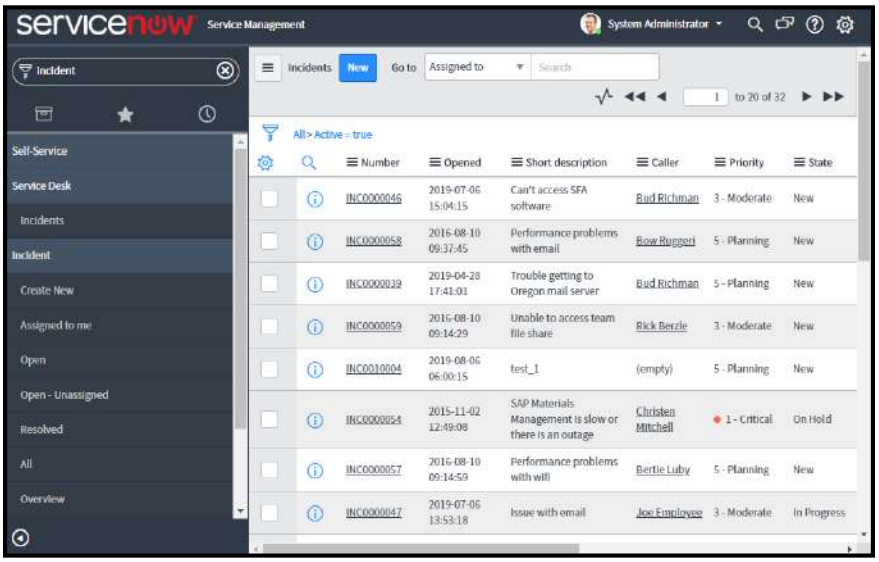
Users can request Azure AD administrator to grant admin consent. The following screenshot shows an Administrator view with option to Grant Admin consent.



5 Appendix 5: Build Criteria Query in SNOW UI

You can build Criteria Query or alternatively create filters in SNOW UI and copy Criteria Query from the UI. This is especially useful for complex query criteria with one or more AND, OR criteria.

1. The following is a screen shot of the Incident Application. You can see the filter sign on top of the column headings. It shoes the filter Active=True has been applied on All incidents.



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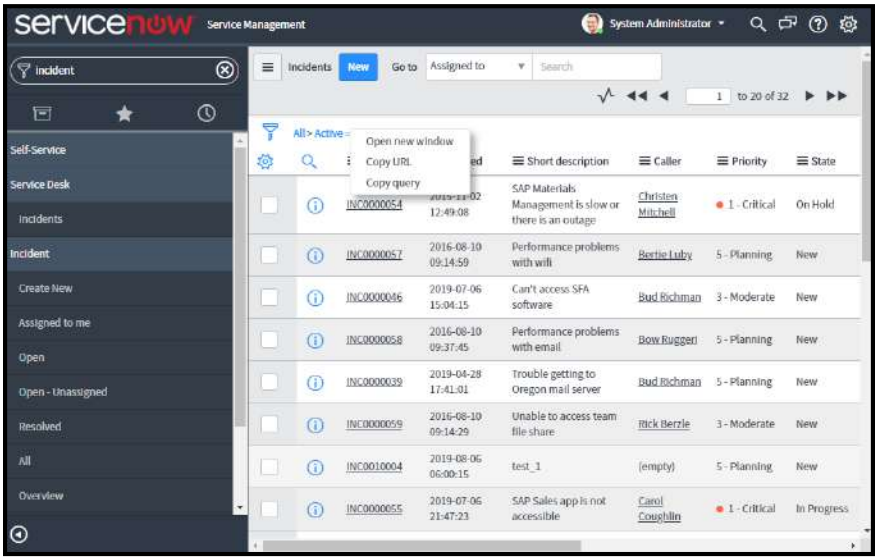
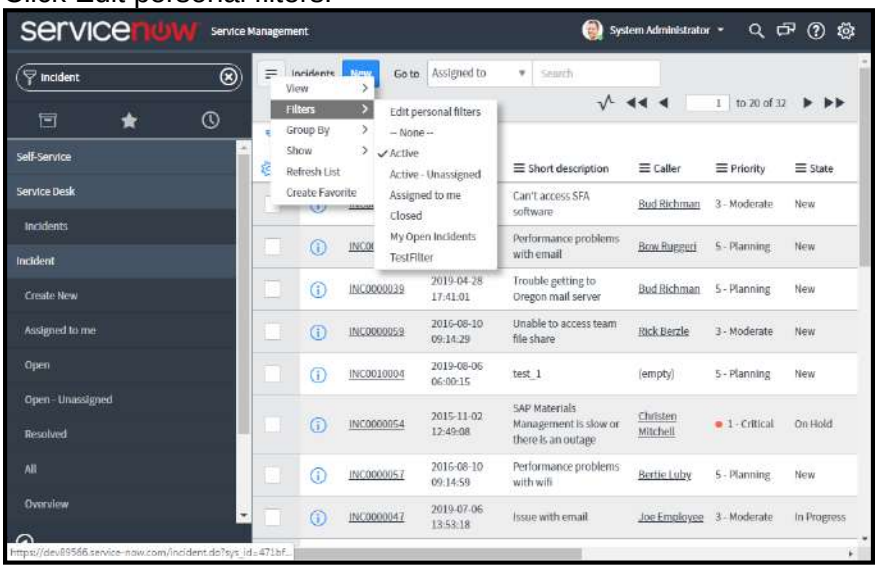
2. You may right click on the filter and click Copy query to copy the Criteria Query.



3. You may paste this as Criteria Query in the plugin step.
    - active=true
4. You may right click on ☰ to see the Filters menu. In Filter menu the first option is to Edit personal filters. The rest are the out of the box or user created filters. You may click Edit existing filters or create new filters.
5. Click Edit personal filters.



6. Once you click Edit personal filters you can see your filters. Click New to create a new filter.

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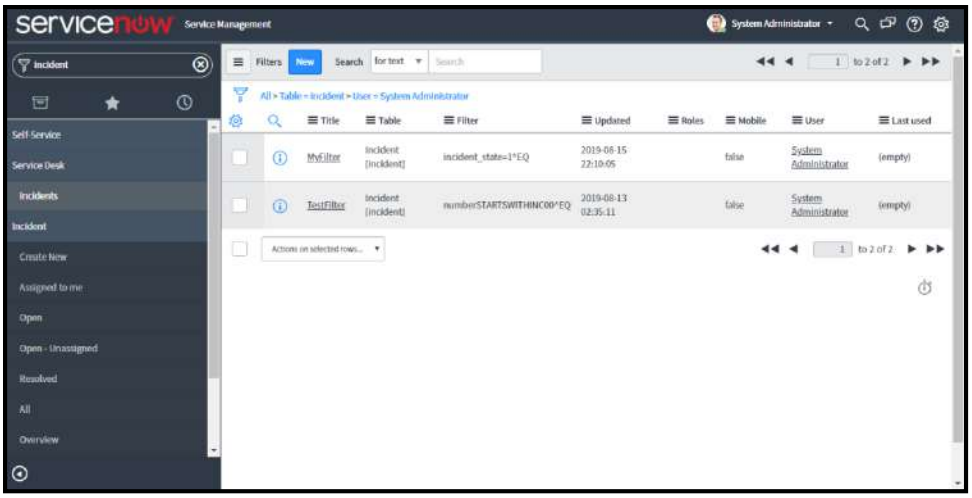
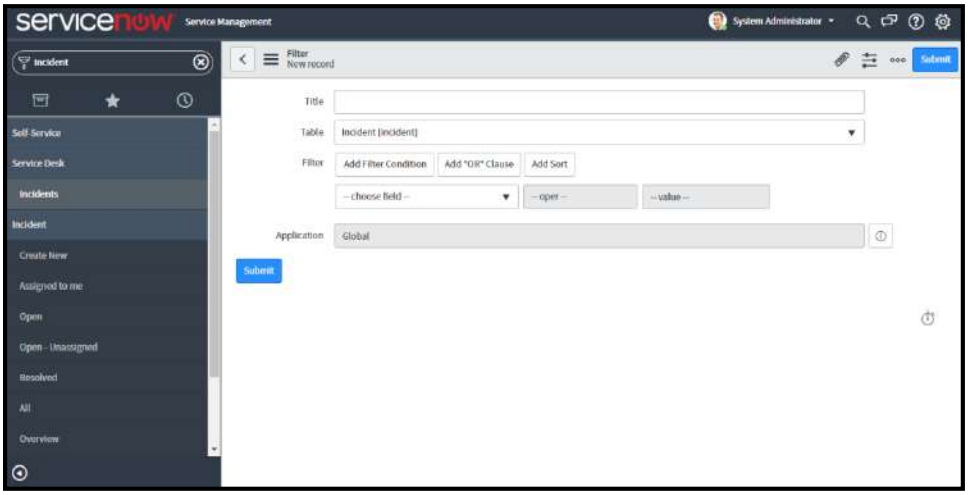
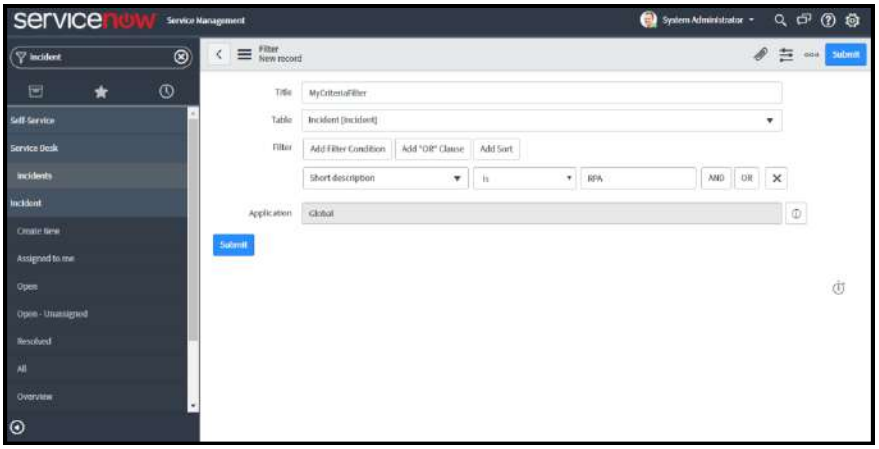


7. The following screen appears.



8. Provide a Title. In Choose field, Select Short description, in oper select is and in value type RPA. Click OR.



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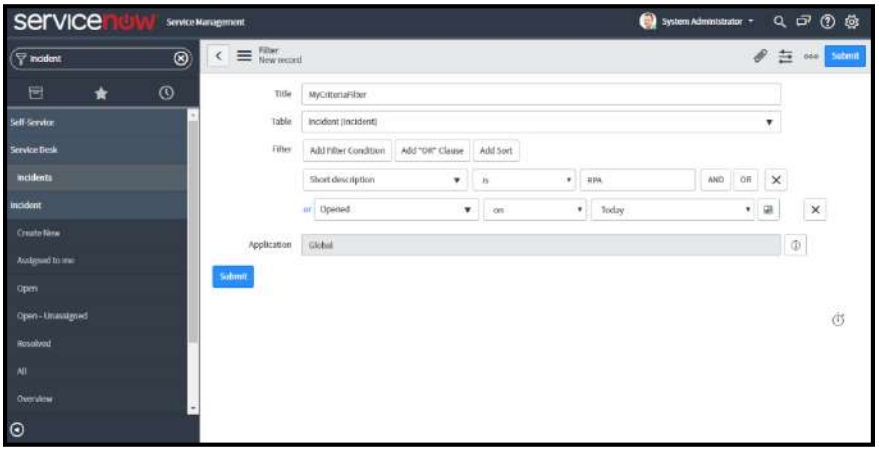
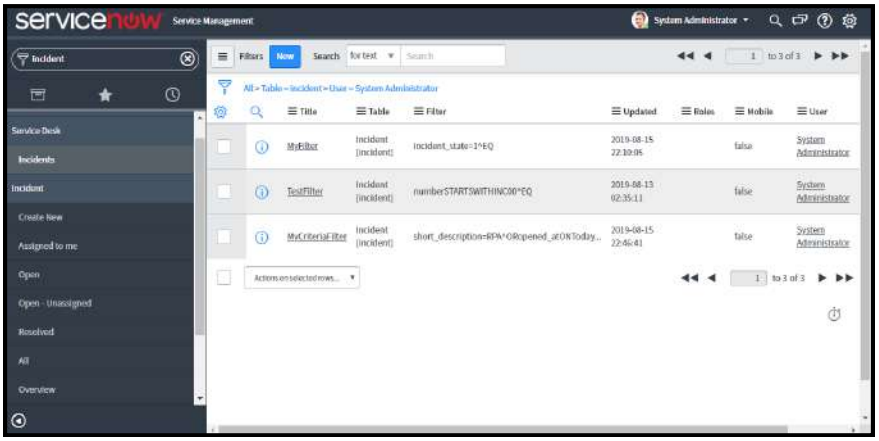
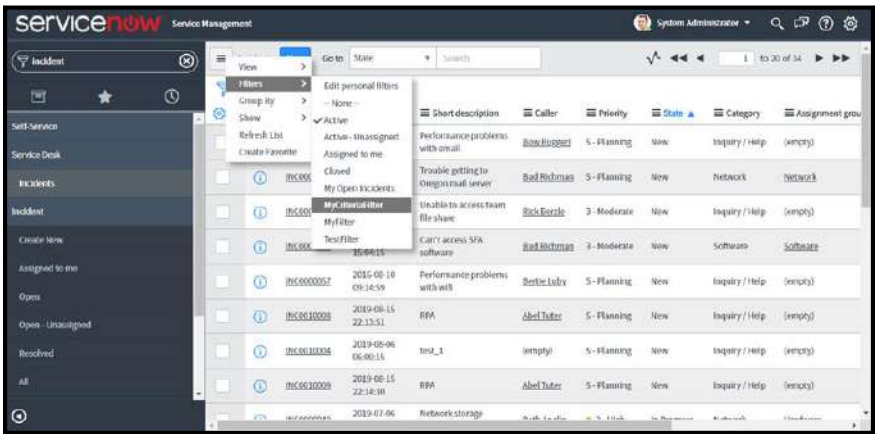
9. In the second OR condition select Opened on Today. Click Submit.



10. MyCriteriaFilter is now visible in the filter list.
11. Click Incident menu on the left navigation to see All incident records.



12. Click ☰. Select Filter menu and then select MyCriteriaFilter.



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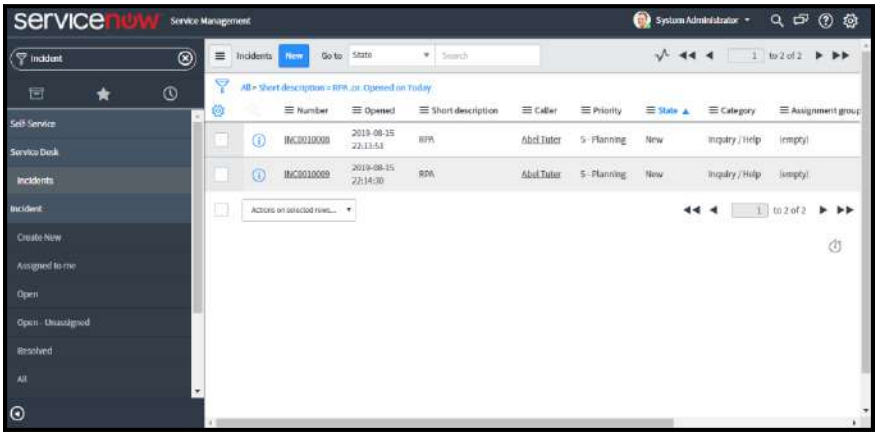
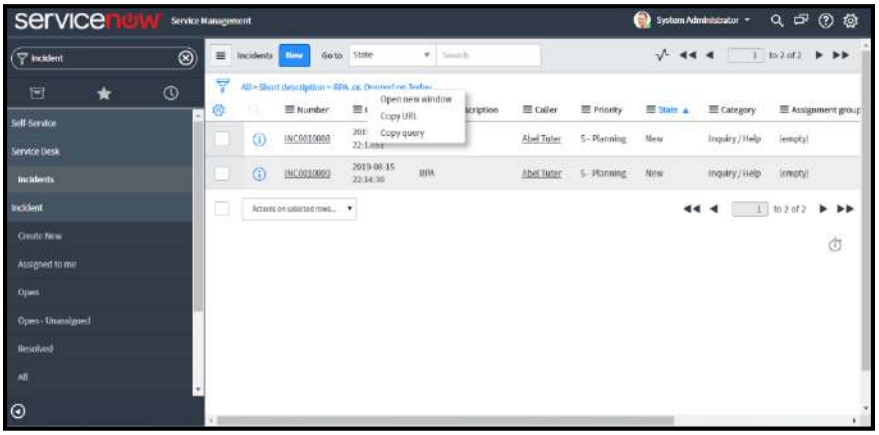
13. You can now see the filtered list with MyCriteriaFilter applied. You can see the filter applied: Short_description=RPA or Opened Today.



14. Right click on the filter and click Copy query.



15. The Criteria query is as follows: short_description=RPA^ORopened_atONToday@javascript:gs.beginningOfToday()@javascript:gs.endOfToday().
16. You may now use it in the Plugin step.

6 Appendix 6: Power Shell Remote Connection

6.1 Description

Perform the steps below to invoke PowerShell Script on Remote Machine (Enable WinRM Protocol and set trusted host list value to * on local as well as target system)

6.2 Parameters

Input Tab:		
No.	Field Name	Description

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1	Computer Name	IP Address of remote Machine.
2	Credentials	Username and Password of Remote Machine.

6.3 Prerequisites

6.3.1 Set Up Your Workgroup

For PowerShell Remoting to work in a workgroup environment, you must configure your network as a private or domain, not public network.

For guidance on this refer to below link
Guide on private and public networks.

Following exception occurs if the network is public.

Set-WSManQuickConfig: WinRM firewall exception will not work since one of the network connection types on this machine is set to Public. Change the network connection type to either Domain or Private and try again.

6.3.2 Enable PowerShell Remoting on the PC You Want to Access Remotely

Your first step is to enable PowerShell Remoting on the PC to which you want to make remote connections. On that PC, you'll need to open PowerShell with administrative privileges.

Command- **Enable-PSRemoting –Force**

Following error occurs if this command is not executed

[<IP Address>] Connecting to remote server <IP Address>failed with the following error message: Access is denied. For more information, see the about_Remote_Troubleshooting
Help topic. + CategoryInfo : OpenError: (10.41.16.51:String) [], PSRemotingTransportException+ FullyQualifiedErrorId : AccessDenied,PSSessionStateBroken

6.3.3 Configure the Trusted Hosts setting.

You need to configure the TrustedHosts setting on PC you want to connect from, so the computers will trust each other.

If you want to go ahead and trust PC to connect remotely, you can type the following cmdlet in PowerShell (again, you'll need to run it as Administrator).

Set-Item WSMan:\localhost\Client\TrustedHosts -Value $IPAddress -Force

To add more than one machine to the trusted hosts list using winrm
winrm set winrm/config/client '@{TrustedHosts=" IPAddress1, IPAddress2,… "}'

Following error occurs if this command is not executed

Connecting to remote server <IP Address>failed with the following error message: The WinRM client cannot process the request. If the authentication scheme is

different from Kerberos, or if the client computer is not joined to a domain, then HTTPS transport must be used or the destination machine must be added to the TrustedHosts configuration setting. Use winrm.cmd to configure

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TrustedHosts. **Note:** that computers in the TrustedHosts list might not be authenticated. You can get more information about that by running the following command: winrm help config. For more information, see the about_Remote_Troubleshooting Help topic.

+ CategoryInfo: OpenError: (10.41.11.5:String) [], PSRemotingTransportException

+ FullyQualifiedErrorId : ServerNotTrusted,PSSessionStateBroken

6.3.4 Test Connection

On the PC you want to access the remote system from, type the following cmdlet into PowerShell (replacing “COMPUTER” with the name or IP address of the remote PC),

Test-WsMan COMPUTER

This simple command tests whether the WinRM service is running on the remote PC. If it completes successfully, you’ll see information about the remote computer’s WinRM service in the window—signifying that WinRM is enabled and your PC can communicate. If the command fails, you’ll see an error message instead.

6.3.5 Set-ExecutionPolicy

Change the user preference for the execution policy of the shell.

Syntax:

Set-ExecutionPolicy [-executionPolicy] Policy
{Unrestricted | RemoteSigned | AllSigned | Restricted | Default | Bypass | Undefined}
[[-Scope] ExecutionPolicyScope] [-Force]

Example:
Set-ExecutionPolicy -Scope CurrentUser -ExecutionPolicy Unrestricted

Valid values:

1. Restricted
   Do not load configuration files or run scripts.
   This is the default.
2. AllSigned
   Require that all scripts and configuration files be signed
   by a trusted publisher, including scripts that you write on the
   local computer.
3. RemoteSigned
   Require that all scripts and configuration files downloaded from the Internet be signed by a trusted publisher.
4. Unrestricted
   Load all configuration files and run all scripts.
   If you run an unsigned script that was downloaded from the internet, you are prompted for permission before it runs.
5. Bypass

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Nothing is blocked and there are no warnings or prompts.

6. Undefined
   Remove the currently assigned execution policy from the current scope. This parameter will not remove an execution policy that is set in a Group Policy scope.

The following is a description of the flags

1. -Force:
   Suppress all prompts.
   By default, Set-ExecutionPolicy displays a warning whenever the execution policy is changed.

2. -Scope ExecutionPolicyScope
   This flag sets the scope of the execution policy.

   Valid values are:
   - Process: Affects only the current PowerShell process.
   - CurrentUser: Affects only the current user.
   - LocalMachine: Affects all users of the computer.
   - To remove an execution policy from a particular scope, set the execution policy for that scope to Undefined.

6.3.6 Execute a single Remote command

To run a command on the remote system, use the Invoke-Command cmdlet using the following syntax:

Invoke-Command -ComputerName COMPUTER -ScriptBlock {COMMAND} -credential

“COMPUTER” represents the remote PC’s name or IP address. “COMMAND” is the command you want to run.

Using Invoke-Command -ScriptBlock on a local function with arguments:

Invoke-Command -Credential $c -ComputerName COMPUTER –ScriptBlock ${function: Functionname} -ArgumentList $x, $y,

6.3.7 Parse output of Remote Command

```
$variablename=Invoke-Command -ComputerName COMPUTER -ScriptBlock {COMMAND} -credential
foreach ($xyz in $variablename)
{
$xyz
}
```

7 Appendix 7: Cisco

7.1 Connecting to Cisco with SSH

1. Use Putty to connect to CISCO Switch.
2. Provide the given IP Address and Port and click on Open

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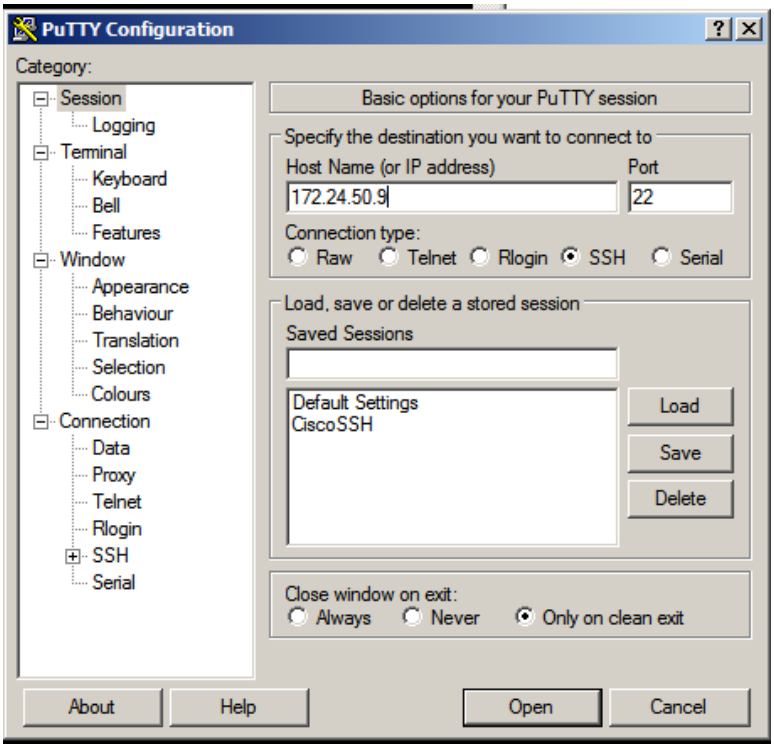
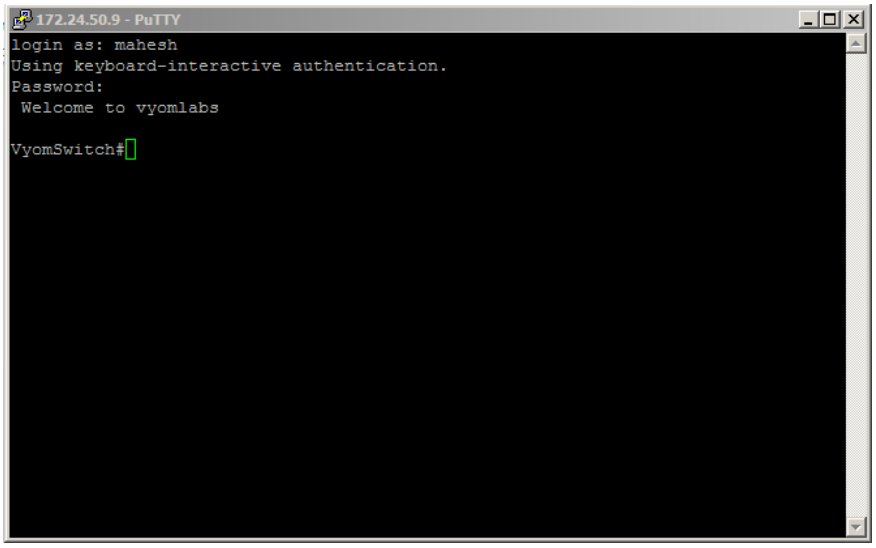
3. After clicking on Open, it will prompt for Security Alert, click on “Yes”.
4. The console will ask you to enter the username and password by which you have to login to the Switch. Enter the provided username and password.



5. It will prompt for “VyomSwitch#”, you can start writing your commands after #.



7.2 Commands used for Plugins.

1. **Backup Configuration:**
    - To take backup you require to have TFTP Server. Download and install Tftp Server.

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- Connect to putty as mentioned above and use the below command to take backup of the switch:
- VyomSwitch#**copy running-config tftp**
- Address or name of remote host []? **10.51.29.28**
- Destination filename [vyomswitch-confg]? **backupFile**!!
- 8859 bytes copied in 2.156 secs (4109 bytes/sec)

2. **Get Interface from IP Address**
   - To get interface from IP Address execute the following command:
   - **show ip arp | include Hardware Addr | 172.24.50.9**

3. **Get Interface from Mac Address**
   - To get interface from MAC Address execute the following command:
   - **show mac address-table | include Type | 0011.9390.f600**

4. **Get Interface Status**
   - To get interface from MAC Address execute the following command:
   - **show interface fa0/1 status**

5. **Shutdown Interface**
   - To shutdown the interface use the below set of command:
   - VyomSwitch# **config terminal**
   - Enter configuration commands, one per line. End with CNTL/Z.
   - VyomSwitch(config)# **interface f0/1**
   - VyomSwitch(config-if)# **shutdown**
   - VyomSwitch(config-if)# **end**

6. **No Shutdown Interface**
   - To start the interface use the below set of command:
   - VyomSwitch#**config terminal**
   - Enter configuration commands, one per line. End with CNTL/Z.
   - VyomSwitch(config)#**interface f0/1**
   - VyomSwitch(config-if)#**no shutdown**
   - VyomSwitch(config-if)#**end**

7.3 Additional Commands used for Plugins.

1. **To get host name**
   - show configuration | inc hostname
2. **set terminal**
   - terminal length 0

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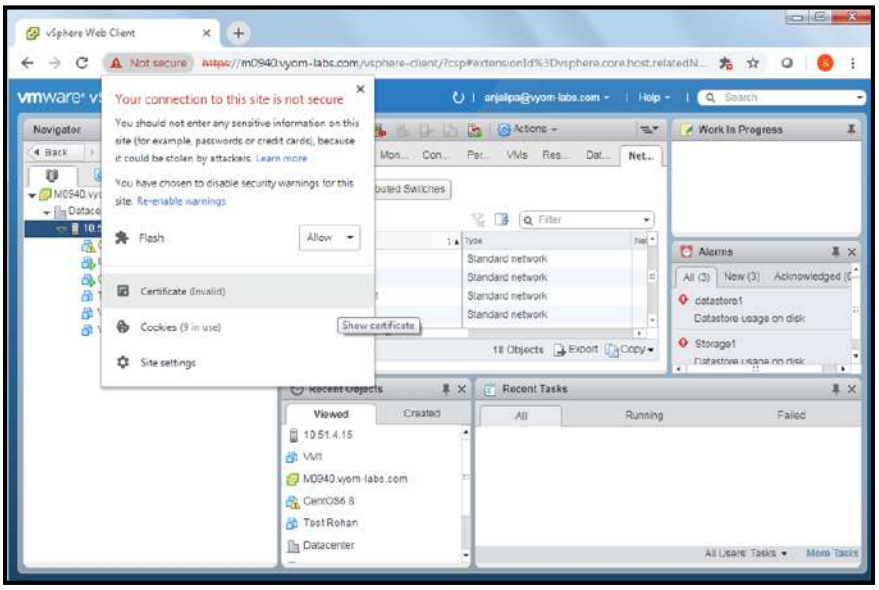
8 Appendix 8: Install VMware certificate

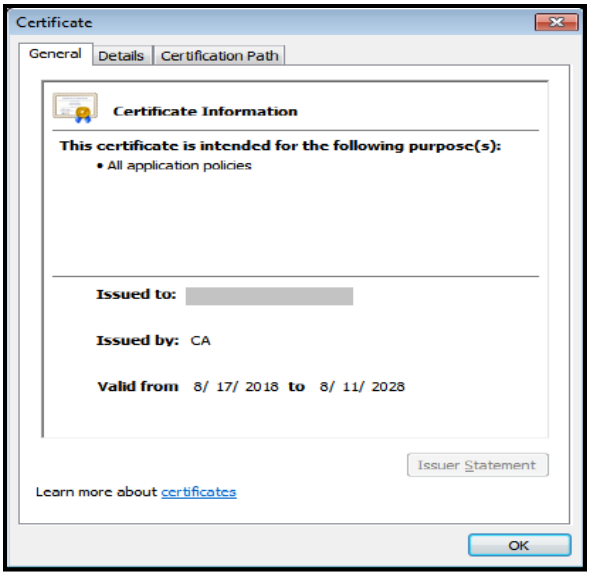
We need to instal VMware certificate to jvm

8.1 Export Certificate

1. Log in to vCenter Server using specified server name (https:\\vmware.example.com) and follow the below procedure to install the certificate.



2. The Certificate Windows opens.
3. Navigate to the Details tab.



4. Click Copy to File button while on Details tab.

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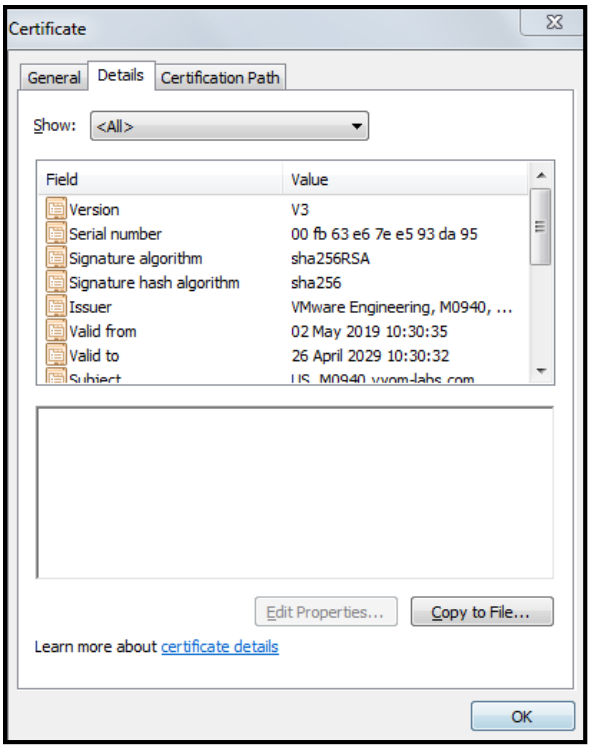

5. The Certificate Export Wizard appears.
6. Click Next

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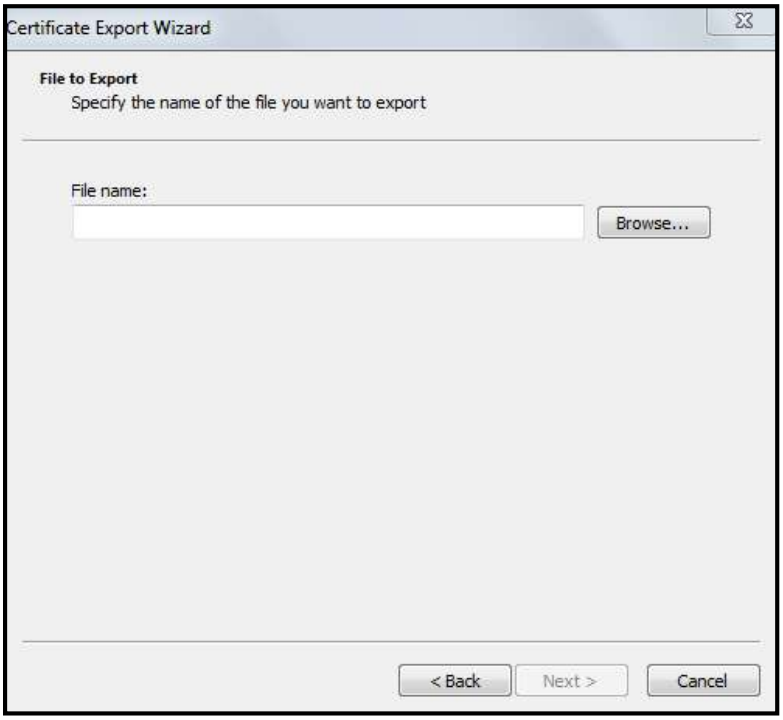
7. Select the format as shown below.
8. Click Next.

9. Browse a file path to download the certificate.



10. Provide a name for the certificate.

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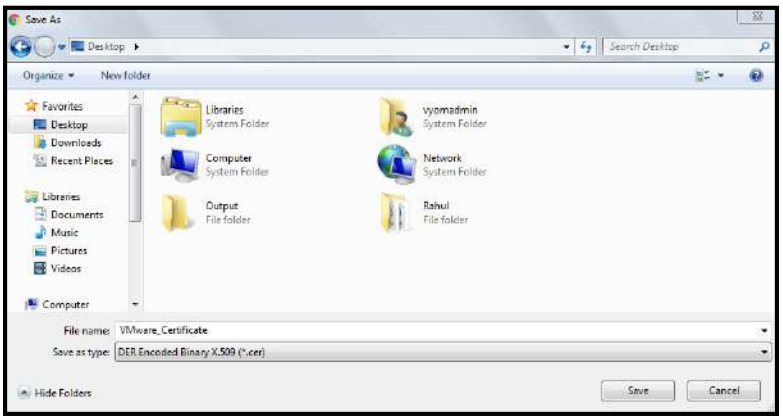
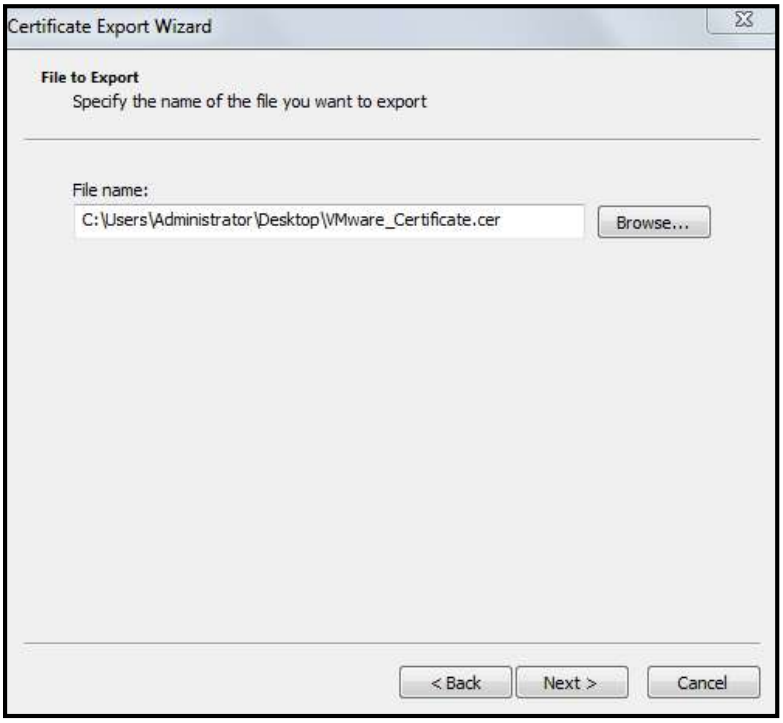
11. Click Save.



12. You can now see the file path in the Certificate Export Wizard.
13. Click Next



14. This is the final step: Completing the Certificate Export.
15. Click Finish.

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16. A pop-up window appears showing the export was successful.
17. Click OK.

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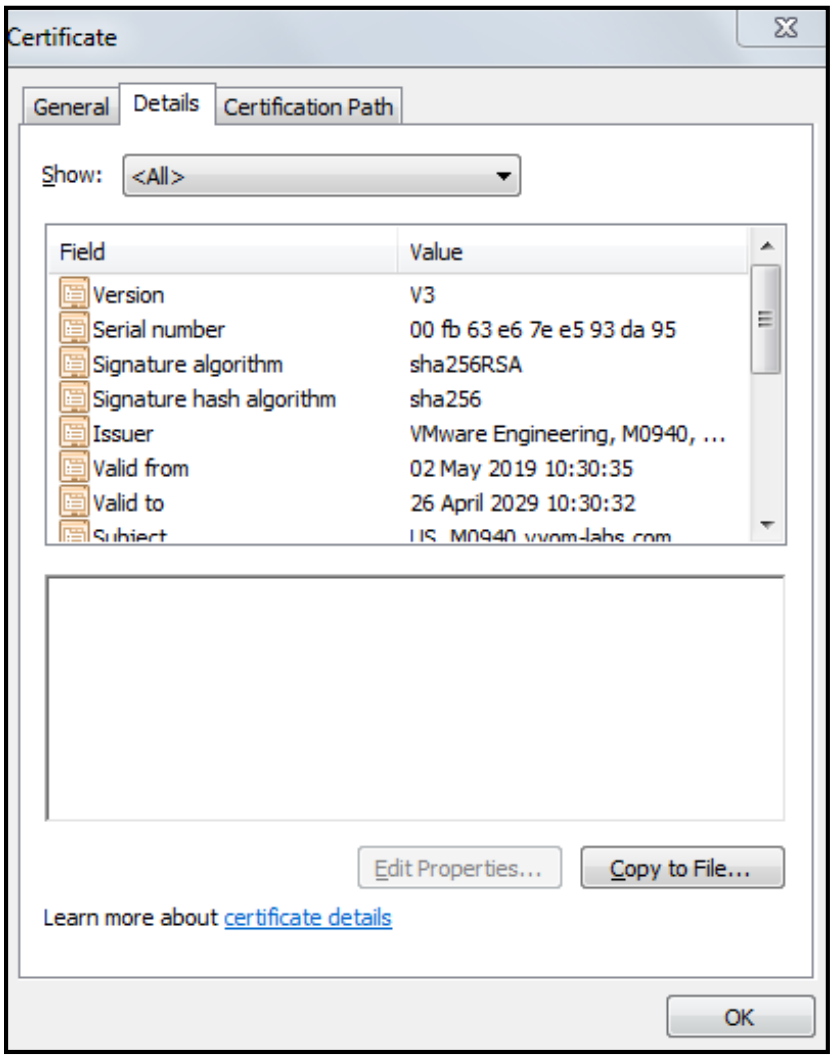
18. Click OK.



19. This completes the process of exporting the Certificate.

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8.2 Import Certificate to Java Keystore

Once the certificate is exported (downloaded on the system), execute the below two commands to import the vCentre Server certificate.

1. Open command prompt in Run As Administrator mode and run below commands:
2. Change directory to the following path:

   C:\Windows\system32>**cd <JAVA_HOME>\jre\lib\security**

3. Now run the below command:

C:\Program Files\Java\jdk1.8.0_92\jre\lib\security>
keytool -import -keystore cacerts -file "<file path>\example.cer" –alias vmware

Enter keystore password:

Trust this certificate? [no]: y

Certificate was added to keystore

Note:

- Enter password "changeit", when prompt is displayed is Enter keystore password:
  - (It is default password for cacerts file where domain entry is done for VMware certificate)
- Type option "y" or "yes" when prompt is displayed like Trust this certificate? [no]:
- Give full path of saved certificate (example.crt) file in front of -file parameter in the command.

4. Change directory to the following path:

   C:\Windows\system32>**cd <JAVA_HOME>\jre\lib\security**

   Perform Step 3 process again.

9 Appendix 9: Enrolling devices for MDM in AirWatch

You can enroll Android, Apple, QNX, Chrome OS and Windows OS devices in AirWatch.

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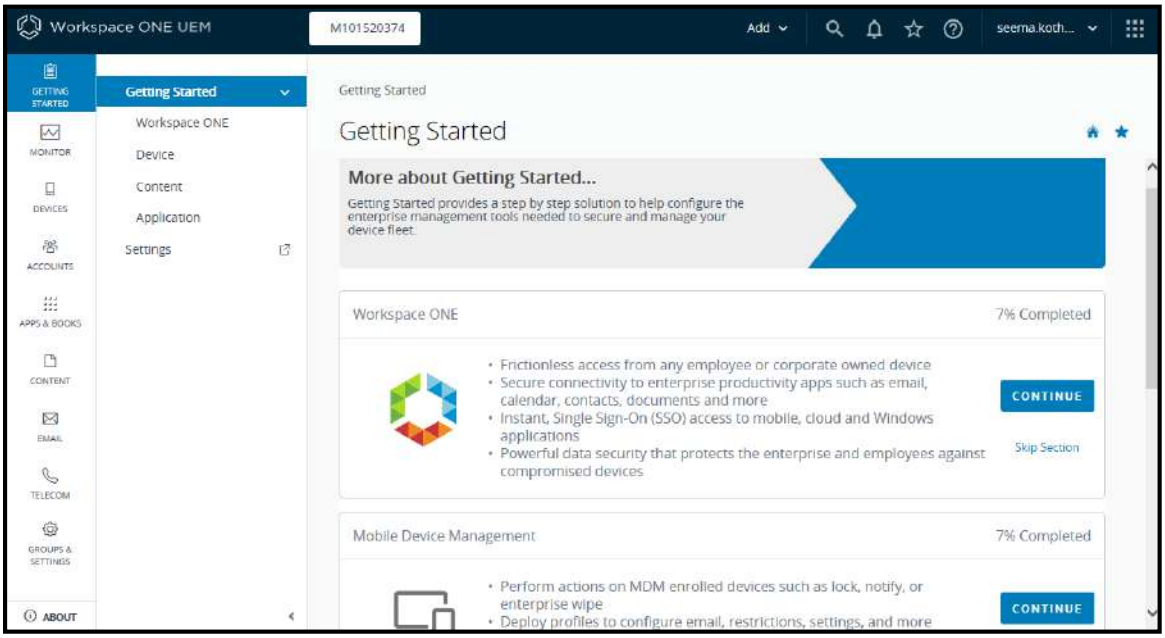
Following are the steps to Setup Mobile Devices,

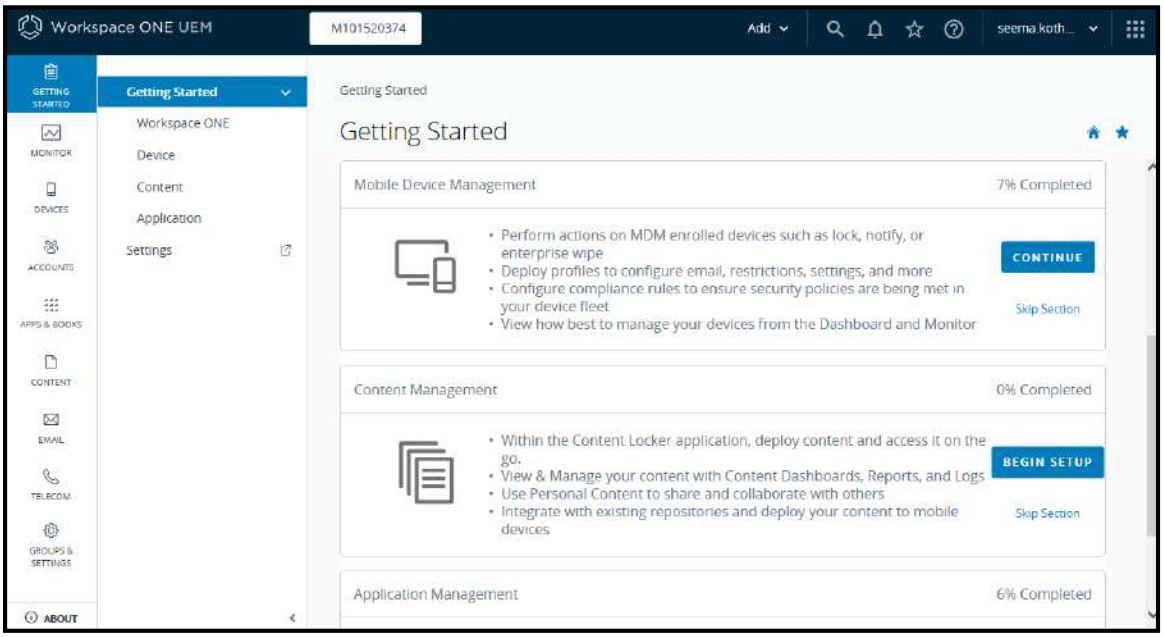
9.1 Setup Apple MDM

This section is specific for MDM (Mobile Device Management) setup for Apple Devices.
Follwing are the steps to setup Apple MDM,

1. Navigate to the Getting Started menu.



2. Click Continue next to Mobile Device Management.



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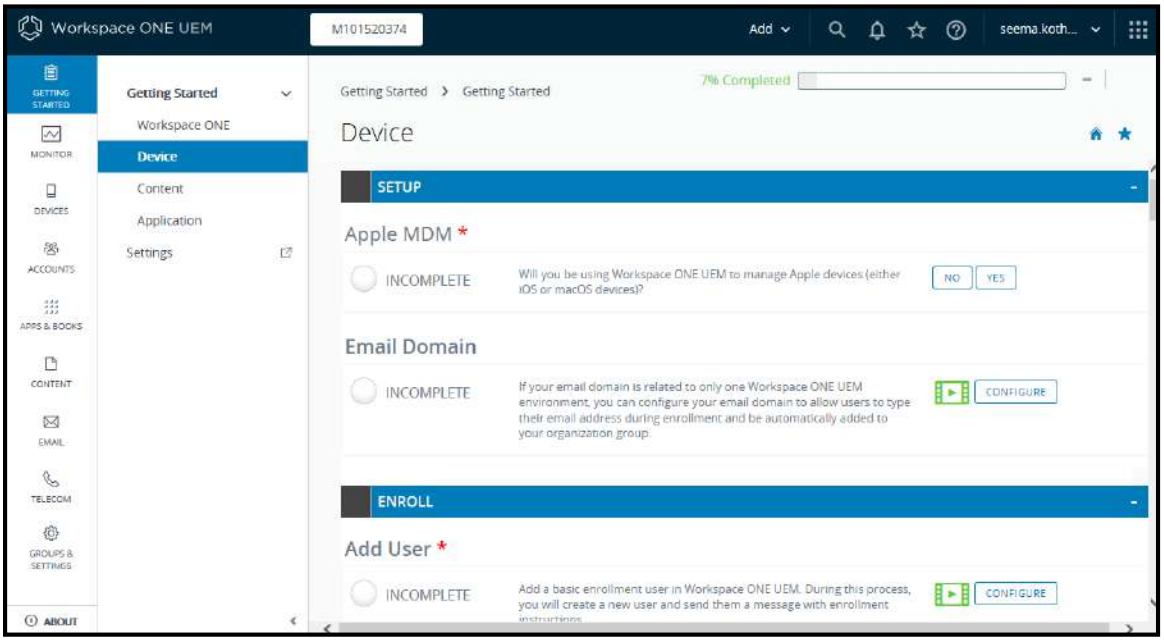
3. If you wish to enroll an Apple Device complete Apple MDM and Apple Certificate Setup as shown against ✅ icon below.
   Apple device Setup is wizard based, where you need to perform the following steps,
   i. Make sure you have Safari, Firefox or Chrome browser. Internet Explorer is not supported.
   ii. The first step of the wizard is - Download certificate signing request from AirWatch Administrator console (MDM_APNsRequest.plist).
   iii. Login to Apple Certificate Portal using your Apple ID, select “Generate Certificate” and upload the previously downloaded file to the Apple Push Certificate Portal.
   iv. Download the APNs certificate file (*.pem) provided by Apple and upload it here.

4. You can see that Apple MDM step is incomplete. If you will be using Workspace ONE UEM(AirWatch) to manage Apple devices click Yes button. For devices other than Apple you need not perform this step.



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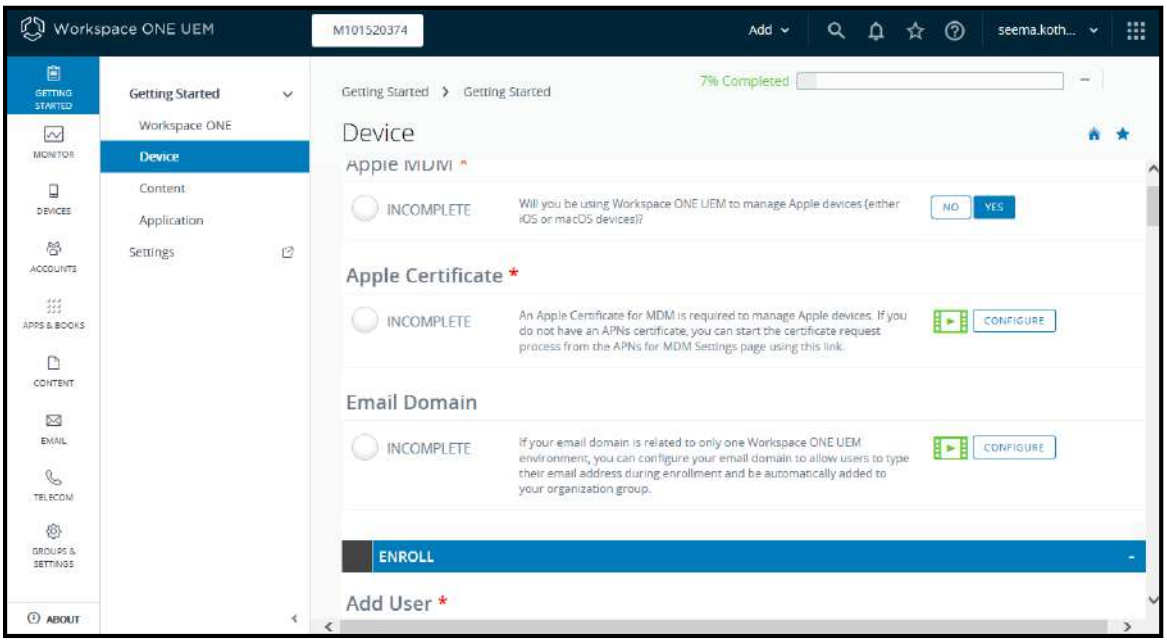
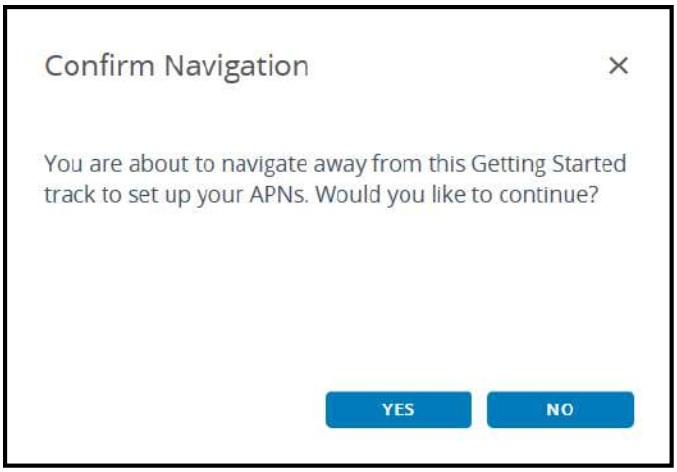
5. The following screen shot shows that Yes has been selected.



6. Once you click Yes above you get a popup as shown below. Click Yes to navigate to Apple Push Notification(APN) setup.



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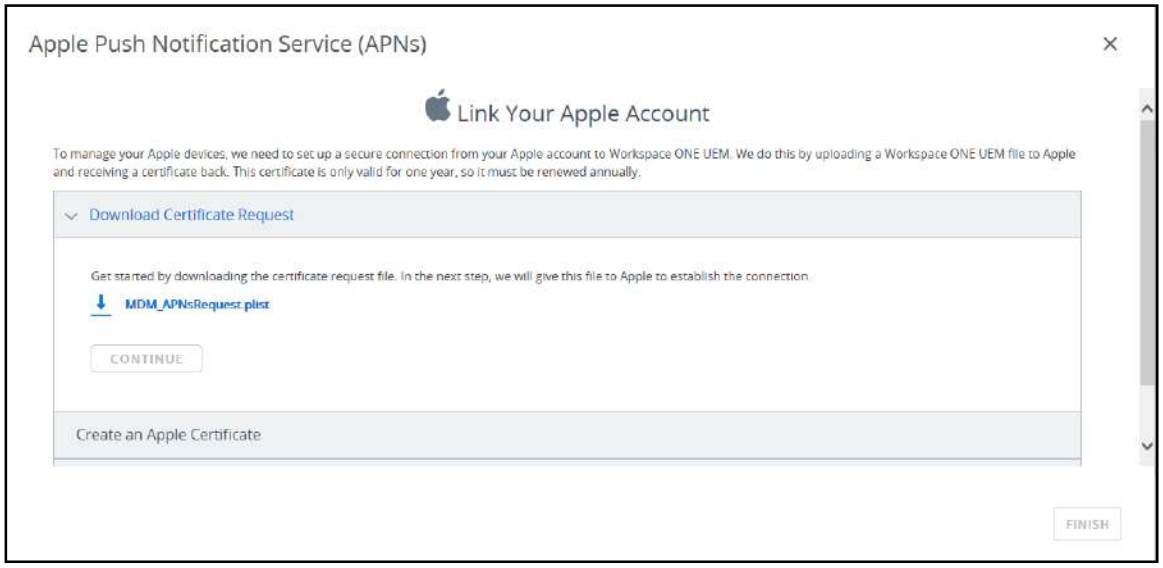
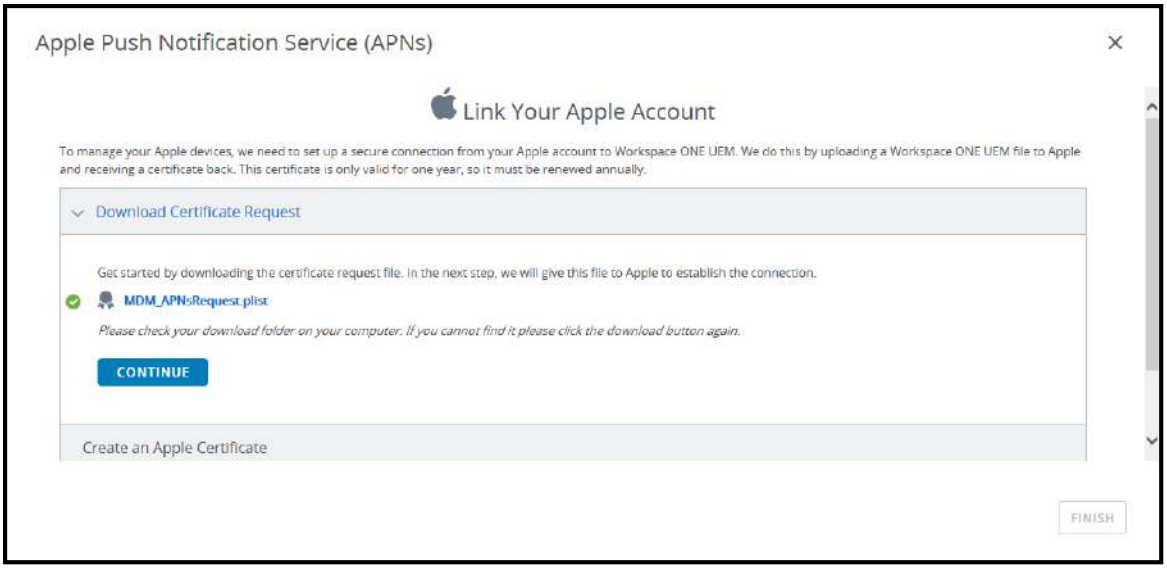
7. Click on the link to download Certificate Request (MDM_APNsRequest.plist)



8. Click Continue.



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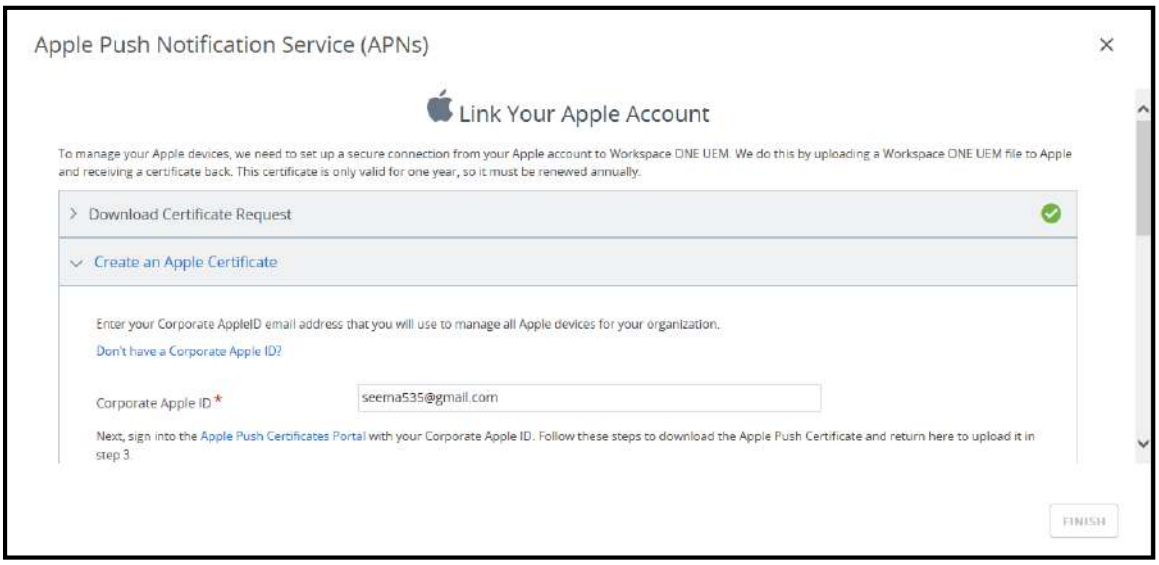
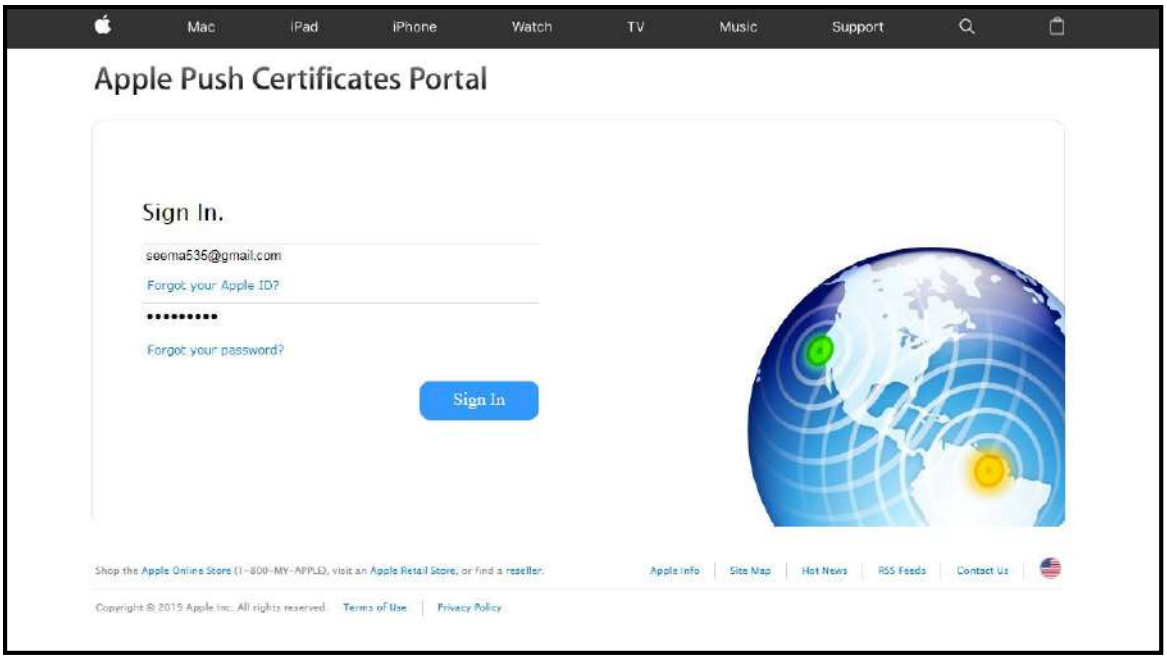
1. Provide your Corporate Apple ID. Click on Apple Push Certificates Portal.



2. Sign In to Apple Push Certificates Portal.



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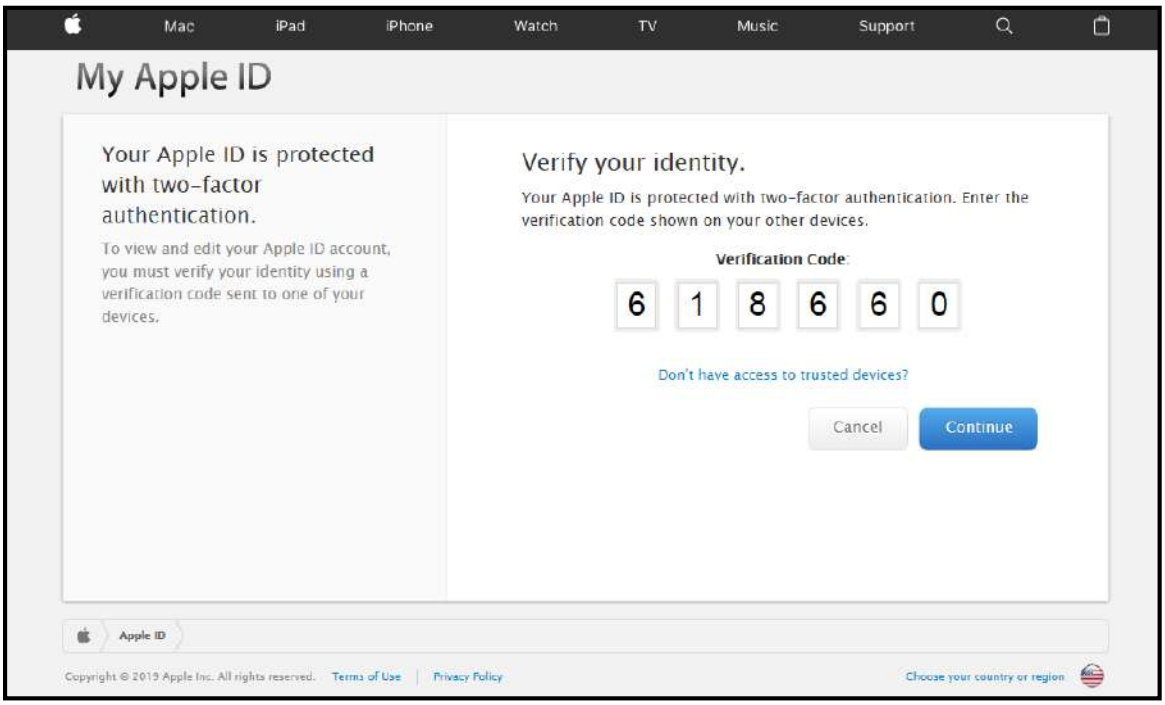
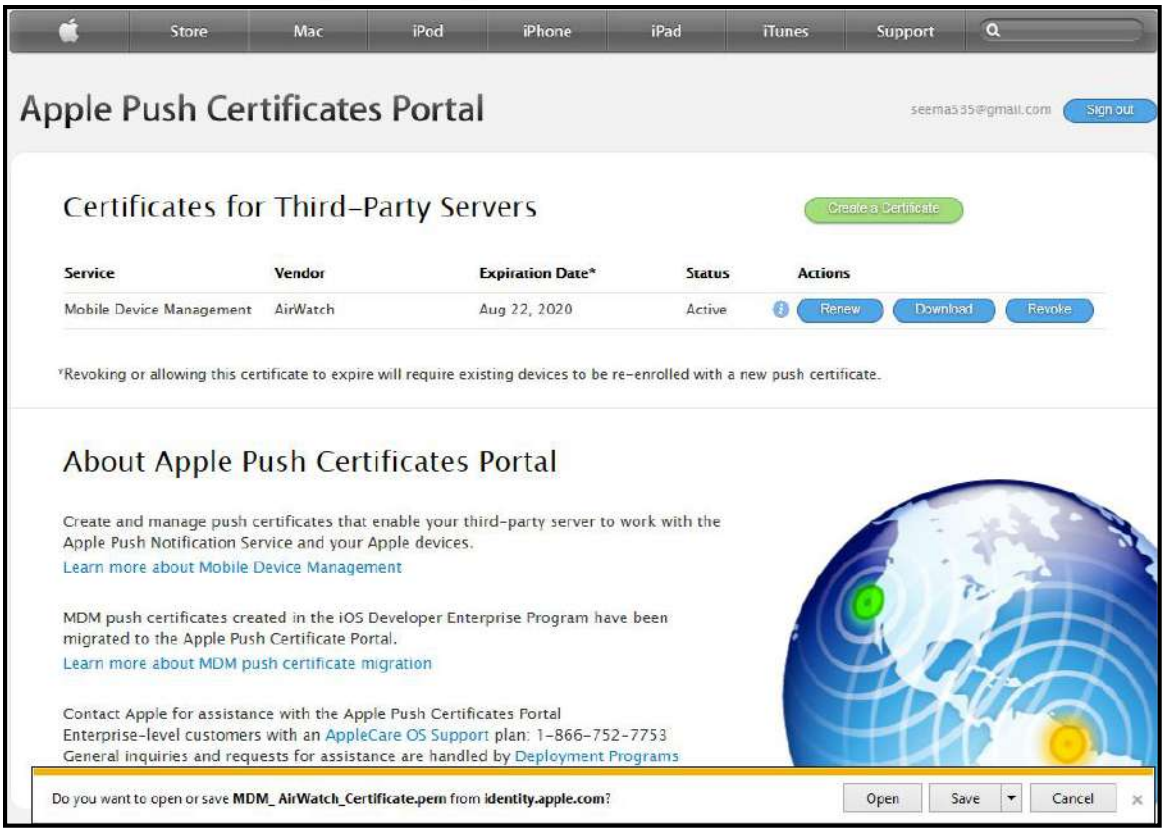
3. Enter the Verification Code shown on your trusted Apple device.



4. Click to Save your MDM_ AirWatch_Certificate.



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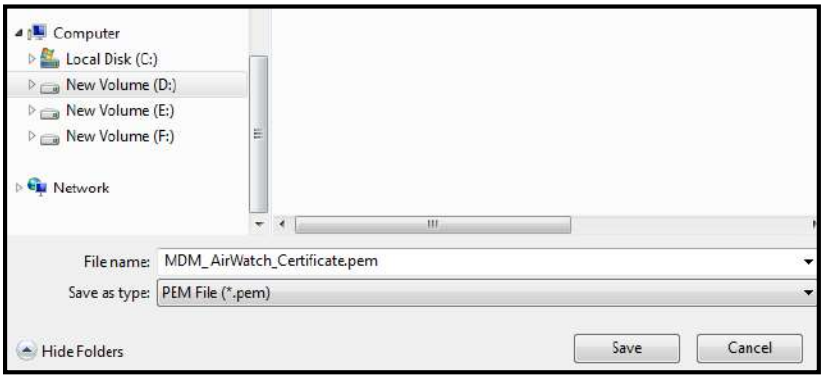
5. Browse a file path to save MDM_AirWatch_Certificate.



6. You have successfully created a new push certificate Confirmation screen appears.

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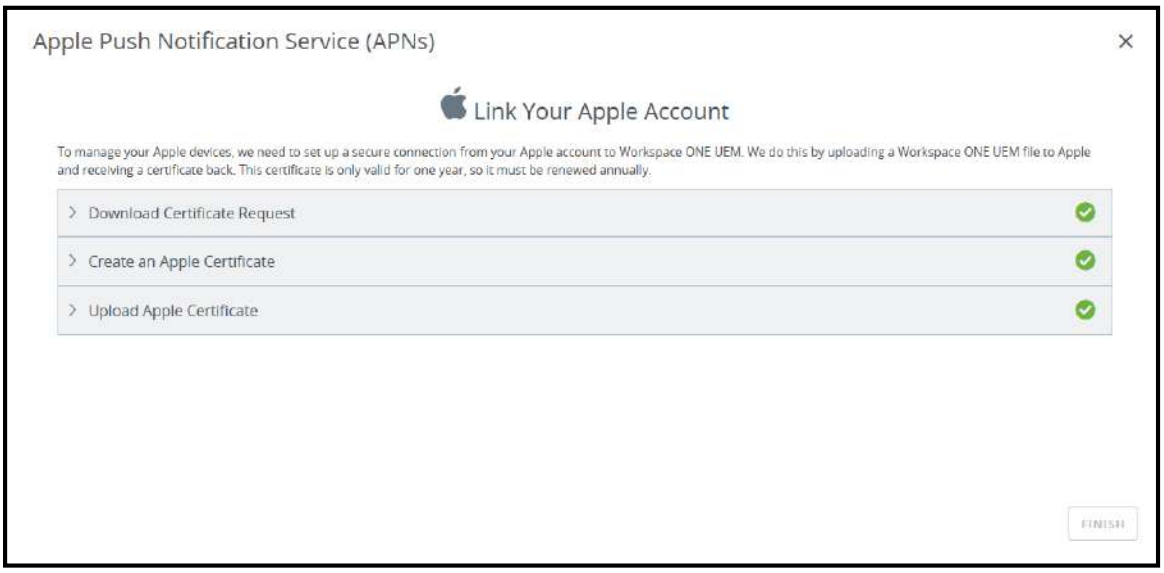
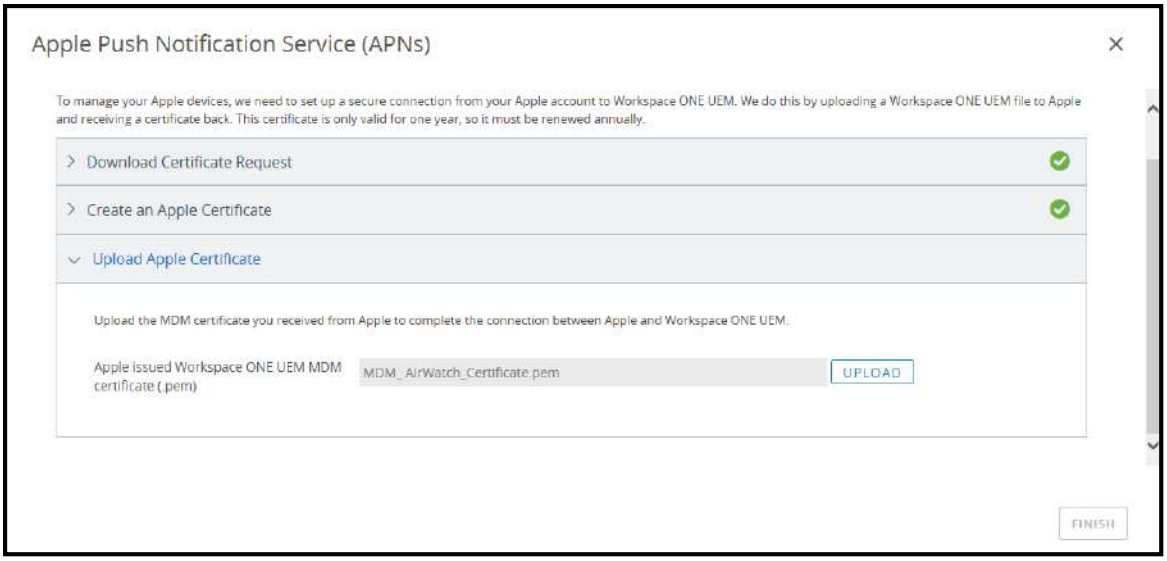
7. Go back to Workspace ONE UEM on the third step upload the Apple Certificate.



8. Go back to Workspace ONE UEM. On the third step upload the Apple Certificate.



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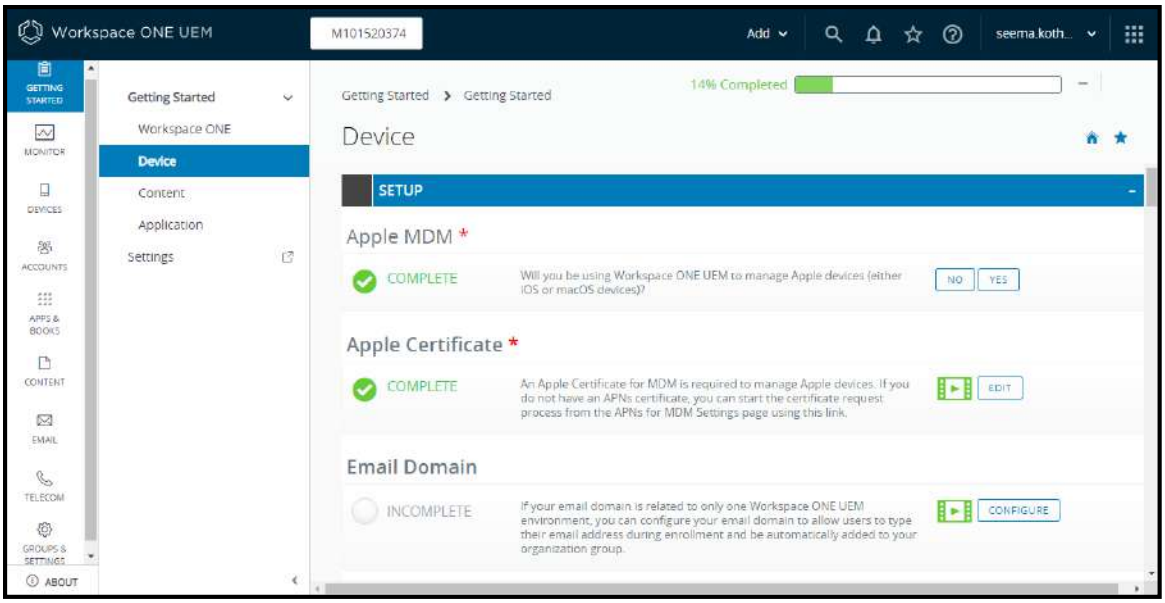
9. Apple issued certificate is successfully uploaded to Workspace ONE UEM MDM.

10. Apple MDM step is now complete.



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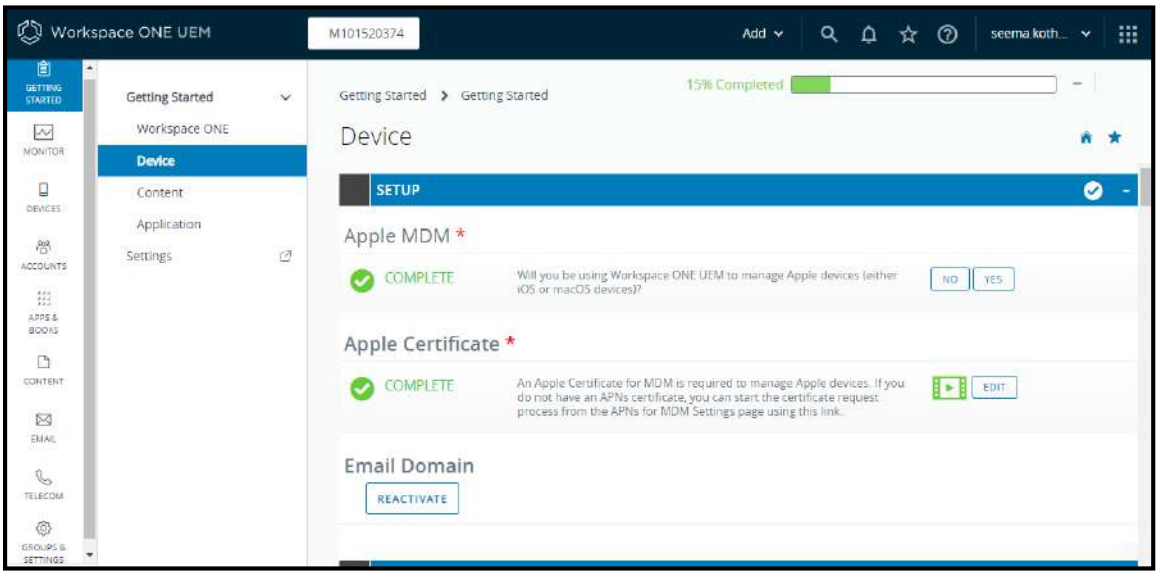
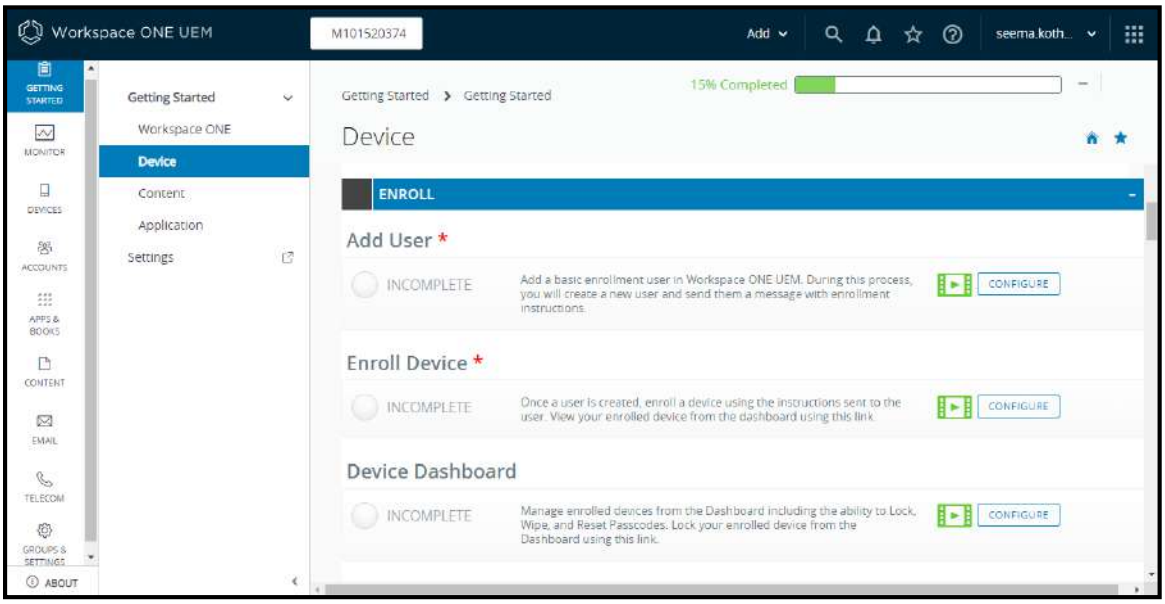
11. You may Skip or configure Email Domain. In this case we have skipped configuring email domain.



9.2 Enroll Users

This section explains steps to enroll users for all devices.

1. Next you can enroll users.



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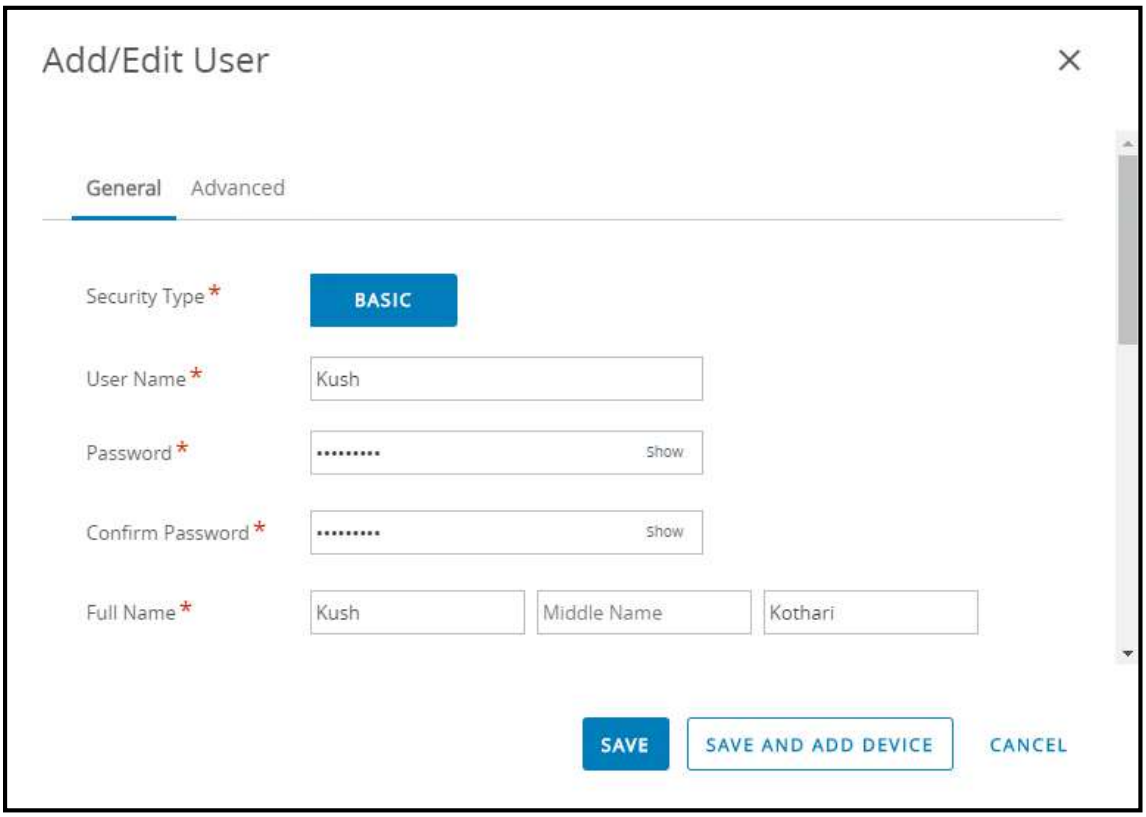
2. Provide the general user information.



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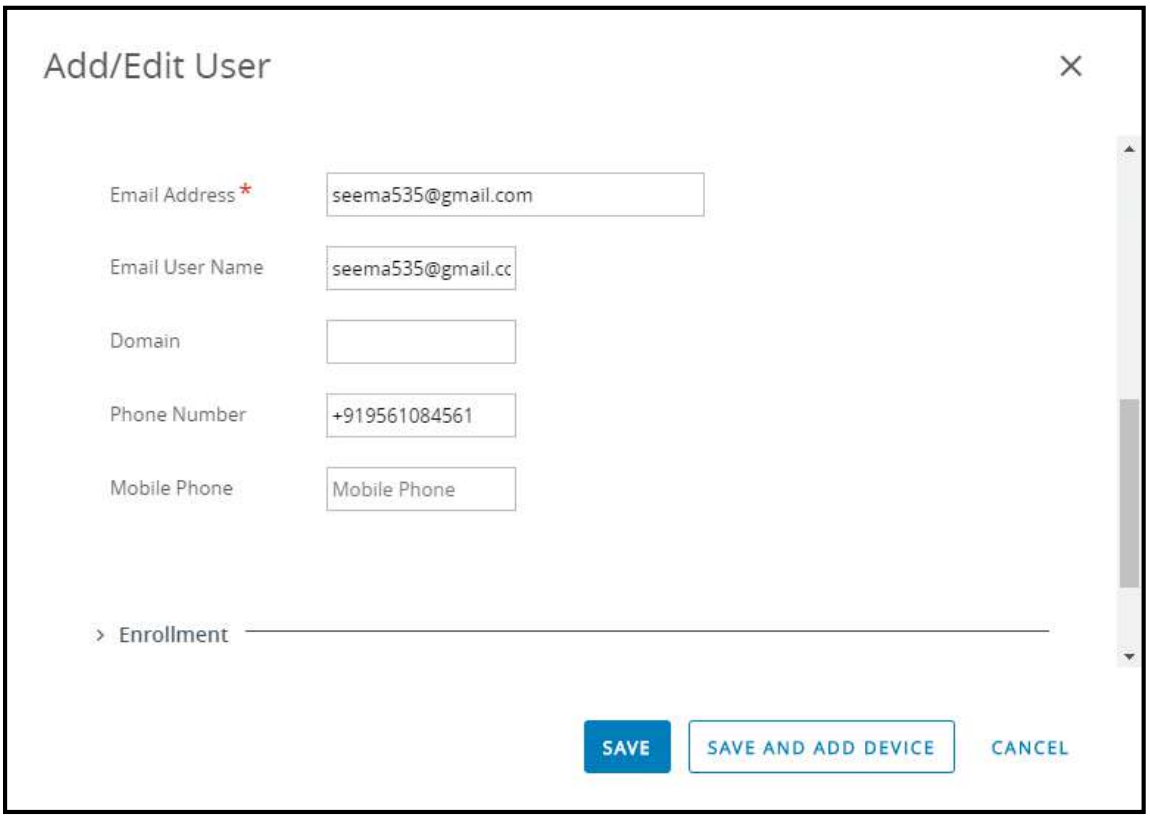
3. Provide Advanced Information.



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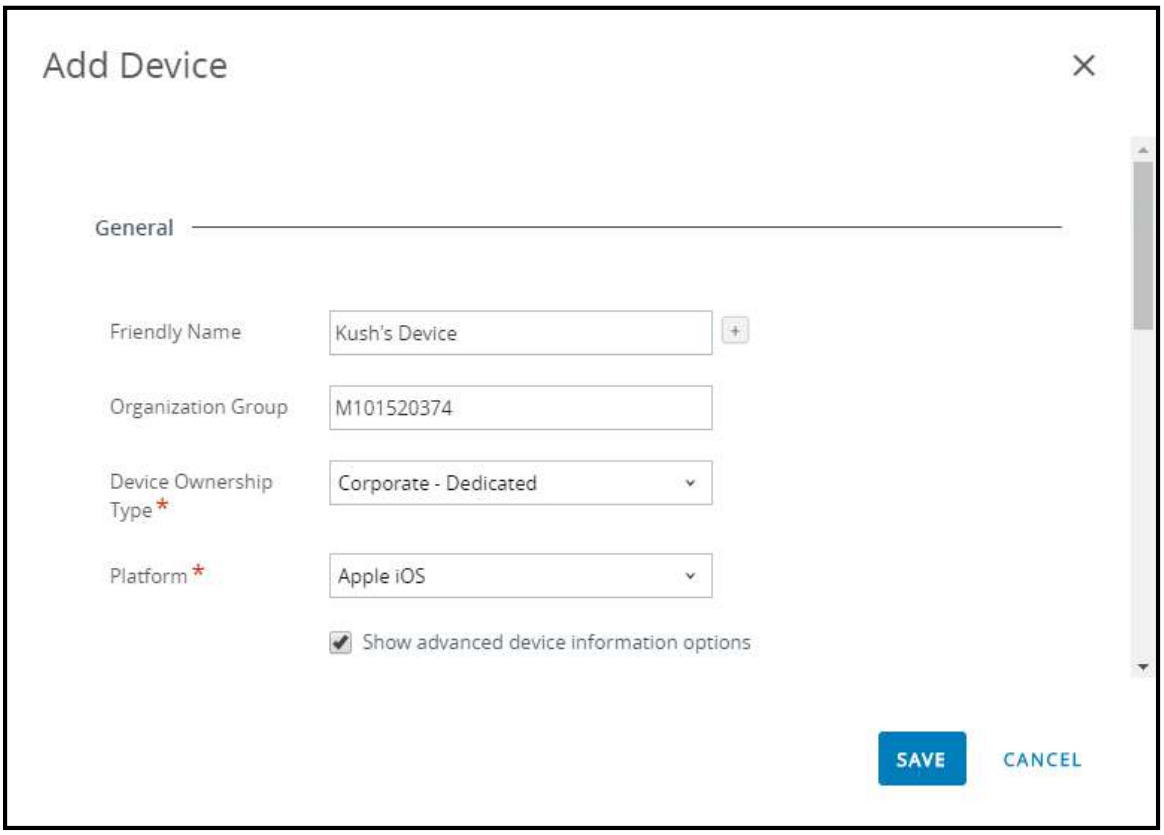
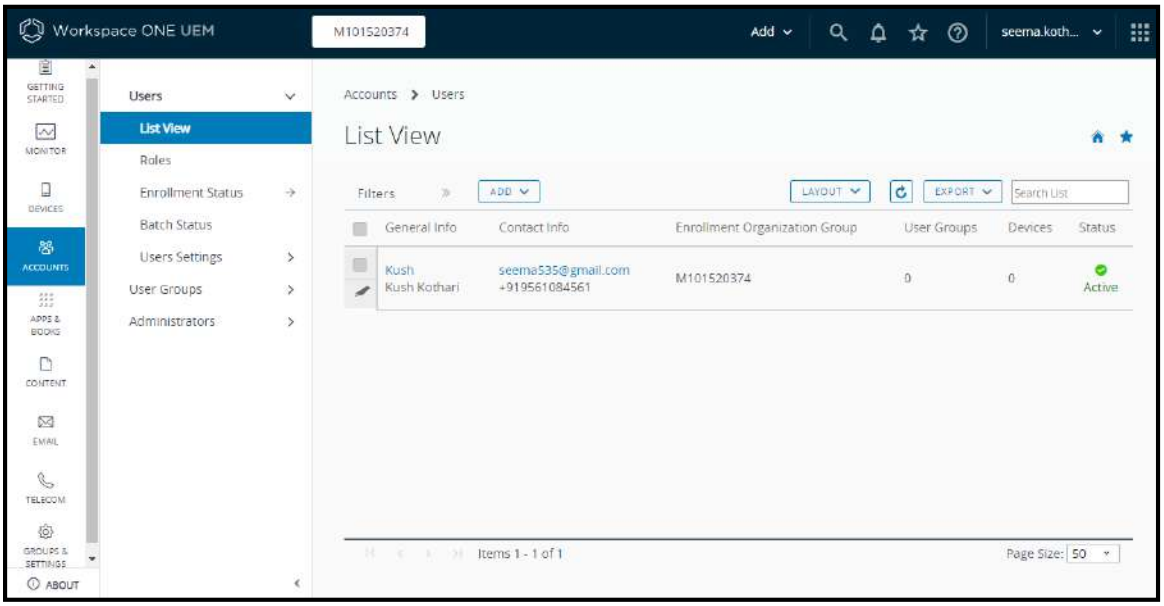
4. Enroll Device for the newly enrolled user.



5. For User is enrolled.



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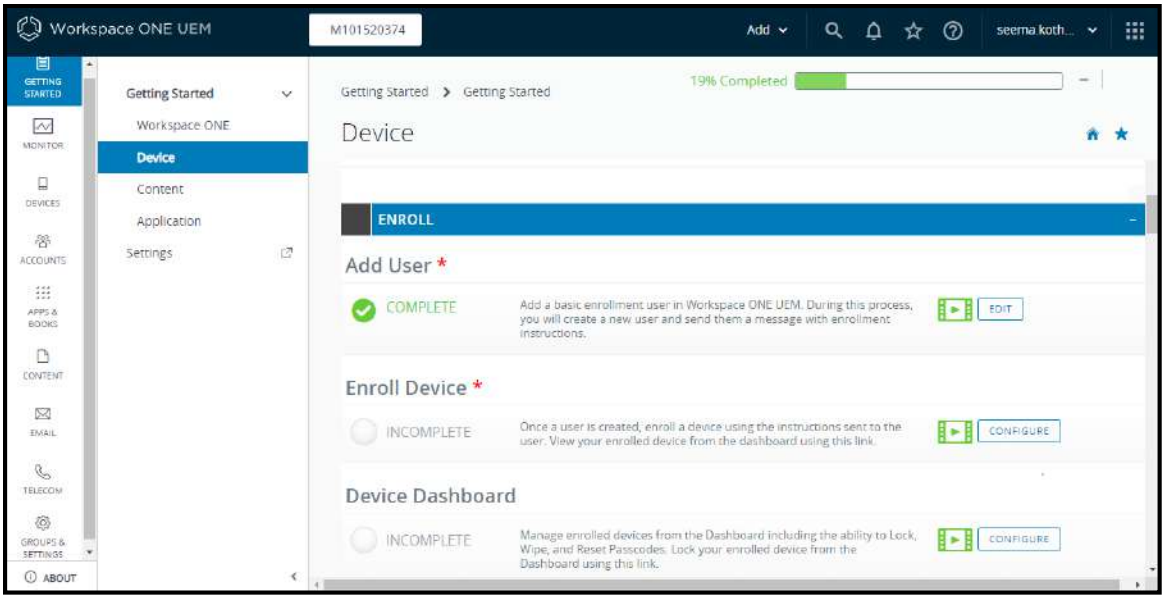
6. For devices other than Apple you need not perform this step.
7. Go to the Enroll section and Add User. Add user to a Custom User Group. During this process you add a user and a Message sent to the user with enrollment instructions.
8. The next step is to complete Enroll Device as shown below.



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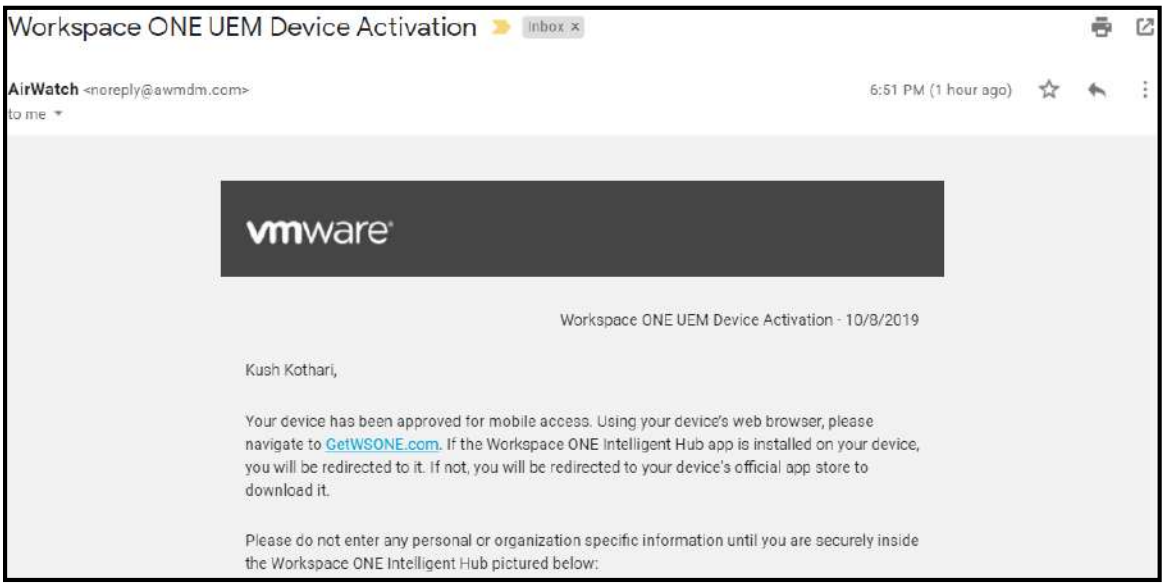
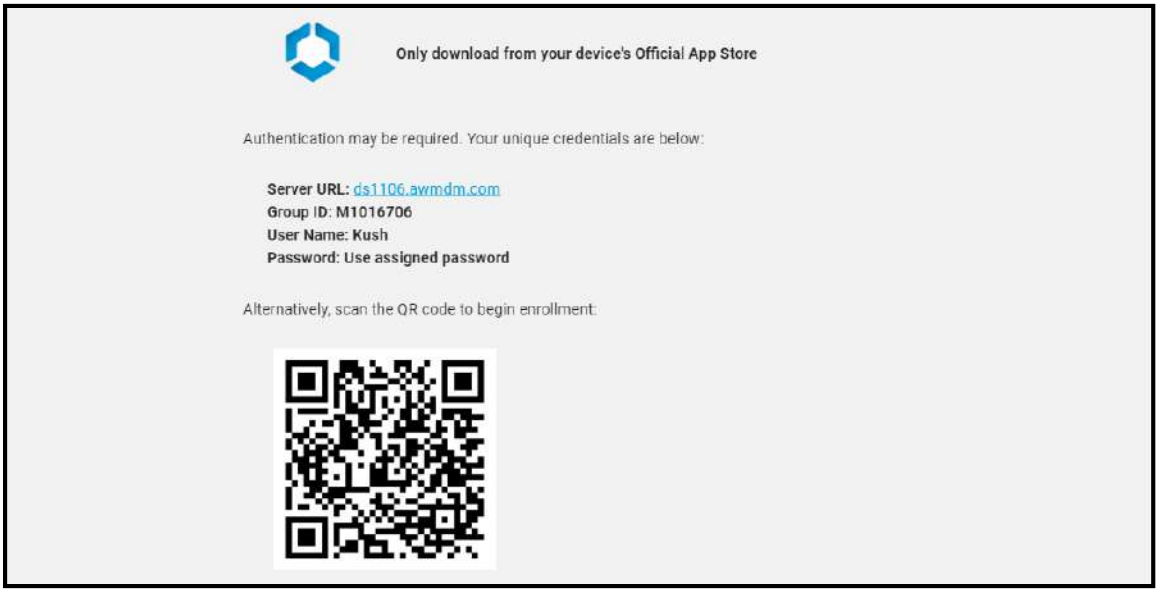
9. Enrollment user receives email for Device Activation.





9.3 Enroll Device

This section explains steps to enroll devices.

1. To enroll a device you first need to download Workspace ONE Intelligent Hub (AirWatch MDM Agent) on your device
2. Open the email sent to you above and follow the instructions to enroll your device.
3. Scan QR code or provide User/password. In case of Android device it is checked that the user should be assigned to a custom user group.
4. You are redirected to the server URL.
5. Profile will be downloaded.

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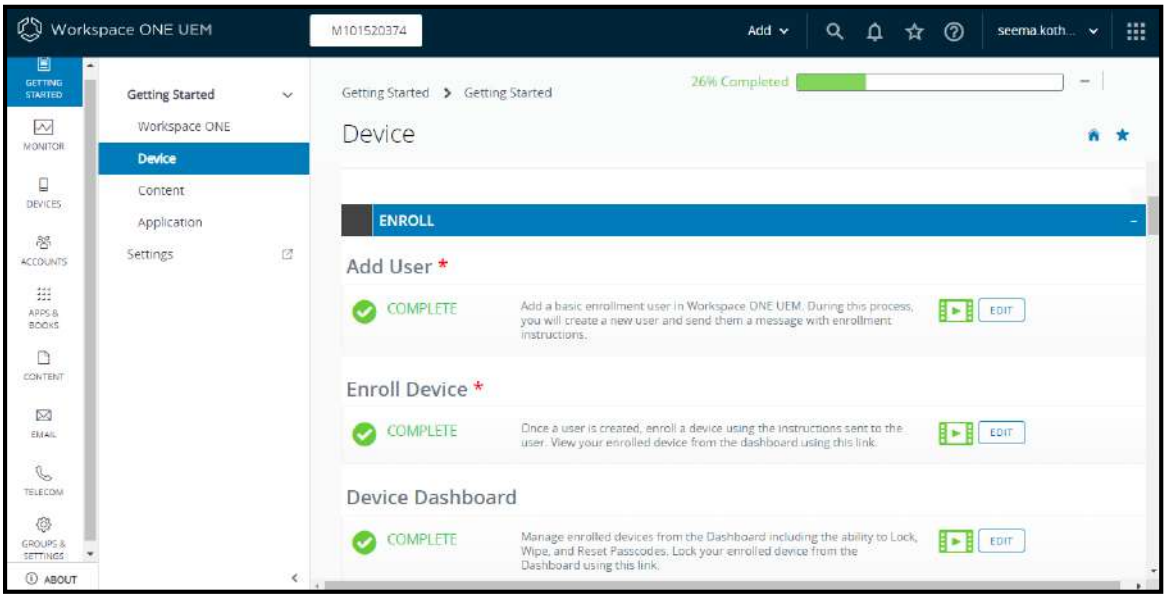
6. Install the profile.
7. Create a passcode.
8. You can see the screen downloading configuration profile.
9. You now enter Workspace ONE Intelligent Hub using credentials sent on an email.
10. You may receive another email to reset your enrolled user password. Please reset your password.
11. You can now view Apps and Notifications on your mobile device.

9.4 Device Dashboard

1. You can now view your devices on the Device Dashboard. You can also start using Intelligent Hub and see Enterprise Applications as per roles assigned to the Custom User Group.



2. You can now start using the AirWatch Plugin steps.

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10 Appendix 10: Google Refresh Token Generation

It is assumed that you have a Google developer console account created on https://console.developers.google.com.

In this Appendix we complete the Google Spreadsheet steps prerequisites.

- Enable APIs for Google Drive and Google Spreadsheet
- Generate Client ID and Client Secret
- Generate Refresh Token in exchange for the Client ID and Client Secret

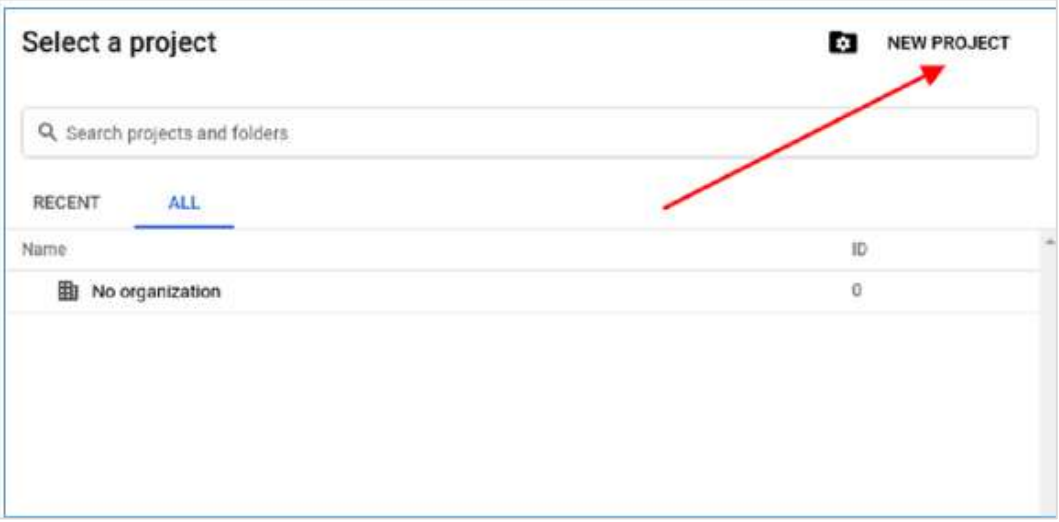
References

Google Spreadsheet documentation
https://developers.google.com/sheets/api

10.1 Enable APIs

In this section we will Enable APIs for Google Drive and Google Spreadsheet.

1. Go to the Google Developer Console.
2. Click **Select a Project >> New Project**. If you have an existing project, you can select it from **ALL.**



3. Provide valid values and Click on the **CREATE** button.

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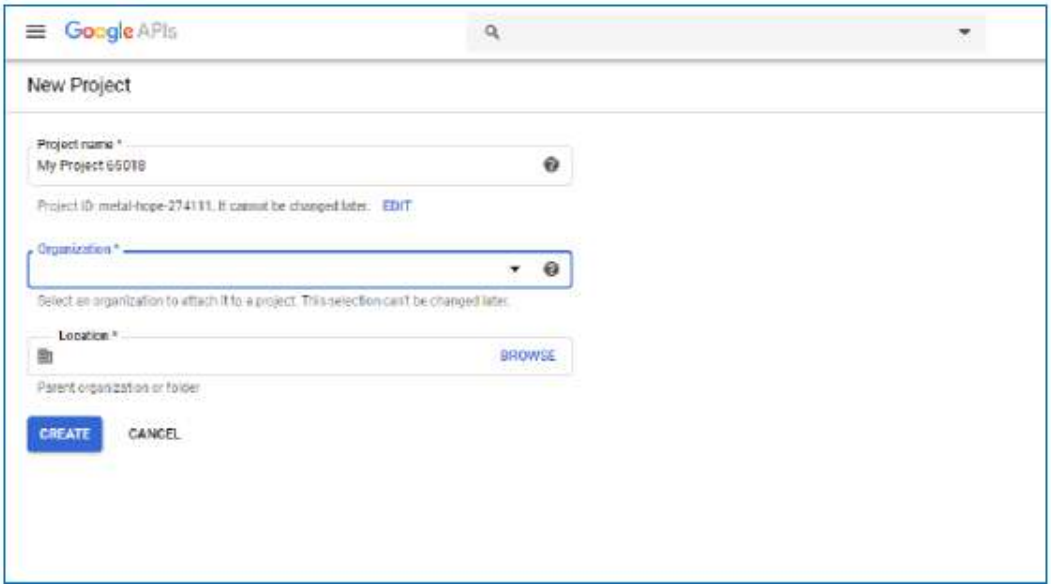
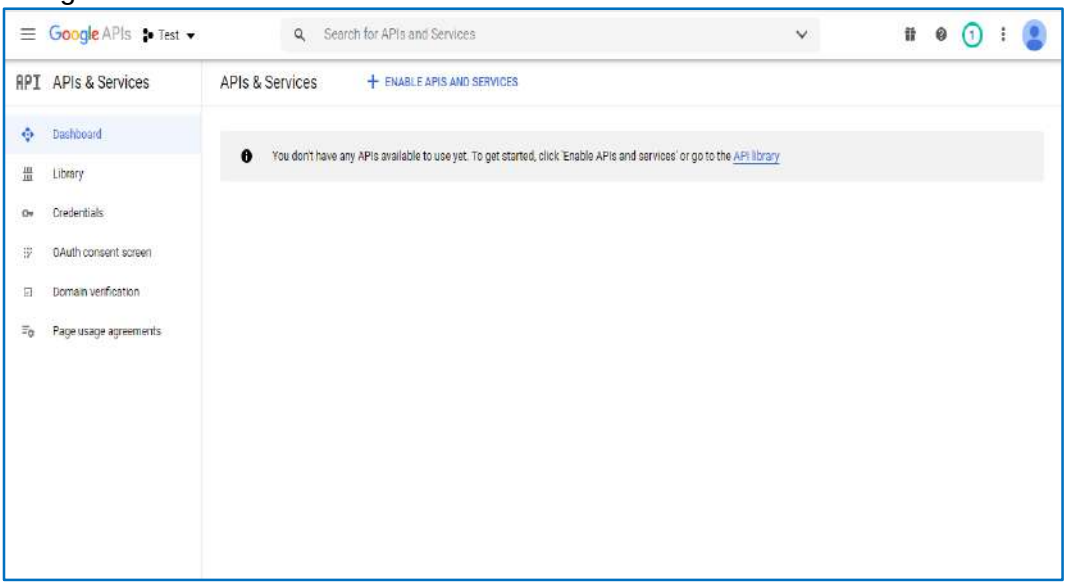


4. Navigate to **Dashboard** and Click on **ENABLE APIS AND SERVICES.**



5. Search for **Google Drive API** for Google Drive Plugin >Click on **ENABLE**.

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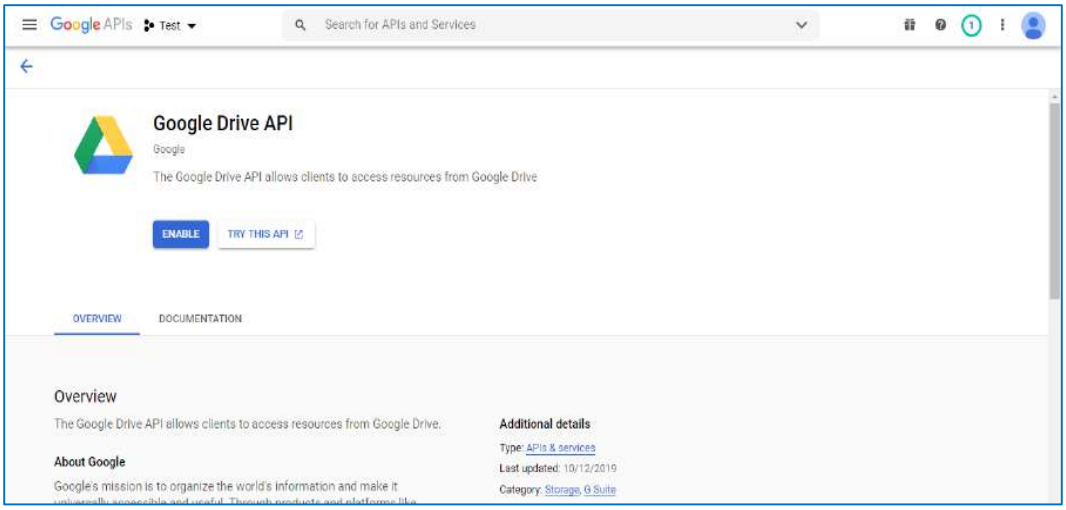
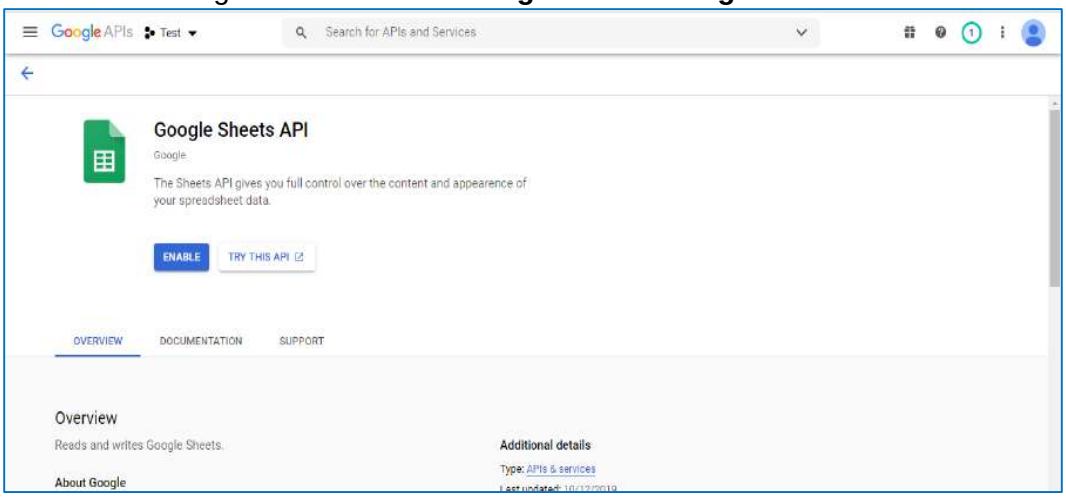


6. Search for Google Sheets API for **Google Sheets Plugin >Click on ENABLE**.



10.2 Procedure to get a Client ID and Client Secret

1. Navigate to the tab **OAuth consent screen** and choose the valid option.

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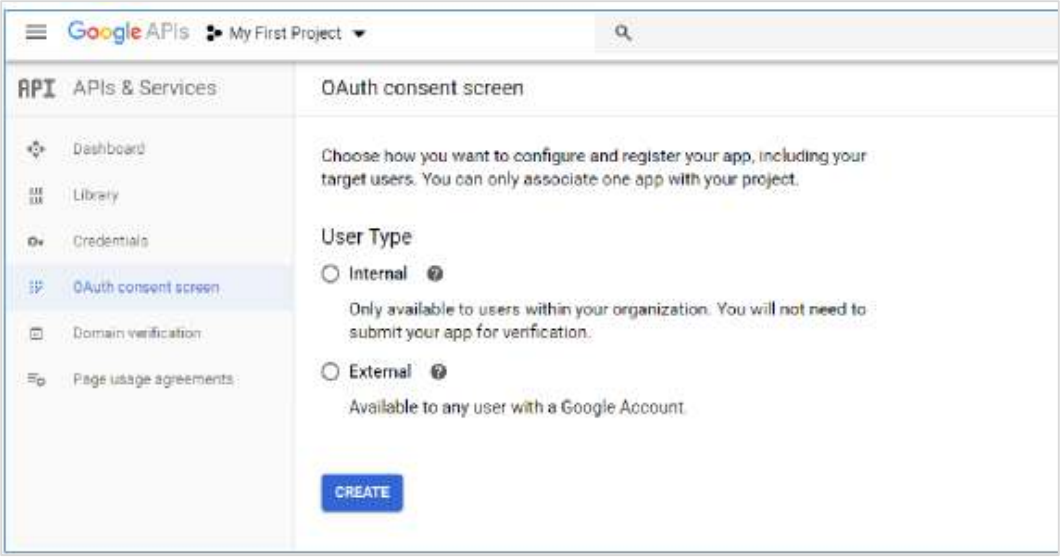

2. Enter the **App name, User support email, Authorized domains, Developer contact information** > click **SAVE AND CONTINUE** button.

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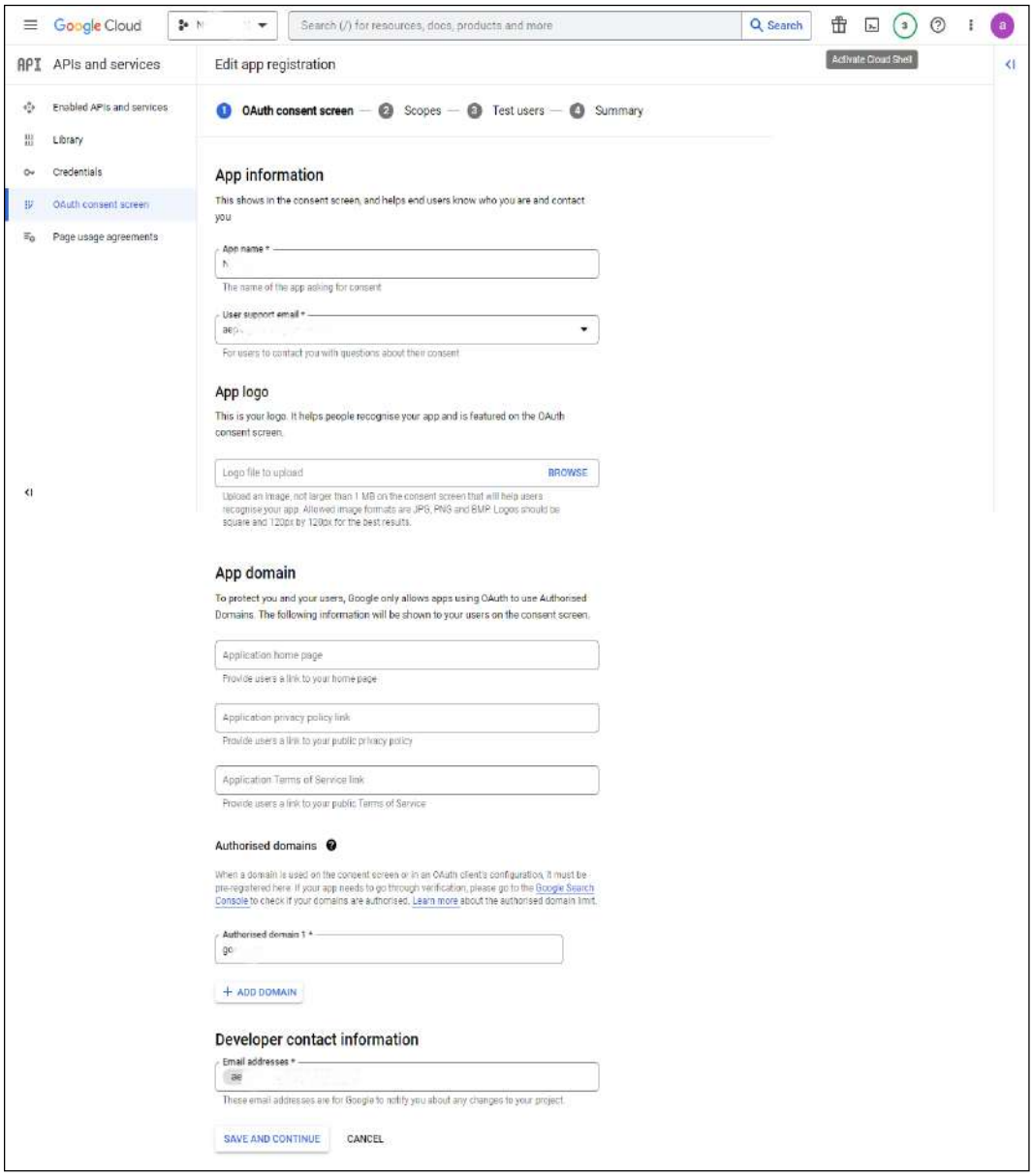

3. Click on **ADD OR REMOVE SCOPES** button.

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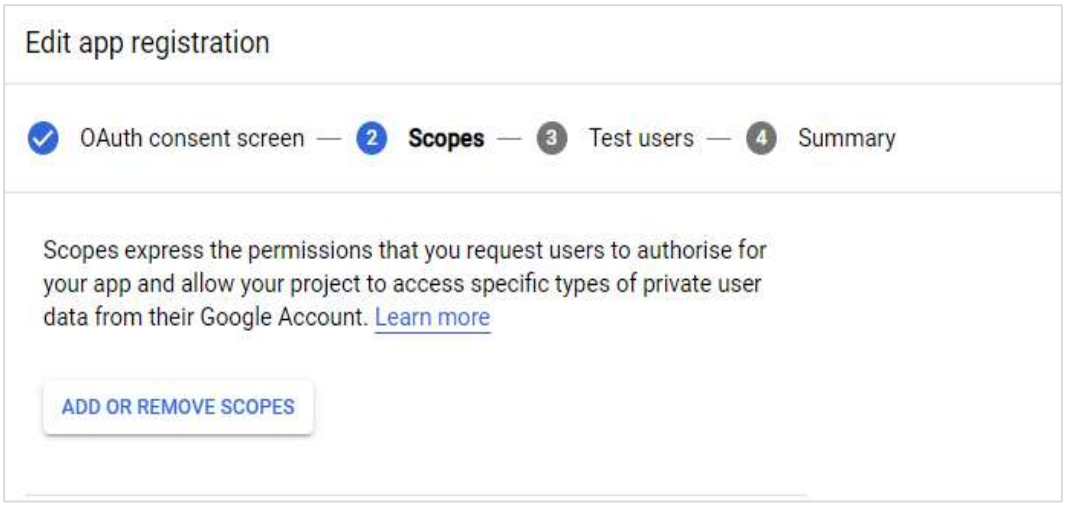

4. Select Google Drive API and scope selected in following image > click **UPDATE** button > click **SAVE AND CONTINUE** button.

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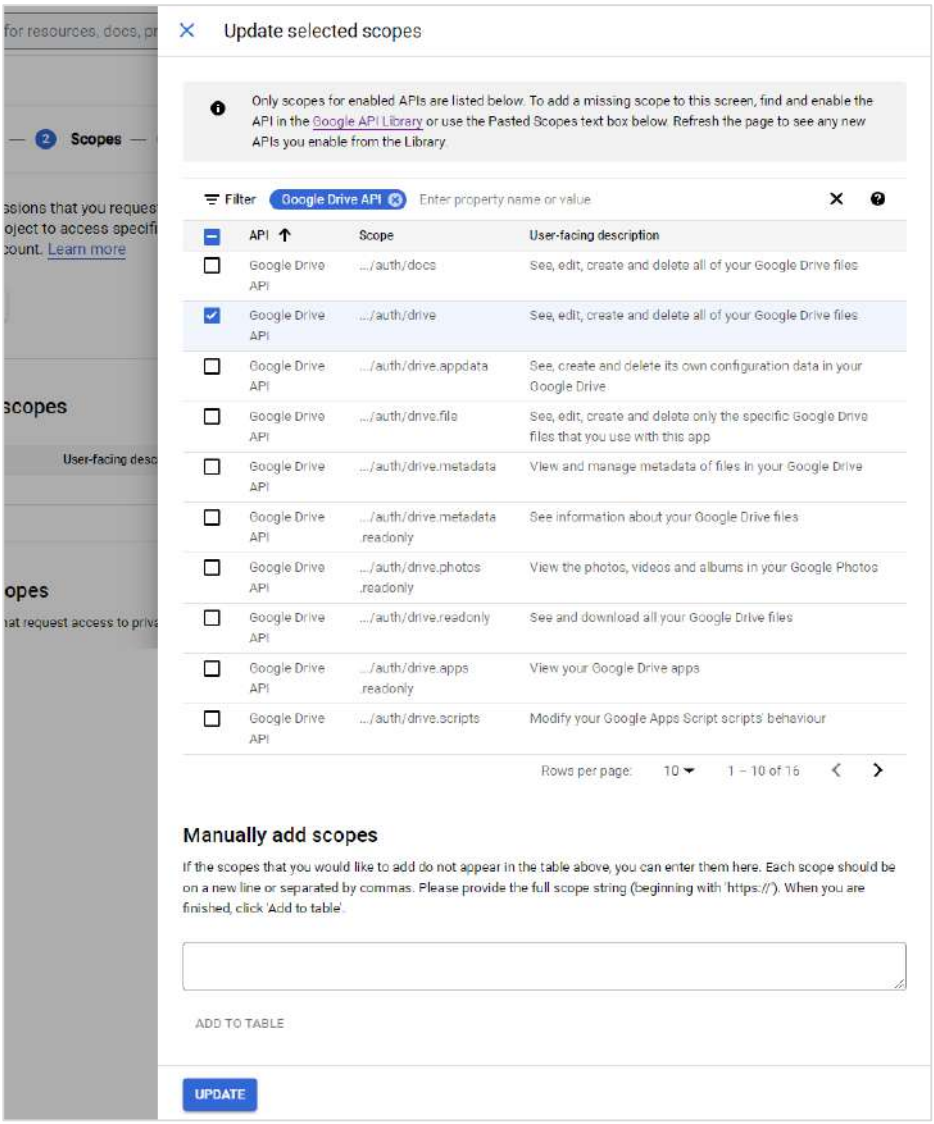

5. Click on **ADD USERS** button.

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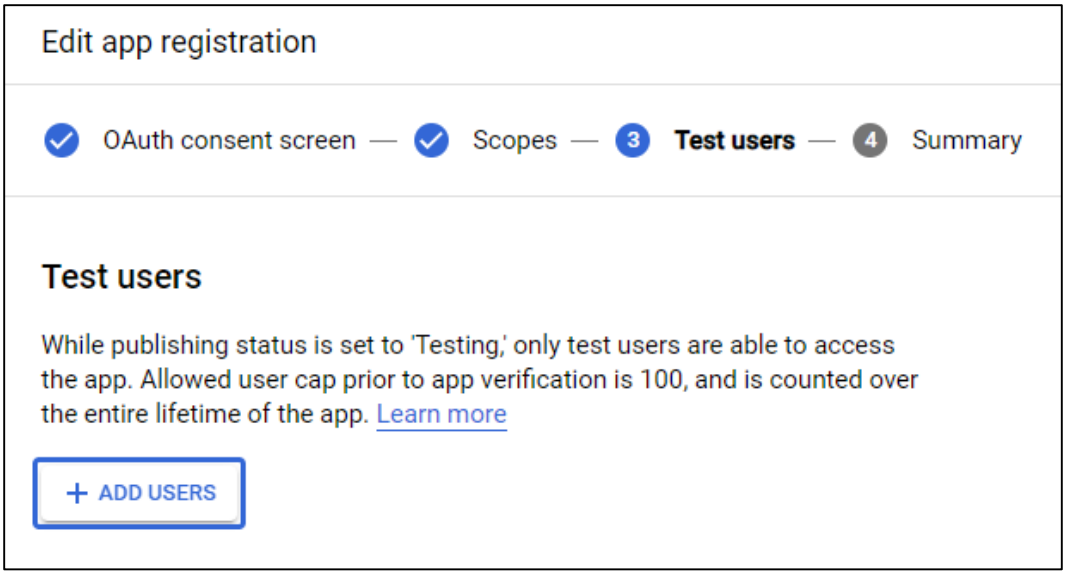
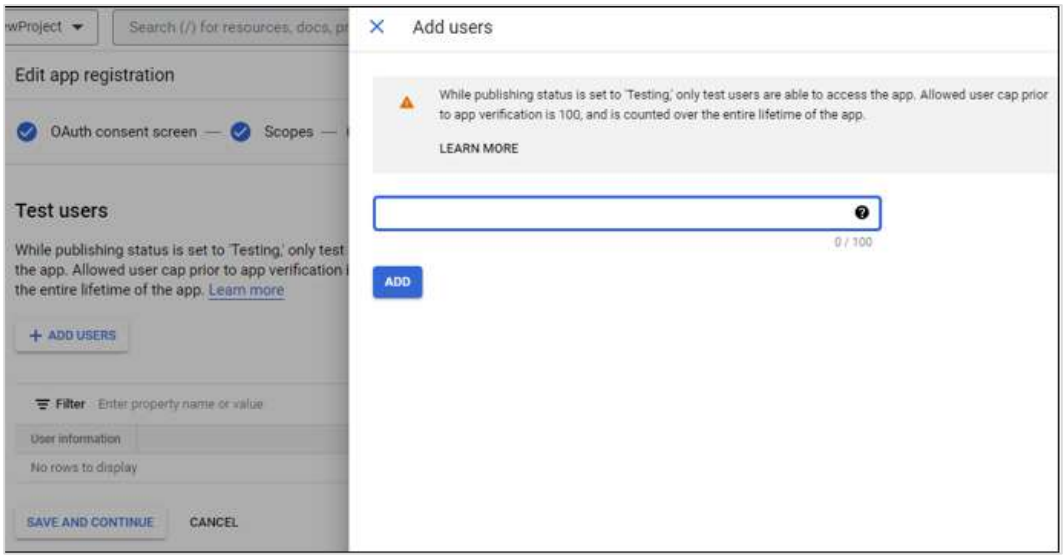


6. Provide valid email ID > click **ADD** button > click **SAVE AND CONTINUE** button.



7. Click on **Credentials** tab > click **CREATE CREDENTIALS** and from the dropdown-list select **OAuth client ID.**

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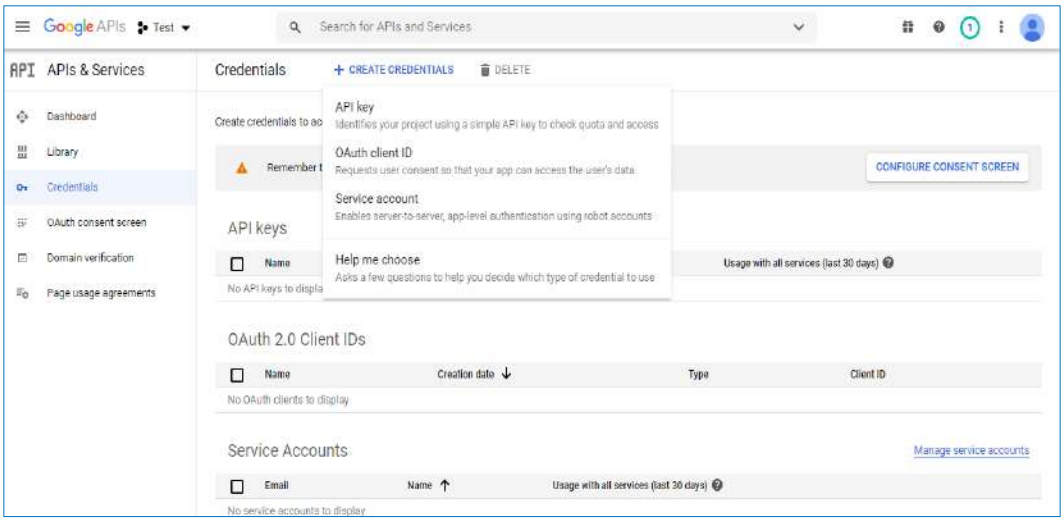
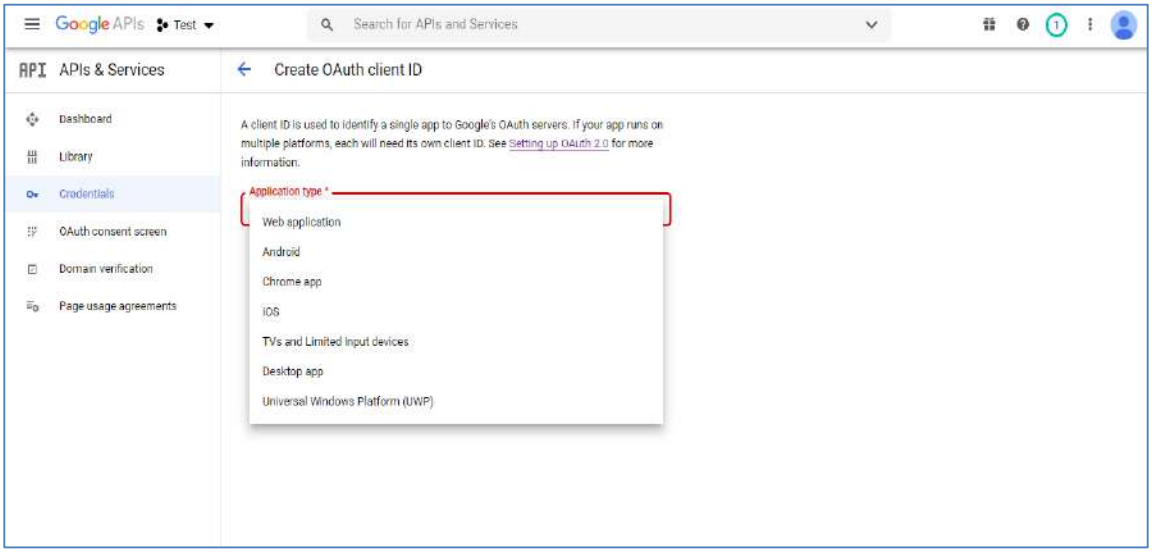


8. From the Application type, select the **Web Application.**



9. Enter valid **Name** and **Authorized Redirect URIs** > Click **CREATE** button.
Authorized Redirect URIs: https://developers.google.com/oauthplayground

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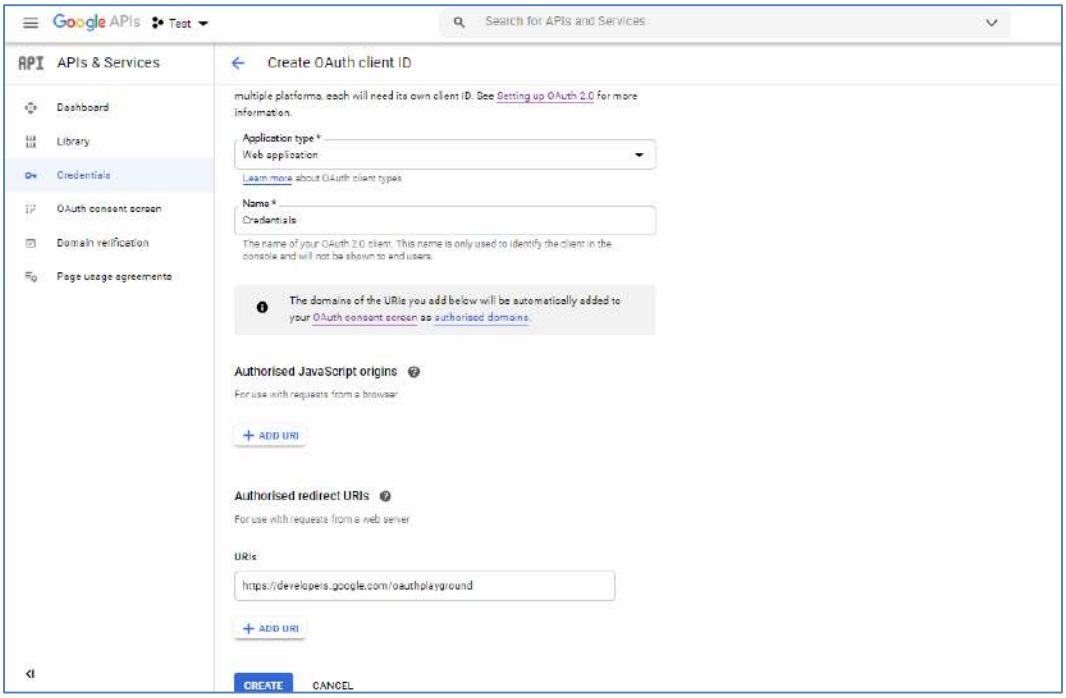
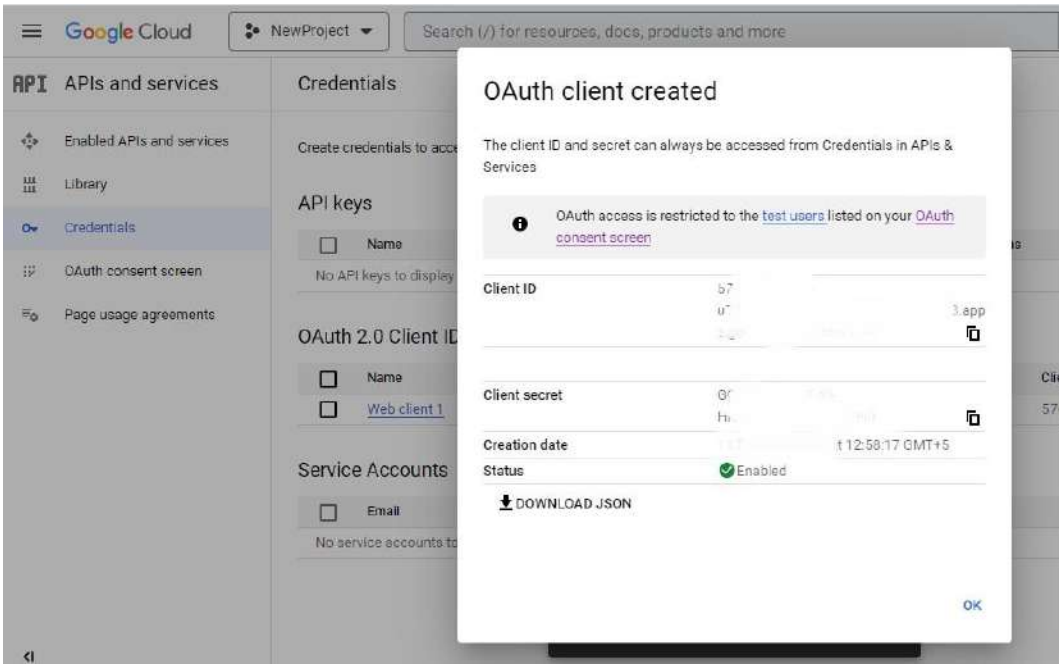


10. Copy **Client ID** and **Client Secret** > click **OK** button.



11. Get Client ID and Client Secret by clicking on the **OAuth 2.0 Client IDs**.

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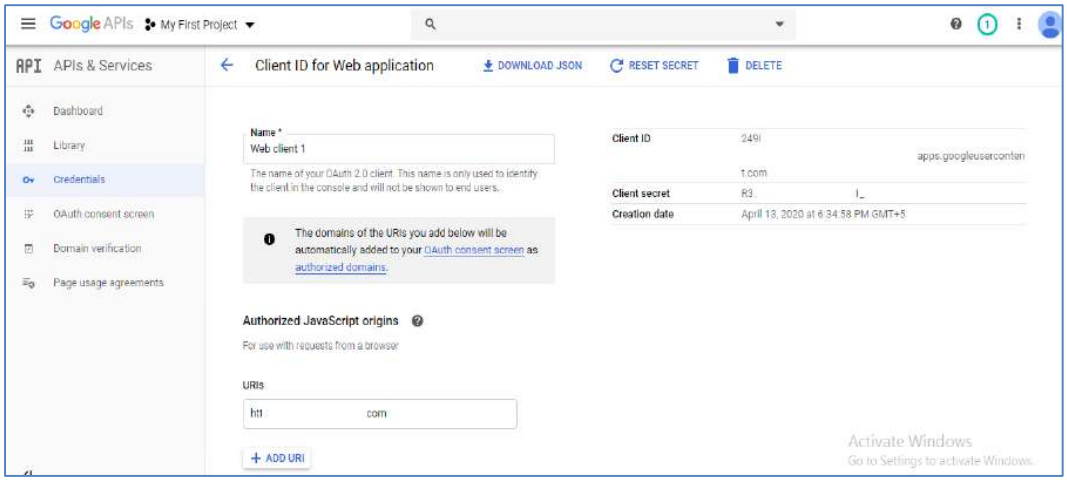
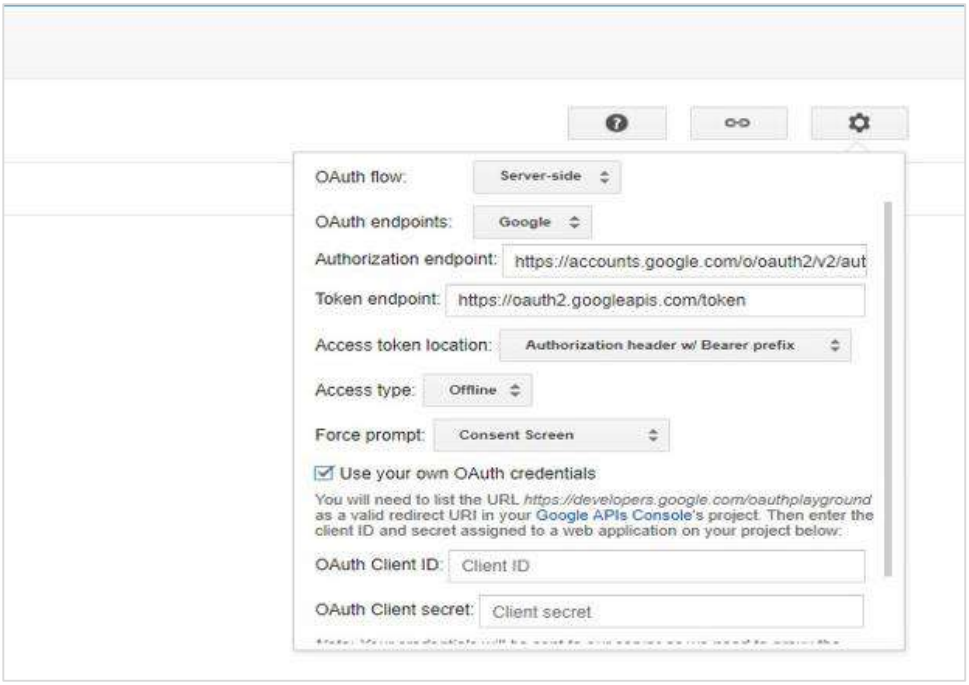


10.3 Procedure to generate Refresh Token

1. Go to the [Google OAuth Playground.]
2. Click on the **Settings** icon.
3. Click on **Use your own OAuth credentials** and enter **OAuth Client ID** and **OAuth Client secret** generated from the previous step.



4. Select the **Select & authorize APIs**. Select the desired scope you want for your application (like: https://www.googleapis.com/auth/drive) > click **Authorize APIs**.

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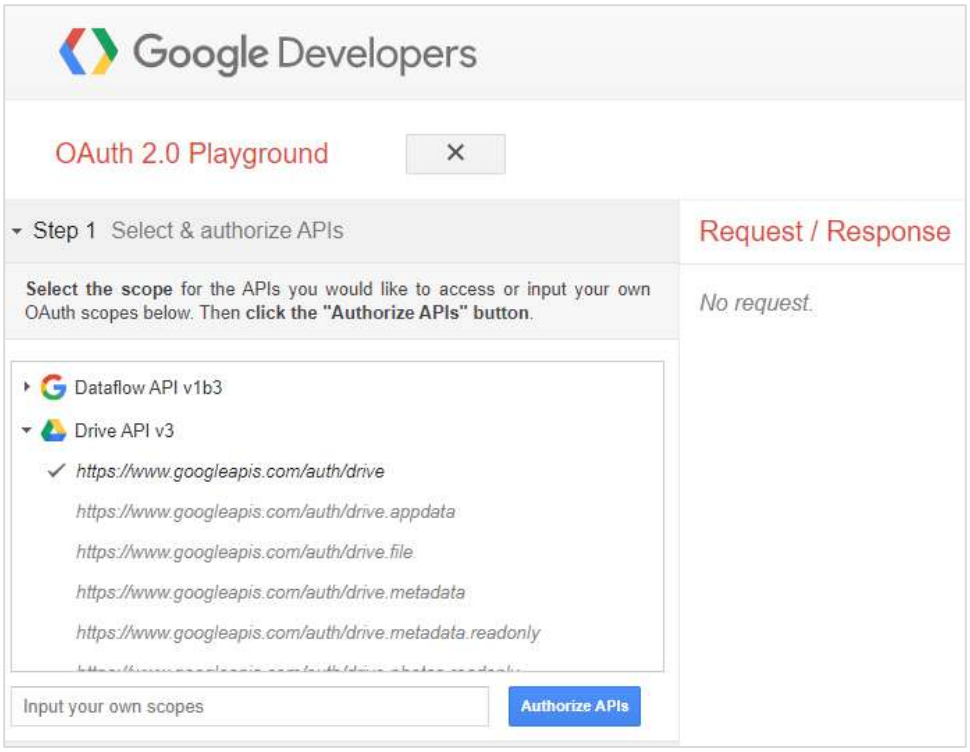
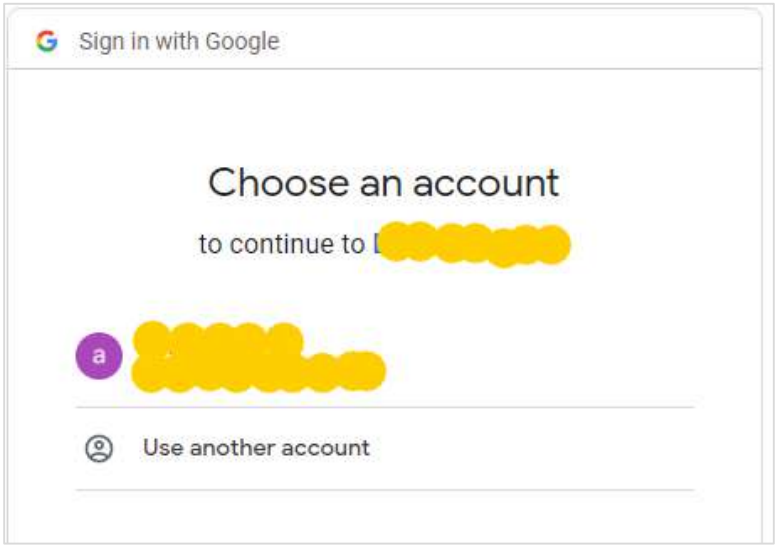


5. Choose an Account



6. Sometimes following screen appears > click **Allow**

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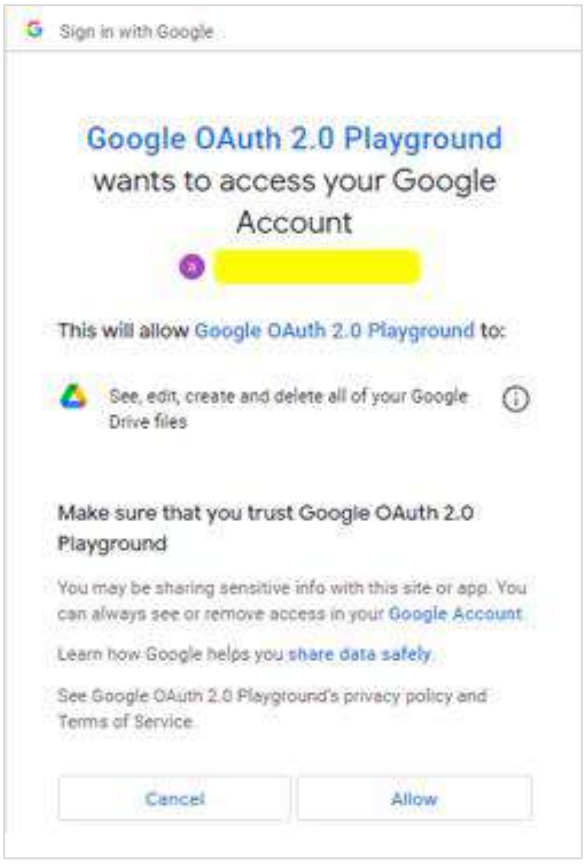

7. Following consent screen appears, then click on **Continue.**

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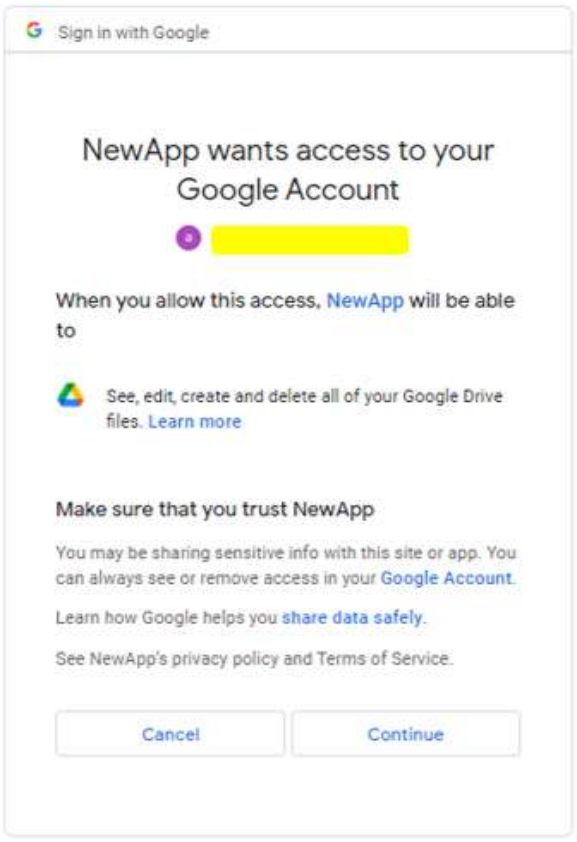
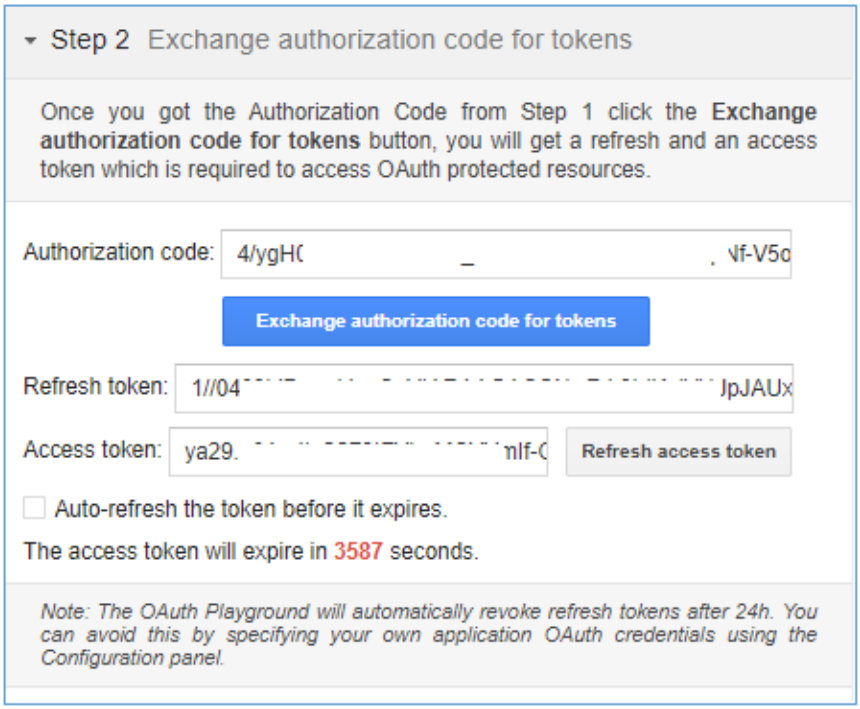


8. Click on **Exchange authorization code for tokens**.



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9. You'll get the Authorization code, Click on the **Exchange authorization code for tokens** button.

10. Copy the **Refresh Token.**

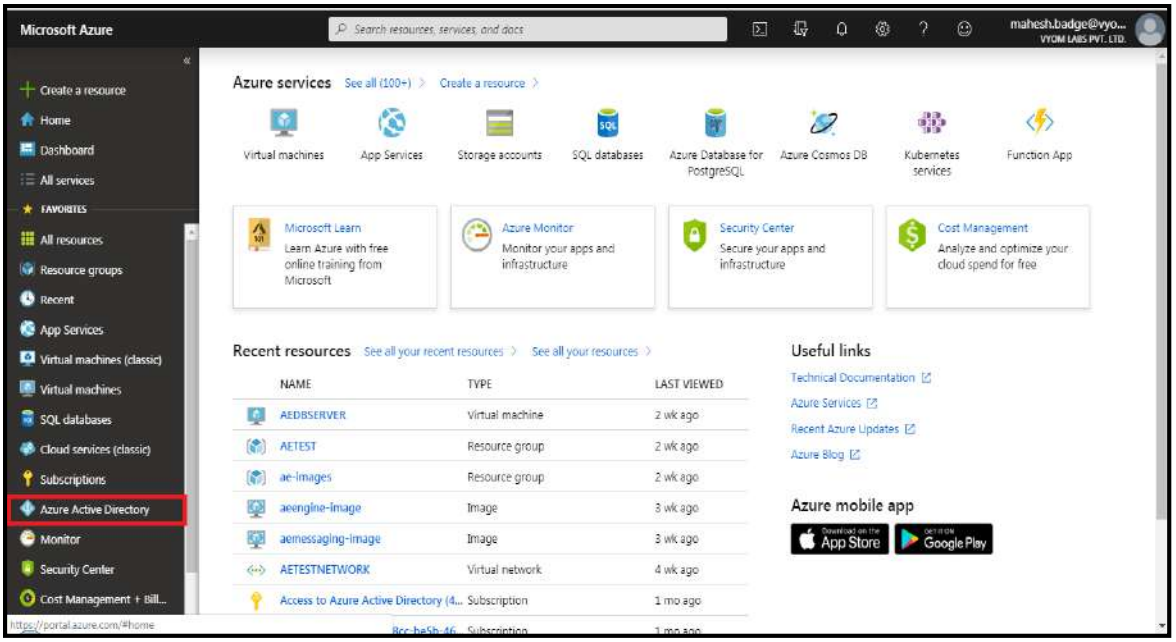
10.4 Refresh Token Expiration

https://developers.google.com/identity/protocols/oauth2#expiration

11 Appendix 11: Intune- Generate Client Credentials

In this Appendix we will see how to generate Client Credentials and provide necessary permissions.

1. Login to **https://portal.azure.com** with email address and password (else register for a new account).
2. Click on **Azure Active Directory** from a column on the left side as below.



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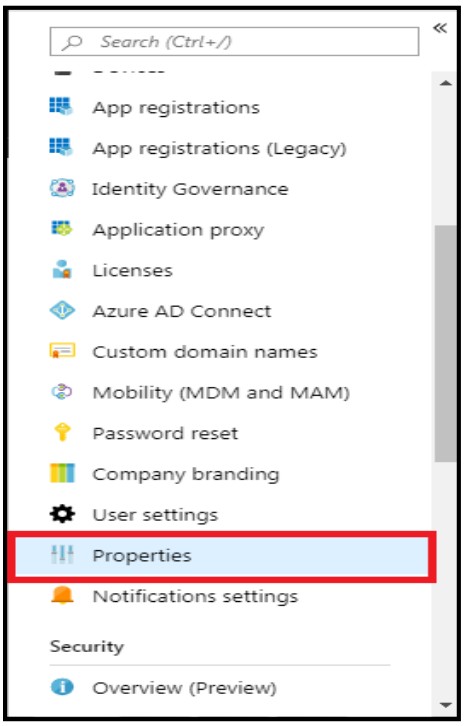
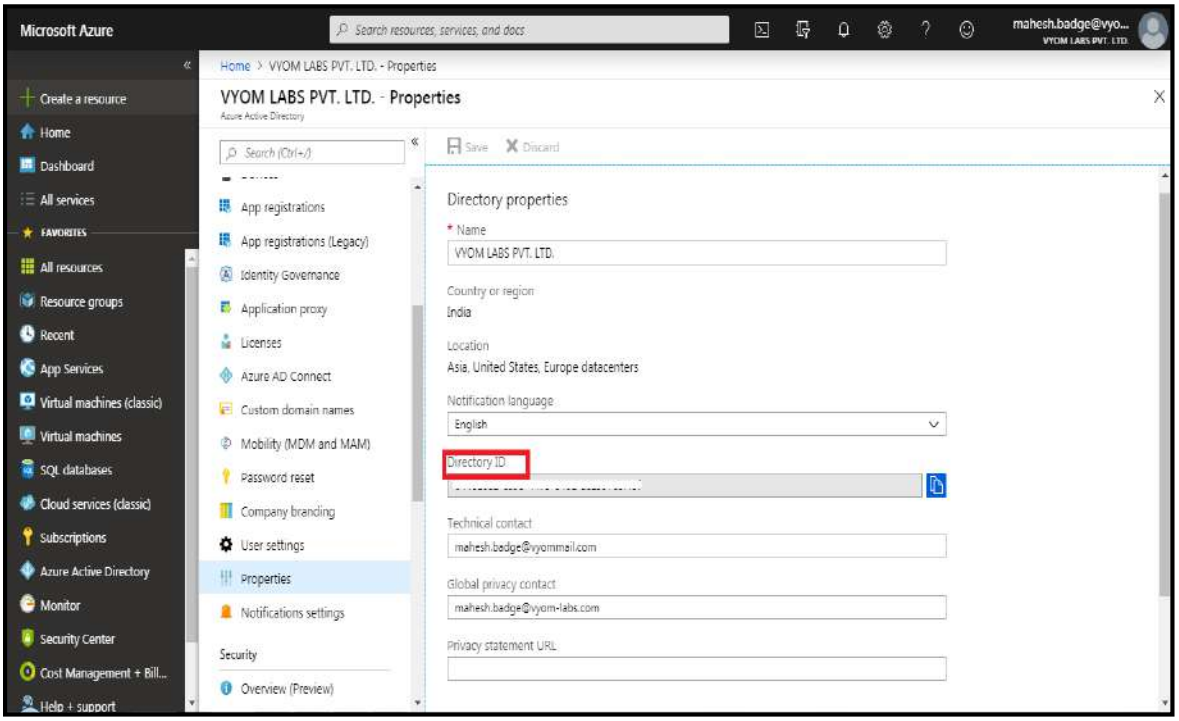
3. Search for Properties



4. The **Tenant ID** required in the plugin is the ID mentioned under **Directory ID.** In case the ID is not available you may get Tenant ID as mentioned in step 8 below.



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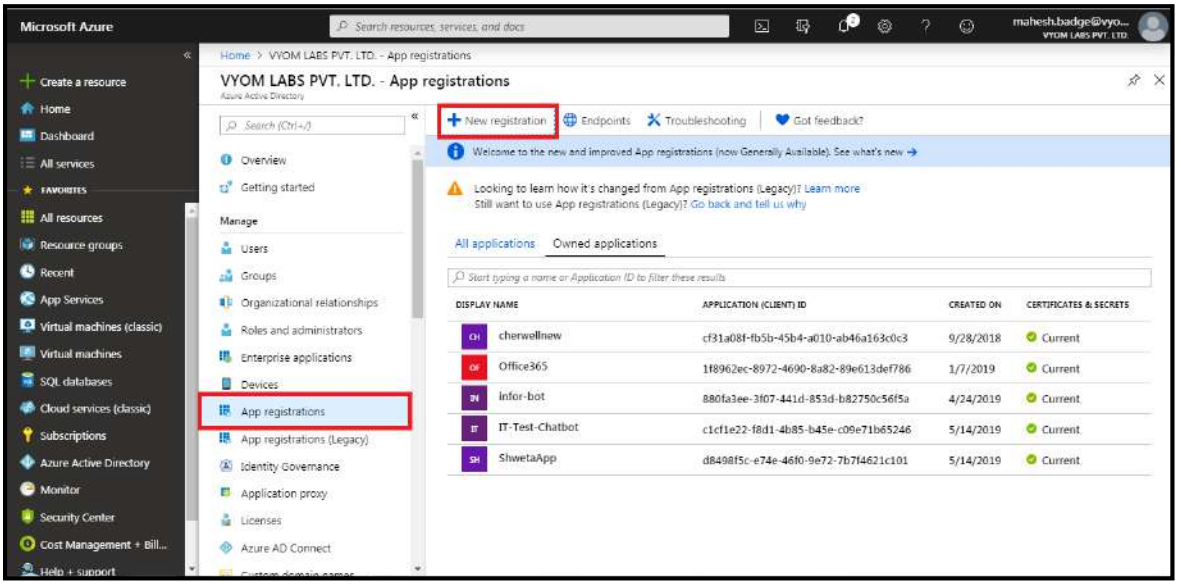
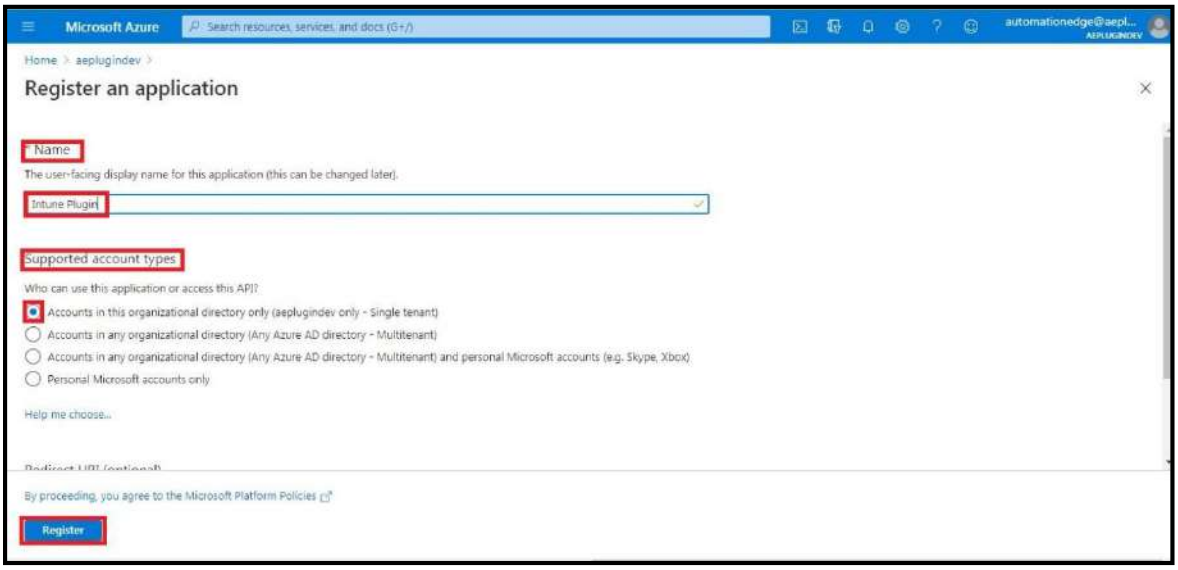
5. To get the **Client ID,** click on **App registrations** under **Azure Active Directory.**
6. Create a new App by clicking on **New Registration.**



7. Enter the application name select account types and click on **Register**.



8. After clicking on **Register**, under **Overview** of the newly generated Application you can find the **Application (client) ID/ Client ID.** Also, you can find **Directory (tenant) ID/Tenant ID** below Client ID.

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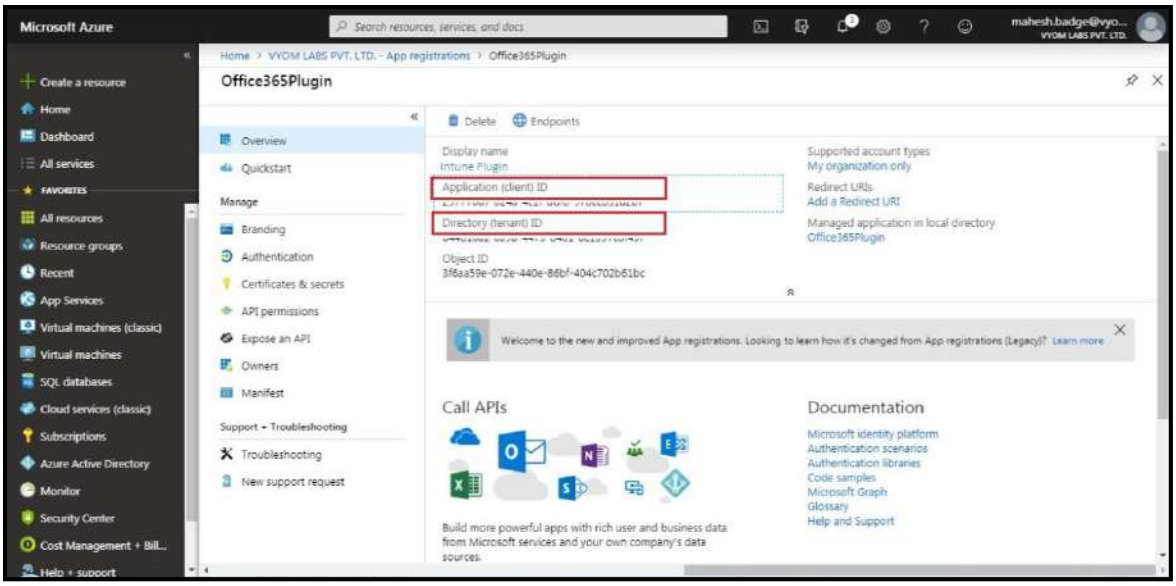
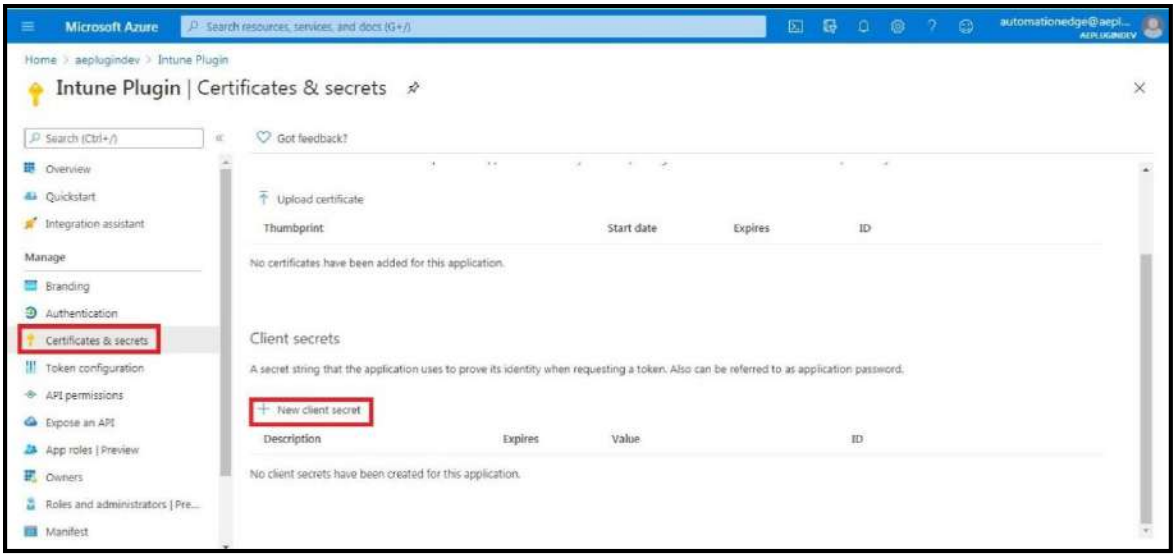


9. To generate client secret, click on the **Certificates & Secrets** and then click on **+ New Client Secret**.



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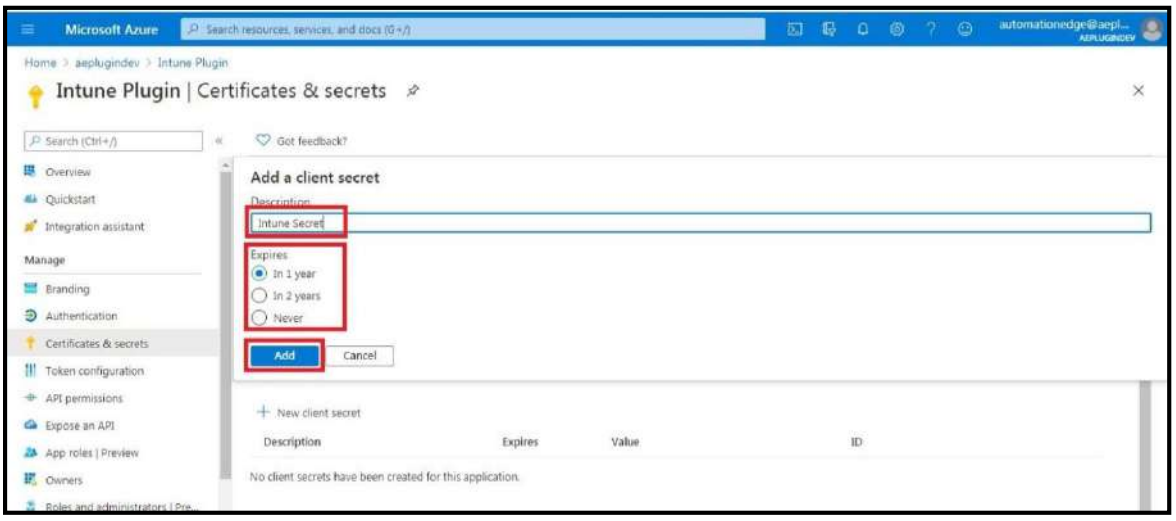
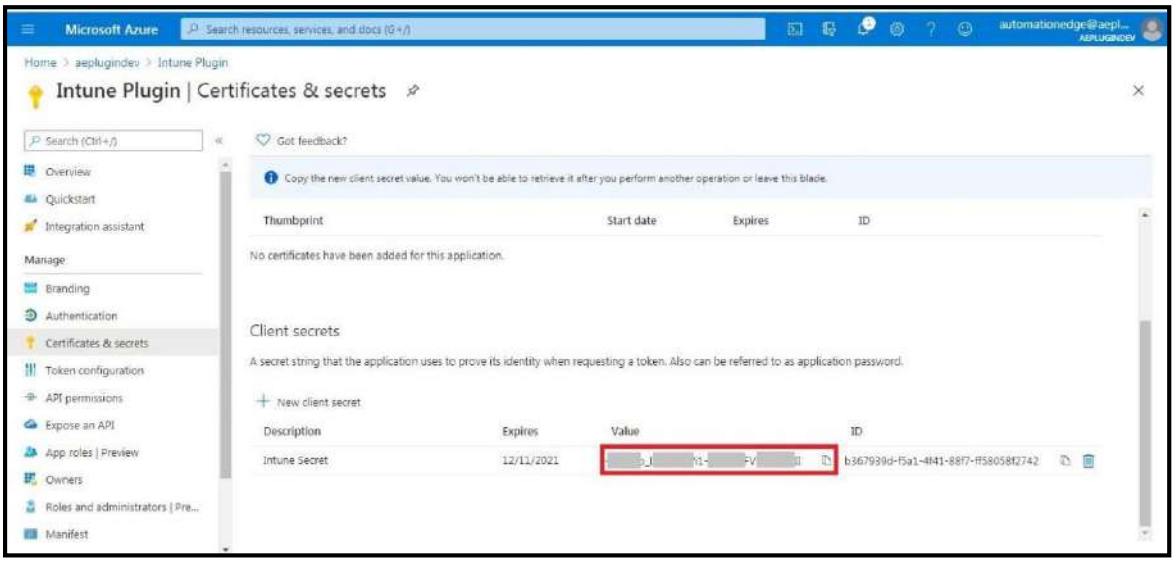
10. Now enter the **Description, Expiry**, and click on **Add**.



11. Copy the value of the client secret as it will be not visible the second time.



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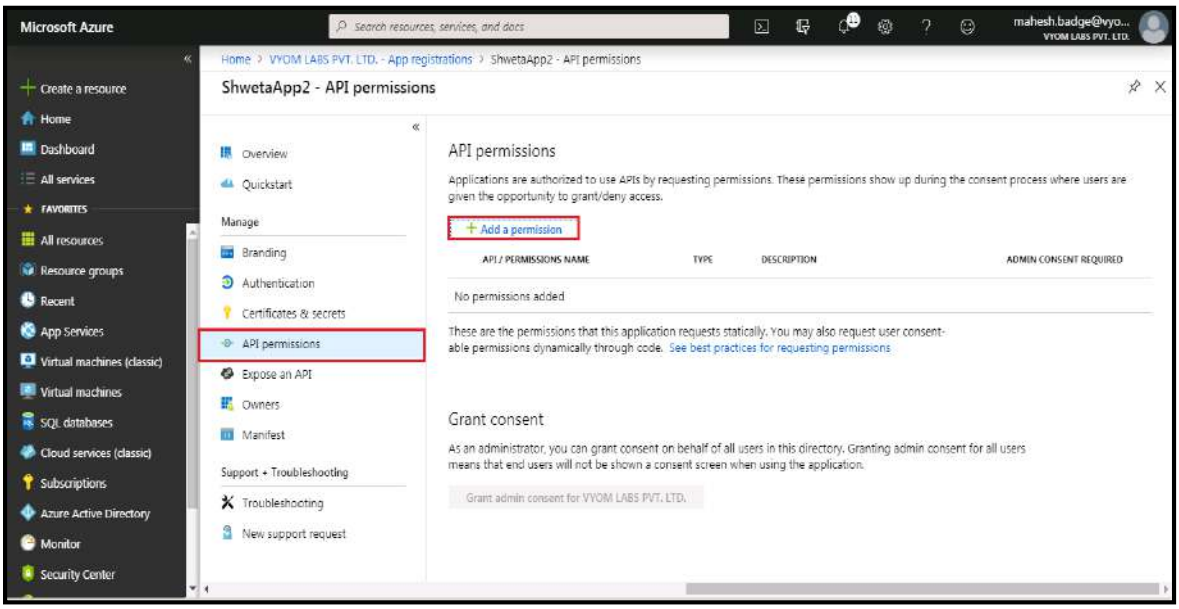
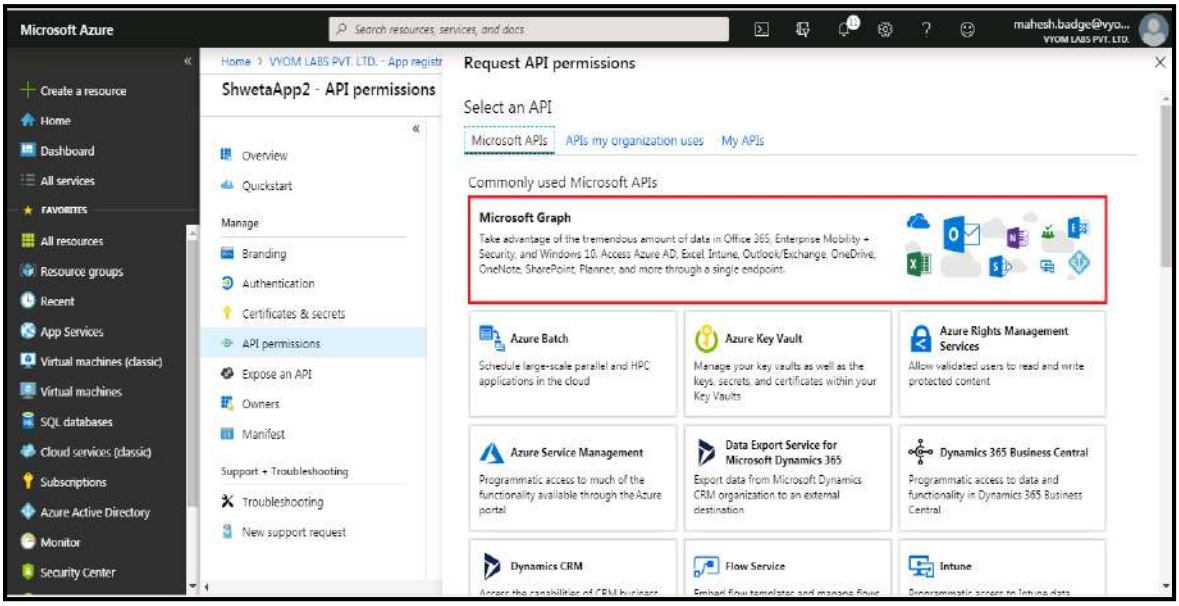
12. Click on **API Permission** and then click on **Add Permission.**



13. Click on **Microsoft Graph**, and then click on **Application permissions.**



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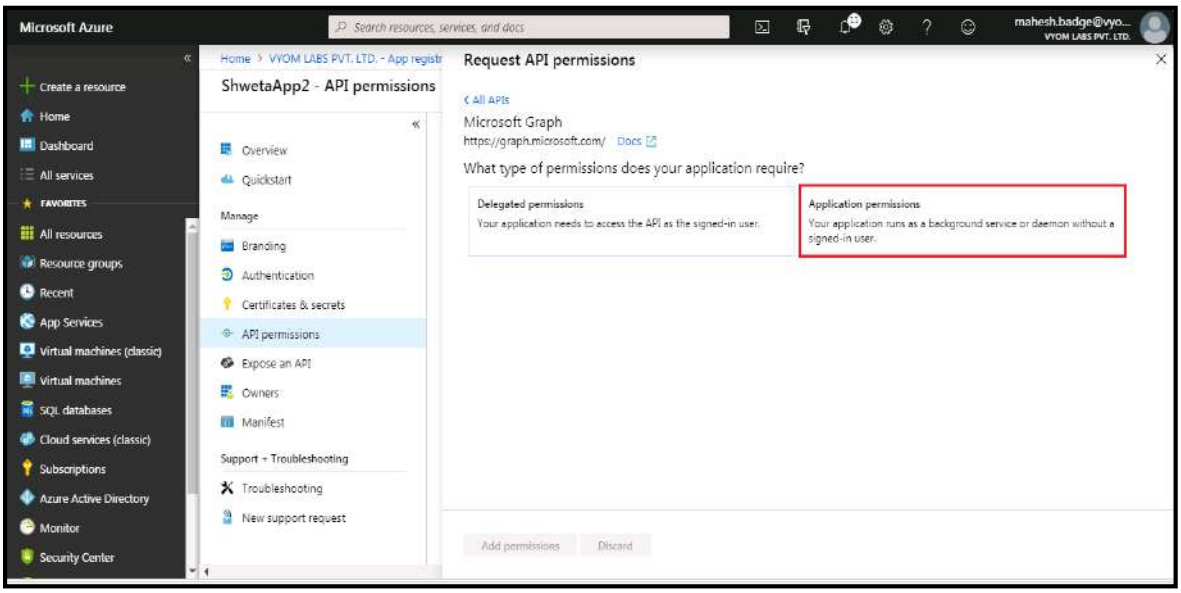
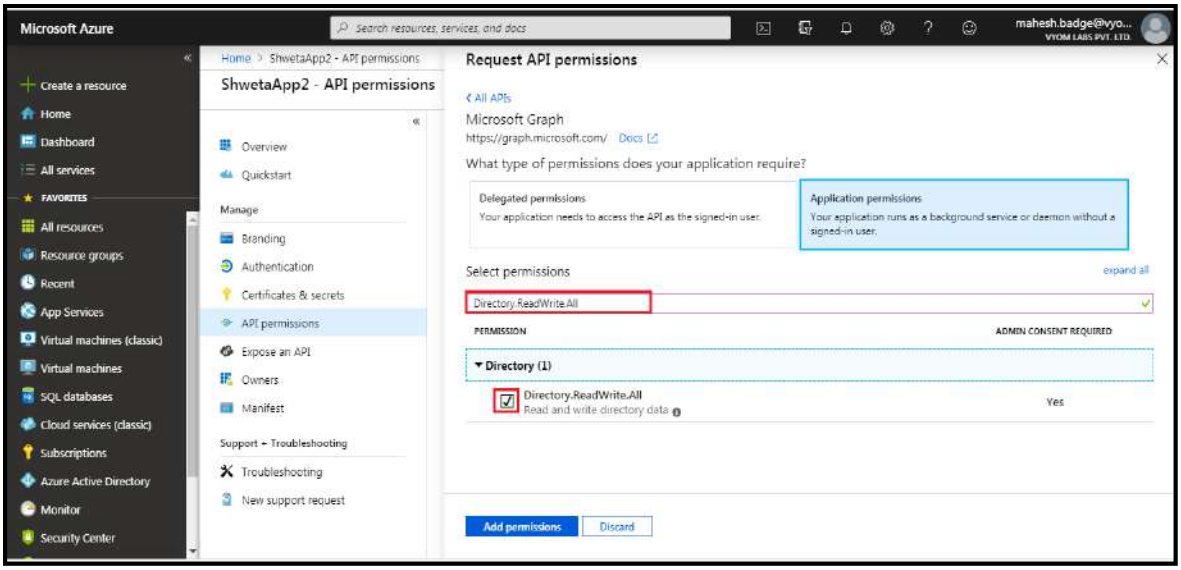
14. Select Application permission.



15. Search and select the required permission. Click on **Add Permission.**



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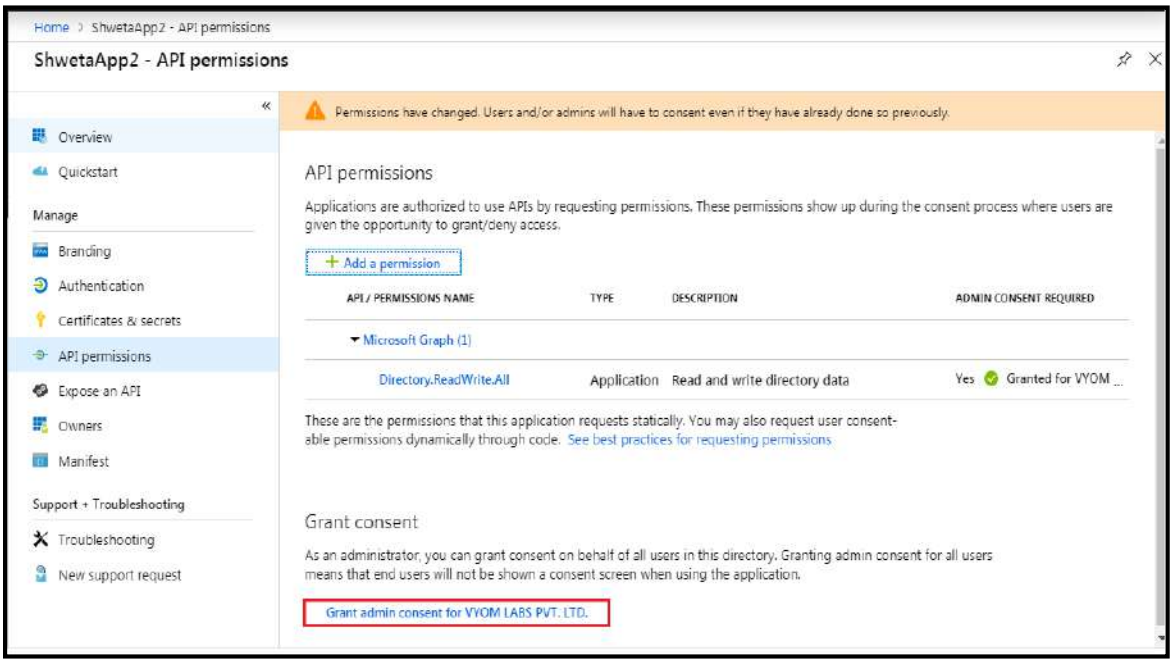
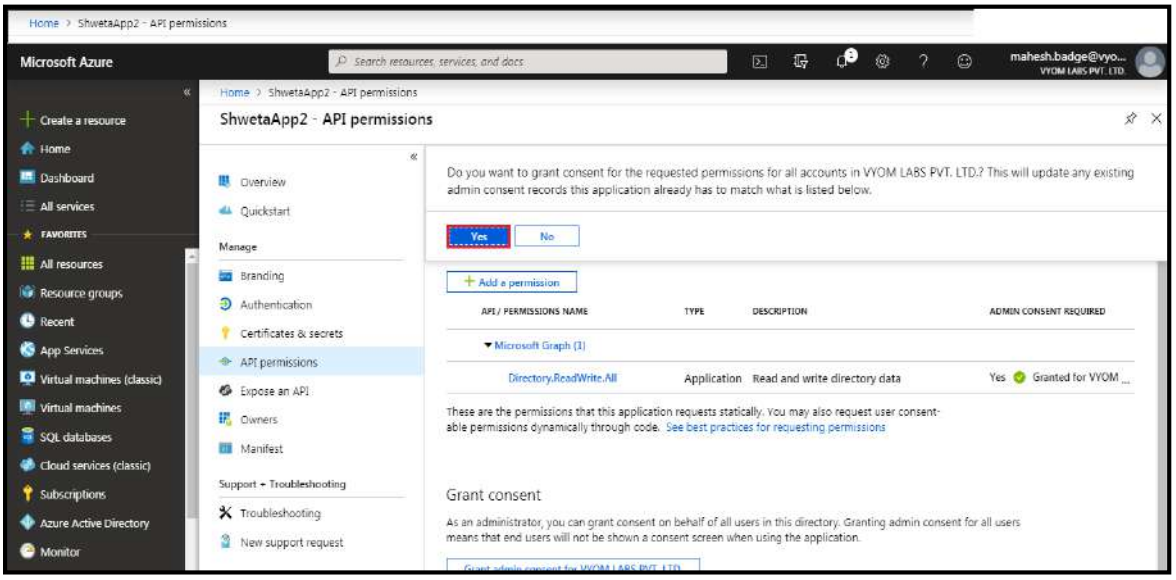
16. This will redirect back to API Permission. In the **Grant Consent** section click on **"Grant admin consent for….".**



17. It will prompt for confirmation, click on **Yes.**



18. Similarly, we can assign the permissions required by Intune Plugins mentioned below,
    - DeviceManagementManagedDevices.PrivilegedOperations.All
    - DeviceManagementManagedDevices.ReadWrite.All

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12 Appendix 12: OneDrive Refresh Token

Refresh Token for connection to OneDrive:

In One Drive Plugin Connection Configuration we need to provide connectivity details for a OneDrive instance as mentioned in the table below.

Connection Details:

No.	Field Name	Datatype	Mandatory?	Description
1.	Client ID	String	--	Client ID provided by Azure Active Directory.
2.	Refresh Token	String	Yes	Refresh Token provided by authorization grant flow discussed in sections below.
3.	Test Connection	Button	--	Verifies whether the connection is established or not.

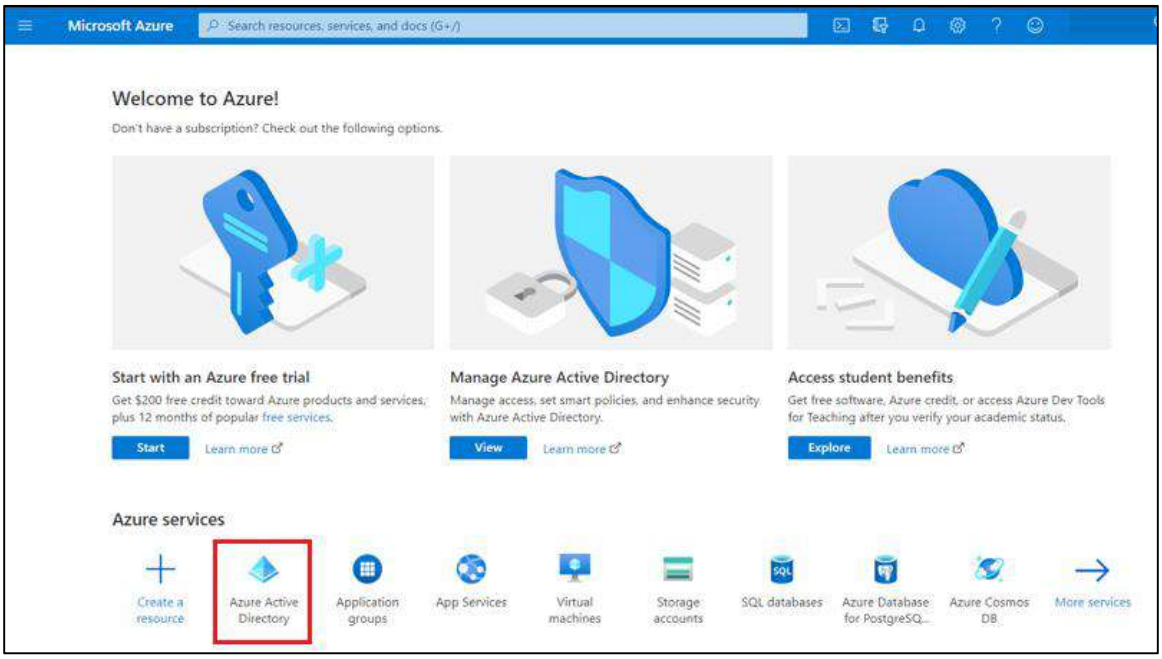
Following are the steps for app setup and generating refresh token for OneDrive plugins,

i. Register app for OneDrive on Azure AD
ii. Generate Refresh Token for OneDrive

These are discussed below,

12.1 Register app for OneDrive on Azure AD

1. On Home page click on Azure Active Directory.



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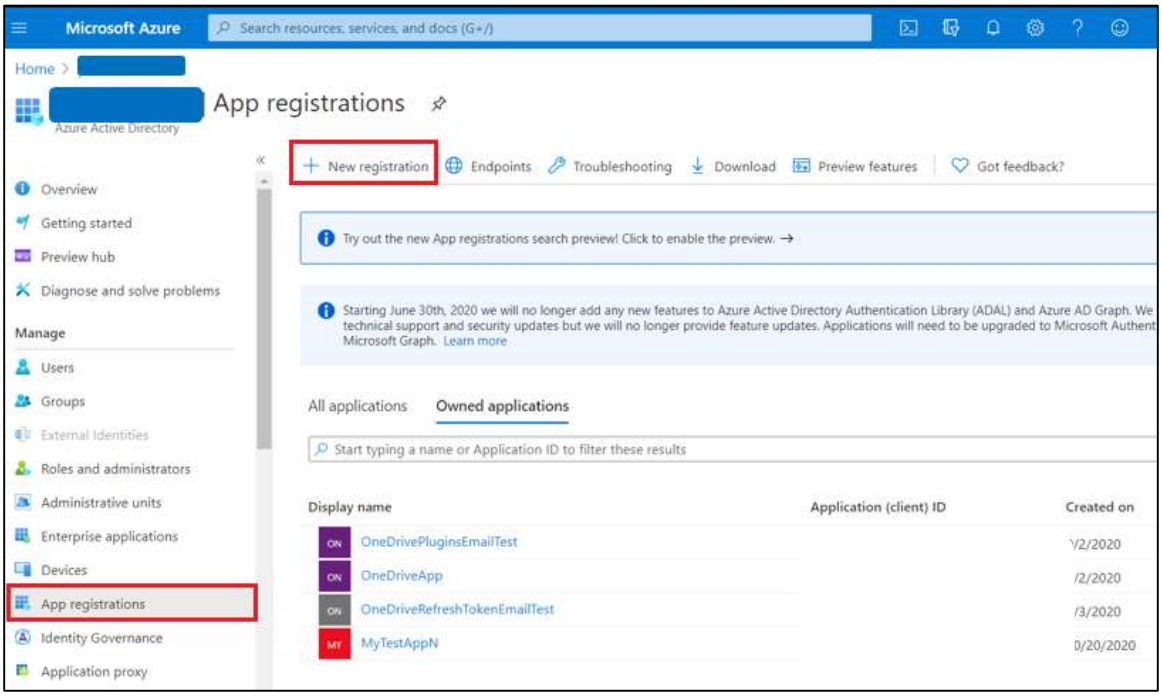
2. Click on App registrations in the left menu, and click New Registration.



3. Provide an application name. Click Register.

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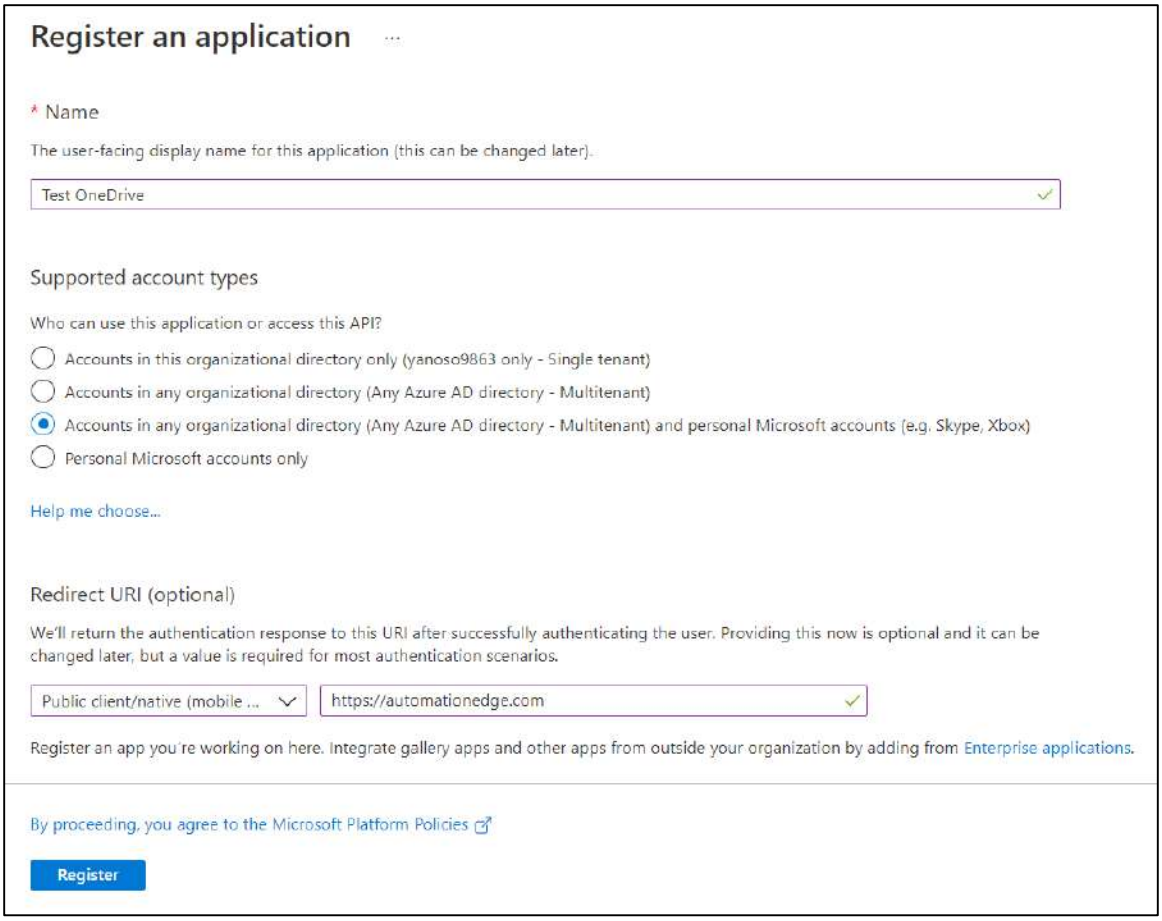
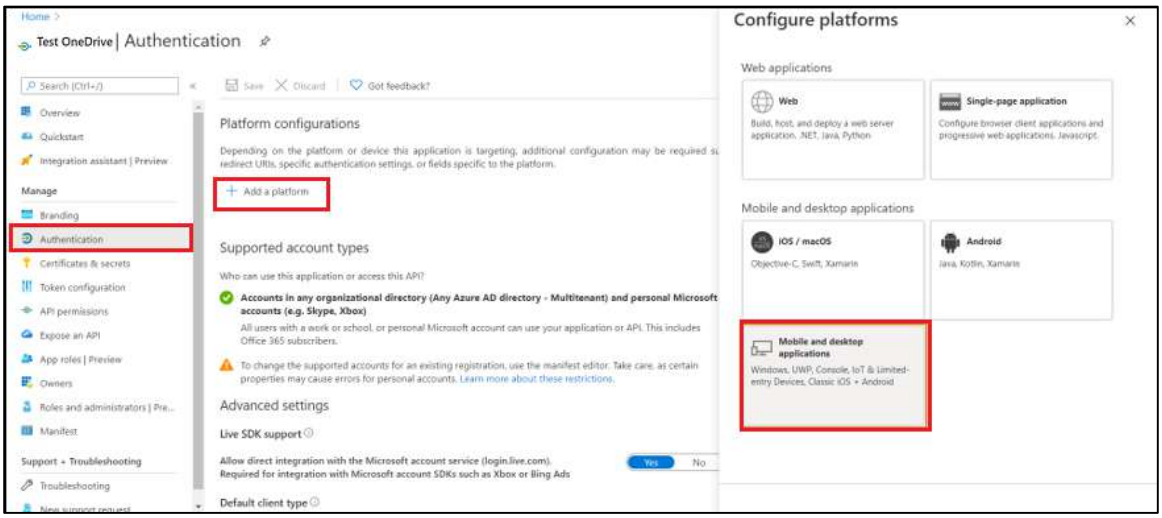


4. Click Authentication in the left menu, and then click +Add a platform to open the Configure platforms pane.



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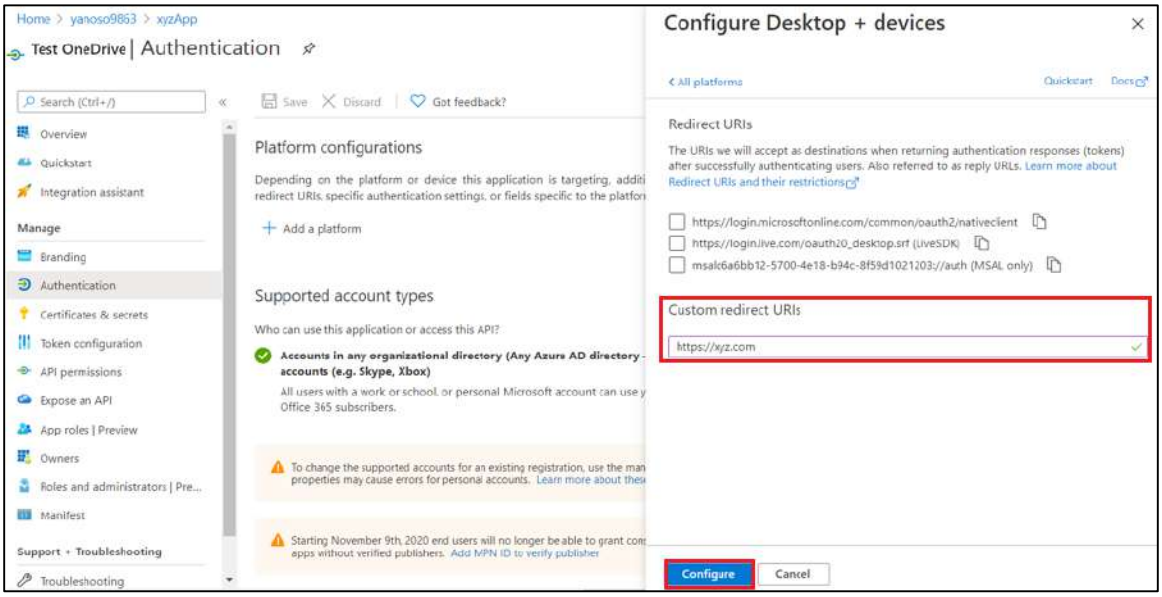
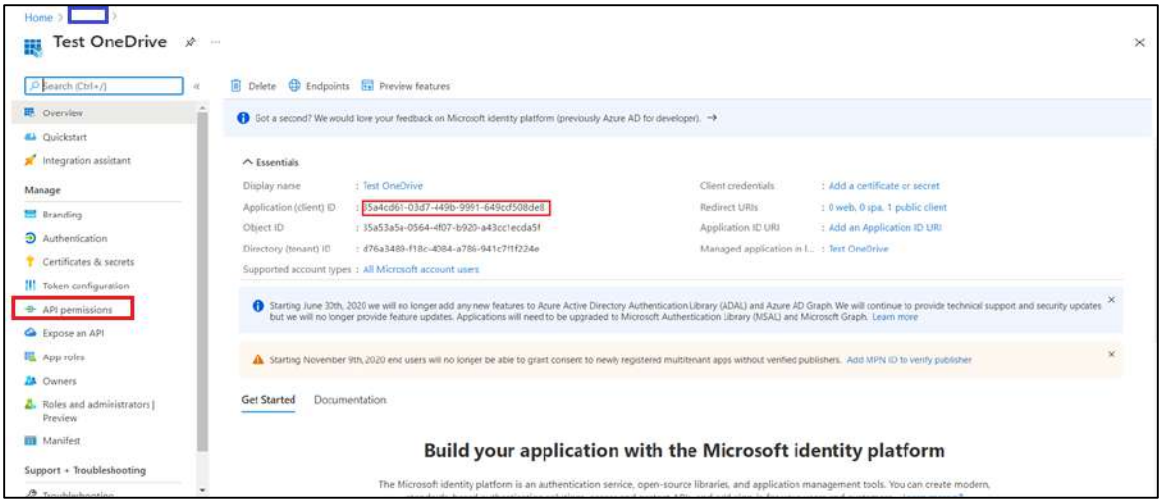
5. In the Configure platforms pane, select Mobile and desktop applications.
6. In the Configure Desktop + devices pane, provide valid 'Custom redirect URIs' to receive the authorization code (e.g. https://automationedge.com). Click Configure.



Note: For information on setting up redirect URI, refer https://docs.microsoft.com/en-us/azure/active-directory/develop/reply-url

7. In the application page, copy Client ID, and then click API permissions.

Note: Client ID is mandatory for personal account.



8. Click Add a Permission, and then select Microsoft Graph.

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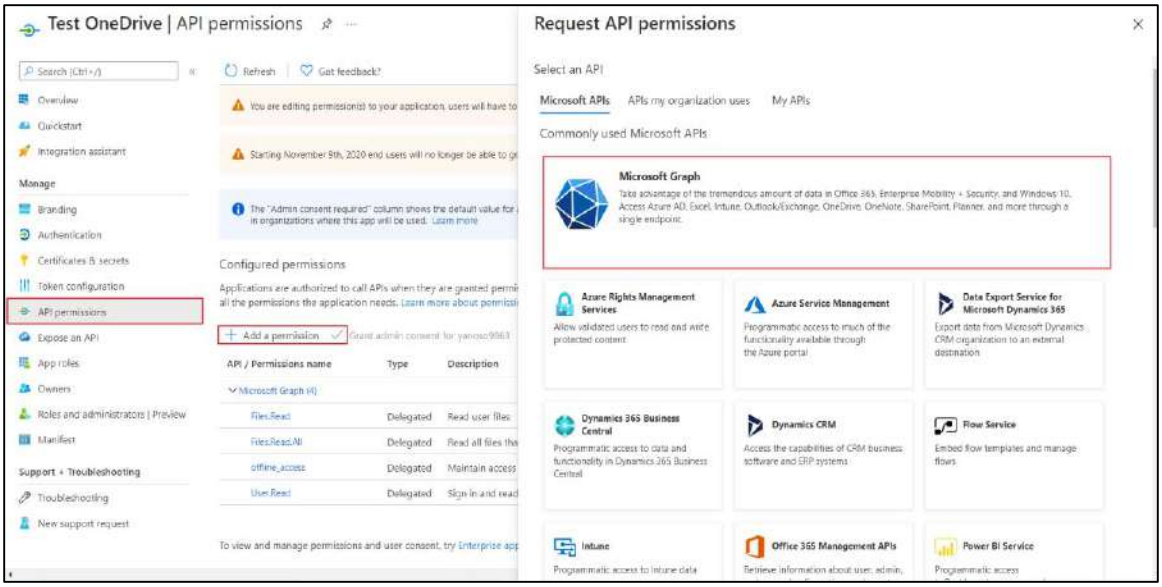
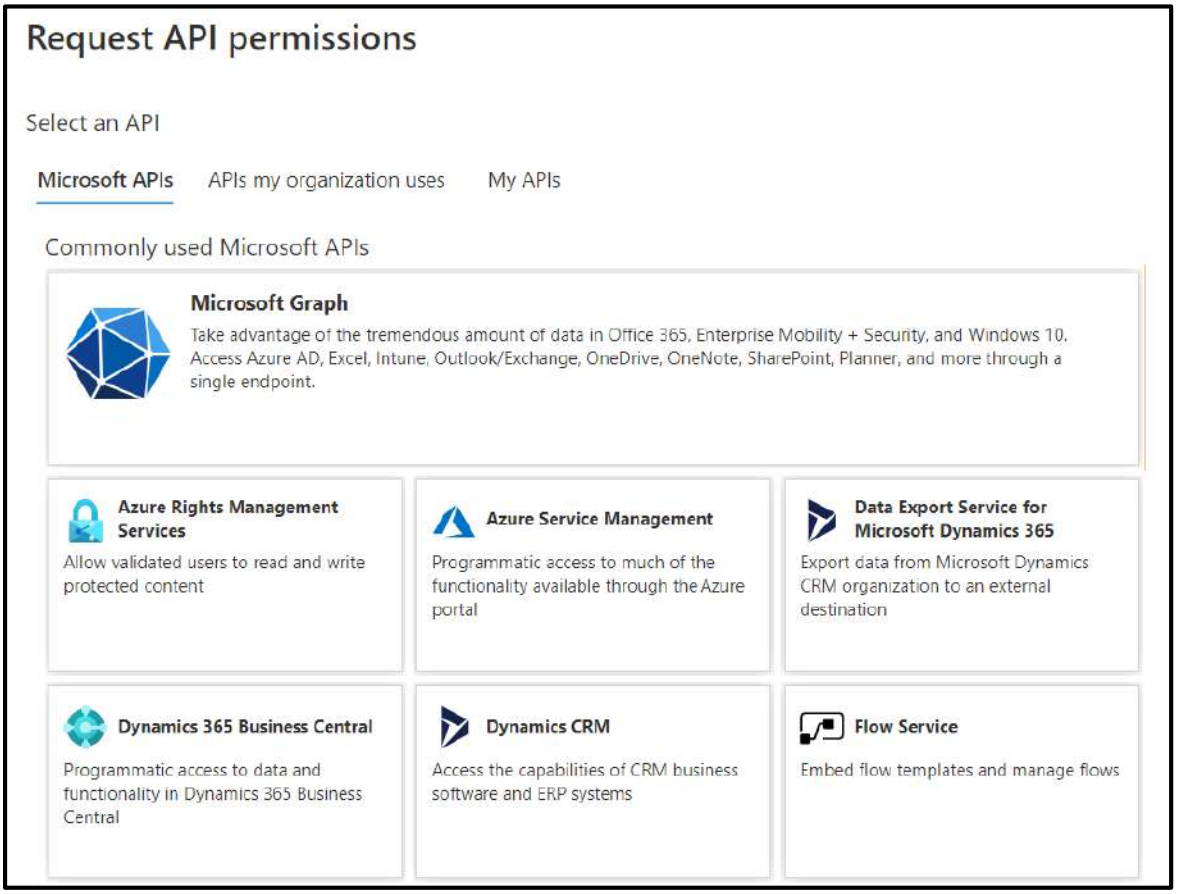


9. Provide all required permissions. See the respective step for permission details.



Note: Delegated **offline_access** permission is mandatory to generate the refresh token.

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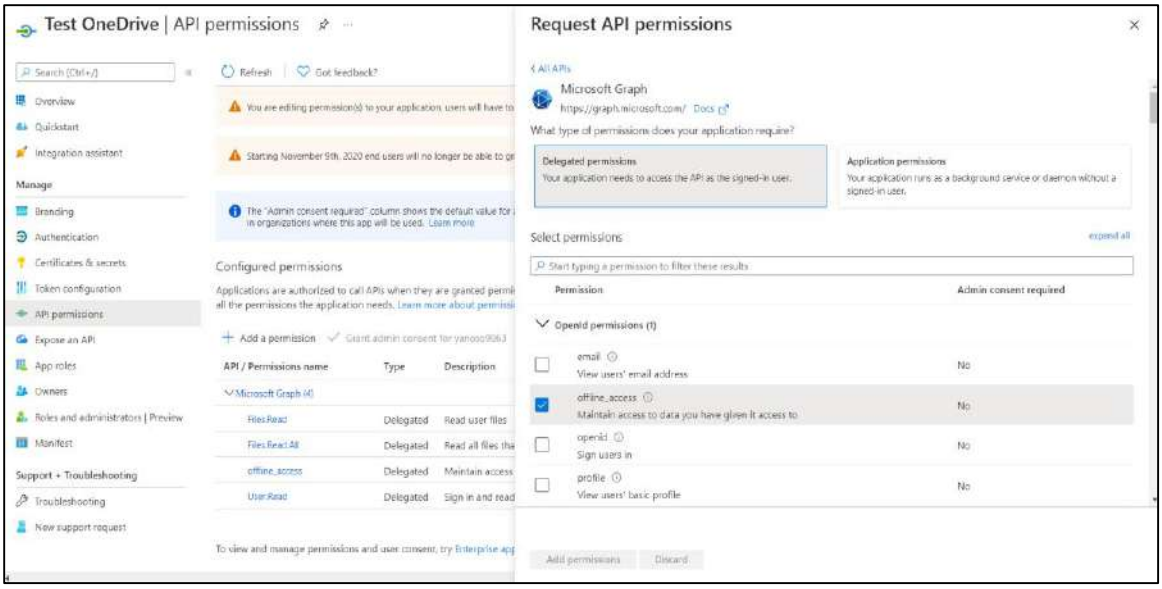

Permission type	Mandatory Permission
Delegated (work or school account)	offline_access

For more information, refer:
https://docs.microsoft.com/en-us/azure/active-directory/develop/quickstart-register-app#register-an-application

For more information about redirect URI setup, refer documentation.
https://docs.microsoft.com/en-us/azure/active-directory/develop/reply-url

12.2 Generate Refresh Token for OneDrive

(The following steps are part of Microsoft Graph Code Flow).

Step 1. Get an authorization code

To start the sign-in process with the code flow, use a web browser.

1. Load the URL request.

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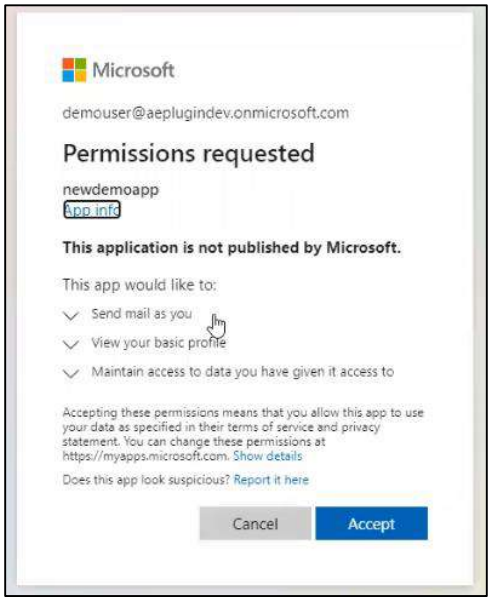
GET
https://login.microsoftonline.com/common/oauth2/v2.0/authorize?client_id={client_id}&scope={scope} &response_type=code

Example:
https://login.microsoftonline.com/common/oauth2/v2.0/authorize?client_id=bc096046-323f-4f98-91e6-fc1f28canks&scope=Files.Read Files.Read.All offline_access User.Read &response_type=code

a) After running in the browser the below login screen will appear, log in with the user who has created the app.

b) After login below screen will appear, on below screen click on Accept button.



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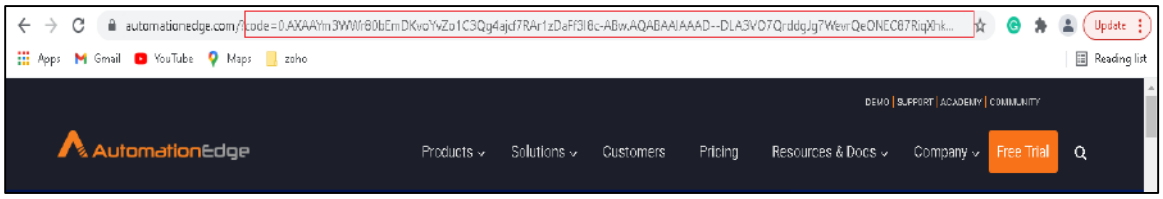
c) After clicking on accept button you will redirect to URI provided during app creation, once you are redirected, you would get the code in address bar as shown in below screenshot.



2. Redeem the code for access tokens and refresh token
   After you have received the code value, you can redeem this code for a set of tokens that allow you to authenticate with the OneDrive API. To redeem the code, make the following request:
   Below are the details

   POST
   https://login.microsoftonline.com/common/oauth2/v2.0/token

   Headers:
   Content-Type: application/x-www-form-urlencoded

   Body: **x-www-form-urlencoded** (key value pair)
   client_id={client_id}
   code={code}
   grant_type=authorization_code

For more information, refer:
https://docs.microsoft.com/en-us/onedrive/developer/rest-api/getting-started/graph-oauth?view=odsp-graph-online#code-flow

Example:
Postman Request:

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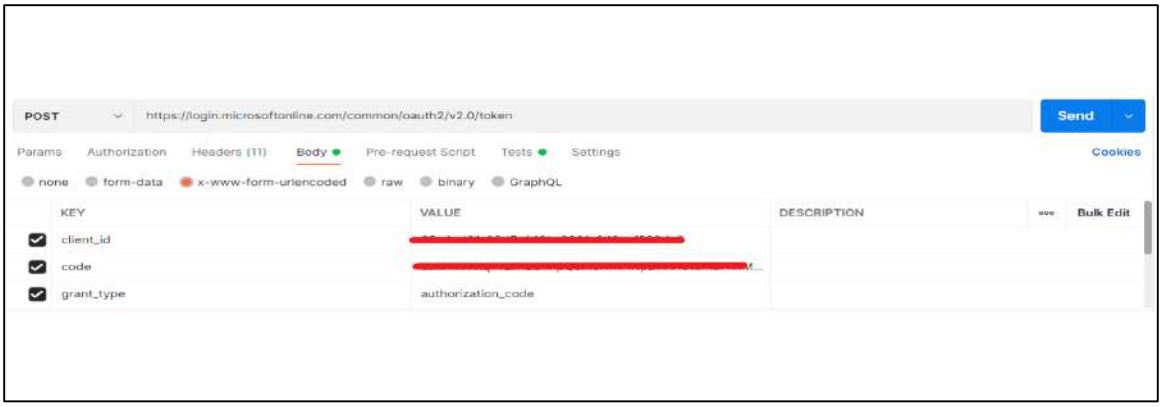


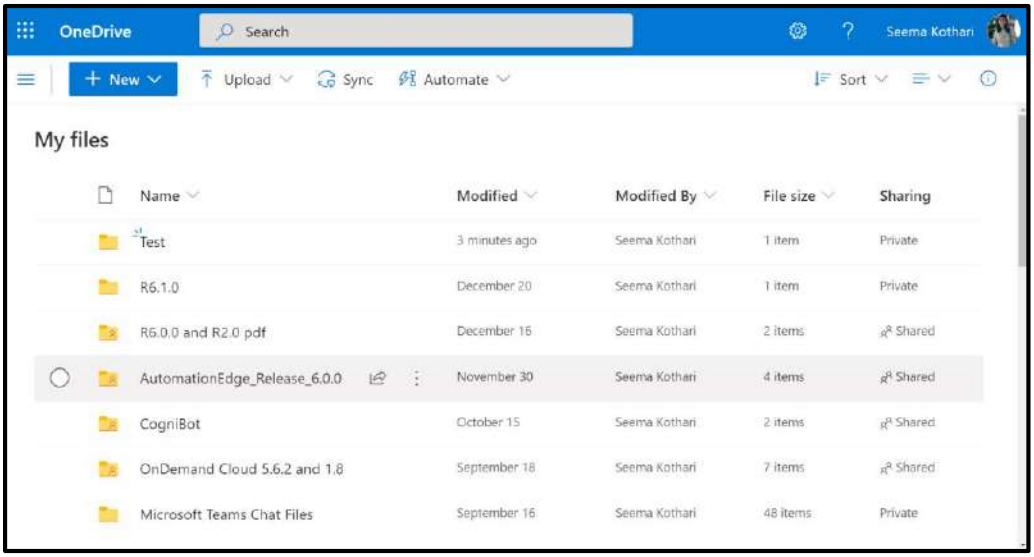
Postman Response:

13 Appendix 13: OneDrive Folder/File Path

13.1 Get Folder Path

Following are the steps to get Folder Path,

1. Open your One Drive.



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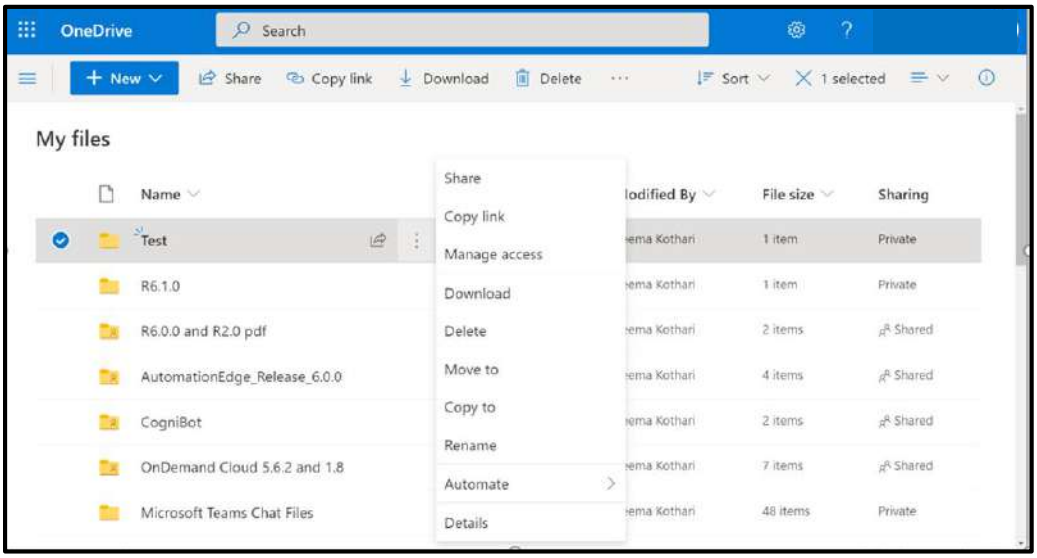
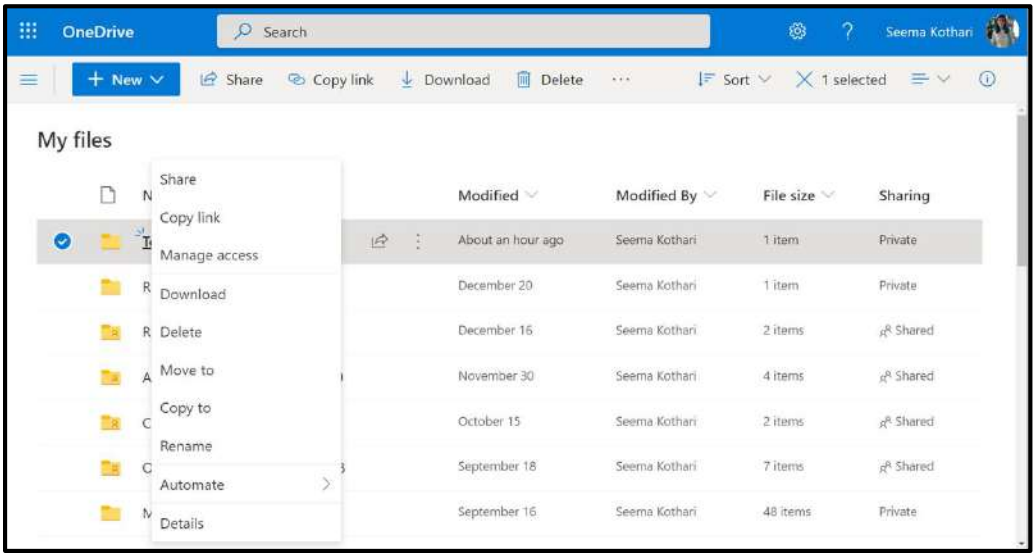
2. Click the Show actions icon (⋮) and select Details in the pop-up menu.



3. Alternatively, right click on the folder and select Details.



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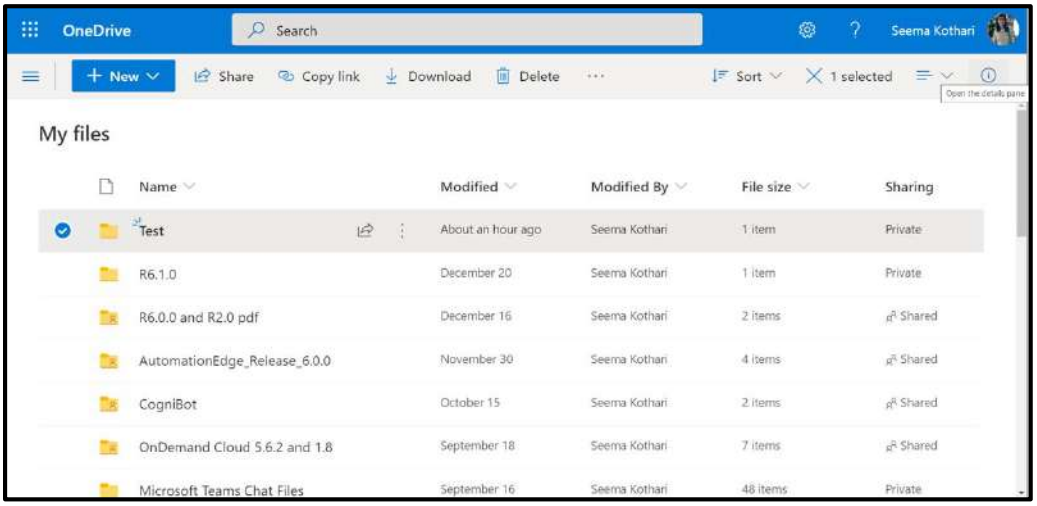
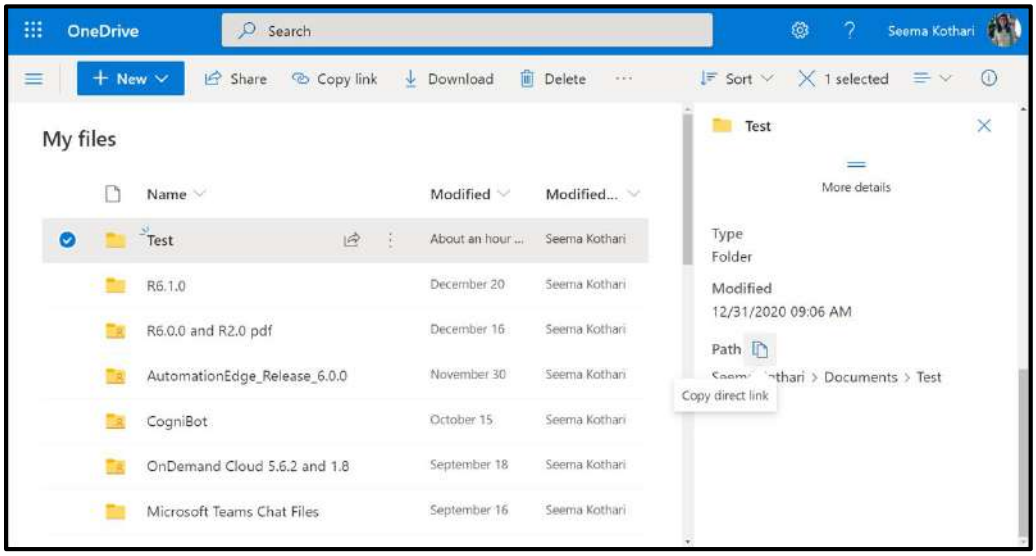
4. Thirdly, you may click on the ‘Open the details pane’.



5. In the details pane navigate to the bottom and click the ‘Copy direct link’ icon for the Path.



6. In this case the folder path appears as follows,

   https://automationedge1-my.sharepoint.com/personal/seema_kothari_automationedge_com/Documents/Test

7. In the OneDrive plugin steps
   - Refer the root folder as: Documents/

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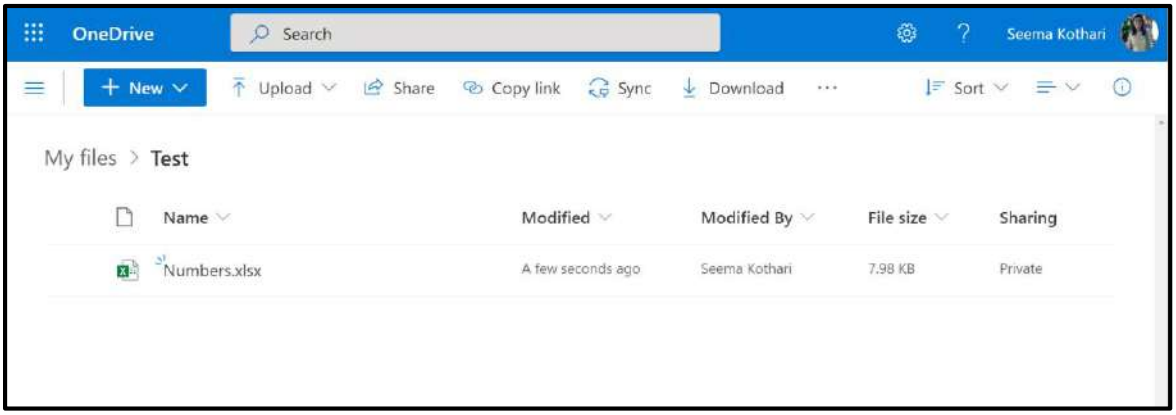
- Refer a folder in the root as: Documents/<a sub-folder under root>
- Refer a sub folder in the root as:
  - Documents/<a sub-folder1 under root>/<a sub-folder2>
  - or simply
    /<a sub-folder1 under root>/<a sub-folder2>

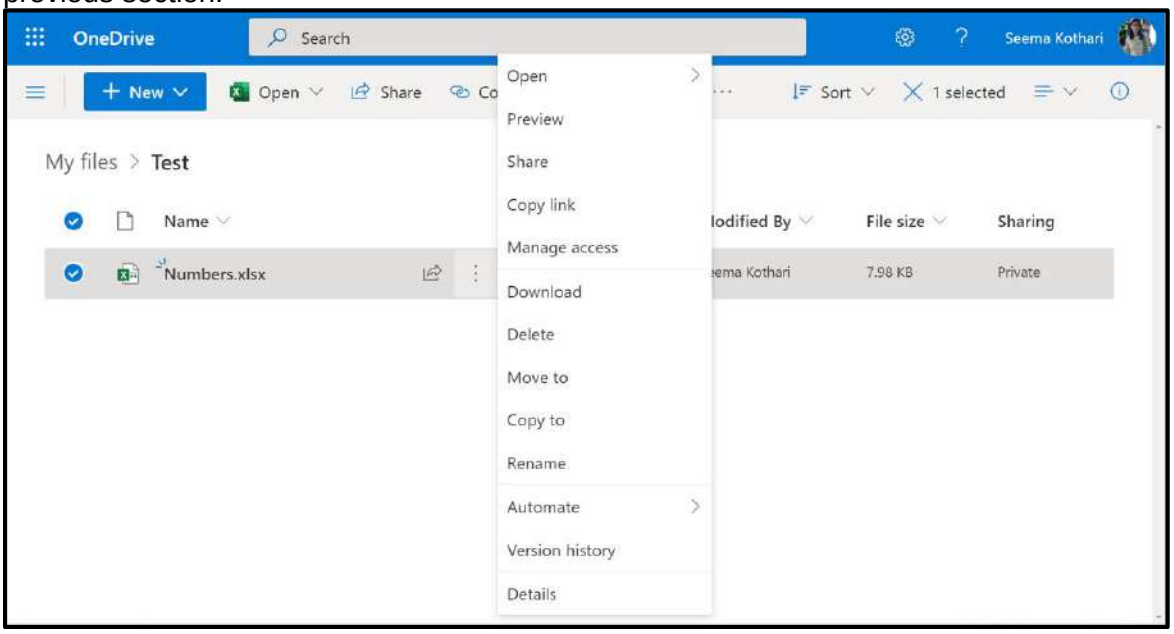
13.2 Get File Path

Following are the steps to get File path,

1. Navigate to the desired file on OneDrive.



2. Follow one of the methods to go to the details pane as described for folders in the previous section.



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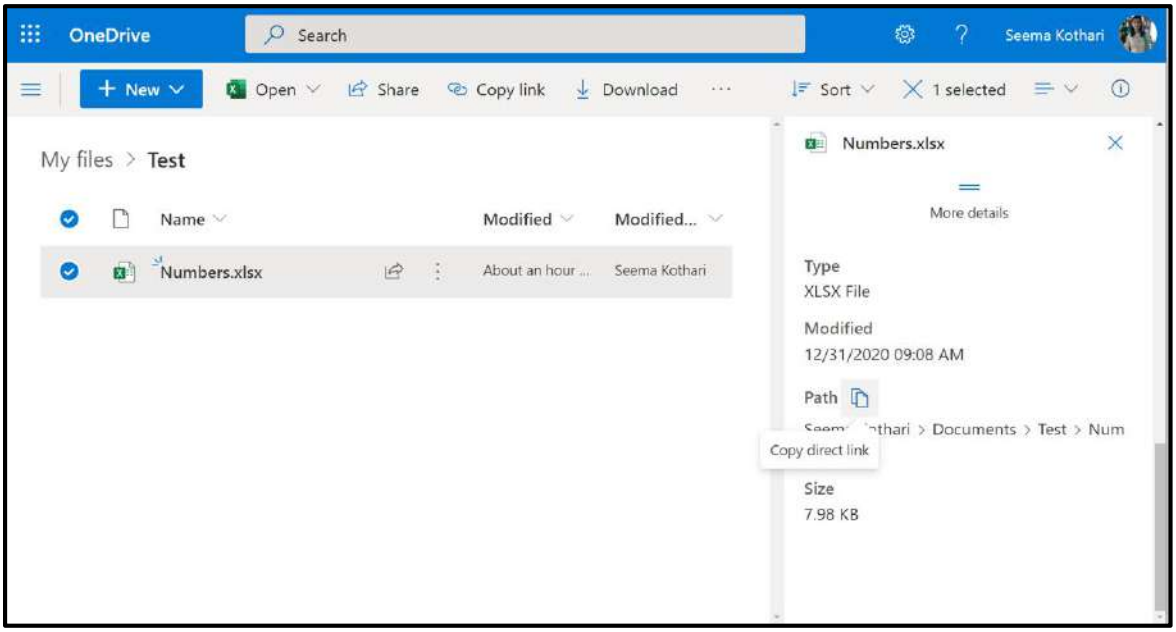
3. Copy the Path URL.



4. Following is a sample File path URI.
   https://automationedge1-my.sharepoint.com/personal/seema_kothari_automationedge_com/Documents/Test/Numbers.xlsx

5. In the OneDrive plugin steps
   - Rrefer the root folder as: Documents/
   - Refer a file in the root as: Documents/<a filename under root>
   - Refer a sub folder in a sub-folder as:
     - Documents/<a sub-folder1 under root>/<a filename>
     - or simply
       /<a sub-folder1 under root>/<a filename>

14 Appendix 14: Managed Engine SDP- Generate Auth Token/Refresh Token

14.1 On-Premise

In the on-premise deployment of ManageEngine SDP, you need to provide the Auth Token to access the APIs. It is used for authentication. Every user with login permission can generate an Auth Token with/without an expiry date.

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14.1.1 Steps to generate the Auth Token

Perform these steps to generate Auth Token.

1. Go to 'Admin -> Technicians'.
2. To generate an API key for an existing technician, click the Edit icon beside that Technician and to generate the API key for a new technician, click the Add New Technician link, enter the Technician details and provide login permission.
3. Click Generate link under the API key details block.
4. Select a time frame for the key to expire using the Calendar icon, or simply retain the same key perpetually.
5. If a key is already generated for the Technician, a Re-generate link appears.
6. A time frame for the key is selected, within which the key expires.

Use this Auth Token in the ManageEngine SDP plugin steps connection parameters.

14.2 Cloud

ManageEngine ServiceDesk Plus Cloud APIs use selected scopes, which control the type of resource that the client application can access. Tokens are usually created with various scopes to ensure improved security. Scopes contain three parameters — service name, scope name, and operation type. The format to define scope is

"**Scope = SDPOnDemand.scope_name.operation_type"**

Example: scope=SDPOnDemand.problems.ALL
Here, "SDPOnDemand" is the service name, "problems" is the scope name, and "ALL" is the operation type.
You can find the list of available scopes with their description on this link
https://www.manageengine.com/products/service-desk/sdpod-v3-api/SDPOD-V3-API.html#scopes

Note: One or more scopes can also be mentioned as comma-separated in scope.

14.2.1 Steps to generate the Refresh Token

Generate Client ID, Client Secret and Refresh token for connection to Manage Engine SDP.

1. Register your application with ManageEngine ServiceDesk Plus Cloud API.
2. To register, go to appropriate Zoho Developer Console URL depending on Data Centre selected when creating the ManageEngine SDP account. (https://www.manageengine.com/products/service-desk/sdpod-v3-api/getting-started/data-centers.html).
3. Choose Self Client from the list of client types, and click Create Now.
4. Click OK in the pop-up to enable a self-client for your account.
5. Now, your client ID and client secret are displayed under the Client Secret tab.

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6. Click the Generate Code tab and enter the required scope separated by commas. Refer to our list of Scopes, for more details. The system throws an 'Enter a valid scope' error when you enter one or more incorrect scopes.
7. Select the Time Duration for which the grant token is valid.
   Note: After the time duration, the grant token expires.
8. Enter a description and click Generate.
9. The generated code for the specified scope is displayed. Copy the grant token.
10. Make a POST request with the appropriate Accounts Server URL depending on Data Centre of the ManageEngine SDP instance. (https://www.manageengine.com/products/service-desk/sdpod-v3-api/getting-started/data-centers.html).
    For example:
    https://accounts.zoho.com/oauth/v2/token
    https://accounts.zoho.in/oauth/v2/token
    https://accounts.zoho.in.au
    https://accounts.zoho.eu
    https://accounts.zoho.in.cn

Request Parameters

Parameter	Description
code	Enter the Grant Token / Authorization Code generated from the previous step.
grant_type	Enter the value as "authorization_code".
client_id	Specify client-id obtained from the connected app.
client_secret	Specify client-secret obtained from the connected app.
redirect_uri	Specify the Callback URL that you registered during the app registration. E.g. https://www.postman.com

If the request is successful, you will receive the following output:
{ "access_token":
"1000.2370ff1fd75e968ae780cd8d14841e82.03518d2d1dab9c6c4cf74ae82b89defa",
"refresh_token":
"1000.2afabf2f5a396325e88f715c6de34d12.edce6130ca3832a14e5f80d005a5324d",
"token_type": "Bearer", "expires_in": 3600 }

Use this Refresh Token along with the Client ID & Client Secret (that are generated in the registered client) in the ManageEngine SDP plugin steps to get them started.

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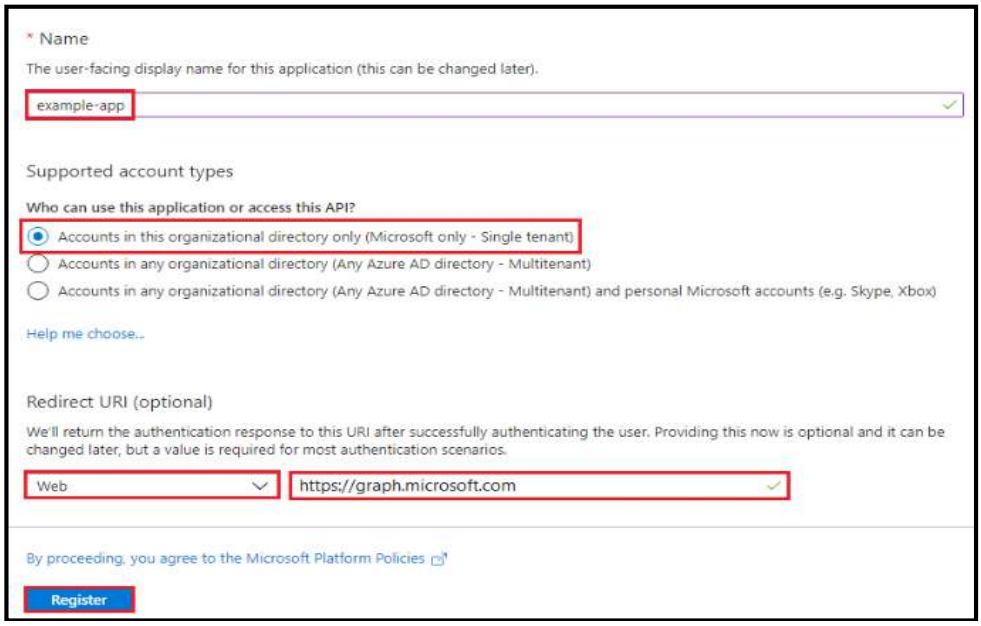
15 Appendix 15: Office 365 App Registration for Grant Type – Password Grant

15.1 Register App

1. Sign in to your Azure Account through the Azure portal.
2. Select the **Azure Active Directory**.
3. Select **App registrations**.
4. Select an App created for AutomationEdge Plugin steps or alternatively, Select **New registration**.
5. Name the application. Select a supported account type, which determines who can use the application.
6. Additionally, for email related steps- Download Email Attachments, Email Message Input and Send Email, under **Redirect URI**, select **Web** for the type of application you want to create. For example, https://automationedge.com as seen in the screenshot below. Select **Register**.



Upon registration fetch Tenant ID and Client ID for the App as seen below.

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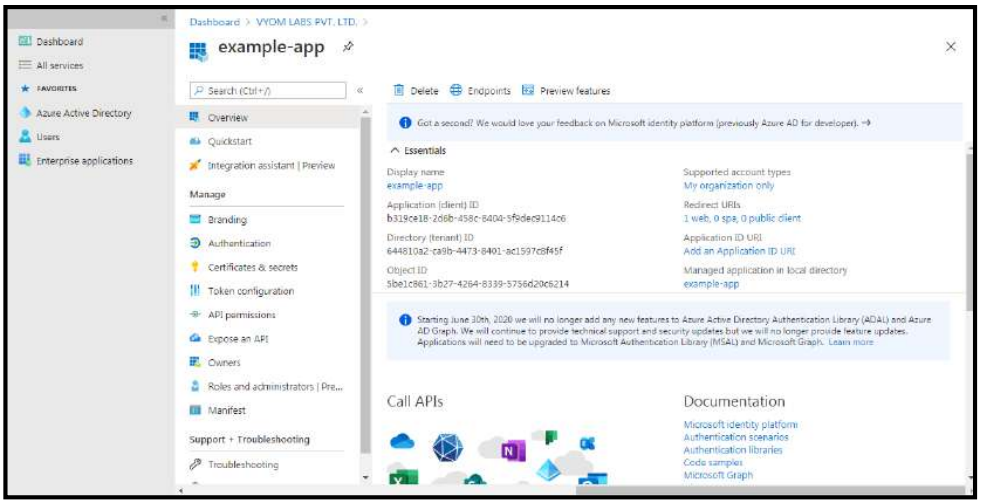

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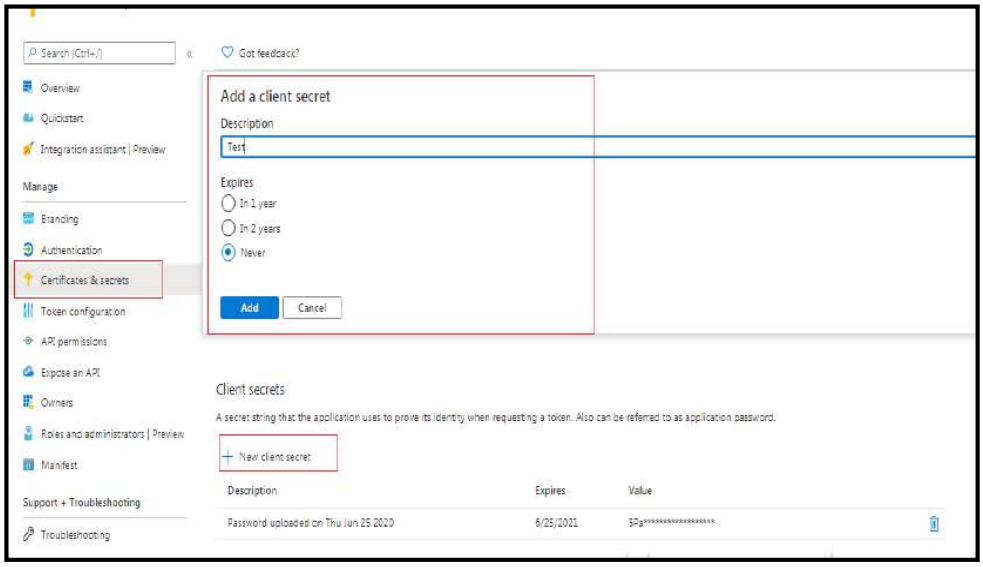
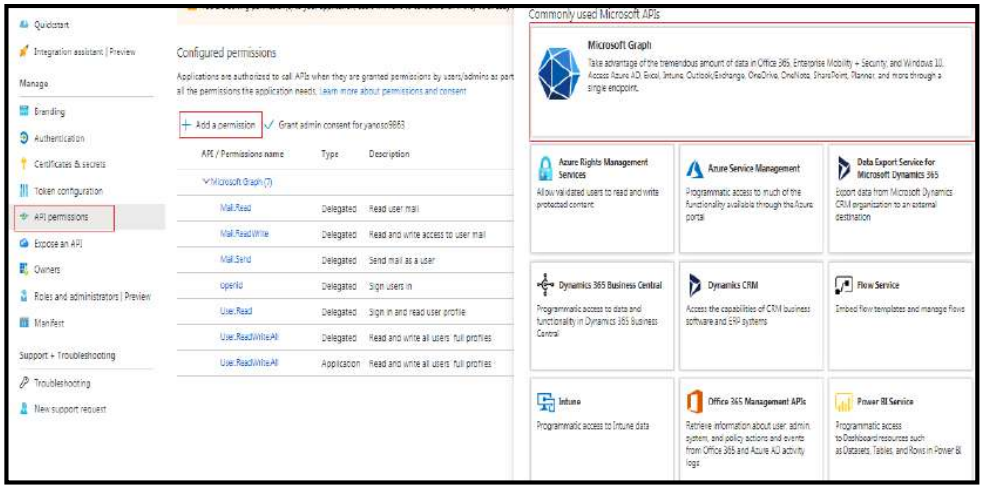
15.2 Creating Client Secret

1. Click on Certificates and secrets
2. Click on New client secret
3. Enter Description
4. Select one of Expires Radio Button



15.3 Provide API Permission

1. Click on API Permission.
2. Click on Add Permission.
3. Click 'Microsoft Graph' as highlighted below on the top right corner.



4. Click 'Delegated Permissions' or 'Application permissions' as required and as mentioned in the Plugin Step documentation.
5. Provide all required permissions for the Plugin steps to execute. The permissions required are mentioned in the Plugin steps.

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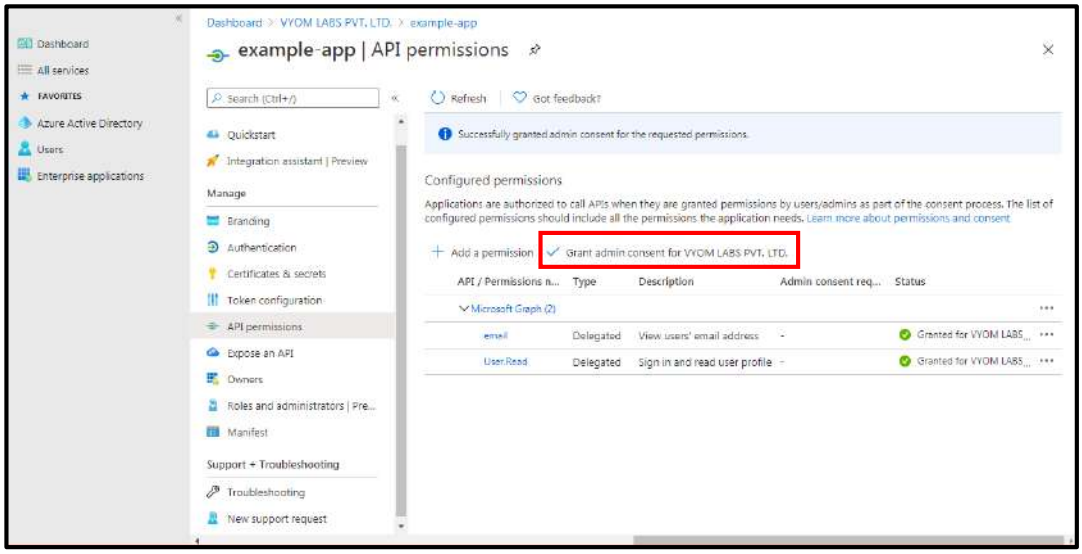
15.4 Consent for Permission to App

15.4.1 Grant admin consent

You need to Grant Admin consent to the app to access all accounts data, for all Plugin steps except email related steps as mentioned in the following section:

Users can request Azure AD administrator to grant admin consent. The following screenshot shows an Administrator view with option to Grant Admin consent.



15.4.2 Build a URL and Run in Browser to allow permissions to the APP

The steps in this section are required for Office 365 Plugin steps - Download Email Attachments, Email Message Input and Send Email.

To allow your app to use the data provided in the permissions under section Provide API Permission perform the following steps.

i. Build a URL in the following format and run in browser.
https://login.microsoftonline.com/Tenant_id/oauth2/v2.0/authorize?client_id=value&scope=Permissions &response_type=code.

Example:
https://login.microsoftonline.com/2f906216-6aaa-4ee5-8c13-5bbb3af06089/oauth2/v2.0/authorize?client_id=e6080cc9-dccc-4e8b-a22e-93174e01459b&scope=Mail.Read Mail.ReadWrite Mail.Send openid User.Read &response_type=code

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ii. After running the URL in the browser a login screen appears as below. Login with the user who created the App.

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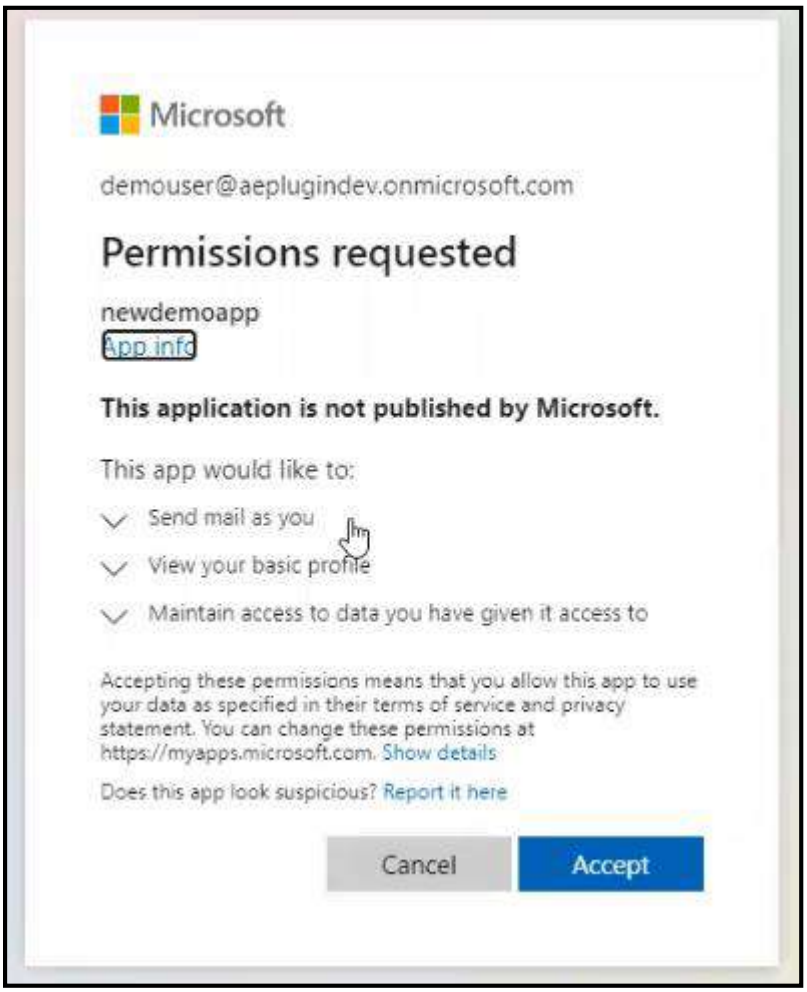
iii. After login Permissions Requested screen appears. Click on Accept Button.



16 Appendix: O365 App Registration, Authentication and Permissions in Azure AD

16.1 Register App

8. Sign in to **Azure portal** with the email address having permission to perform the action to be automated. The permission details are mentioned under the specific step documentation.
9. For the automation of email handling actions, Sign in to the Azure portal with the email address that is going to be used in the step.
10. Select the **Azure Active Directory**.
11. Select **App registrations**.

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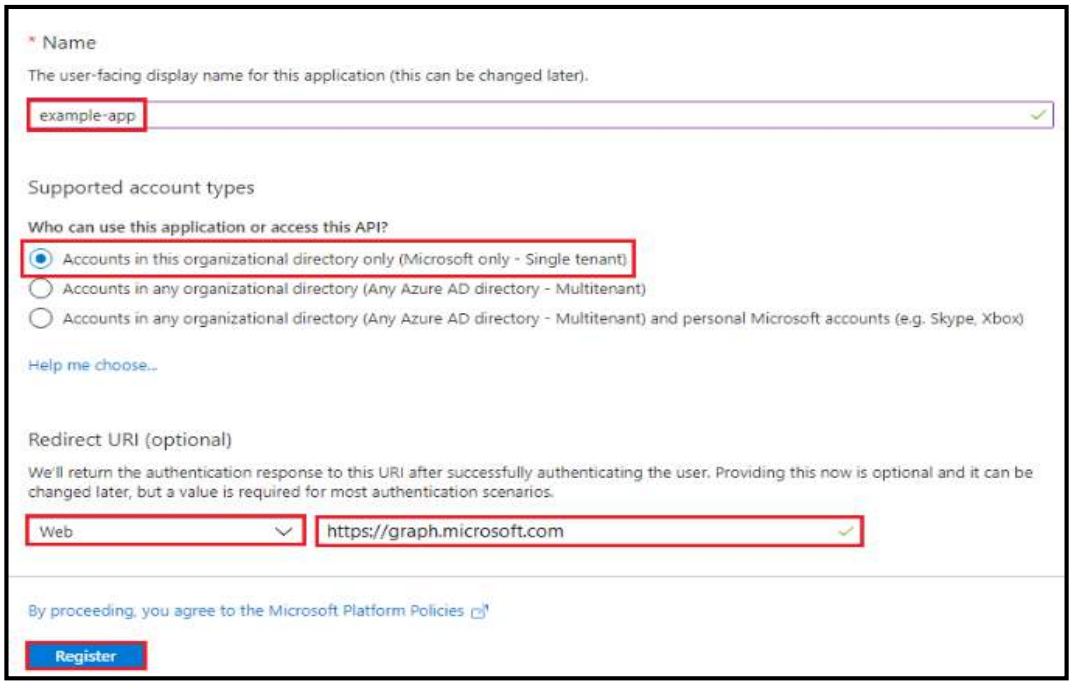
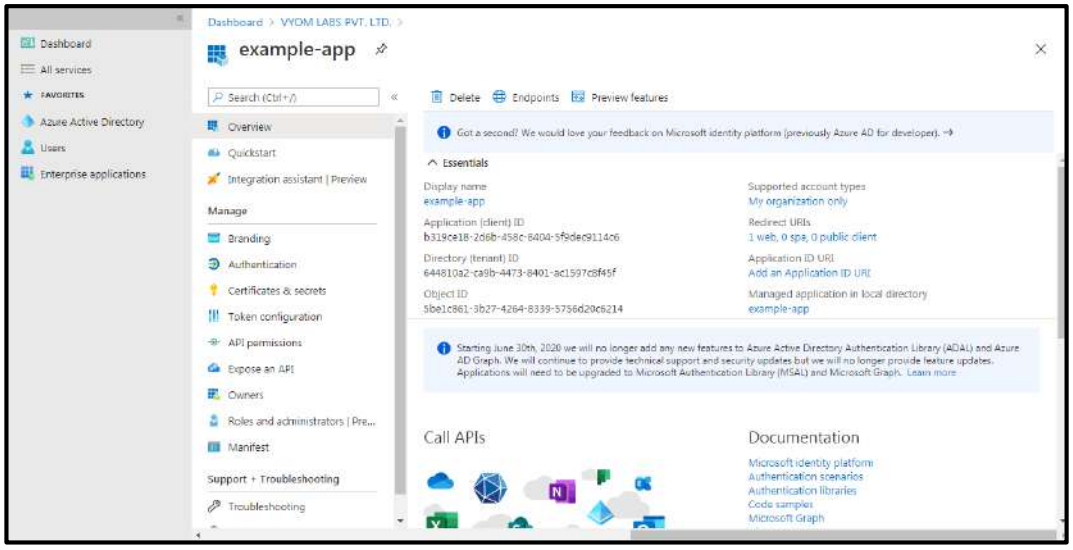
12. Select an App created for AutomationEdge Plugin steps or alternatively, Select **New registration**.
13. Name the application. Select a supported account type, which determines who can use the application.
14. Additionally, for email related steps- Download Email Attachments, Email Message Input and Send Email, under **Redirect URI**, select **Web** for the type of application you want to create. For example, https://automationedge.com as seen in the screenshot below. Select **Register**.



15. Upon registration, fetch Tenant ID and Client ID for the App as seen below.



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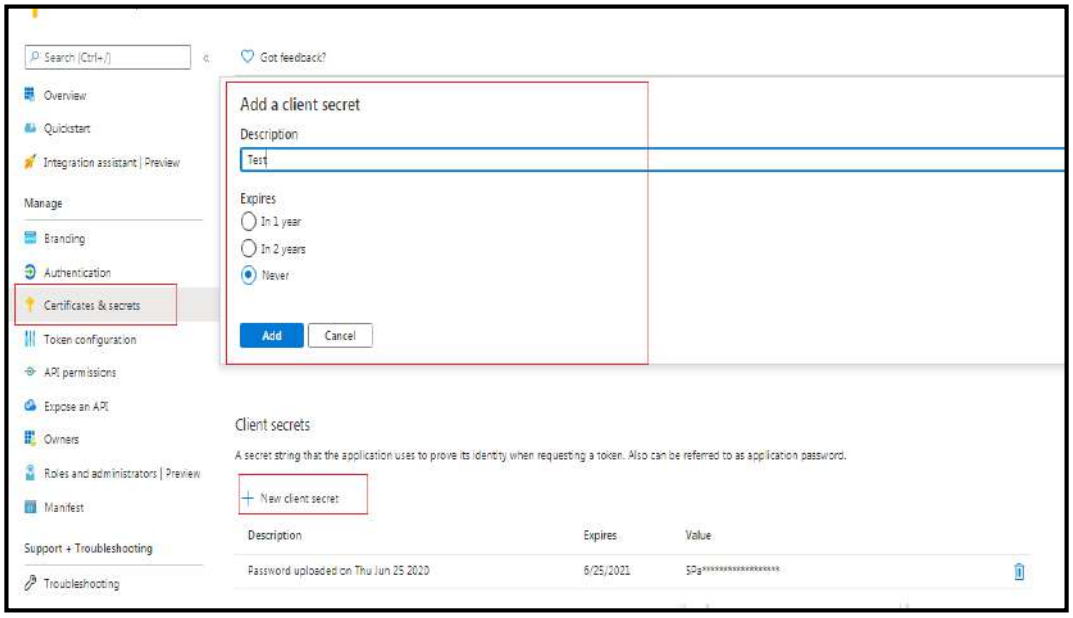
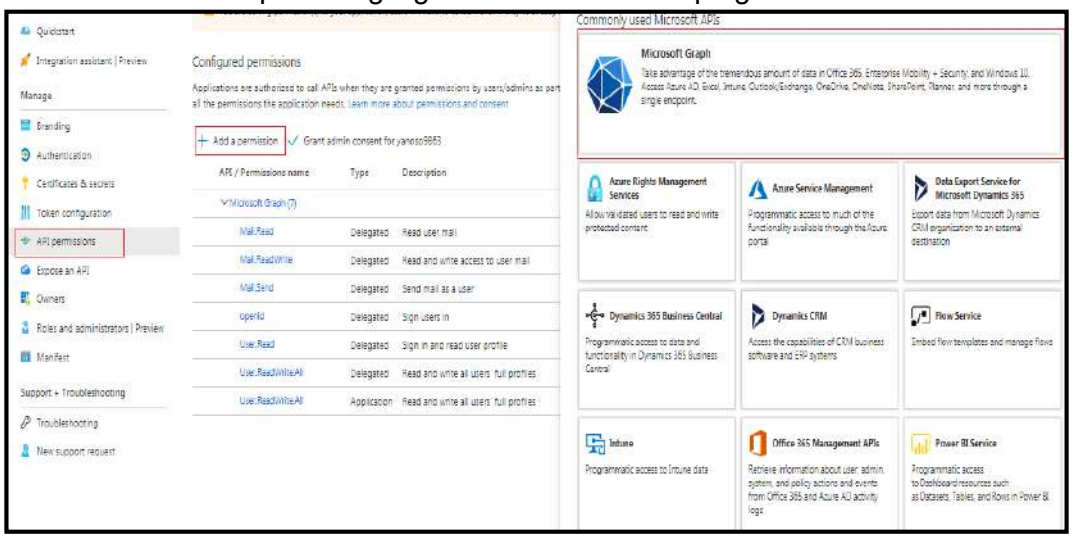
16.2 Creating Client Secret

5. Click on Certificates and secrets
6. Click on New client secret
7. Enter Description
8. Select one of Expires Radio Button



16.3 Provide API Permission

6. Click on API Permission.
7. Click on Add Permission.
8. Click 'Microsoft Graph' as highlighted below on the top right corner.



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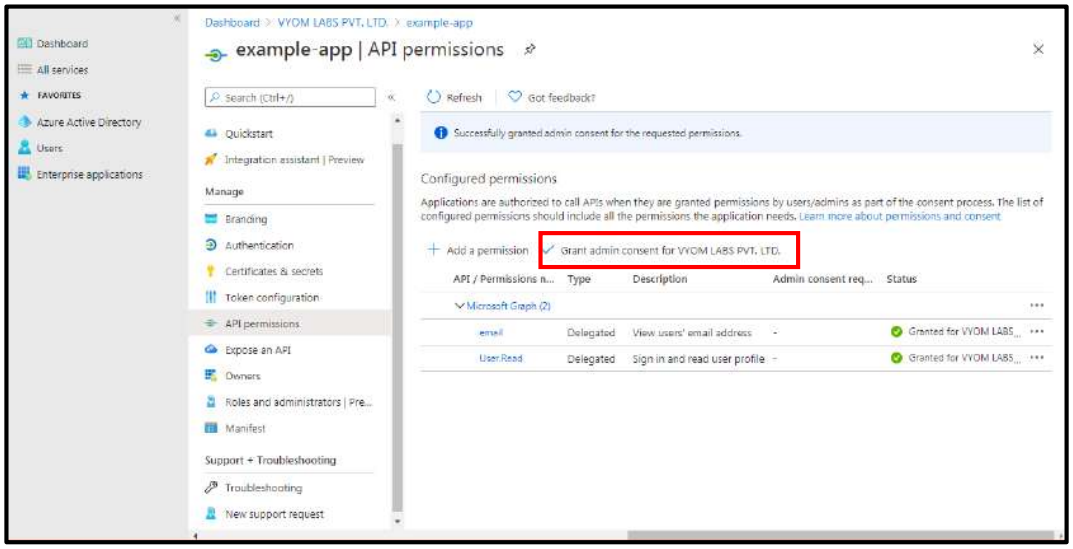
9. Click ‘Delegated Permissions’ or ‘Application permissions’ as required and as mentioned in the Plugin Step documentation.
10. Provide all required permissions for the Plugin steps to execute. The permissions required are mentioned in the Plugin steps.

16.4 Consent for Permission to App

16.4.1 Grant admin consent

You need to Grant Admin consent to the app to access all accounts data, for all Plugin steps except email related steps.

Users can request Azure AD administrator to grant admin consent. The following screenshot shows an Administrator view with option to Grant Admin consent.



17 Appendix: Office 365 App Registration for Grant Type – Password Grant

17.1 Register App

7. Sign in to [Azure portal](#) with the email address having permission to perform the action to be automated. The permission details are mentioned under the specific step documentation.
8. For the automation of email handling actions, Sign in to the Azure portal with the email address that is going to be used in the step..
9. Select the **Azure Active Directory**.
10. Select **App registrations**.
11. Select an App created for AutomationEdge Plugin steps or alternatively, Select **New registration**.

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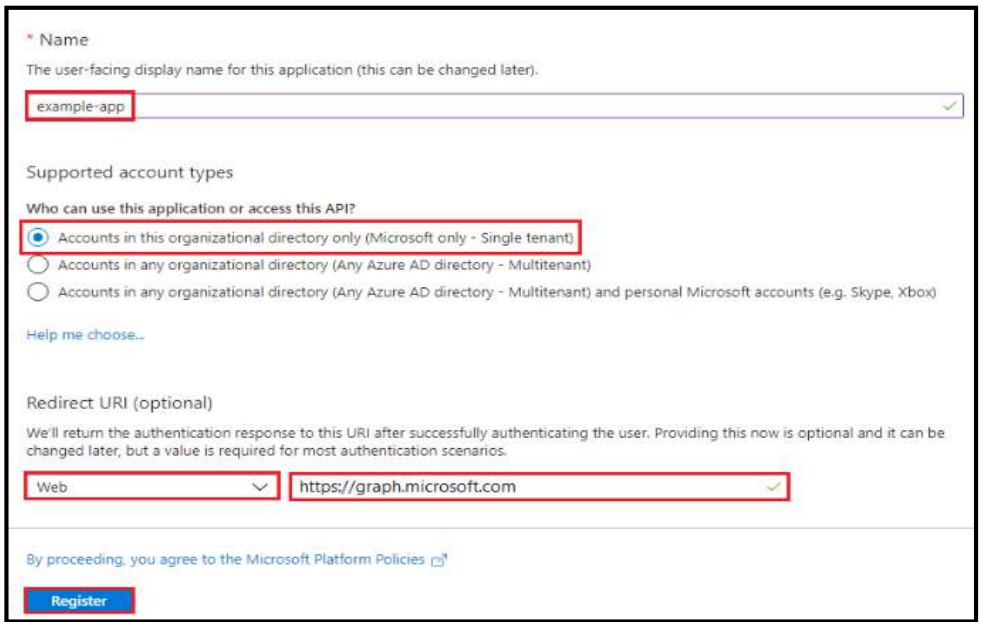
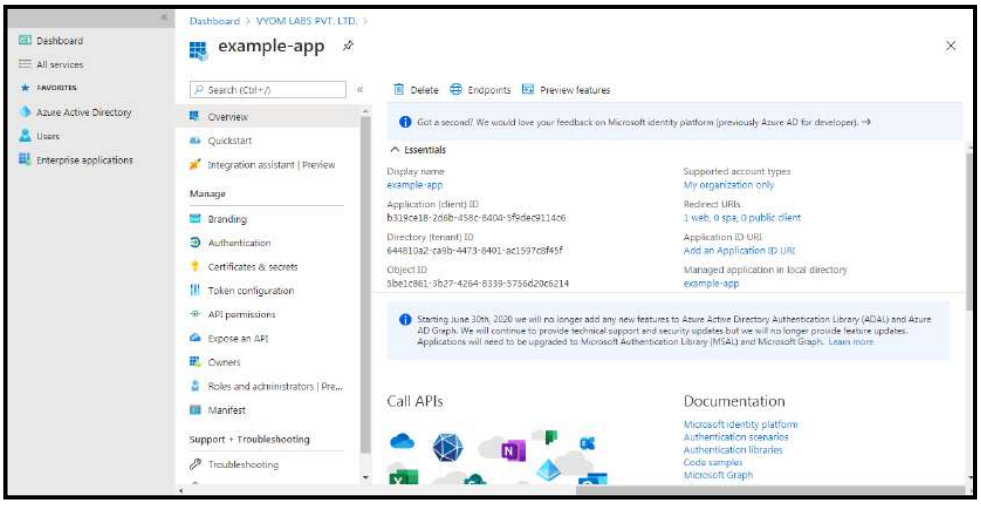
12. Name the application. Select a supported account type, which determines who can use the application.
13. Additionally, for email related steps- Download Email Attachments, Email Message Input and Send Email, under **Redirect URI**, select **Web** for the type of application you want to create. For example, https://automationedge.com as seen in the screenshot below. Select **Register**.



Upon registration fetch Tenant ID and Client ID for the App as seen below.



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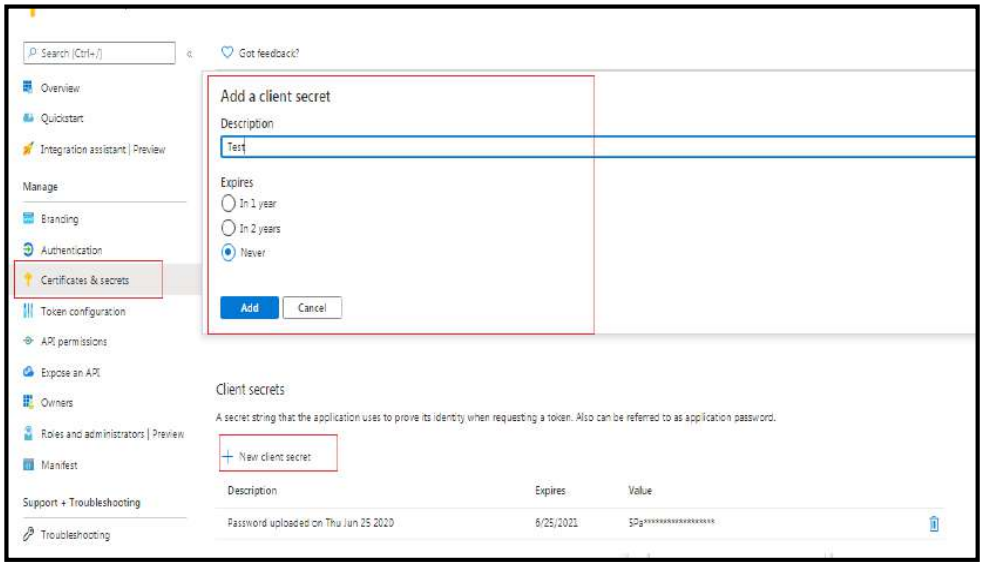
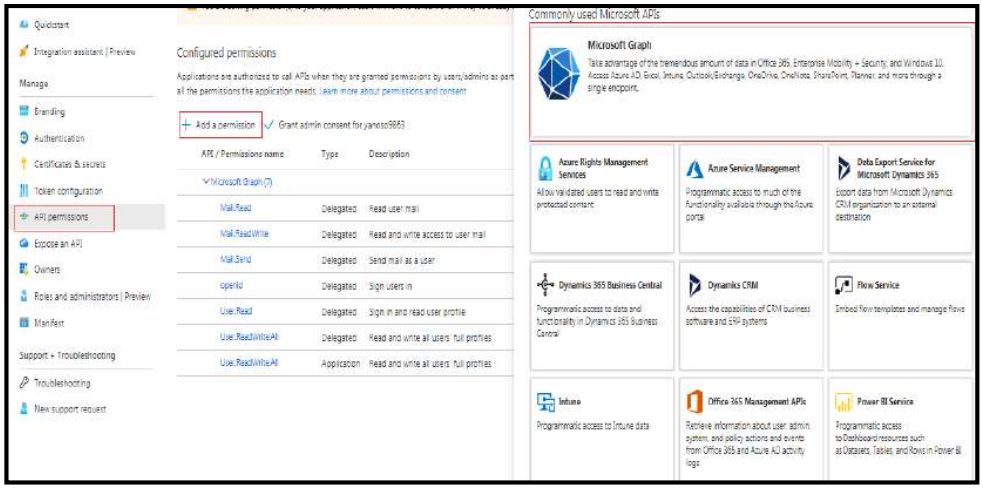
17.2 Creating Client Secret

5. Click on Certificates and secrets
6. Click on New client secret
7. Enter Description
8. Select one of Expires Radio Button



17.3 Provide API Permission

6. Click on API Permission.
7. Click on Add Permission.
8. Click ‘Microsoft Graph’ as highlighted below on the top right corner.



9. Click ‘Delegated Permissions’ or ‘Application permissions’ as required and as mentioned in the Plugin Step documentation.
10. Provide all required permissions for the Plugin steps to execute. The permissions required are mentioned in the Plugin steps.

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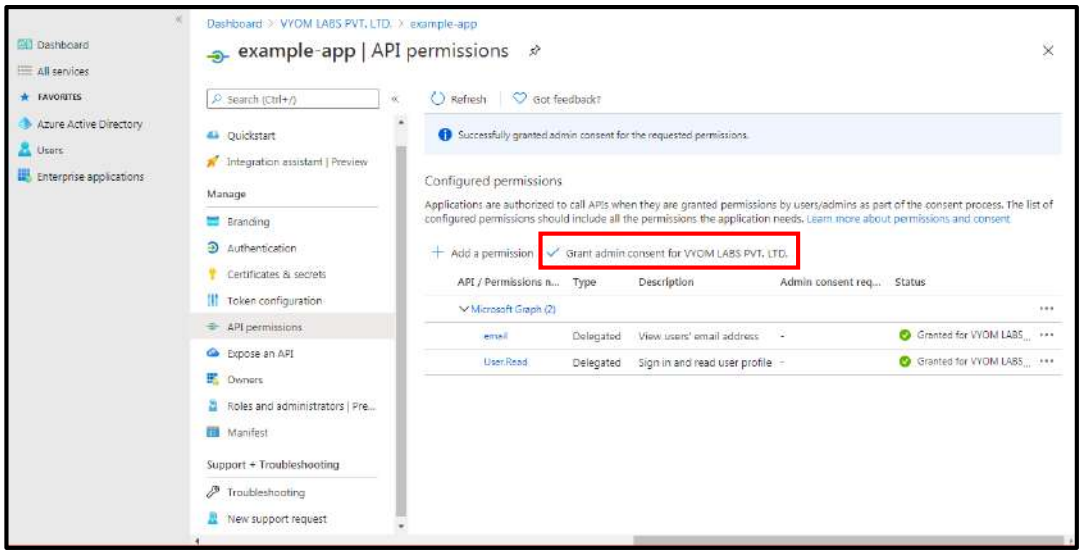
17.4 Consent for Permission to App

17.4.1 Grant admin consent

You need to Grant Admin consent to the app to access all accounts data, for all Plugin steps except email related steps as mentioned in the following section: **Error! Reference source not found.**.

Users can request Azure AD administrator to grant admin consent. The following screenshot shows an Administrator view with option to Grant Admin consent.



17.4.2 Build a URL and Run in Browser to allow permissions to the APP

The steps in this section are required for Office 365 Plugin steps - Download Email Attachments, Email Message Input and Send Email.

To allow your app to use the data provided in the permissions under section Provide API Permission perform the following steps.

iv. Build a URL in the following format and run in browser.
https://login.microsoftonline.com/Tenant_id/oauth2/v2.0/authorize?client_id=value&scope=Permissions &response_type=code.

Example:
https://login.microsoftonline.com/2f906216-6aaa-4ee5-8c13-5bbb3af06089/oauth2/v2.0/authorize?client_id=e6080cc9-dccc-4e8b-a22e-93174e01459b&scope=Mail.Read Mail.ReadWrite Mail.Send openid User.Read &response_type=code

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v. After running the URL in the browser a login screen appears as below. Login with the user who created the App.

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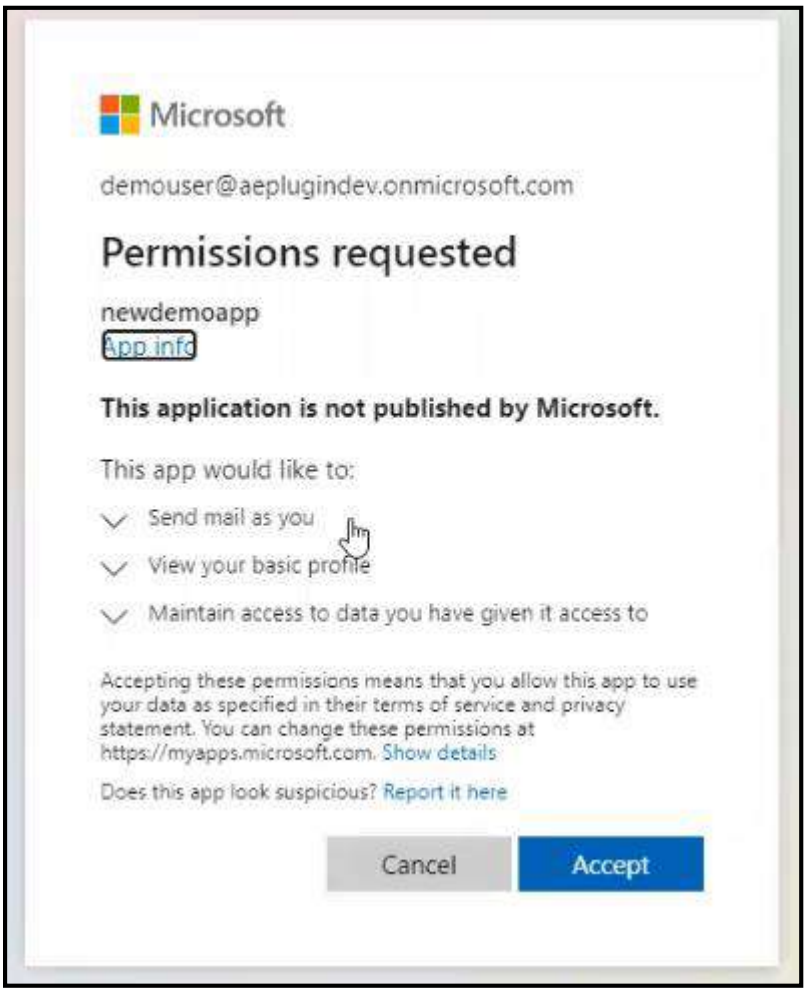
vi. After login Permissions Requested screen appears. Click on Accept Button.



18 Appendix: Office 365 App Registration for Grant Type Refresh Token

18.1 Register App

Following are the steps to register App,

1. Sign in to **Azure portal** with the email address having permission to perform the action to be automated. The permission details are mentioned under the specific step documentation.
2. For the automation of email handling actions, Sign in to the Azure portal with the email address that is going to be used in the step.
3. Select the **Azure Active Directory**.

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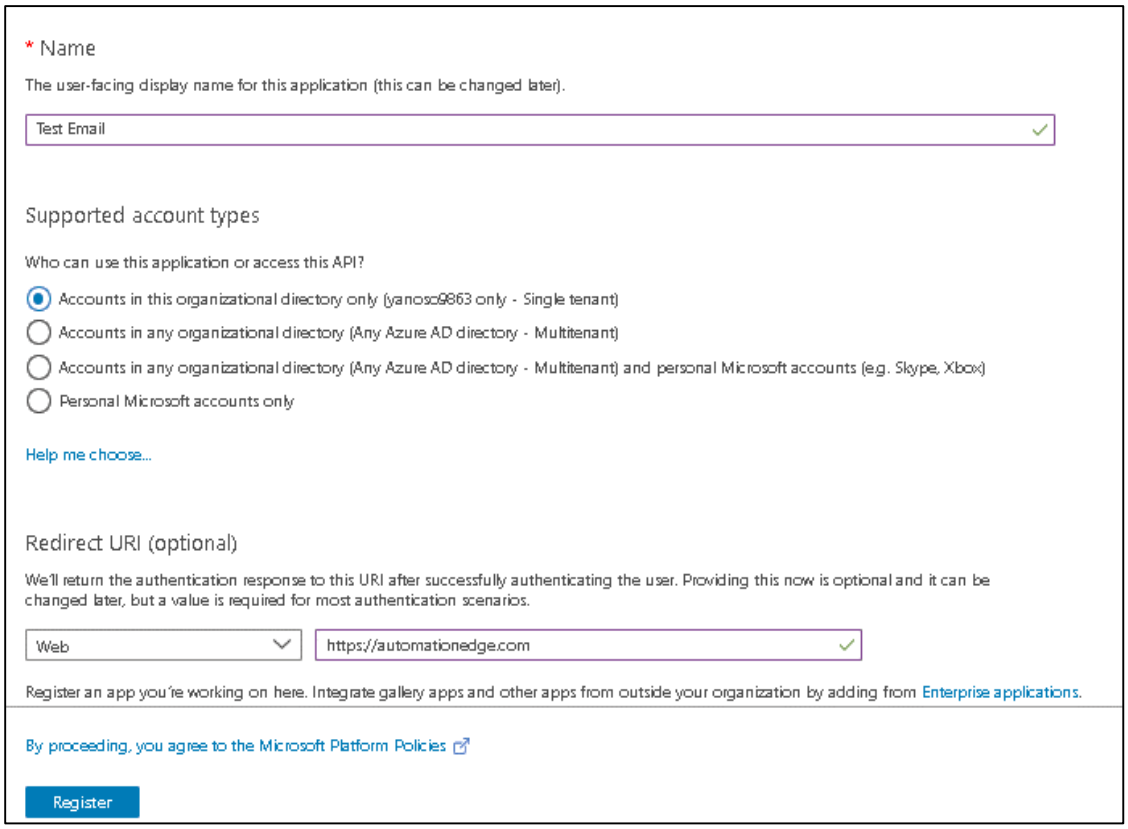
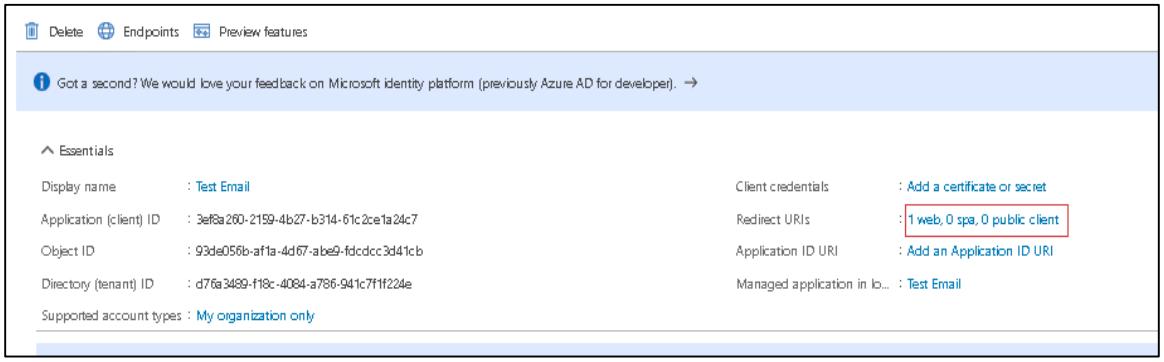
4. Select **App registrations**.
5. Select **New registration**.
6. Name the application. Select a supported account type, which determines who can use the application.
7. Under **Redirect URI**, select **Web** for the type of application you want to create. For example, https://automationedge.com.
8. Select **Register**.



9. After creating app, click on **Redirect URIs.**



10. Check the checkbox provided in below screen shot and click on save.

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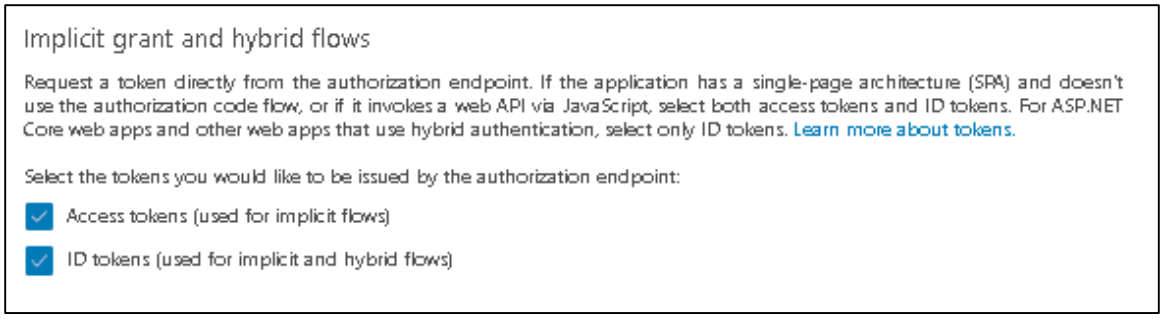
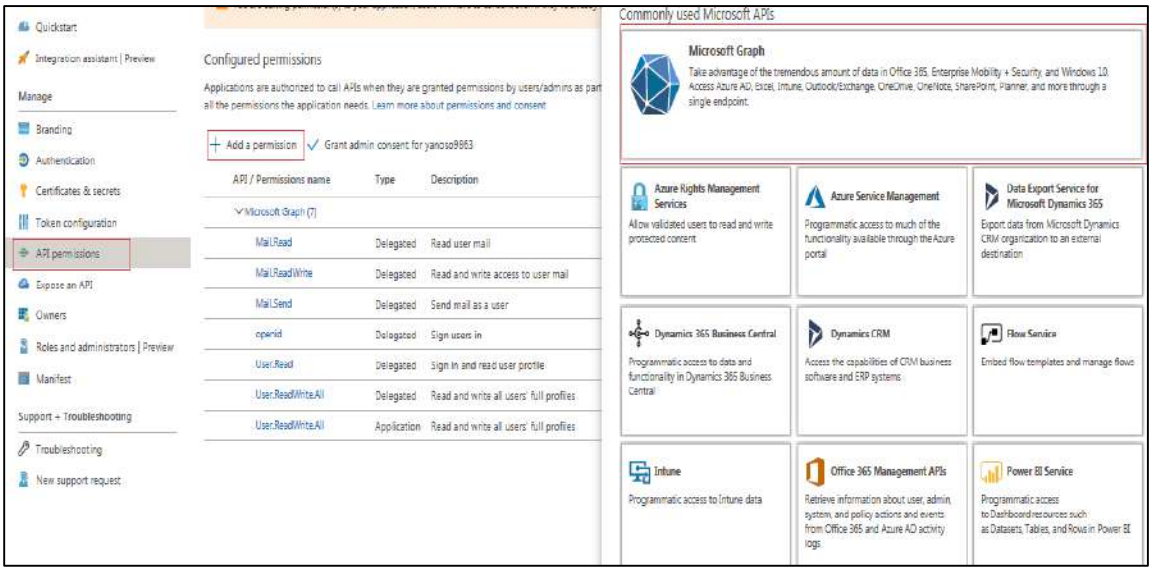


18.2 Provide API Permission

1. Click on **API Permission**.
2. Click on **Add Permission**.
3. Click on **Microsoft Graph**.
4. Provide all required permissions.



Note: Delegated **Offline_access** permission is mandatory to generate the refresh token.

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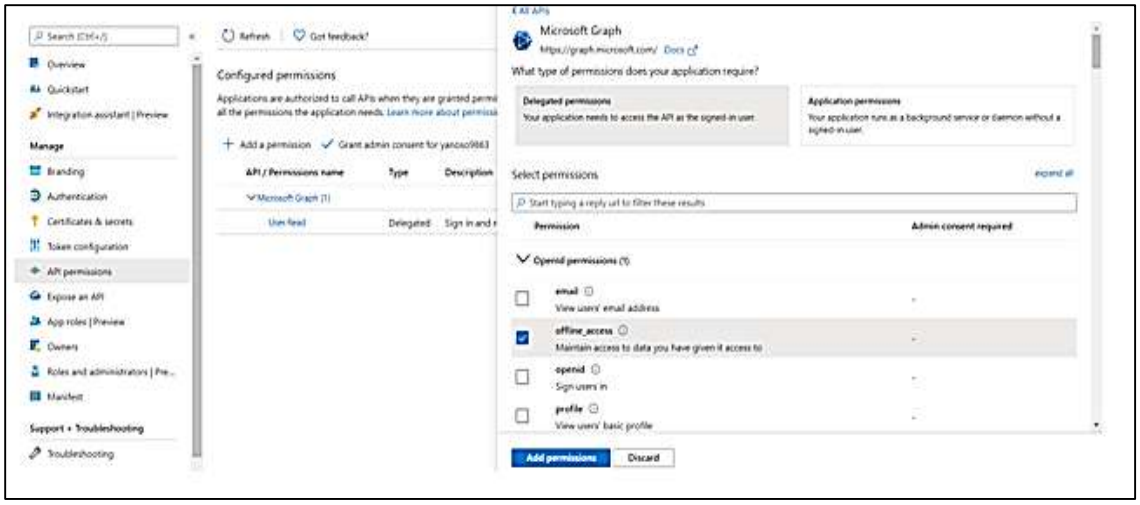
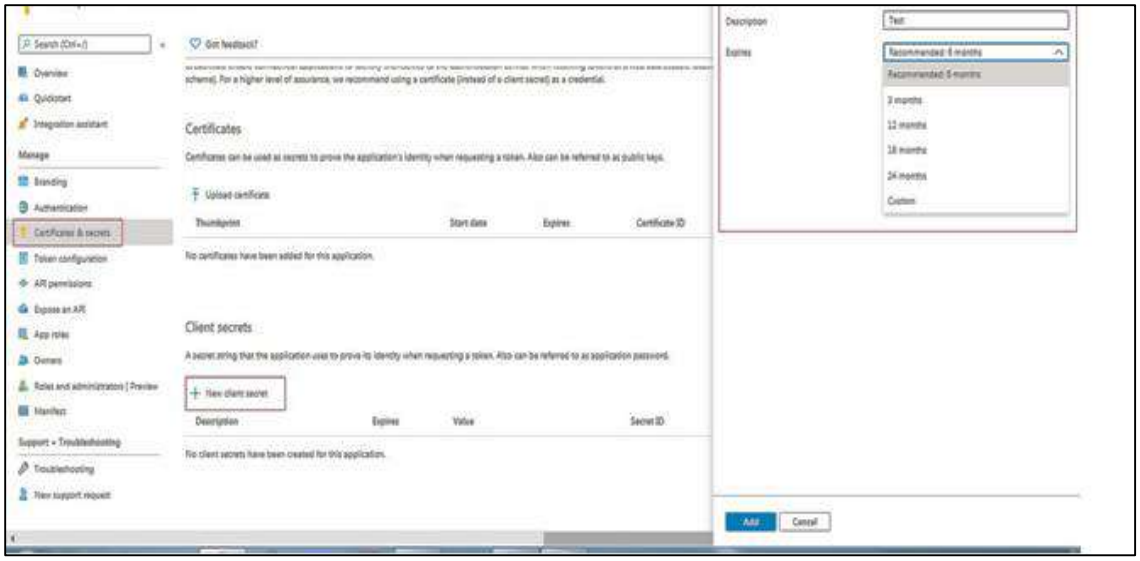
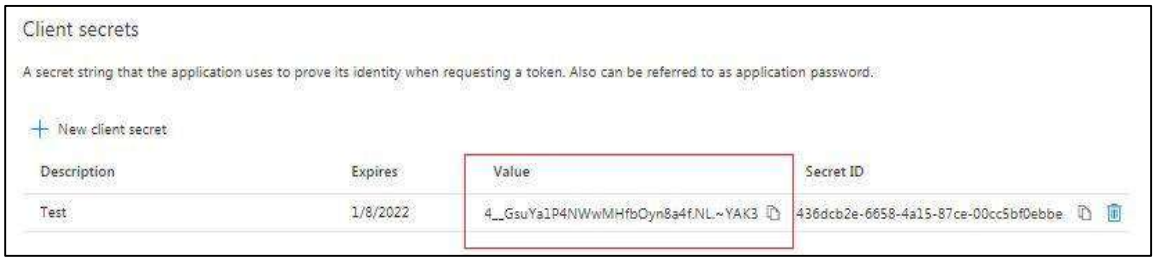


18.3 Creating Client Secret

1. Click on **Certificates and secrets**.
2. Click on **New client secret**.
3. Enter **Description**.
4. Select the **Expires value**.



5. Copy and save the value with you as it visible only for one time.



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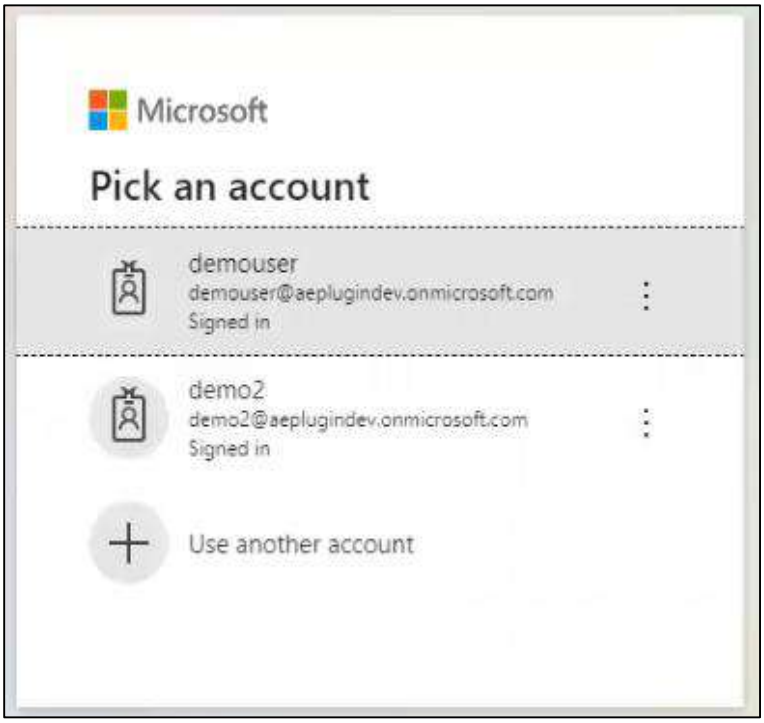
18.4 How to generate Refresh Token URL and Run in Browser

1. Create Below URL and run in browser.
   https://login.microsoftonline.com/Tenant_id/oauth2/v2.0/authorize?client_id=value&scope=Permissions &response_type=code.

   Example:
   https://login.microsoftonline.com/2f906216-6aaa-4ee5-8c13-5bbb3af06089/oauth2/v2.0/authorize?client_id=e6080cc9-dccc-4e8b-a22e-93174e01459b&scope=Mail.Read Mail.ReadWrite Mail.Send openid User.Read offline_access &response_type=code

2. After running in the browser the below login screen will appear, log in with the user who has created the app.



3. After login below screen will appear, on below screen click on Accept Button.

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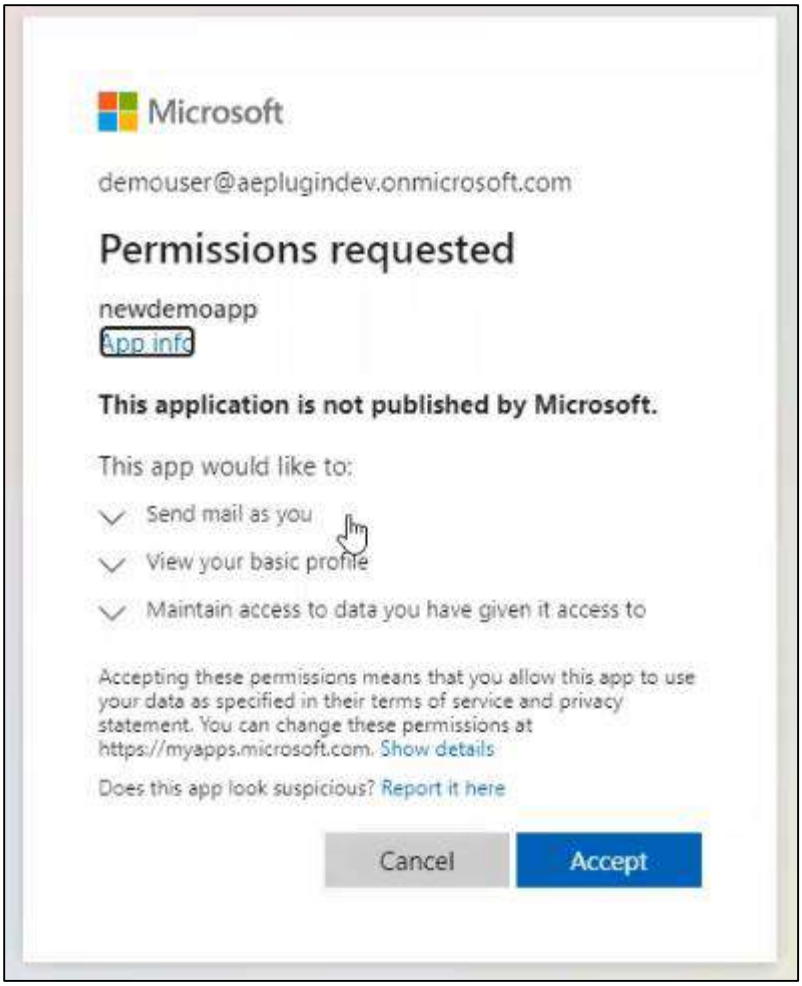
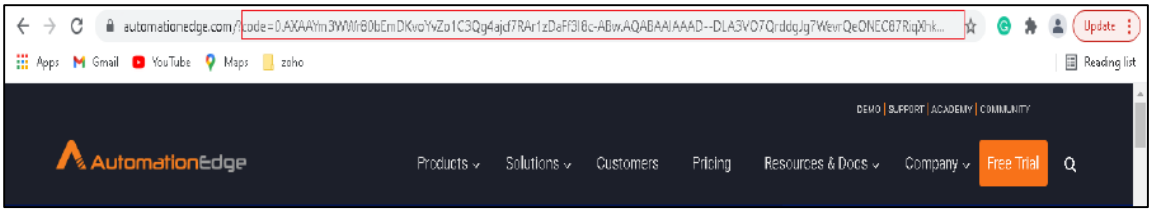


4. After clicking on accept button you will redirect to URI provided during app creation, once you are redirected you will get the code in address bar as shown in below screen shot.



5. In below image highlighted is the sample code to be fetched from URL.

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https://automationedge.com/?code=0.AXAAYm3WWr80bEmDKvoYvZo1C3Qg4ajcf7RAr1zDaFf3I8c-ABw.AQABAAIAAAD--DLA3VO7QrddgJg7WevrEDcwe3CazdnZdEVDH6PKczECUNfFkX00KGiTPy29vLa5Du541zsE_befath7-XLjywGxeMu9njmxcmDTb4pBeQkcbBkOPtnK0NQ7QkaNQDuTAUlqcuhvdUaVxNwL8LCziDV1kcZPw6Pul8YbuHG7-Mt4vGGRA9cZwXnJVSSGg7LbXLYRHcBPy0XTE3GuiOU6O8vpoxDwyOsMyBeU0IQmsmQzpr0sFnd0FG6Nqj34iShehUFDZYYdZNhVzPBqRKtf76Lx02JyVsRnC2fzm9MRDnXR3367lCA12LcGz7ufAQpFVb9S1OTQDOjQzDEOt3sZbhCQGebpXKS-2IlzuBKdvVeuhN_uvYkgTmwhKI_8544jiBeHC8CE0TdMZioM2ZOyRpIghM_iXWnW5tjHx4VvQ8zggcPNnYpA2GPjg0StxU7uTKRj82RCGZsp_cb9mCvgqqDjOYG7mP6C7AIw75CIizJsieKyguT7MjIgKFVFD2ZEBH7KmaXUh6pli5jLUxSTbhR0FE8vnmAliSOHxGgSVC2_QbakA-27VwvEPNjUtyVVrPMZ61Aq4ZqUfkglflFOo-wTz5utyuhs7CL9VWHcXPZ10UwYXBAtI9b_dtPaWXk0fecsw7zR3mJovsKvS6g90YSaVgYM4RumWvkIQR8VxhzRlzEwhxQGnohNoGlMquMgAA &session_state=2aefe38f-e098-418e-95e0-493088594ee9#

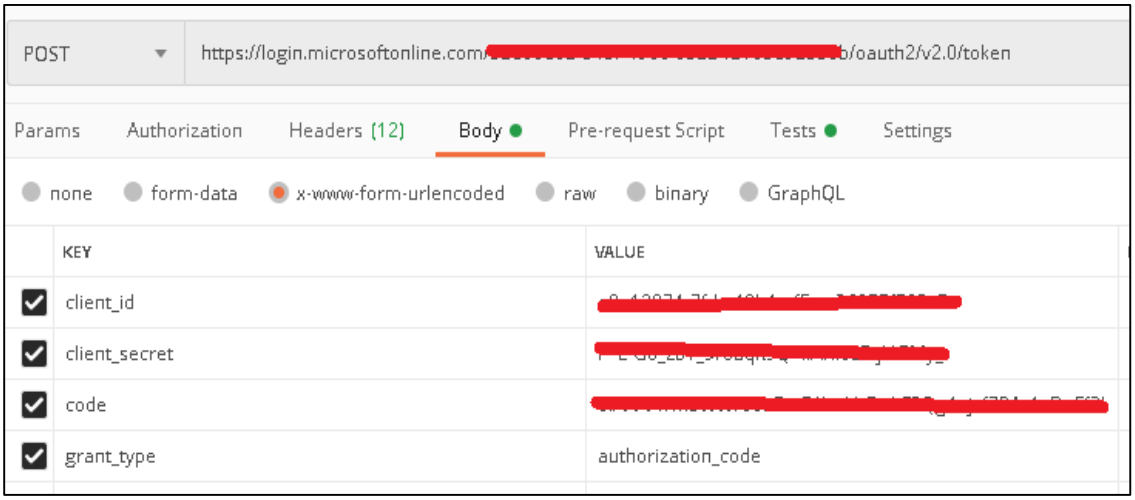
6. Once you get the code you need to create a POST request in postman to generate the refresh token.
   Below are the details

   POST
   URL: https://login.microsoftonline.com/{Tenant id}/oauth2/v2.0/token

   Headers:
   Content-Type: application/x-www-form-urlencoded

   Body: **x-www-form-urlencoded**(key value pair)
   client_id={client_id}
   client_secret={ client_secret }
   code={code}
   grant_type=authorization_code

   Postman Request:



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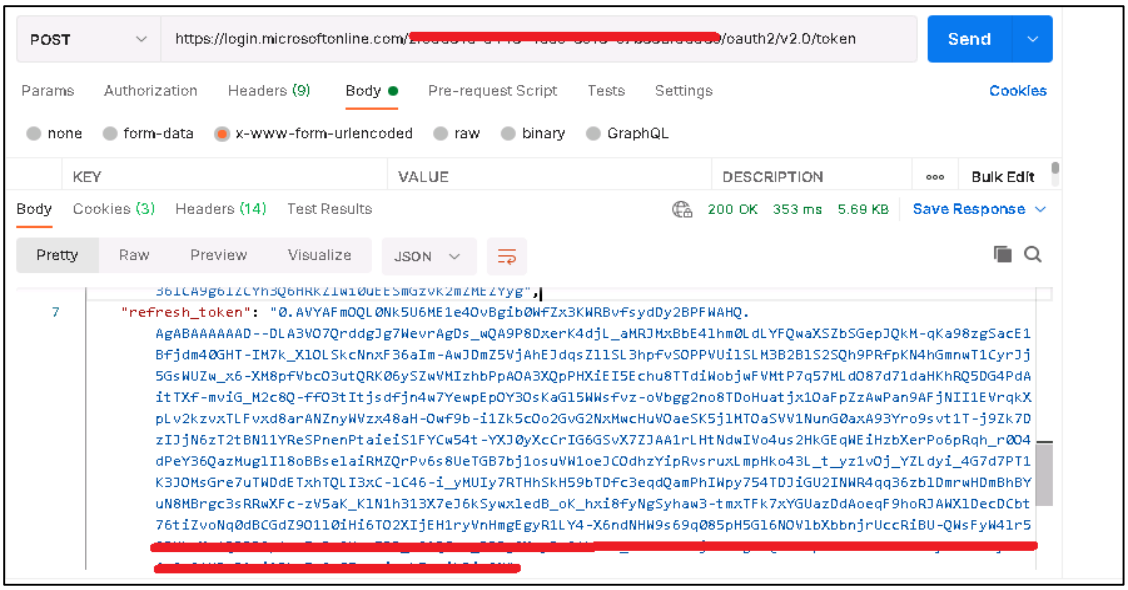
Postman Response:



19 Appendix 17: SharePoint Online: App Registration & Refresh Token Generation

19.1 Register App

Following are the steps to register App,

11. Sign in to your Azure Account through the Azure portal.
12. Select the **Azure Active Directory**.
13. Select **App Registrations**.
14. Select **New Registration**.
15. Name the application. Select a supported account type, which determines who can use the application.
16. Under **Redirect URI**, select **Public Client/native (mobile & desktop)** for the type of application you want to create and provide valid URL. For example, https://automationedge.com.

    For more information about redirect URI setup, see https://docs.microsoft.com/en-us/azure/active-directory/develop/reply-url

17. Select **Register**.

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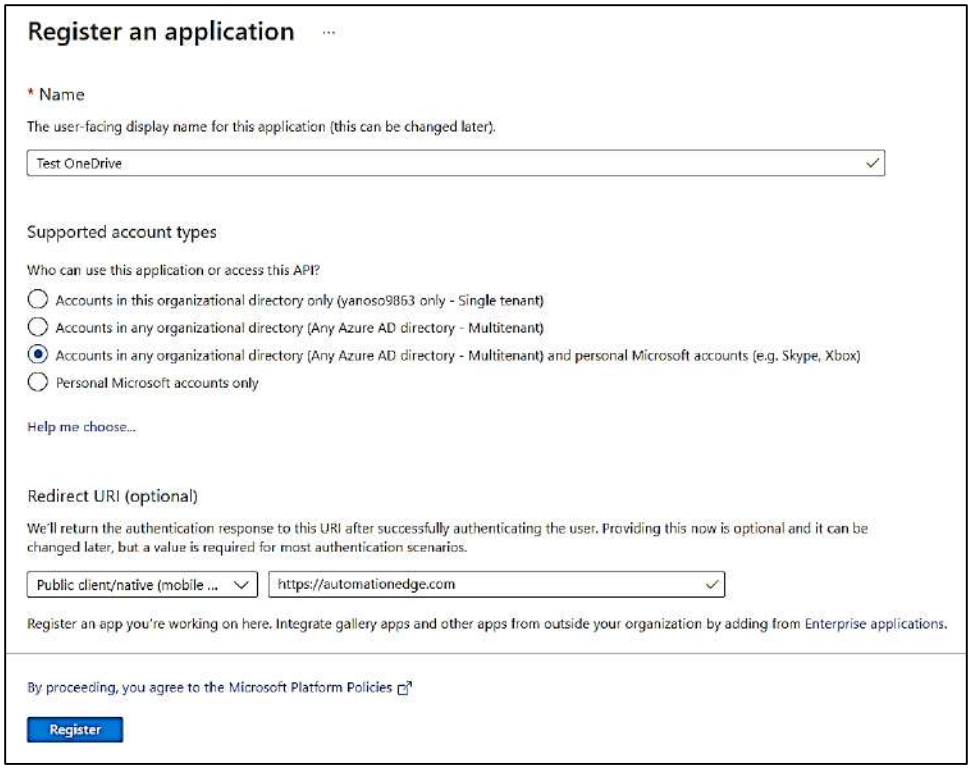
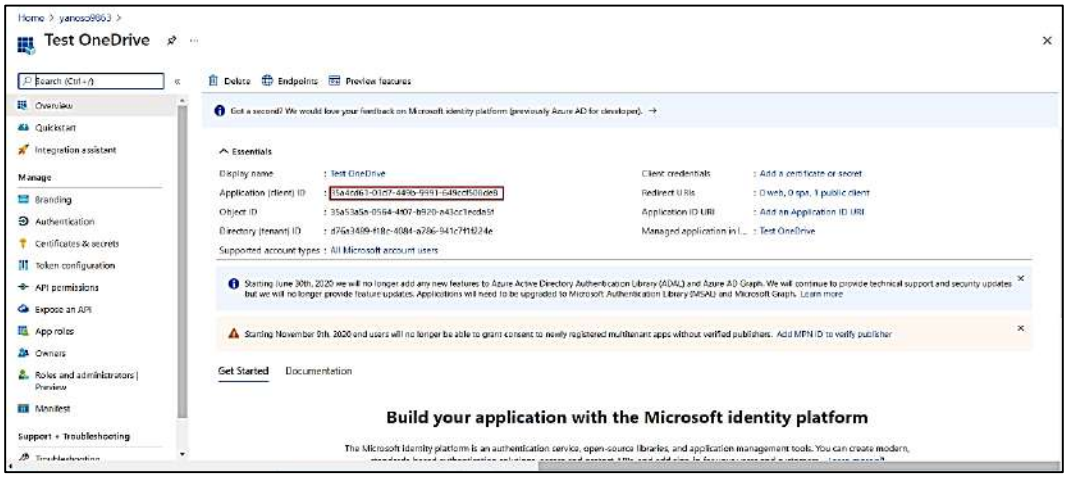


19.2 Provide API Permission

1. Copy **Client**.



2. Click on **API Permission**.
3. Click on **Add Permission**.
4. Click on **Microsoft Graph**.
5. Provide all required permissions.

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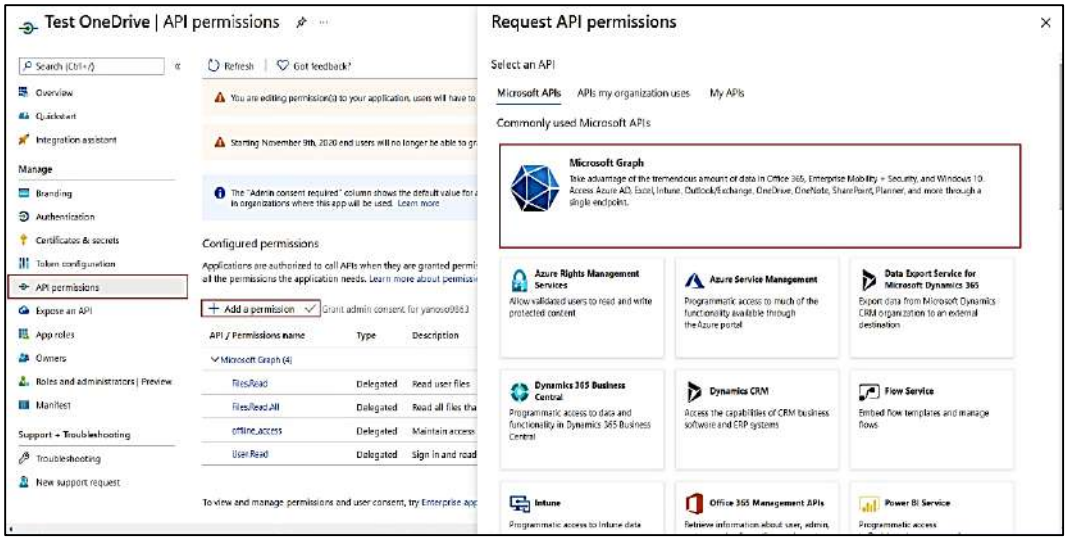
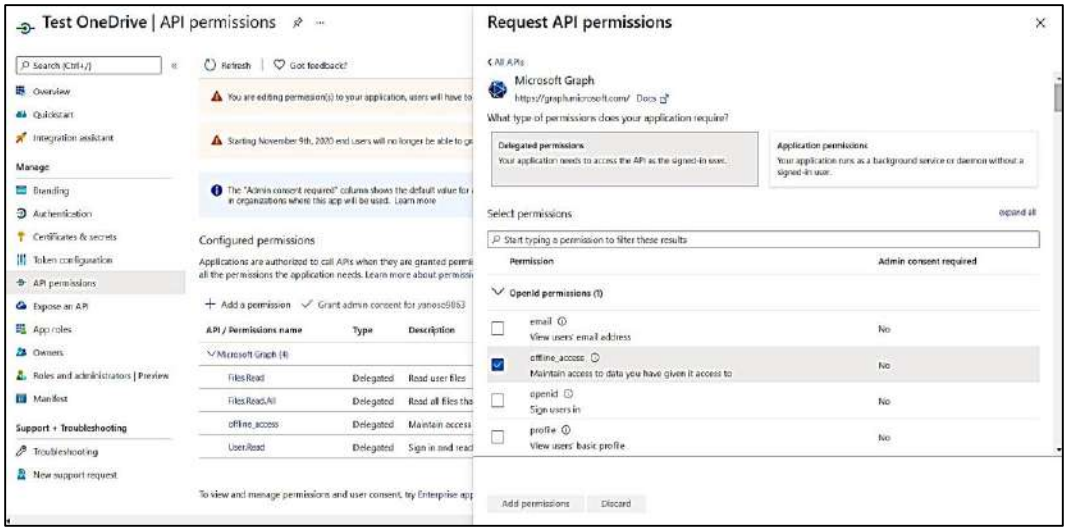


NOTE: Delegated offline_access permission is mandatory to generate the refresh token.



For more information, see https://docs.microsoft.com/en-us/azure/active-directory/develop/quickstart-register-app#register-an-application

19.3 How to generate Refresh Token URL and Run in Browser

1. Get an authorization code
2. To start the sign-in process with the code flow, use a web browser to load the following URL request:

   GET

   https://login.microsoftonline.com/common/oauth2/v2.0/authorize?client_id={client_id}&scope={scope} &response_type=code

   Example:

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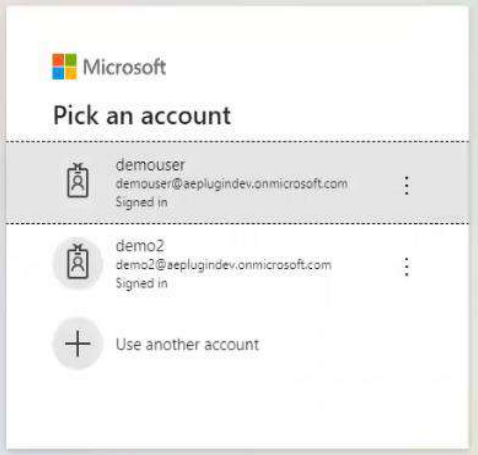
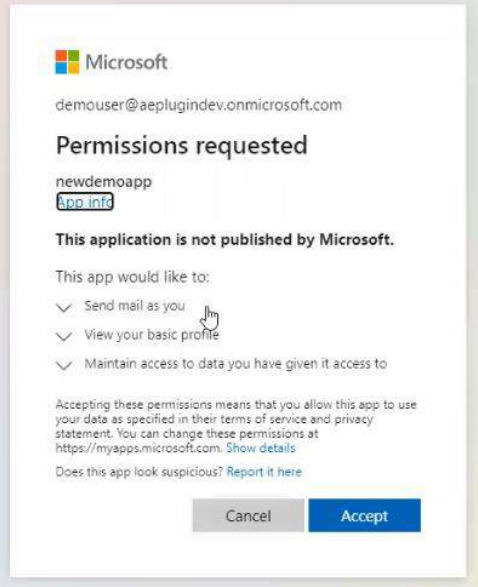
https://login.microsoftonline.com/common/oauth2/v2.0/authorize?client_id=bc096046-323f-4f98-91e6-fc1f28canks&scope=Files.Read Files.Read.All offline_access User.Read Sites.Read.All &response_type=code

3. After running in the browser the below login screen will appear, log in with the user who has created the app.



4. After login below screen will appear, on below screen click on **Accept** button.



5. After clicking on accept button you will redirect to URI provided during app creation, once you are redirected, you will get the code in address bar as shown in below screen shot.

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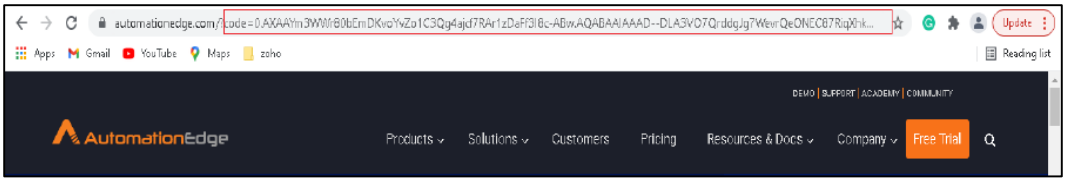


6. Redeem the code for access tokens and refresh token.

   After you have received the code value, you can redeem this code for a set of tokens that allow you to authenticate with the SharePoint API. To redeem the code, make the following request:

   POST
   https://login.microsoftonline.com/common/oauth2/v2.0/token

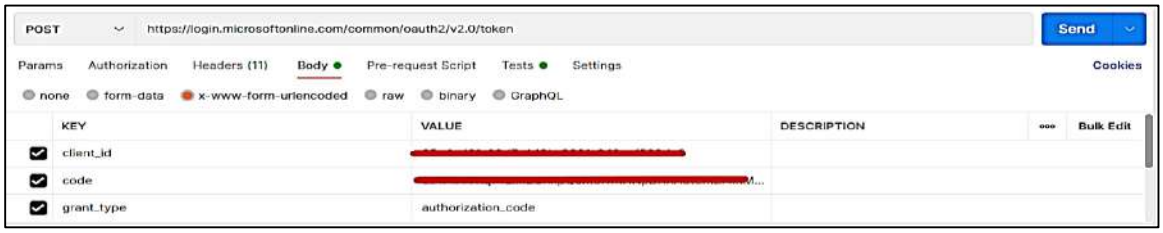
   Headers:
   Content-Type: application/x-www-form-urlencoded

   Body: **x-www-form-urlencoded** (key value pair)
   client_id={client_id}
   code={code}
   grant_type=authorization_code

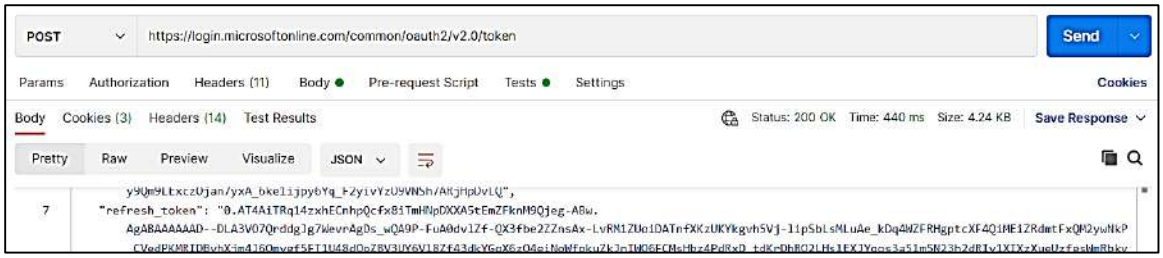
For more information, see https://docs.microsoft.com/en-us/onedrive/developer/rest-api/getting-started/graph-oauth?view=odsp-graph-online#code-flow

Example:

Postman Request:



Postman Response:



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20 Appendix 18: Google Workspace: Generate Refresh Token

20.1 Enable APIs

1. Go to the Google Developer Console.
2. Click **Select a Project >> New Project**. If you have an existing project, you can select it from **ALL**.

3. Provide valid values, and click **Create**.

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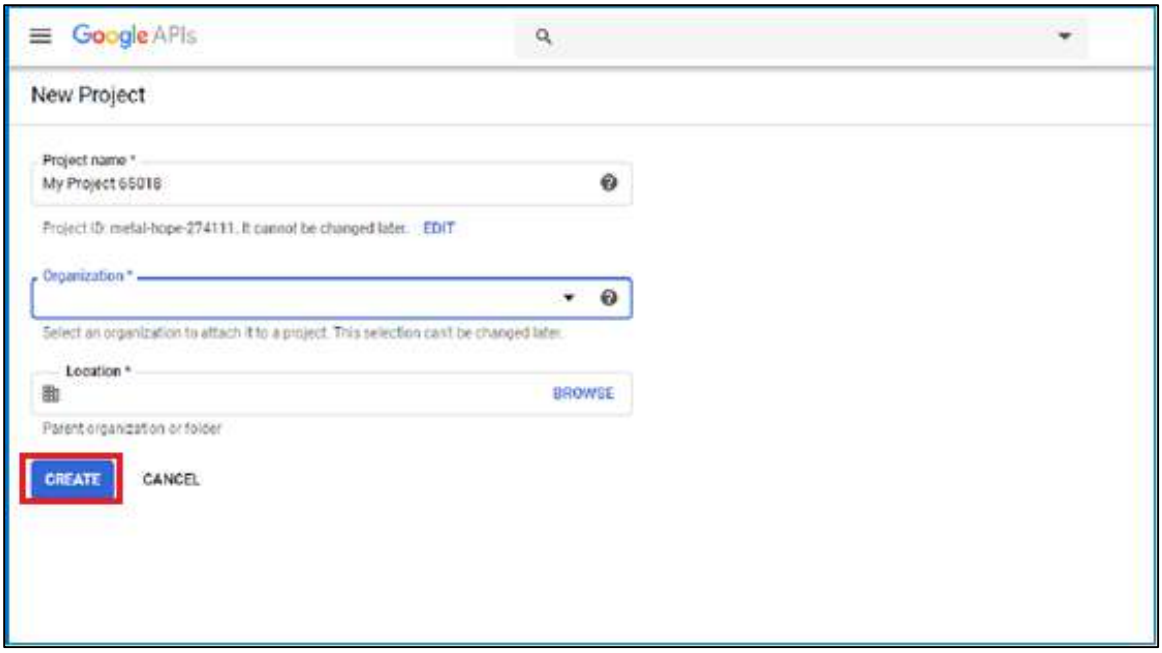
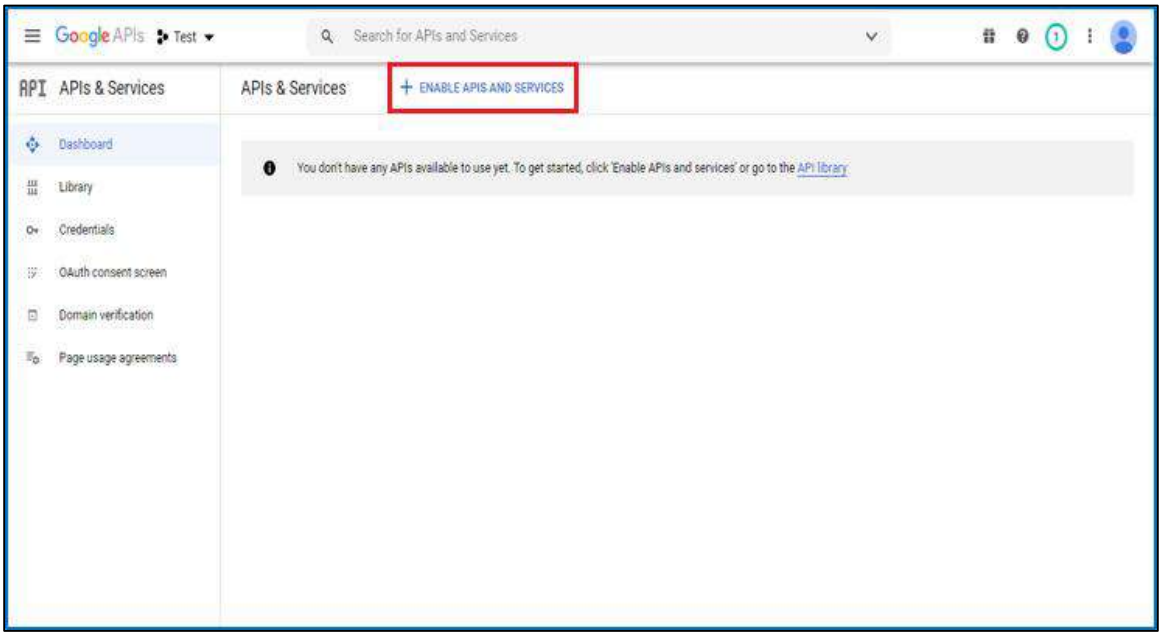


4. Navigate to **Dashboard**, and click on **ENABLE APIS AND SERVICES**.



5. Search for **Google Drive API** and **Google Sheets API**, and click **Enable**.

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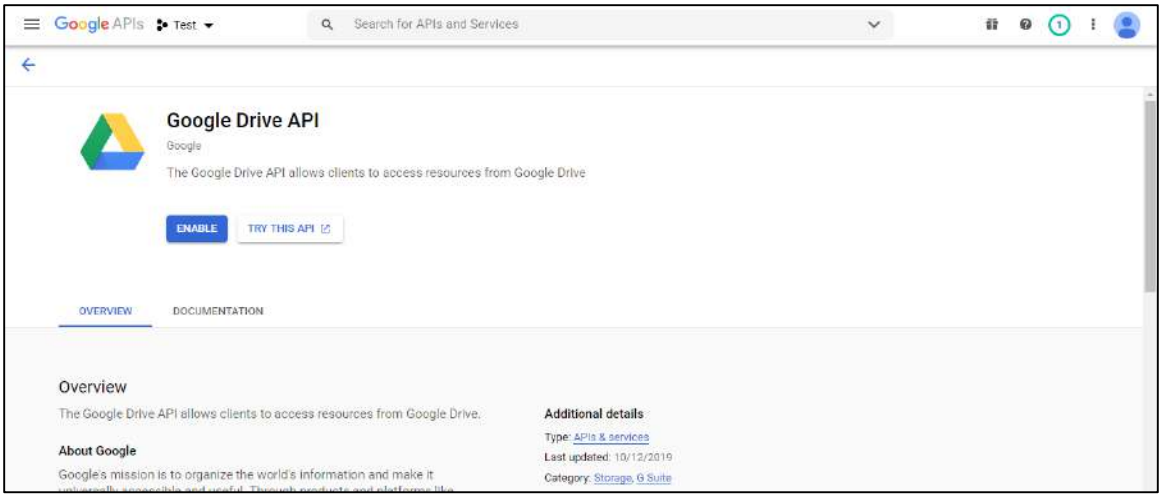

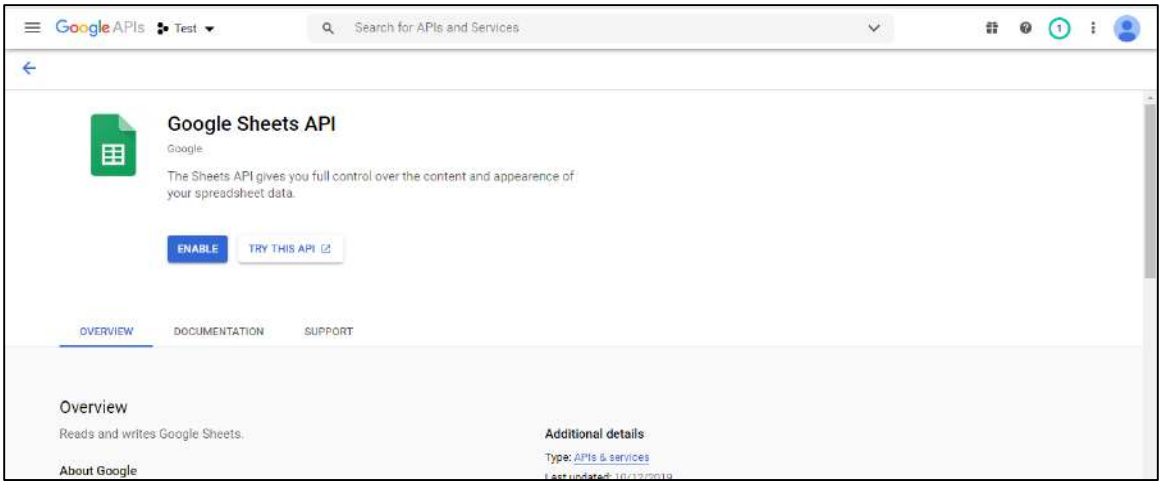

20.2 Get a Client ID and Client Secret

1. Navigate to the tab **OAuth consent screen** and choose the valid option.

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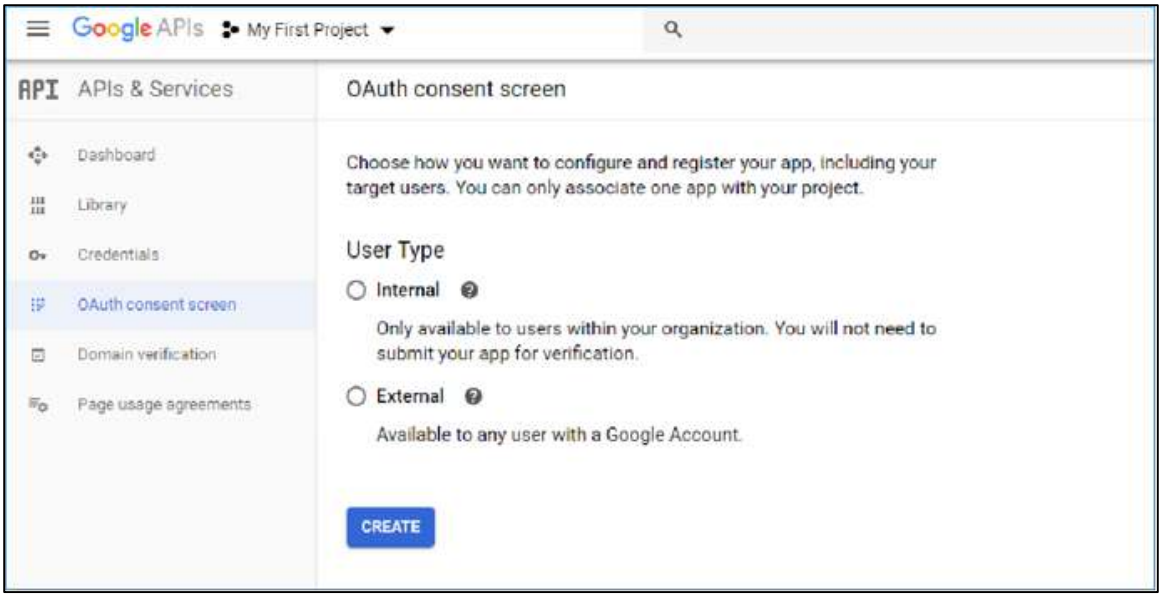
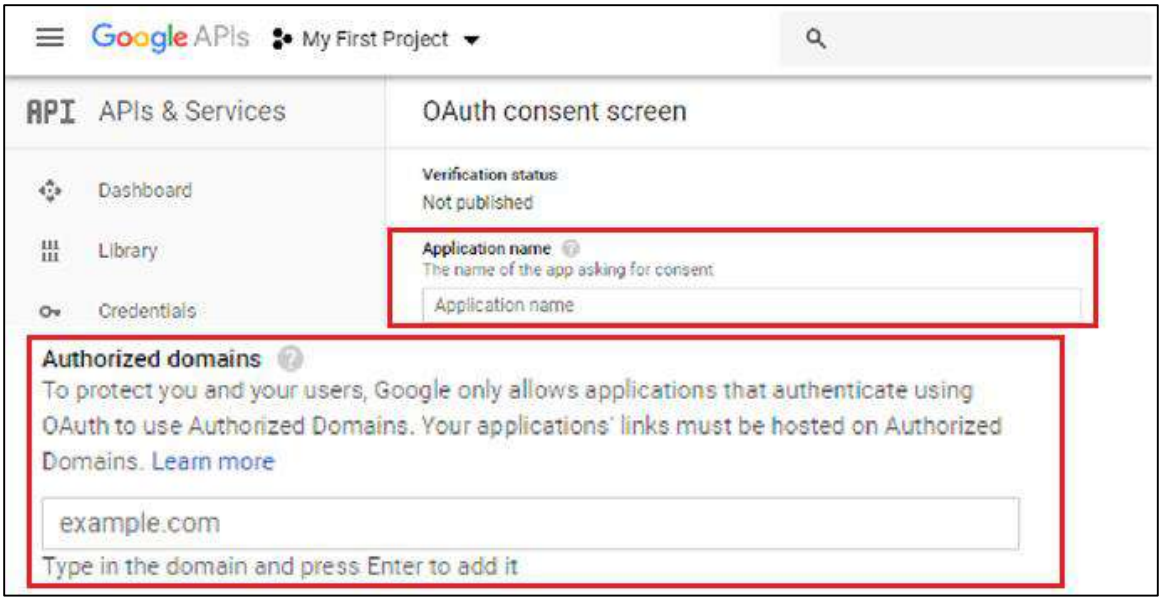


2. Enter the **Application name** and **Authorized domains**, and click **Save**.



3. Click **Credentials** tab **>> Create Credentials**, and **OAuth client ID** from the dropdown list.

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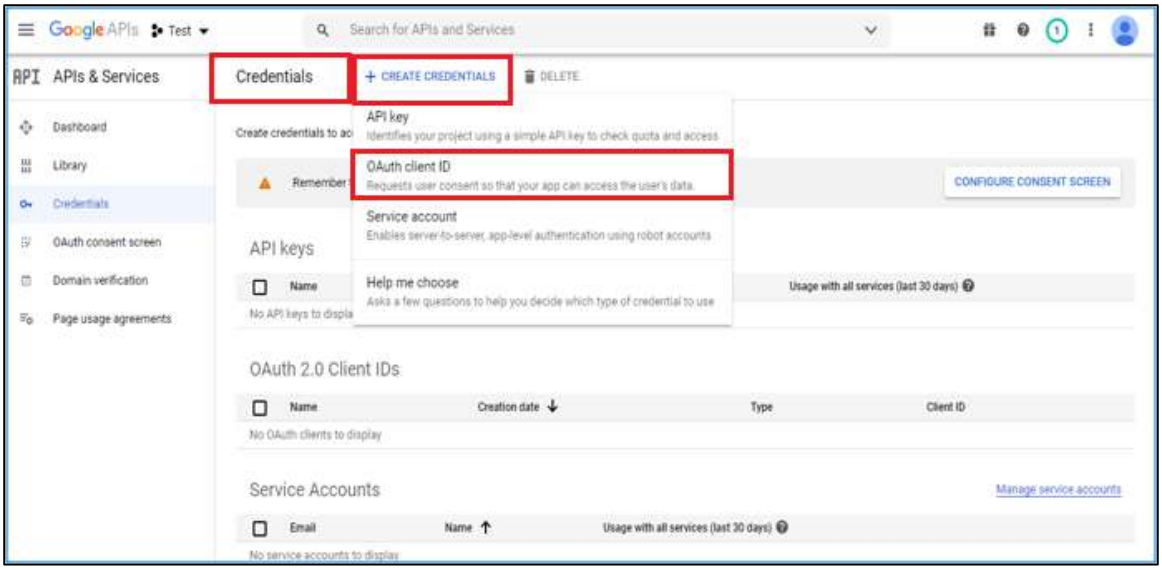
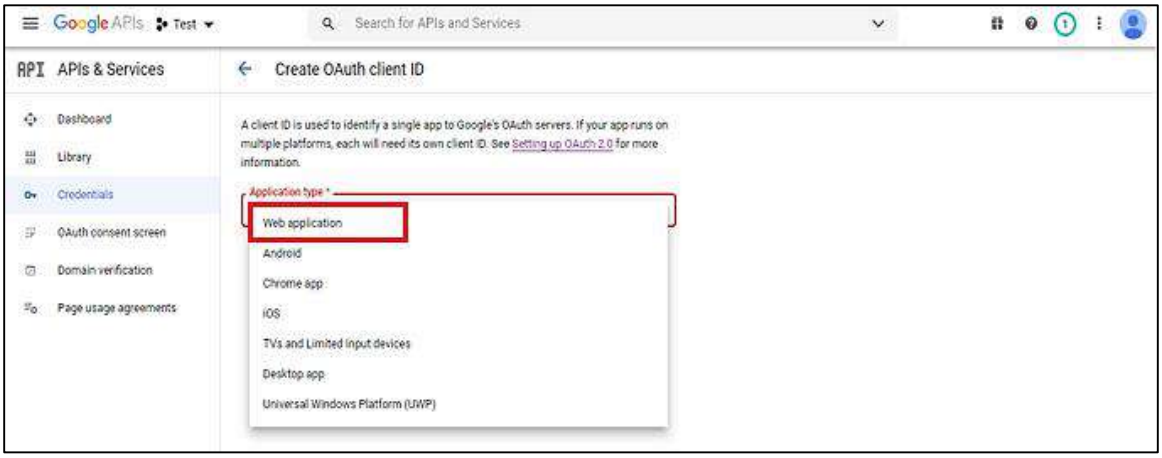


4. In the **Application type** list, select **Web Application**.



5. Enter valid **Name** and **Authorized Redirect URIs**, and click **Create**.

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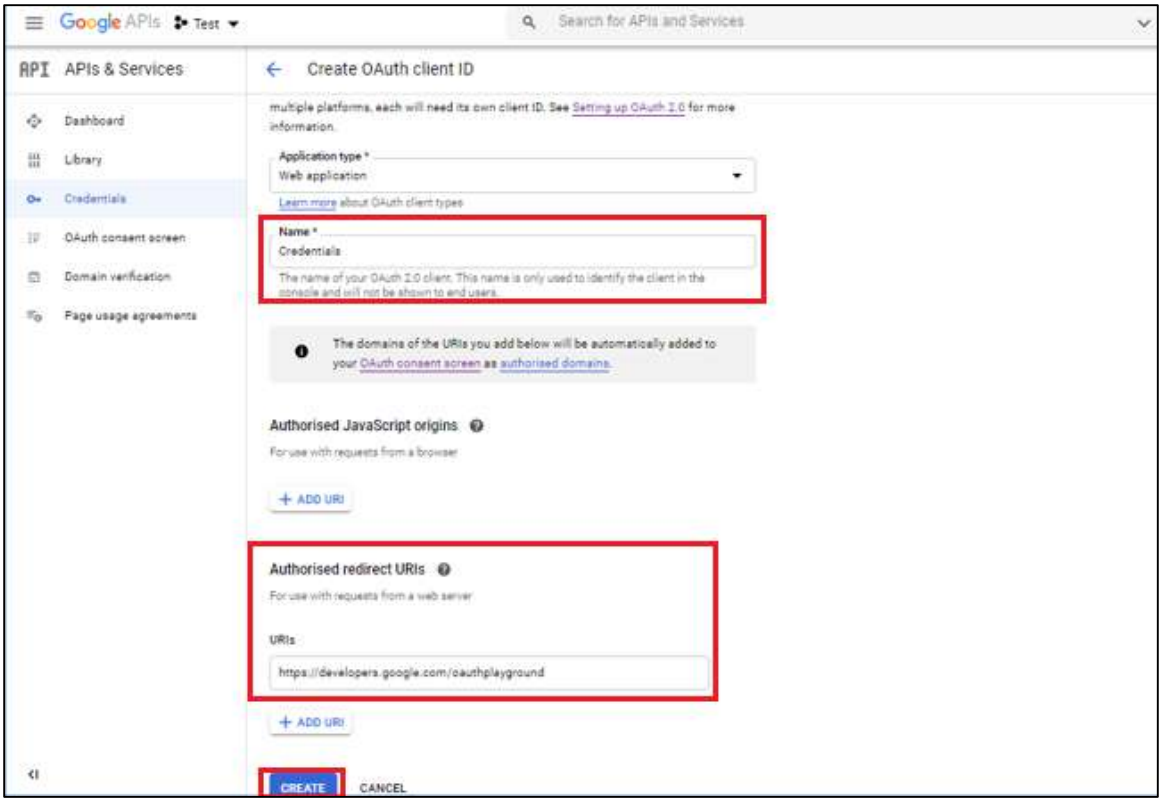
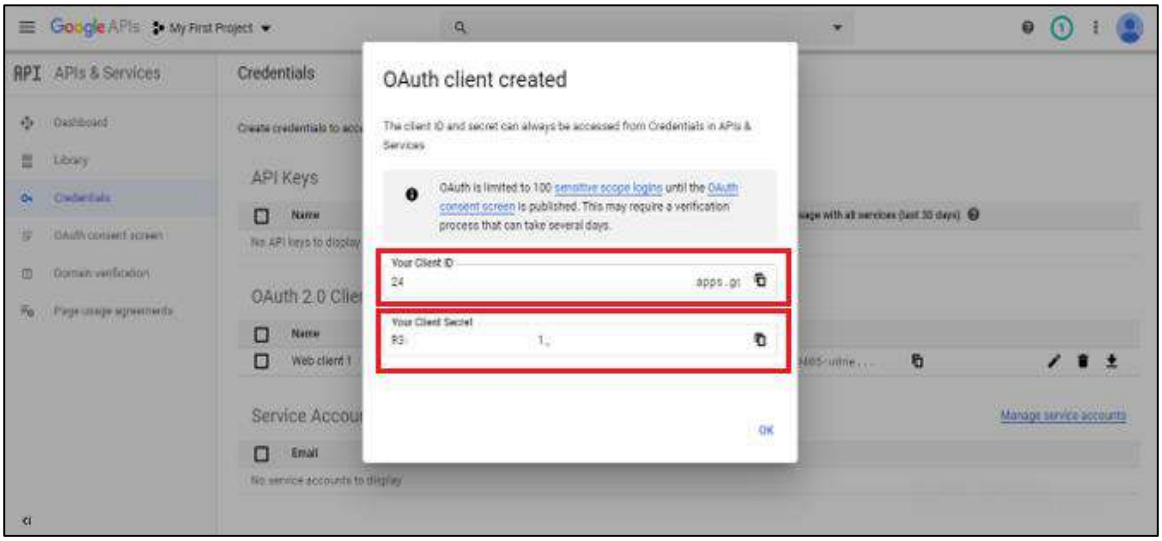


6. Copy **Client ID** and **Client Secret**, and click **OK**.



7. Click **OAuth 2.0 Client IDs**, and get Client ID and Client Secret.

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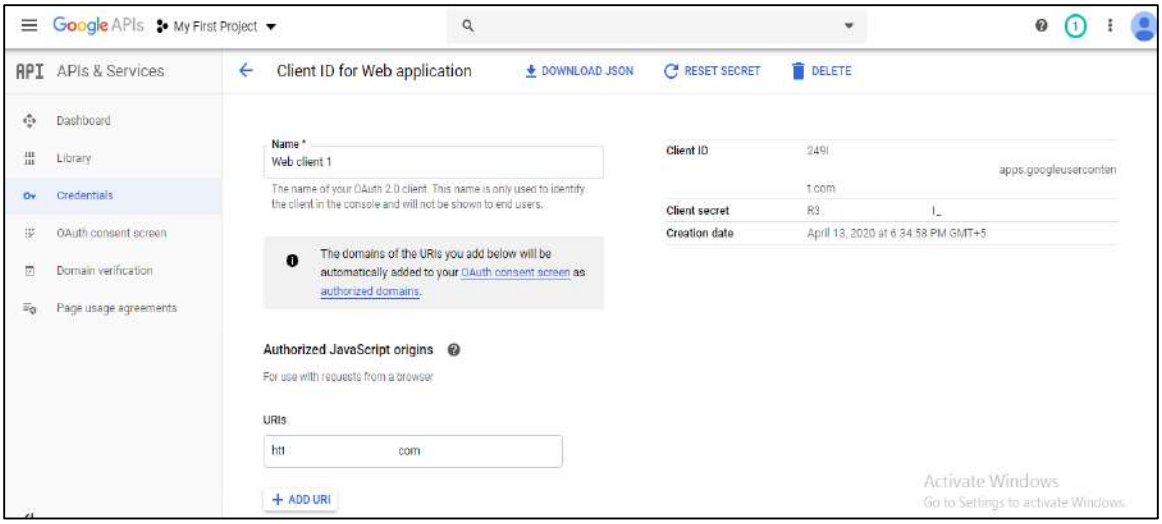

20.3 Generate Refresh Token

11. Go to the Google OAuth Playground.
12. Click **Settings** icon.
13. Click **Use your own OAuth credentials**, and enter **OAuth Client ID** and **OAuth Client secret** generated in Get Client ID and Client Secret.

14. Select **Select & authorize APIs**. Select the desired scope you want for your application and click on **Authorize APIs**.

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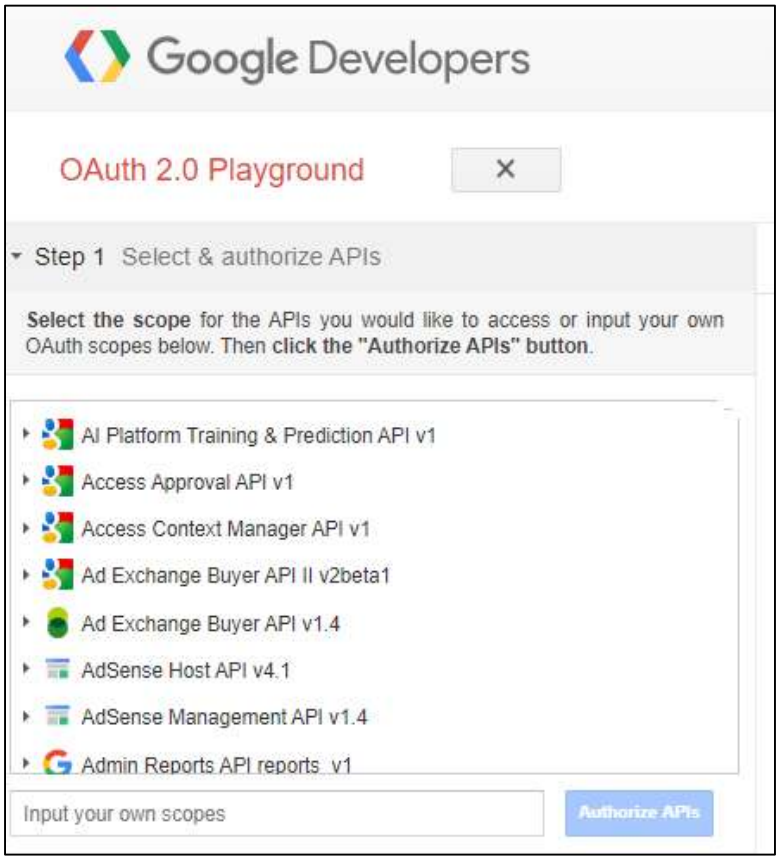
Required Scope:
https://www.googleapis.com/auth/admin.directory.user
https://www.googleapis.com/auth/admin.directory.domain
https://www.googleapis.com/auth/admin.directory.group



15. Click on **Exchange authorization code for tokens**.

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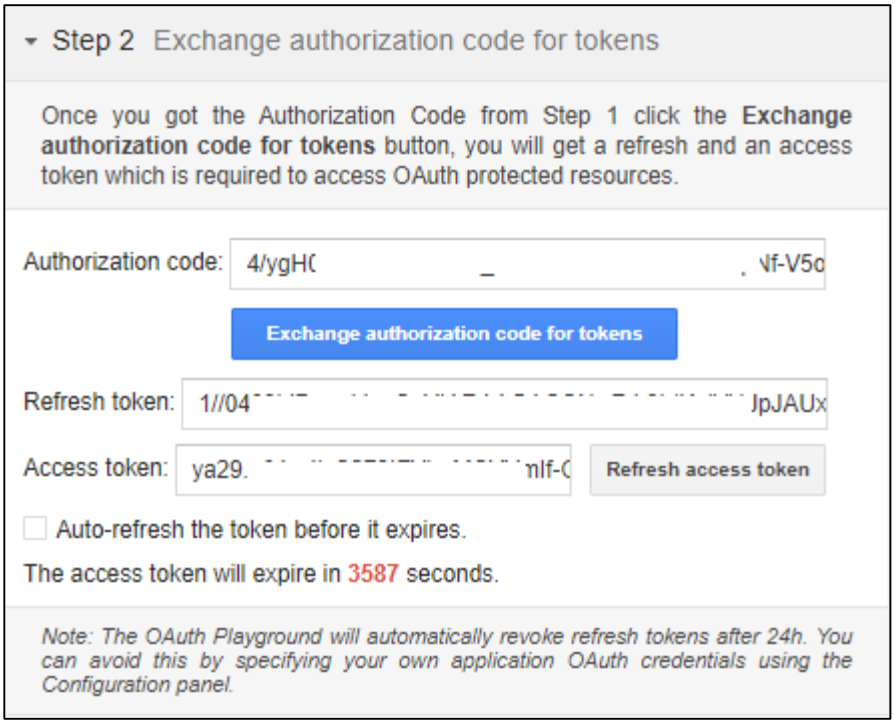

16. You'll get the **Authorization code**, click on the **Exchange authorization code for tokens** button.
17. Copy **Refresh Token**.

21 Appendix 19: Docker Installation and Connection Setup

21.1 Install Docker and Ubuntu

Docker Engine is available on a variety of Linux platforms, macOS and Windows 10 through Docker Desktop, and as a static binary installation. In this document Ubuntu installation steps described if you have other OS the follow this link: https://docs.docker.com/engine/install/

To get started with Docker Engine on Ubuntu, make sure you meet the prerequisites, then install Docker.

21.1.1 Prerequisites

To install Docker Engine, you need the 64-bit version of one of these Ubuntu versions:

- Ubuntu Hirsute 21.04
- Ubuntu Groovy 20.10
- Ubuntu Focal 20.04 (LTS)
- Ubuntu Bionic 18.04 (LTS)

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Docker Engine is supported on x86_64 (or amd64), armhf, arm64, and s390x architectures.

You can install Docker Engine in different ways, depending on your needs:
Most users set up Docker's repositories and install from them, for ease of installation and upgrade tasks. This is the recommended approach.

21.1.2 Install Docker repository

Before you install Docker Engine for the first time on a new host machine, you need to set up the Docker repository. After setting up the Docker repository, install and update Docker from the repository.

21.1.3 Set up the repository

1. Update the apt package index and install packages to allow apt to use a repository over HTTPS:

```
$ sudo apt-get update

$ sudo apt-get install \
  apt-transport-https \
  ca-certificates \
  curl \
  gnupg \
  lsb-release
```

2. Add Docker's official GPG key:

```
$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o
/usr/share/keyrings/docker-archive-keyring.gpg
```

3. Use the following command to set up the **stable** repository.

Note: The ***$lsb_release -cs*** sub-command below returns the name of your Ubuntu distribution, such as xenial. Sometimes, in a distribution like Linux Mint, you might need to change $(lsb_release -cs) to your parent Ubuntu distribution. For example, if you are using Linux Mint Tessa, you could use bionic. Docker does not offer any guarantees on untested and unsupported Ubuntu distributions.

```
echo \
  "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-
keyring.gpg] https://download.docker.com/linux/ubuntu \
  $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
```

21.1.4 Install Docker Engine

a. Update the apt package index, and install the ***latest version*** of Docker Engine and containerID, or go to the next step to install a specific version:

```
$ sudo apt-get update
```

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$ sudo apt-get install docker-ce docker-ce-cli containerd.io

b. To install a ***specific version*** of Docker Engine, list the available versions in the repo, then select and install:

   a. List the versions available in your repo:

      $ apt-cache madison docker-ce

   b. Install a specific version using the version string from the second column, for example, 5:18.09.1~3-0~ubuntu-xenial

      $ sudo apt-get install docker-ce=<VERSION_STRING> docker-ce-cli=<VERSION_STRING> containerd.io

   c. Verify that Docker Engine is installed correctly by running the hello-world image.
      $ sudo docker run hello-world

      For more information refer to the following link:
      https://docs.docker.com/engine/install/ubuntu

21.2 Protect the Docker daemon socket

By default, Docker runs through a non-networked UNIX socket. It can also optionally communicate using SSH or a TLS (HTTPS) socket.

21.2.1 Use TLS (HTTPS) to protect the Docker daemon socket

Note: Client need to install docker engine on their machine to use this configuration type.
If you need Docker to be reachable through HTTPS rather than SSH in a safe manner, you can enable TLS (HTTPS) .

In the daemon mode, it only allows connections from clients authenticated by a certificate signed by that CA. In the client mode, it only connects to servers with a certificate signed by that CA.

1. Create a CA, server, and client keys with OpenSSL
   First, on the Docker daemon's host machine, generate CA private and public keys:

   $ openssl genrsa -aes256 -out ca-key.pem 4096

   $ openssl req -new -x509 -days 365 -key ca-key.pem -sha256 -out ca.pem
   --- Provide all required fields.
   For common name field, provide Hostname($hostname –fqdn Use this command to get hostname for Ubuntu)

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2. Now that you have a CA, you can create a server key and certificate signing request (CSR). Make sure that “Common Name” matches the hostname you use to connect to Docker:

   $ openssl genrsa -out server-key.pem 4096

   Note: Replace all instances of $HOST in the following example with the DNS name of your Docker daemon’s host. Or set the HOST using ***$ export HOST=10.10.10.10***(Host IP Address or DNS name) this command.

   $ openssl req -subj "/CN=$HOST" -sha256 -new -key server-key.pem -out server.csr

   Next, we’re going to sign the public key with our CA:

3. Since TLS connections can be made through IP address as well as DNS name, the IP addresses need to be specified when creating the certificate. For example, to allow connections using 10.10.10.10 and 127.0.0.1:

   $ echo subjectAltName = DNS:$HOST,IP:10.10.10.10,IP:127.0.0.1 >> extfile.cnf

4. Set the Docker daemon key’s extended usage attributes to be used only for server authentication:

   $ echo extendedKeyUsage = serverAuth >> extfile.cnf

5. Now, generate the signed certificate:

   *$ openssl x509 -req -days 365 -sha256 -in server.csr -CA ca.pem -CAkey ca-key.pem *
   -CAcreateserial -out server-cert.pem -extfile extfile.cnf

6. For client authentication, create a client key and certificate signing request:

   Note: For simplicity of the next couple of steps, you may perform this step on the Docker daemon’s host machine as well.

   $ openssl genrsa -out key.pem 4096

   $ openssl req -subj '/CN=client' -new -key key.pem -out client.csr

7. To make the key suitable for client authentication, create a new extensions config file:

   $ echo extendedKeyUsage = clientAuth > extfile-client.cnf

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8. Now, generate the signed certificate:

   *$ openssl x509 -req -days 365 -sha256 -in client.csr -CA ca.pem -CAkey ca-key.pem *
   -CAcreateserial -out cert.pem -extfile extfile-client.cnf

9. After generating cert.pem and server-cert.pem you can safely remove the two certificate signing requests and extensions config files:

   $ rm -v client.csr server.csr extfile.cnf extfile-client.cnf

10. To protect your keys from accidental damage, remove their write permissions. To make them only readable by you, change file modes as follows:

    $ chmod -v 0400 ca-key.pem key.pem server-key.pem

    Certificates can be world-readable, but you might want to remove write access to prevent accidental damage:

    $ chmod -v 0444 ca.pem server-cert.pem cert.pem

11. Now you can make the Docker daemon only accept connections from clients providing a certificate trusted by your CA:

    $ dockerd \
    --tlsverify \
    --tlscacert=ca.pem \
    --tlscert=server-cert.pem \
    --tlskey=server-key.pem \
    --H=0.0.0.0:2376

    If you want to configure Docker to accept remote connections using the docker.service systemd unit files for Linux distributions, such as recent versions of RedHat, CentOS, Ubuntu, and SLES. Then follow the following steps.

    a) Use the command ***$ sudo systemctl edit docker.service*** to open an override file for docker.service in a text editor.

    b) Add or modify the following lines, substituting your own values.
    [Service]
    ExecStart=
    ExecStart=/usr/bin/dockerd -H fd:// -H tcp://0.0.0.0:2376 --tlsverify --tlscacert=ca.pem --tlscert=server-cert.pem --tlskey=server-key.pem

    c) Save the file

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d) Reload the systemctl configuration.
$ sudo systemctl daemon-reload

e) Restart Docker.
$ sudo systemctl restart docker.service

Follow this link for more details.
https://docs.docker.com/engine/install/linux-postinstall/#configuring-remote-access-with-systemd-unit-file

12. To connect to docker and validate its certificate, you need to copy your client keys(key.pem), certificates(cert.pem) and trusted CA(ca.pem) to client machine and provide these certificates to Docker plugin steps.

21.2.2 Secure by default

If you want to secure your Docker client connections by default, you can move the files to the .docker directory in your home directory and set the **DOCKER_HOST** and **DOCKER_TLS_VERIFY** variables as well.
Then no need to provide the certificates and Docker Host URI to docker plugins for docker connection.
For Ubuntu:

$ export DOCKER_HOST=tcp://$HOST:2376 DOCKER_TLS_VERIFY=1

For more details:
https://docs.docker.com/engine/security/protect-access/#use-tls-https-to-protect-the-docker-daemon-socket

21.3 SSH Configuration

- To do SSH Connection, You need to run a daemon on UNIX socket.
  By default, the Docker daemon listens for connections on a UNIX socket to accept requests from local clients.

  Note: To connect using this configuration type, there is no need to install docker engine on the client side.

- Provide the Server Name(Public IP Address), Port, Username, Password.

- You can also use both configuration types.
  While running Docker daemon use the following command:

  $ dockerd \
  --tlsverify \
  --tlscacert=ca.pem \

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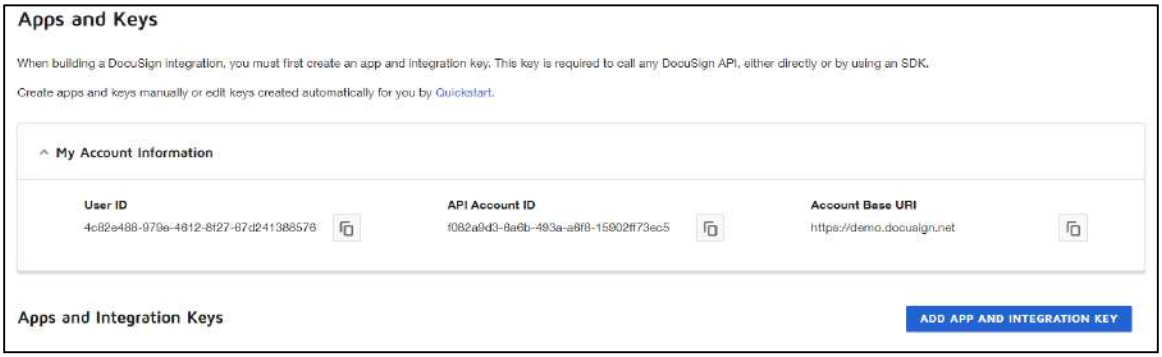
*--tlscert=server-cert.pem *
*--tlskey=server-key.pem *
*-H unix:///var/run/docker.sock *
-H=0.0.0.0:2376

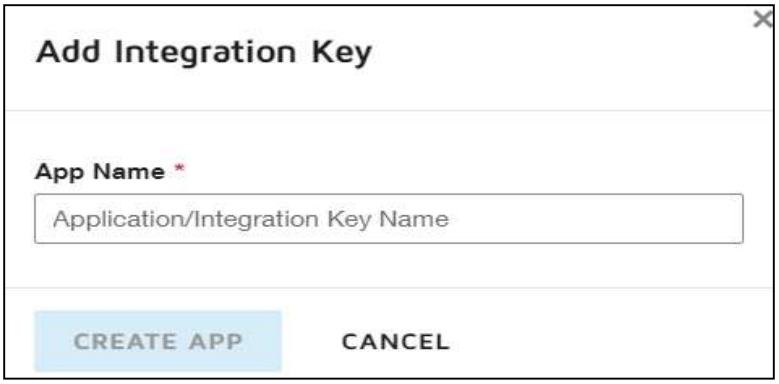
22 Appendix 20: DocuSign: Generate Refresh Token

22.1 Generate Refresh Token

1. Go to https://admindemo.docusign.com/apps-and-keys, and sign-in to your DocuSign account.
2. Click ADD APP AND INTEGRATION KEY. The Add Integration Key dialog appears



3. In the Add Integration Key dialog enter the App Name, and click CREATE APP.



4. Save the Integration Key copy with you.
5. Click ADD SECRET KEY to get secret key.

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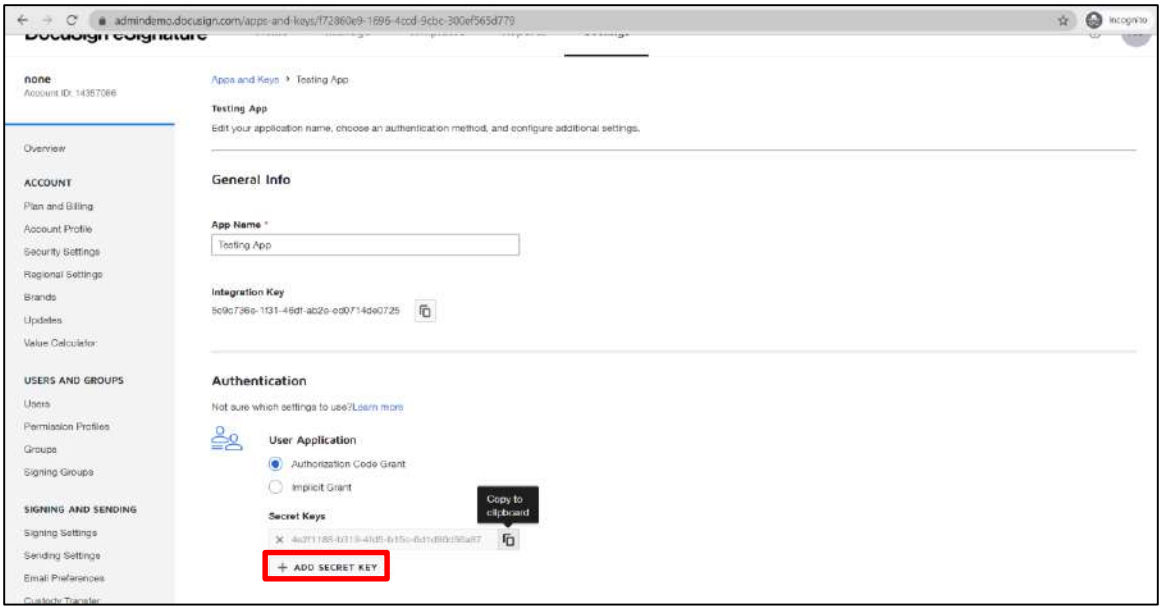
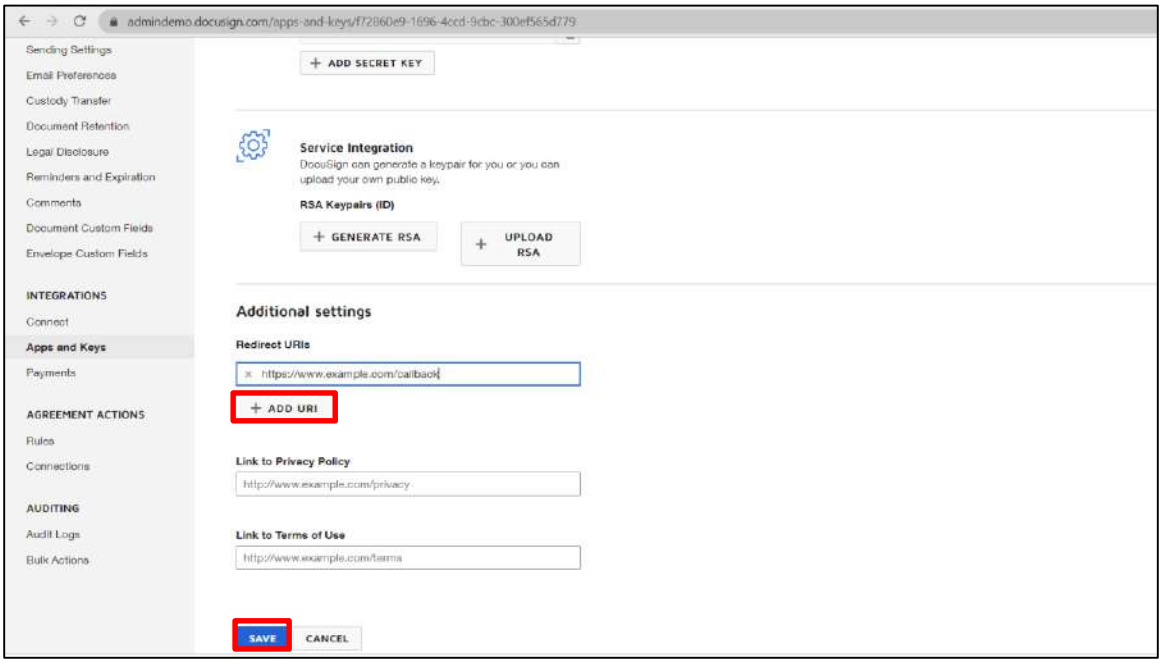


6. Copy and save the Secret Key with you.
7. Add Redirect URI by clicking on ADD URI.



8. Add your URI, for example, https://www.example.com/callback, and save it with you. Click SAVE to save all the details.
9. Open browser and search the URL after replacing it with your app's Integration key and Redirect URI
   https://account-d.docusign.com/oauth/auth?response_type=code&scope=signature&client_id=YOUR_APP_INTEGRATION_KEY&redirect_uri=YOUR_APP_REDIRECT_URI

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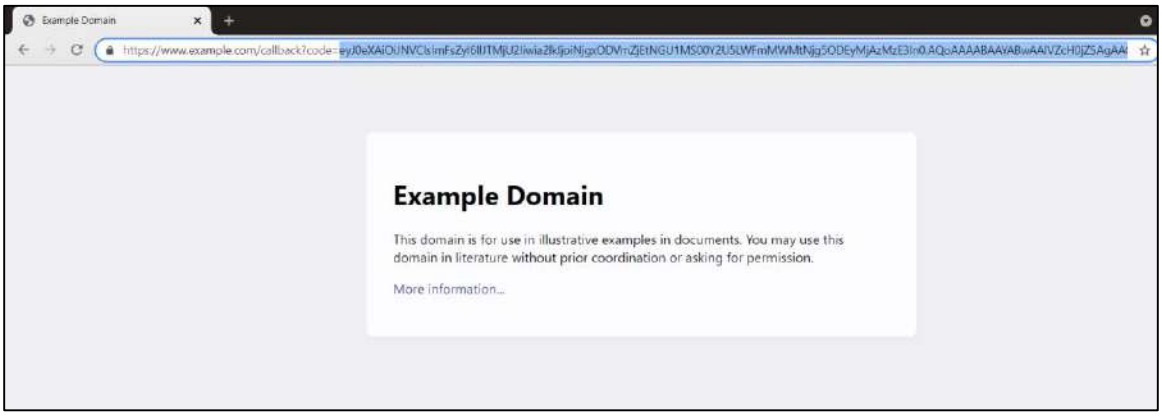
Note: After entering the URL on the browser you may need to verify yourself by giving your DocuSign Credentials.

10. After you verify the details, a callback code is generated in the URL itself. Copy the Callback URL Code, and save it with you.

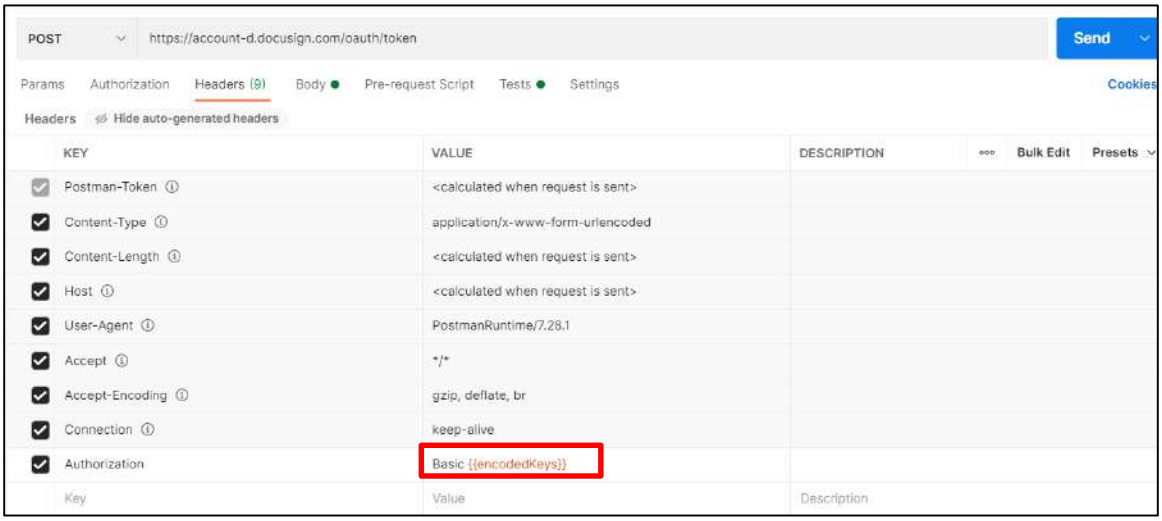
    Note: The Callback URL Code expires in two minutes. You can regenerate it by calling the same URL in the browser.



11. Go to Postman to generate a refresh token.
12. In the POST page replace the VALUE for the following KEYs:

    {{codeFromUrl}} with Callback URL Code.

    {{encodedKeys}} with integration key and secret key, concatenated by a colon character as (Integartion Key:Secret Key), converted into base64.



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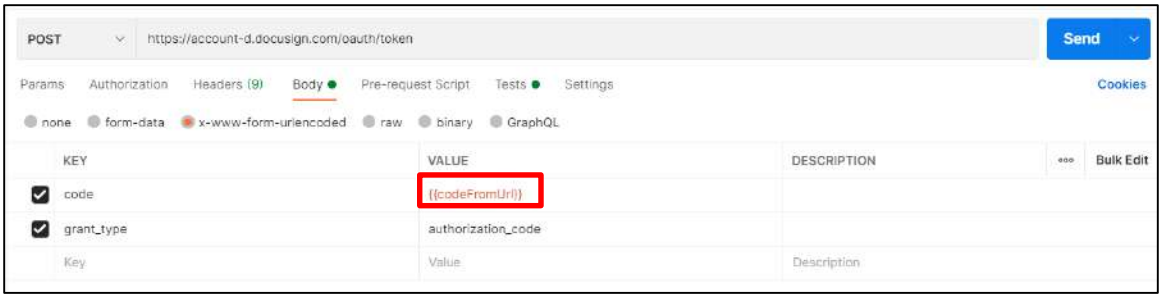

To generate Refresh Token, make the following request:

POST:
https://account-d.docusign.com/oauth/token

Headers:
Content-Type: application/x-www-form-urlencoded
Authorization: Basic {{encodedKeys}}

Body: **x-www-form-urlencoded** (key value pair)
code= {{codeFromUrl}}
grant_type= authorization_code

13. You will get Refresh Token under tag ‘refresh_token’ in JSON response.

Note:

- Callback URL Code expires two minutes. Therefore, if you get an ‘expired_client_token’ error after running Postman call, then regenerate ‘Callback URI Code’, and run the same Postman call again using the new Callback URI.
- The lifetime of a refresh token (typically around 30 days) can vary depending on business needs and is subject to change at any time.

Reference Links:

https://developers.docusign.com/platform/auth/authcode/authcode-get-token/

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23 Appendix 21: Dropbox: App Registration and Refresh Token

23.1 Register App

1. Visit the Dropbox Apps registration portal using **Developer's Portal**.
2. Sign in with Dropbox credentials.

3. On the page, click **Create App**. The app creation page appears.

4. On the page, complete the following process to create an app:
   a. Choose an **API**.

   b. Select the type of access you need.

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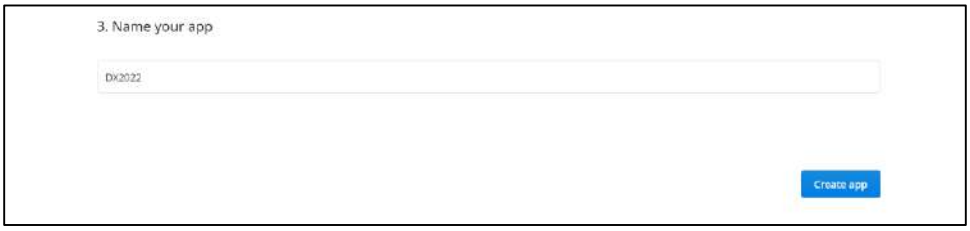
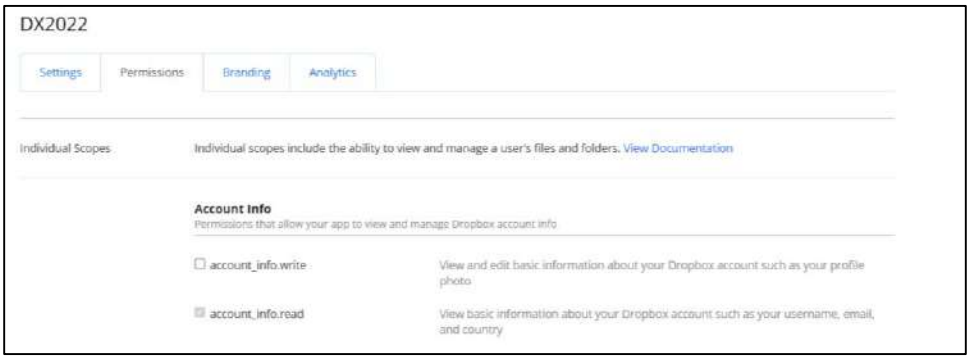
c. Enter a unique app name.



d. Click **Create App**, and then provide redirect URIs, such as https://automationedge.com or http://localhost:8080.

e. To provide required permissions on App registration portal, click **Permissions** tab and provide the appropriate permissions defined in step documentation.



23.2 Generate Refresh Token URL and Run in browser

1. Call the following API in browser by adding the App Key and allow app to generate the authorization code:

   https://www.dropbox.com/oauth2/authorize?client_id=<AppKey>&token_access_type=offline&response_type=code

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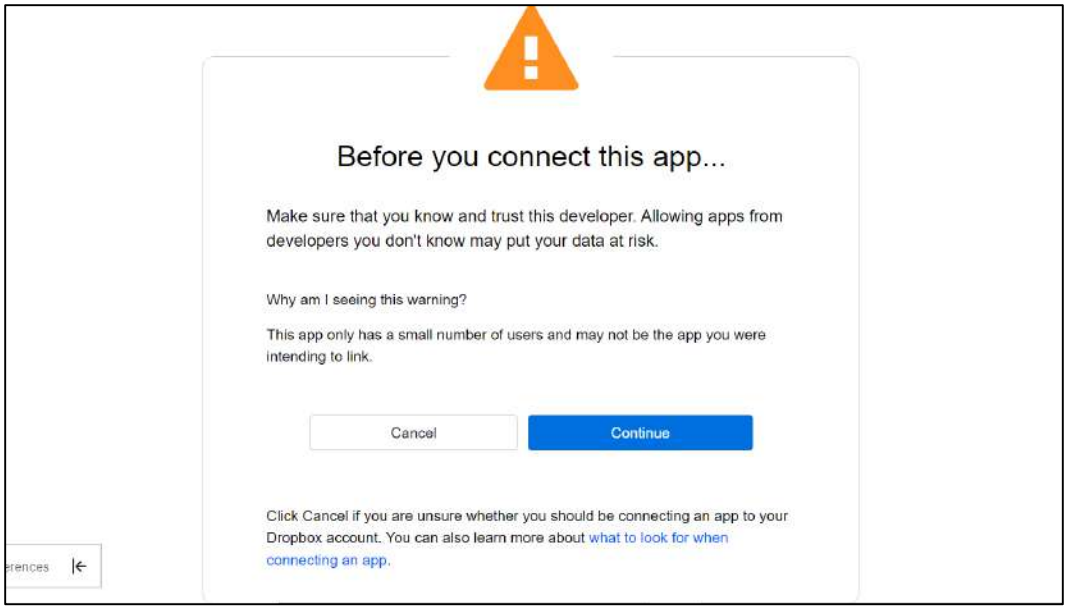
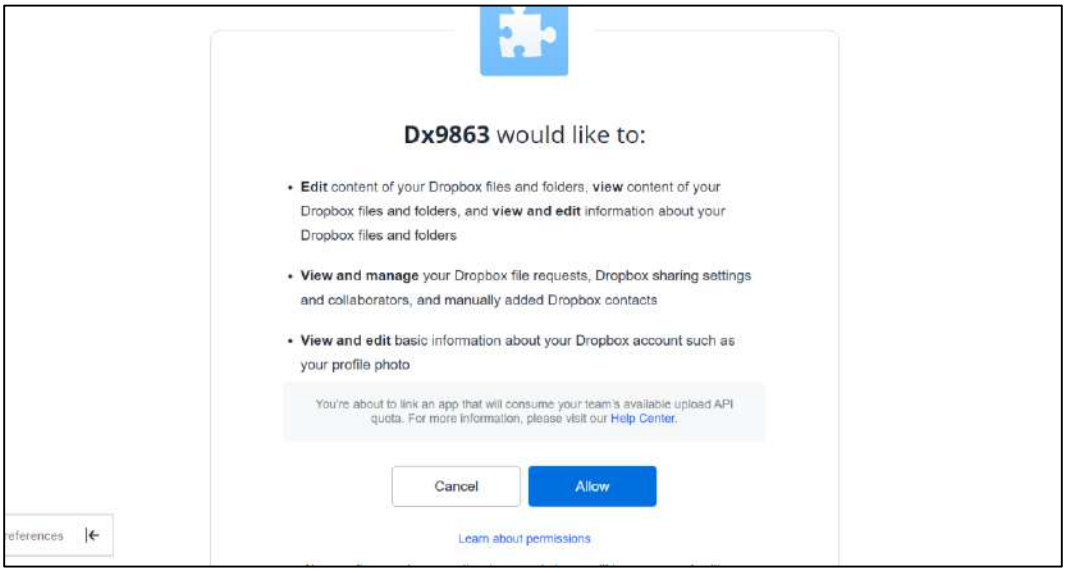


2. Click **Continue**, and then click **Allow**.



3. Copy the authorization code from **Access Code Generated**.

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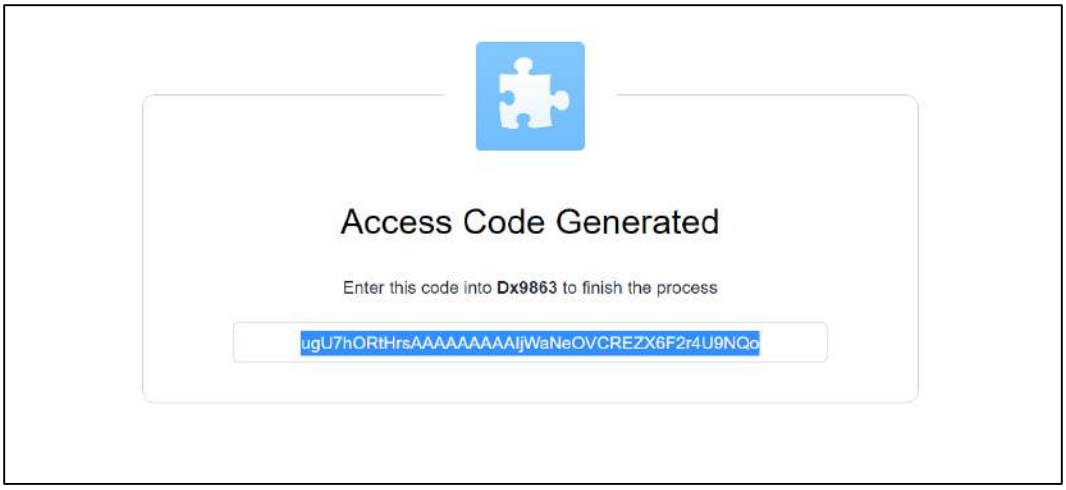

Note: The authorization code is valid for short period of time.

4. Create Post request in postman as follows:

POST https://api.dropboxapi.com/oauth2/token
Headers:
Content-Type: application/x-www-form-urlencoded

Authorization:
Select → basic auth and provide
Username: App Key
Password: App Secret

Body:
Select -> x-www-form-urlencoded
code: <authorization code generated in previous request>
grant_type: authorization_code

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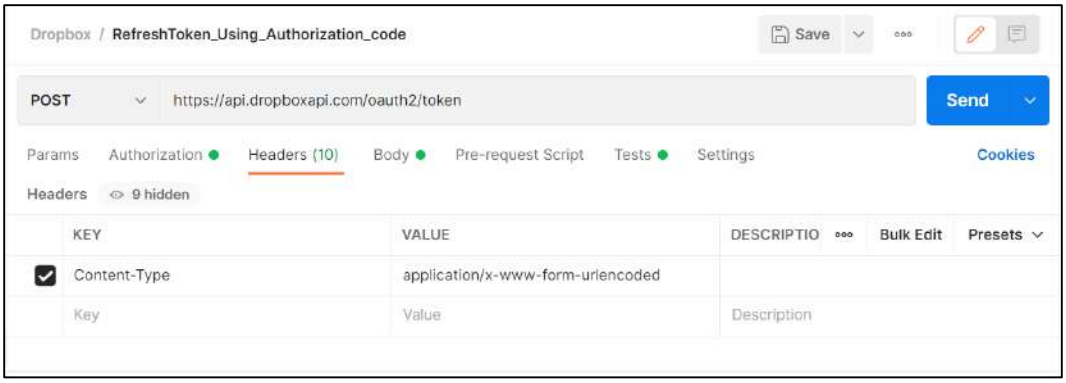

5. Redeem the Refresh Token.

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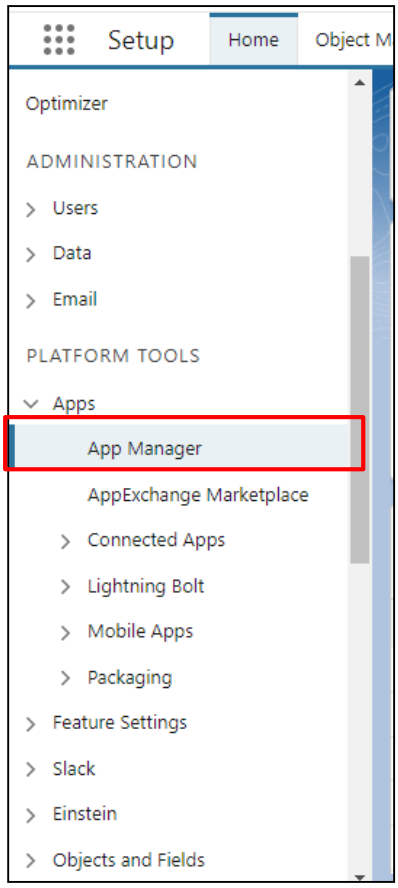
24 Appendix 24: Salesforce REST: Token Generation

24.1 Procedure to create Client ID/Consumer Key & Client Secret/ Consumer Secret

1. Go to your Salesforce site and log in.
2. Click on the Gear icon in the top right corner>> Select **Setup**.

3. In Platform tools>> **Select Apps**>>**App Manager**.



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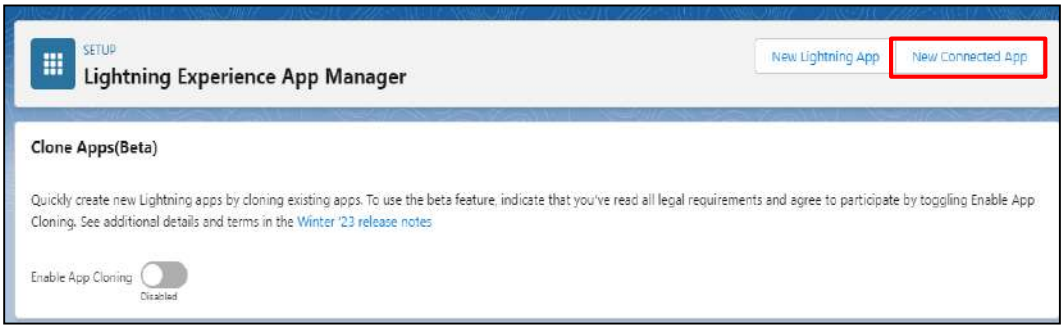
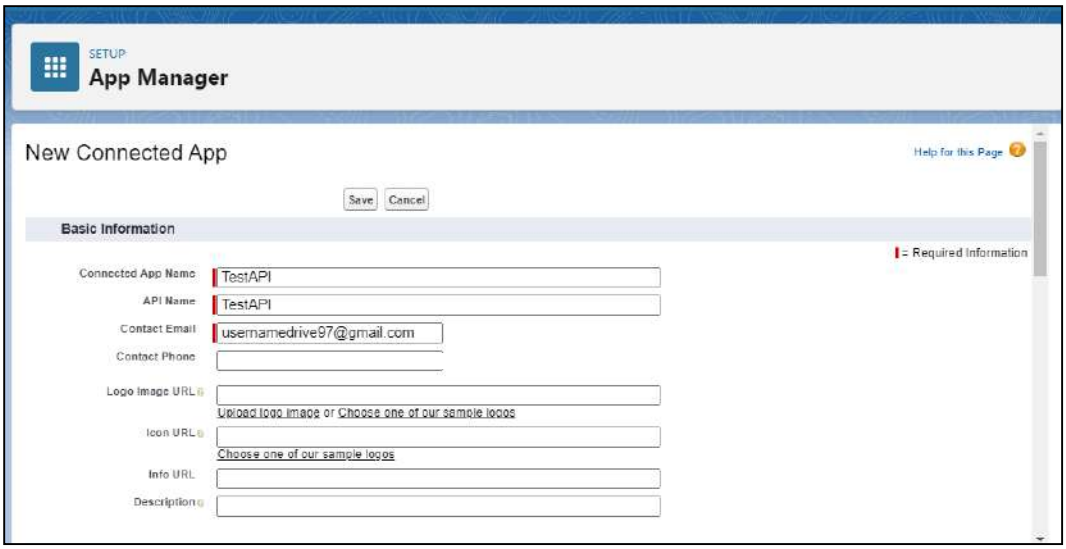
4. Click on **New Connected App.**



5. On the **New Connected App** page, fill in the following required fields under Basic Information:
   - Connected App Name. For example, TestAPI.
   - API name. For example, TestAPI.
   - Valid Contact Email.



6. Scroll down to **API (Enable OAuth Settings)**, and select **Enable OAuth Settings**.
   - In the **Callback URL** field, enter **https://login.salesforce.com/**.
   - In the **Selected OAuth Scopes** field, select **valid scopes as given in the screenshot**, and then click **Add**.

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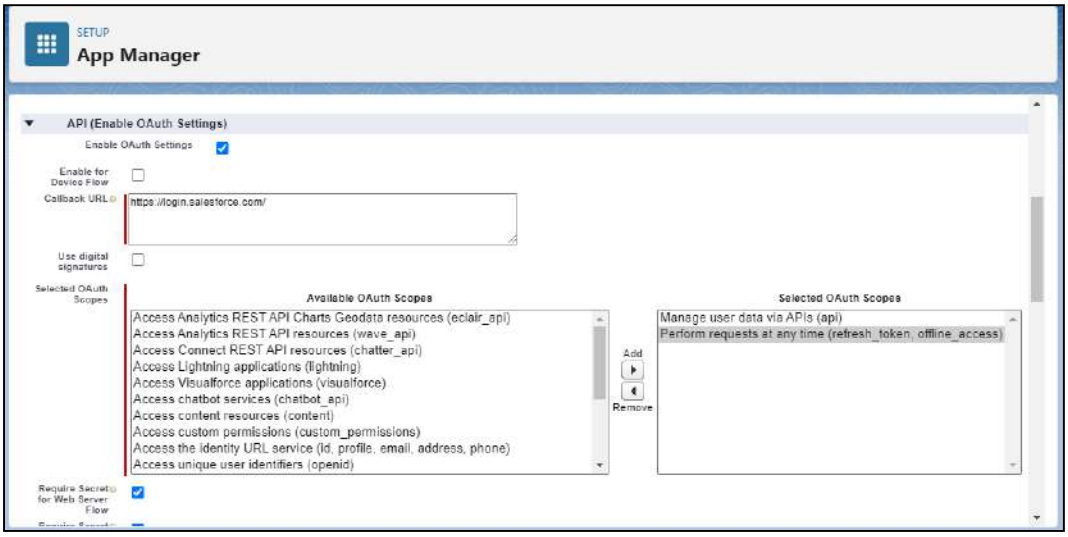

Note:-

a. The callback URL can be any valid URL, as shown in the screenshot. Note that Salesforce works only with the HTTPS protocol for all URLs, except localhost.

b. To get the Refresh Token, give Auth Scope (permission) **Perform requests at any time(refresh_token, offline_access)** from the Salesforce instance.

c. To get access to the Salesforce API, give **Manage user data via APIs(API)** permission.

7. Click the **Save** button to save the new Connected App.

8. In Platform tools>> Select **Connected Apps**>>**Managed Connected Apps**.

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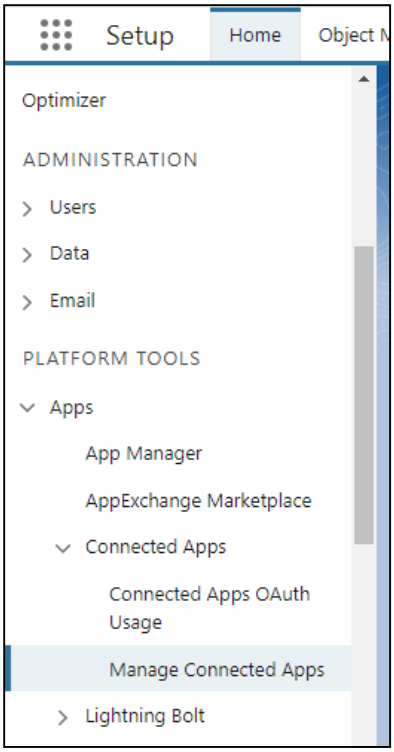
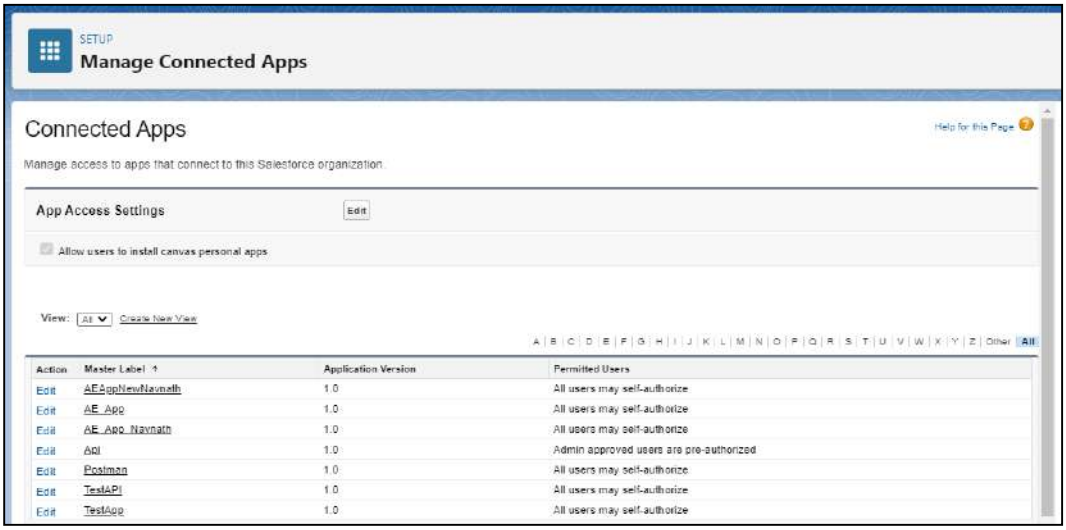


9. In the **Connected Apps** list, find the App that you just created, and then click **Manage**.
    a. On the page that opens, click the **Edit** button.



    b. Under **OAuth policies**, select **All users may self-authorize** in the **Permitted Users** list, and then click the **Save** button.

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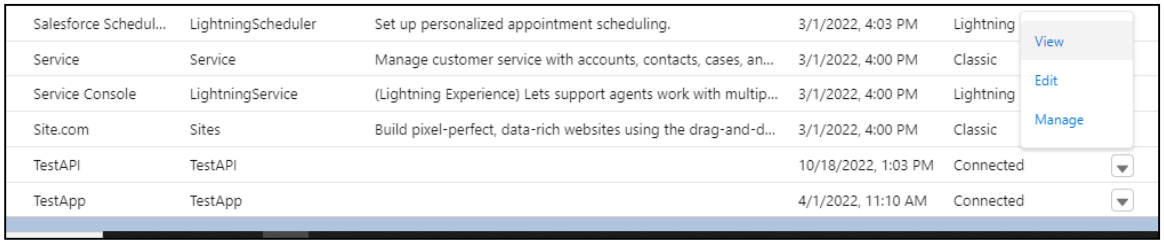
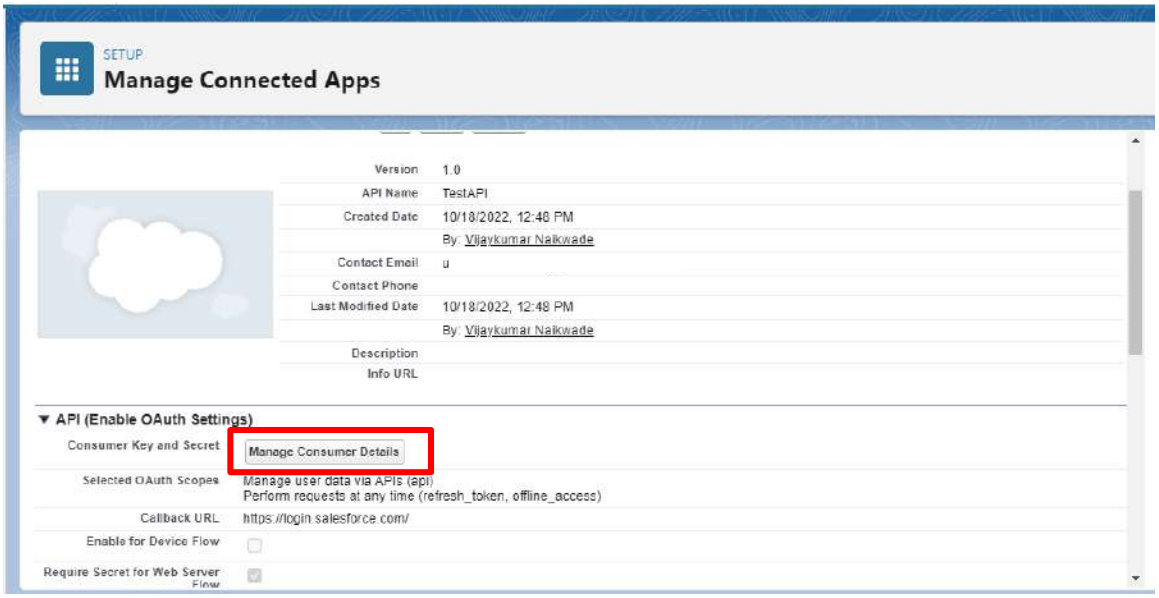
10. Go back to the **Connected Apps** list in App manager, click the App that you just created, and in the dropdown menu select **View**.



11. Go to API (Enable OAuth Settings), Click the Manage Consumer details button, and note down the **Client ID/Consumer Key** and **Client Secret/Consumer Secret.**



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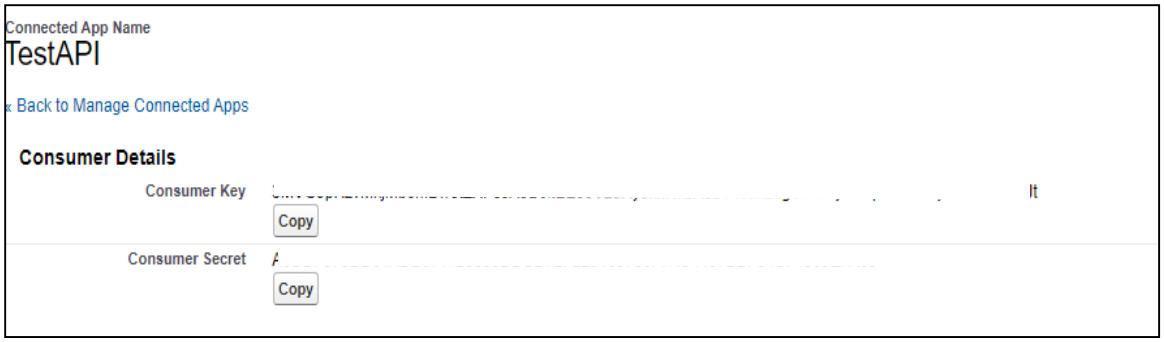

24.2 Procedure to create Refresh Token

1. Request an Authorization Code

a. The authorization code is made in the form of an HTTP redirect, such as the following request.

https://{{*DomainName}}*.my.salesforce.com/services/oauth2/authorize?client_id={{clientID}}&redirect_uri={{callbackURL}}&response_type=code

For example: https://automationedgetechnologiesp-dev-ed.my.salesforce.com/services/oauth2/authorize?client_id=3MVG9pRzvb6mBwotZXF8sA3n2Ykjl2X7wi.hfae0MprU1m1ZI9&redirect_uri=https://login.salesforce.com/&response_type=code

Note:

- DomainName – The instance name of your Salesforce instance.
- client_id - The consumer key of the connected app.
- redirect_uri - The URL where users are redirected after successful authentication. The redirect URI must match one of the values in the connected app's Callback URL field. Otherwise, the approval fails.
- response_type - The value for this flow must be "`code`" to indicate that the connected app is requesting an authorization code.

b. Now go to your desired browser and search this URL after replacing it with your app's client id/consumer key and Redirect URI.

c. Before Salesforce provides authorization codes to connected apps, the authenticating users are asked to log in to Salesforce. Provide a valid username and password.

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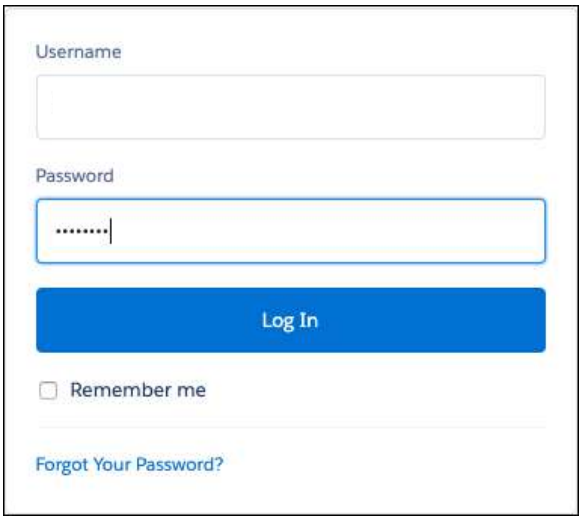
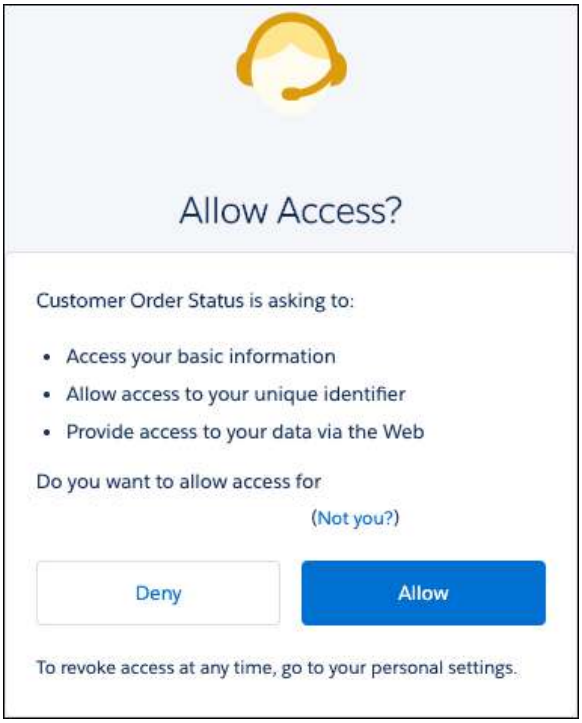


d. After a successful login, Salesforce redirects users to the approval page to grant access to the app.



2. Salesforce Grants Authorization Code

After users approve access to a connected app, Salesforce redirects users to the call back URL, where they can view the call back with an authorization code.

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https://login.salesforce.com/?code=aPrx0jWjRo8KRXuAzFrwZnnxHq9GdqyFmDttQJMANnGVcTTVyJZgC1Y5CQbJFtZgPegjZvl5pg%3D%3D

- The first part of the call back is the connected app's call back URL: https://login.salesforce.com
- The second part is the authorization code that the connected app uses to get an access token: `code=aPrx0jWjRo8KRXuAzFrwZnnxHq9GdqyFmDttQJMANnGVcTTVyJZgC1Y5CQbJFtZgPegjZvl5pg==`.

Note:

- The "`%3D%3D`" in the code should be replaced by "`==`" or else the code will not work.
- The authorization code expires after 15 minutes.

3. Request a Refresh Token

a. Open Postman to generate the refresh token.
b. Make the following request:

POST:
https://{{*DomainName}}*.my.salesforce.com/services/oauth2/token

Body: x-www-form-urlencoded (key value pair)
code:{{codeFromURL}} – Check point 2.
client_id:{{clientID}}
client_secret:{{clientSecret}}
redirect_uri:{{redirectURI/CallbackURL}}
grant_type:authorization_code

Note:

- DomainName – The instance name of your Salesforce instance.
- code – The value got from requesting an authorization code.
- client_id - The consumer key of the connected app.
- client_secret - The consumer secret of the connected app.
- redirect_uri - The URL where users are redirected after successful authentication. The redirect URI must match one of the values in the connected app's Callback URL field. Otherwise, the approval fails.
- grant_type - The value for this flow must be **"authorization_code"**.

Request:

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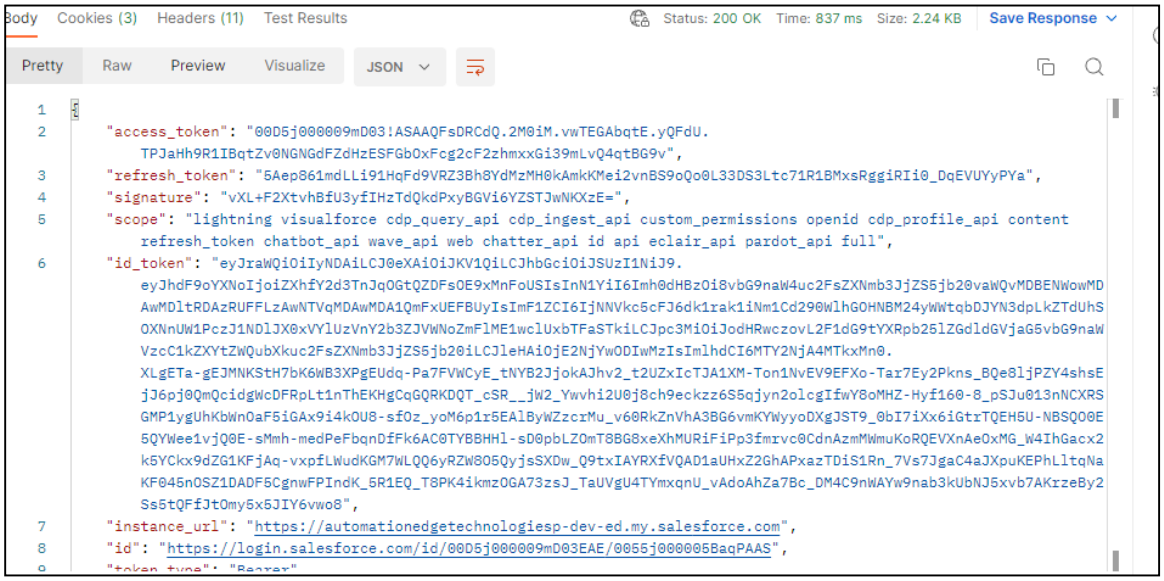
Response:



c. Copy the Refresh Token (**refresh_token**) from the response.

4. Reference Links

- Create Connected Apps

  https://docs.microfocus.com/UCMDB/11.0/cp-docs/docs/eng/doc_lib/Content/Remedyforce_CreateConnectedApps.htm

- Token Generation

  https://help.salesforce.com/s/articleView?id=sf.remoteaccess_oauth_web_server_flow.htm&type=5

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