

Plugin Reference Guide3

(Release 3.2)



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Plugins Compatibility

• Plugins in Release 3.2 are compatible with AutomationEdge Release 6.0.0 onwards.

Plugins Technical Reference

AutomationEdge Plugins technical reference includes three guides,

- AutomationEdge_R3.2_Plugin_Reference_Guide1
- AutomationEdge_R3.2_Plugin_Reference_Guide2
- AutomationEdge_R3.2_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.

Below, is a documentation of the AD Plugin step's.

1.1 Add to Group

1.1.1 Description

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

1.1.2 Configurations

Input Tab: No. Field Name Description 1 Step Name Name of the step. This name has to be unique in a single workflow. 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. Username Provide User Logon Name (e.g. sbrown, scott.brown etc.) or 4 User Principal Name (e.g. sbrown@autoedge.com) of an Active Directory account to authenticate. This field is mandatory. User Logon Name and User Principal Name are depicted below. User logon name: sbrown ▼ @autoedge.com 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	Specify the password for the AD user. 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 Combo box with 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:		

mpu					
No.	Field Name	Description			
	Input Fields:				
1	Object Type	Object Type allowed values are only " 'User', 'Computer', '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 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 \)
Outp	ut 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. Failure reasons could be plugin validation related or target system errors such as user does not exist, internet connection does not exist, invalid server configuration details (server has rejected the client credentials), empty fields and others. These errors can be seen in the logging tab of process studio. The error 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.

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.

Inpu	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.	

1.2.2 Configurations

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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. User Logon Name and User Principal Name are depicted below.
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.
Inpu	t Tab:	
No.	Field Name	Description
	Input Fields:	
1	Object Type	Hover over the field to see Allowed values are 'User', '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:	Atleast 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 • Not Present
5	Fioperty value	Frovide a desired property value.

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

Con	figuration:	
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.

1.3.2 Configurations

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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. User Logon Name and User Principal Name are depicted below.
	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.
Inpu	t 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.
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.

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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.

Out			
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. Failure reasons could be plugin validation related or target system errors such as user does not exist, internet connection does not exist, invalid server configuration details (server has rejected the client credentials), empty fields and others. These errors can be seen in the logging tab of process studio. The error 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.	

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.
	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. User Logon Name and User Principal Name are depicted below.
	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.
Inpu	t 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.
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 only " '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.
Outp	out 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. Failure reasons could be plugin validation related or target system errors such as user does not exist, internet connection does not exist, invalid server configuration details (server has rejected the client credentials), empty fields and others. These errors can be seen in the logging tab of process studio. The error 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.

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:

mpu			
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. User Logon Name and User Principal Name are depicted below.
	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.
Inpu	t 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 \)
Outp	out 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 deleted. Result label value is mandatory. Failure reasons could be plugin validation related or target system errors such as user does not exist, internet connection does not exist, invalid server configuration details (server has rejected the client credentials), empty fields and others. These errors can be seen in the logging tab of process studio. The error 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.

1.6 Delete Group

1.6.1 Description

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

1.6.2 Configurations

Conf	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. User Logon Name and User Principal Name are depicted below.	

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		User logon name:	
		sbrown	@autoedge.com
	Password:		
5	Accept Values from fields	Leave checkbox unchecked field in the previous steps of Else enable checkbox for Pa	to accept Password value from a the stream using a drop down list. assword field to appear as Text box.
6	Password	Password is entered using a Text (static value or environ down containing values from mandatory. If checkbox above is enabled box and accepts static value above is disabled Password select fields from previous st	widget. The widget handles both ment variable) and Combo (drop a previous steps). This field is d Password field appears as Text as or variables. Else if checkbox field appears as a drop down to teps.
7	Button: Test Connection	Verifies whether the connect For the purpose of verification are not allowed. Static values allowed.	tion is available or not. on fields coming from previous steps s and environment variables are
Input Tab:			
No.	Field Name	Description	
	Input Fields:		
1	Group Name	Specify the Group Name (Cf Name in active directory to b Canonical name\Distinguishe group name field to avoid du Group Name(CN) in Active slash(/ or \)	N)/Distinguished Name/Canonical be deleted. This field is mandatory. ed Name may be provided in the uplicate group name errors. Directory should not contain a
Outp	ut Tab:		
No.	Field Name	Description	
1	Result	Output field to hold the result The default value of this field The error can be captured in Appendix 1: Error Handling i message visible on Automat	t of the successful plugin execution. d is "Result". This field is mandatory. error handling as discussed in n IT Plugins to make the error ionEdge Requests.



1.7 Disable Account

1.7.1 Description

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

1.7.	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.		
	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. User Logon Name and User Principal Name are depicted below.		
	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.
Inpu	t Tab:	
No.	Field Name	Description
	Input Fields:	
1	Object Type	Object Type allowed values are only " '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. 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 Exist

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. User Logon Name and User Principal Name are depicted below.
	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	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 \)
Outp	ut Tab:	
No.	Field Name	Description

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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".
		Successful execution shows whether group exists or does not exist.
		Result label value is mandatory.
		Failure reasons could be plugin validation related or target
		system errors such as user does not exist, internet connection
		does not exist, invalid server configuration details (server has rejected the client credentials), empty fields and others. These
		errors can be seen in the logging tab of process studio. The error 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.

1.9 Does User Exist

1.9.1 Description

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

1.9.2 Configurations

Inpu	nput 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. User Logon Name and User Principal Name are depicted below.	
		sbrown @autoedge.com	

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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 (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	t Tab:	
No.	Field Name	Description
	Input Fields:	
1	User Logon Name	Provide User logon name (e.g. sbrown, scott.brown etc.) or

eee _egen teme	
	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. Failure reasons could be plugin validation related or target system errors such as user does not exist, internet connection does not exist, invalid server configuration details (server has



rejected the client credentials), empty fields and others. These
errors can be seen in the logging tab of process studio. The
error 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.

1.10 Enable Account

1.10.1 Description

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

Con	figuration:		
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.	
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. User Logon Name and User Principal Name are depicted below.	
	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.	

1.10.2 Configurations

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		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.
Inpu	t Tab:	
No.	Field Name	Description
	Input Fields:	
1	Object Type	Object Type allowed values are only ' 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. The data type is string. This field is mandatory. Object Name must be unique 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



Conf	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. User Logon Name and User Principal Name are depicted below.		
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.		
Inpu	t 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 acceptable values below:	e of an Active Directory search. The for this parameter are as shown in the table
	Level	Description
	Base or 0	Base or 0 searches only the current path
	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". The error 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.

1.12 Get Groups

1.12.1 Description

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



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. User Logon Name and User Principal Name are depicted below.	
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.	
Inpu	t 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. 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.
Search Scope	Mouse hover on this element to see the allowed values 'Base', 'OneLevel', 'SubTree', OR '0', '1', '2'.


	Specifies the scope acceptable values below:	e of an Active Directory search. The for this parameter are as shown in the table
	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	a type is String. It is mandatory.
	Note: Double quote	es (") 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". Result label value is mandatory. Errors can be captured using error handling as discussed in Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.		

1.13 Get Group Properties

1.13.1 Description

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

Group.

1.13.2 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. User Logon Name and User Principal Name are depicted below.
		User logon name:
	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	t 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 \)
Outp	out Tab:	
No.	Field Name	Description
	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.

1.14 Get Organizational Units

1.14.1 Description

Active Directory: Get Organizational Units plugin step provides the list of all active organizational units for a specified path.

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

1.14.2	Configurations
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Con	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. User Logon Name and User Principal Name are depicted below.	

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		User logon name: sbrown	@autoedge.com
5	Password	Specify the passwo appears as Text bo The data type is str	ord for the username above. Password field ox and accepts static values or variables. ring. The field is mandatory.
6	Button: Test Connection	Verifies whether the For the purpose of are not allowed. Sta allowed.	e connection is available or not. verification fields coming from previous steps atic values and environment variables are
Input	t Tab:		
No.	Field Name	Description	
	Input Fields:		
	Path Search Scope	Specify an Active E Distinguished Nam Organizational Unit • Canonical N Advanced F Object in AI • Distinguishe Advanced F Attribute Ed Path data type is S Note: Double quote part of input. Mouse hover on the 'OneLevel', 'SubTre Specifies the scope acceptable values f below:	Directory Path (Canonical name or e of an object) for which we wish to get all ts. Name can be viewed under Properties (while Features are enabled in View menu) under D. ed can be viewed under Properties (while Features are enabled in View menu) under litor in AD. tring. Path is mandatory. es (") and back quote (`) are not required as is element to see the allowed values 'Base', ee', OR '0', '1', '2'. e of an Active Directory search. The for this parameter are as shown in the table
		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.
Outp	ut Tab:	
No.	Field Name	Description
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" Errors can be captured using error handling as discussed in Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.

1.15 Get Last Logon Timestamp

1.15.1 Description

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

1.15.2 Configurations

Cont	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. User Logon Name and User Principal Name are depicted below.	



		User logon name:
	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.
Inpu	t Tab:	
No.	Field Name	Description
	Input Fields:	
1	Object Type	Specify Object Type - allowed values are only " '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 should not contain a slash(/ or \)



Outp	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. The error 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.	

1.16 Get Users

1.16.1 Description

Active Directory: Get Users step provides the list of all Active Directory users on the Path specified. This is a row generating step and hence has to be the first step in a workflow.

Con	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. User Logon Name and User Principal Name are depicted below.	
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.	

1.16.2 Configurations

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		For the purpose of are not allowed. St allowed.	verification fields coming from previous steps atic values and environment variables are
Inpu	t Tab:		
No.	Field Name	Description	
	Input Fields:		
1	Path	Specify an Active I Distinguished Nam Users. Advanced Features Canonical name or Properties. • Canonical N Object in A • Distinguishe Attribute Ec Path data type is S Note: Double quote part of input.	Directory Path (Canonical name or ne of an object) for which we wish to get all s must be enabled from View menu to fetch Distinguished Name from the Object Name can be viewed in Properties under D. ed Name can be viewed in Properties under ditor tab in AD. String. Path is mandatory. es (") and back quote (`) are not required as
2	Search Scope	Mouse hover on th 'OneLevel', 'SubTr Specifies the scope acceptable values below:	is element to see the allowed values 'Base', ee', OR '0', '1', '2'. e of an Active Directory search. The for this parameter are as shown in the table
		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 Note: Double quote input.	a type is String. It is mandatory. es (") and back quote (`) are not required as
Outp	out 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".
		The error 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.

1.17 Get User Groups

1.17.1 Description

Active Directory: Get User Groups step provides the list of all groups for a specified user. This is a row generating step and hence has to be the first step in a workflow.

1.17.2 Configurations	1.17.2	Configurations
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Con	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. User Logon Name and User Principal Name are depicted below.		
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	nput 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. 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.	
Outp	out 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. The error 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.

1.18 Get User Properties

1.18.1 Description

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

1.18.2 Configurations

Conf	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. User Logon Name and User Principal Name are depicted below.
	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	t 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 \)
Outp	out Tab:	
No.	Field Name	Description

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	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.

1.19 Is Account Disabled

1.19.1 Description

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

1.19.2 Configurations

Con	figuration:	
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. User Logon Name and User Principal Name are depicted below.
	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

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		 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.
Inpu	it 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 should not contain a slash(/ or \)
Out	out Tab:	
No.	Field Name	Description

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.

1.20 Is Account Locked

1.20.1 Description



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

Con	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. User Logon Name and User Principal Name are depicted below.	
	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.	

1.20.2 Configurations

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Inpu	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.	
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 should not contain a slash(/ or \) 	
Outp	out 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. The error 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.	

1.21 Move Account

1.21.1 Description

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

1.21.2 Configurations

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	,

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. User Logon Name and User Principal Name are depicted below.
	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	t 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.

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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). 	
		 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).	
O t.			

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. Failure reasons could be plugin validation related or target system errors such as user does not exist, internet connection does not exist, invalid server configuration details (server has rejected the client credentials), empty fields and others. These errors can be seen in the logging tab of process studio. The error 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.



1.22 Get Password Expiration Days Left

1.22.1 Description

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

Con	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. User Logon Name and User Principal Name are depicted below.	
	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.
Inpu	t 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. 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 should not contain a slash(/ or \)
Outp	out 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. The error 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.

1.23 Remove from Group

1.23.1 Description

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



1.23.2 Configurations

Inpu	t 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. User Logon Name and User Principal Name are depicted below.
	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.
Inpu	t Tab:	
No.	Field Name	Description
	Input Fields:	

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1	Object Type	Object Type allowed values are only " 'User' , 'Computer' , '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). 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 Outr	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 \)

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. Failure reasons could be plugin validation related or target system errors such as user does not exist, internet connection does not exist, invalid server configuration details (server has rejected the client credentials), empty fields and others. These errors can be seen in the logging tab of process studio. The error 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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Result label value is mandatory.

1.24 Rename Account

1.24.1 Description

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

Con	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. User Logon Name and User Principal Name are depicted below.	
	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.	

1.24.2 Configurations

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

1.25 Reset Account Password

1.25.1 Description

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

1.25.2 Configurations

Input Tab:

Input	nput Tab.		
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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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. User Logon Name and User Principal Name are depicted below.
	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	t 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



		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.
Outp	out 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. Failure reasons could be plugin validation related or target system errors such as user does not exist, internet connection does not exist, invalid server configuration details (server has rejected the client credentials), empty fields and others. These errors can be seen in the logging tab of process studio. The error 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. Result label value is mandatory.

1.26 Set Password Properties

1.26.1 Description

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

1.26.2 Configurations

Configuration:

00111			
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. User Logon Name and User Principal Name are depicted below.
	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.
Inpu	t Tab:	
No.	Field Name	Description
	Input Fields:	
1	User Logon Name	 Specify an existing Active Directory User to set password properties. 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.

1.27 Unlock Account

1.27.1 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).

1.27.2 Configurations

Inpu	nput 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. User Logon Name and User Principal Name are depicted below.	

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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	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.	
Outp	ut 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. Failure reasons could be plugin validation related or target system errors such as user does not exist, internet connection does not exist, invalid server configuration details (server has rejected the client credentials), empty fields and others. These errors can be seen in the logging tab of process studio. The error 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.

Known Issues:

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 nonspace characters with only one space character between them, instead of original multiple consecutive spaces.

Reference Link: <u>https://bugs.java.com/view_bug.do?bug_id=7028657</u>

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 10: Enrolling devices for MDM in AirWatch



Future Enhancement:

• If required, 'Advance Input' tab can be introduced to accommodate the additional input parameters.

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.

Con	figuration:	
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.

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	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 >AII 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	
Inpu	t 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. Organization Group is visible on the top of the screen once you login to an AirWatch instance as shown below.		
		Workspace ONE UEM M627638420		
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.

Plugin Reference



	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. 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 .	
Inpu	t Tab:		
No.	Field Name	Description	
	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 naviga to Accounts→User Groups→List View menu in AirWatch.	
		MONTOR List View	
		Settings > DEVICES Administrators >	

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:

0011	Johnguration.				
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:		
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 >AII Settings > System > Advanced > API > REST API, and select Add, to generate an API key for the service and account type as Admin .	

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		Usernan validateo	ne, Password d.	and AF	'I Key for AirWa	atch instance are
Inpu	t Tab:					
No.	Field Name	Descript	ion			
	Input Fields:					
1	Enrollment Username	Specify T AirWatcl Existing Account CONTRACTOR STATED DEVICES	the Enrollmer n. Enrollment u s→Users→Li pace ONE UEM Users List View Roles Batch Status Users Settings User Groups Administrators	nt usern sers car st View	ame which is to ו be found by n menu in AirWa	b be deactivated in avigating to atch.

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

Conf	iguration:			
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. 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 >AII Settings > System > Advanced > API > REST API, and select Add, to generate an API key for the service and account type as Admin .
Inpu	t 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

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.

3.1 Amazon EC2: Attach Volume

Reference:

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/device_naming.html#available-ec2device-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.

5.1	.z conngulations			
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.		
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.		
Inpu	ut 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.		

3.1.2 Configurations

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	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.

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

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.

3.2.2 Configurations

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	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.
Inpu	ut Tab:	
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.

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	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	Кеу	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.

Out	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

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.
Inpu	ut Tab:	
No.	Field Name	Description
	Input Fields:	
1	Security Group Name	Select name security group. 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.

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		 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	Кеу	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.

Out	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. The default value is 'GroupID'.	



3.4 Amazon EC2: Detach Volume

3.4.1 Description

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

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

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		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.
Inpu	ut 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.

Out	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.	

3.5 Amazon EC2: Get Instance Properties

3.5.1 Description

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

Note:

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

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.
Out	put 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.

3.5.2 Configurations

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3.6 Amazon EC2: Get Instance Properties By Instance ID

3.6.1 Description

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

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.
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.
Inpu	ıt 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

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	Output Field:	
1	XML	Specify the result of the step as XML output through this field. The default value is XML.

3.7 Amazon EC2: Launch Instance

3.7.1 Description

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

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.

3.7.2 Configurations



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.

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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.

Out	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.	

3.8 Amazon EC2: Reboot Instance

3.8.1 Description

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

	•	
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

3.8.2 Configurations

		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.
Inpι	ut Tab:	
No.	Field Name	Description
	Input Fields:	
1	Instance Id	Specify the EC2 Virtual Machine Instance Id to be restarted.

3.9 Amazon EC2: Start Instance

3.9.1 Description

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

3.9.2 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.
	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 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.
Inpu	ut 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.

3.10 Amazon EC2: Stop Instance

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

3.10.1 Configuration

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.
Inpu	ut 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.

3.11 Amazon EC2: Terminate Instance

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

	0	
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.

3.11.1 Configurations



	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.
Inpu	ut Tab:	
No.	Field Name	Description
	Input Fields:	
1	Instance Id	Specify the EC2 Instance Id to be terminated.
Out	put 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.

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: Create Bucket

4.1.1 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.

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.

4.1.2 Configurations



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.

Inpu	ut 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 be between 3 and 63 characters longBucket names should not end with a dash
		 Bucket names cannot contain adjacent periods
		 Bucket names cannot contain dashes next to periods (e.g., "mybucket.com" and "mybucket" 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.

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Add	Additional Input Tab:		
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. 	

4.2 Amazon S3: Create Folder

4.2.1 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.

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.

4.2.2 Configurations



		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.

Inpι	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" 	

4.3 Amazon S3: Download File

Reference Link:

• Generate Access Key and Secret Key –



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

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

4.3.1 Description

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

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.

4.3.2 Configurations



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.

Inpu	nput 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. Note: 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. 	



Add	litional 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, 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.

Out	put 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.

4.4 Amazon S3: Download Folder

Reference Link:

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

4.4.1 Description

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

4.4.2 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 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.

Inpu	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.	

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2	Get	Click to populate a list of Buckets on the Amazon S3 instance for a specific region. Note: 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.

Add	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.

4.5 Amazon S3: Get Objects From Bucket

4.5.1 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.

4.5.2 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. 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 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.

Out	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.	

4.6 Amazon S3: Upload File

4.6.1 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.

4.6.2 **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.

Reference Link:

Generate Access Key and Secret Key –
 https://docs.aws.amazon.com/powershell/latest/userguide/pstools-appendix-sign-up.html



4.6.3 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	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.
Inpu	t Tab:	
No.	Field Name	Description
	Input Fields:	
1	Bucket Name	Specify the name of the S3 bucket to create/upload an object.

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		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. 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 (//).

Add	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:

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No.	Field Name	Description
	Output Field:	
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:

COII	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.			

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		Else enable checkbox for Password field to appear as Text box.
7	Password	Specify the Password. 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). 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.		

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		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 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. 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). 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. 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) with given directory structure. (if Playbook File Path (on Ansible CLI Machine) is CLI Machine) Field contains full YAML file path with extension then no file will be copied on Ansible CLI Machine.) 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.
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

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		not exists it will create the given Directory. Allowed Values: 'Yes' and 'No'. Default Value 'No'.
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 M	fachine)
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.

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	Become Password:	
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: <u>https://docs.ansible.com/ansible/2.8/user_guide/vault.html</u> or <u>https://docs.ansible.com/ansible/latest/user_guide/vault.html</u>
7	Vault Password File Path	Specify the 'Vault Password File Path ' or 'Vault ID Label'. Refer to the URL: <u>https://docs.ansible.com/ansible/2.8/user_guide/vault.html</u> or <u>https://docs.ansible.com/ansible/latest/user_guide/vault.html</u>

Extra	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. likeforce-handlers,flush- cache, -f <forks>, -t <tags>,syntax-check, - -list-tags, etc. Note: You can separate these arguments with a space.</tags></forks>	
3	Prefix Command With Sudo	Specify whether to prefix ansible-playbook command with sudo . Allowed Value: Yes/No. Default is No.	

Output Tab:

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No.	Field Name	Description
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.

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:	

6.1.2 Configurations



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 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.

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

Outp	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.	

Corr	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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:	
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.
		fields may be replace with previous step fields.



Inpu	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.	
		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.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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

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. 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.

Inpu	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:	

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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
	Buttons:	
1	ОК	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.

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.
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.

7.1.2 Configurations

Input Tab:

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Input Fields:	
Form Name	
i onn 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.
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.
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.
Button: Get Fields	Click this button to open the Field Explorer window. Select a Criteria form field from the list.
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. Form Name HPD:IncidentInterface_Create Criteria Field Request ID (Set Fields) = 0000000002448 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
	Button: Get Forms Criteria Field Button: Get Fields Criteria Field Value

Output Tab:		
No.	Field Name	Description
	Output Fields:	

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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	ОК	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

7.2 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.

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:	

7.2.2 Configurations

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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:	
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.
Inpu	t 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. Form Name HPD:IncidentInterface_Create Get Forms Get Fields Criteria Field Request ID
7	Output Folder Path	Provide the absolute directory path where the attachments need to be downloaded. Output Folder Path D:\temp\REST © Browse Folder
8	Browse Folder	Click to browse the absolute path of the desired target output folder path.
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.
Outp	out 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.
Com	mon Buttons:	
No.	Field Name	Description
	Buttons:	
1	ОК	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.

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.

7.3.2 Configurations



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.
Inpu	t 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 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.



	L	
		Image: Contact Client Type Contact Client Type Incident Type Incident Type Incident Type Incident Type Incident Type Incident Type
		Reported Source Fields Status Fields Status_Reason Selection Values Urgency Keywords VIP Currency
		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.
Outp	out 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

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		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.
Com	nmon Buttons:	
No.	Field Name	Description
	Buttons:	
1	ОК	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

7.4 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.

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:	

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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.
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: 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 SON 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 s
		<pre>{"First Name":"Thomas","Last Name":"Astebro","Client Type":"Office-Based Employee","Company":"Calbro Services","Phone Number Business":"9999999999"}</pre>
	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.							
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.							
		Form Name Accept fields as JSON JSON		D:Inci	dentInterface_Create				
		Table Fields				CLUC FOLLOW		F 111/1	
			#	va	riable Field Nam	e Static Field Nan	ne	Field Value	
						First_Name		XX00000X	
			3			Description		Test for Demo12345	
			4			Service Type		User Service Request	
			5			Impact		4-Minor/Localized	
			6			Urgency		4-Low	
			7			Reported Source	e	Direct Input	
		Following, is a Name.	I Sa	ampl	le snapsho	ot of input tab	o wi	th Table Fields w	ith Variable Field
		Form Name		1	- Hata face Card				-
		Accept fields as JSON						_	
		Table Fields	÷	Varial	ale Field Name	Static Field Name	Fiel	d Value	
			1	Variat VI act	tName}	Static Heid Name	Xvv		
			2	\${Urg	ency}		3-N	/ledium	
			3	\${Stat	tus}		Nev	w	
			4	\${Sen	viceType}		Use	er Service Request	
			5	\${Rep	ortedSource}		Dire	ect Input	
			6 7	S{Imp S/Dec	oact}		3-N Tes	Ioderate/Limited	~
				U.D.C.S	chptionj		10	eror variable input type	J
Ou	tput Tab:								
No	. Field N	ame			Description	on			
	Output	Fields:							
1	Record	Location			Specify a	n output field	d to	hold the location	value of the record.
2	Generated Requested ID		Specify a inserted i	Specify an output field to hold the Generated Request ID of the inserted record.					
Co	mmon Bu	ttons:							

No. Field Name

Description



	Buttons:	
1	ОК	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.

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	

7.5.2 Configurations

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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. 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.

Inpu	nput 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.
		Form Name HPD:IncidentInterface Get Forms Criteria Field Incident Number • ③ Get Fields = INC00000000154 • ③ Accept fields as JSON

Output Tab:



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	ОК	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.

-		
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.

7.6.2 Configurations



	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.
	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.

Inpu	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.	



		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:

O arp			
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	ОК	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.

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 <u>http://api.dbcapi.me/api/captcha</u>.

8.1.2 Description

Gen	eral Tab:	
No.	Field Name	Description
	DBC Account Details:	
1	URL	Specify the REST API http URL of your DBC account (<u>http://api.dbcapi.me/api/captcha</u>).
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 Temp	oorarily 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

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		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.
		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
 <u>https://www.deathbycaptcha.com/user/api/newtokenrecaptcha</u>



Notes:

• 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

Gen	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 (<u>http://api.dbcapi.me/api/captcha</u>). The URL is defined in the field and 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 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.	

Inpu	nput 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.

Outp	Output Tab		
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, 	
		<pre>document.getElementById('g-recaptcha- response').innerHTML=<'Paste String here'>; document.forms[0].submit();</pre>	
		 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 → Wab Set
a variable in Modified Java Script step →Web Set Value on console and → Press Enter with Robot Handling step.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.

Notes:

- How to use token to solve reCAPTCHA <u>https://www.deathbycaptcha.com/user/api/newtokenrecaptcha</u>
- 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 (<u>http://api.dbcapi.me/api/captcha</u>). 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.

Inpu	Input Tab		
No.	Field Name	Description	
	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 tempo	orarily 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.

Outp	Output Tab		
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:	
		 In the following JavaScript code substitute <'Paste String here'> with the Token Text, 	
		<pre>document.getElementById('g-recaptcha- response').innerHTML=<'Paste String here'>; document.forms[0].submit();</pre>	
		 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, 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 → perform Action specified in the Input Tab.

Corr	Common Buttons:	
No.	Field Name	Description
	Buttons:	
1	ОК	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

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

Conr	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.	
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

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1	Form Name	Specify the Cherwell form name/Business Object 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 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.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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



Con	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.	

Input Fields:		
No.	Field Name	Description

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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	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.
Outp	ut 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.



Corr	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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

Conr	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.	





	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.

Inpu	nput 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	<pre>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.</pre>	
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.	

Output Fields:		
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.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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

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.

Con	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	

9.4.2 Configurations

Input Fields:

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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
		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.
		<pre>JSON text: [[[["displayName": "Service", "value": "IT Service Desk" }, { "displayName": "Title", "value": "Test_KA5" }, { "displayName": "Category", "value": "Request Help" }, { "displayName": "SubCategory",</pre>

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```
"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
6	Static Field Name	On click of this column field, it opens a dialog with the list of
		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 NameDescription1RecIDSpecify a field name to return the RecID created with the input
fields and field values provided. This field is mandatory.2Public IDSpecify a field name to return the Business Object Public ID
created with the input fields and field values provided. This field values provided. This field

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.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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	



9.5 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

Coni	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
--	--	--

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

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Plugin Reference

```
[
  {
    "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.
Γ
[
  {
    "displayName": "Description",
    "value": "Computer is Slow updated"
  },
  {
    "displayName": "Short Description",
    "value": "Cannot open office applications updated"
  },
```

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{

"displayName": "Priority",

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		<pre>"value": "1" }, { "displayName": "Owned By", "value": "Andrew" }, { "displayName": "Customer ID", "value": "123" }]</pre>
	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.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.

9.6 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

Con	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.

Inpu	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:		
No. Field Name Description		Description
	Buttons:	





1	ОК	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 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:

- Refresh Token expires if idle for 6 months.
- Please refer this guide for Google Supported MIME Type
 <u>https://developers.google.com/drive/api/v3/mime-types</u>

References:

Google Drive documentation https://developers.google.com/drive/api/v3

Refer to Appendix 11: Google Refresh Token GenerationError! Reference source not found. for enabling APIs, creating Client ID and Client Secret and generating Refresh Token.

Table: Fetch File or Folder ID





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10.1 Delete File Or Folder

Google Drive: Delete File Or Folder step deletes a file or folder on Google Drive.



10.1.1 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.
		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.

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	Refer Table: Fetch File or Folder ID
	above to fetch the ID.

10.2 Download File

Google Drive: Download File step downloads a file or folder on Google Drive to the desired local path.

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

10.2.1 Configurations

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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	Input Tab:		
No.	Field Name	Description	
	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	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.	
3	Button: Browse	Click to browse the path of the downloaded file.	

Additional Input Tab:

7 100			
No.	Field Name	Description	
	Additional Input Fields (Optic	onal):	
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'.

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The default value is FileOverwritten. The data type is String	ງ .
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10.3 Upload File

Google Drive: Upload File step uploads a file to Google Drive.

10.3.1 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. 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.	
---	--

Inpu	Input Tab:		
No.	Field Name	Description	
	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	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: <u>https://developers.google.com/drive/api/v3/mime-types</u>

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.



11 Google Sheets

Google Spreadsheets Plugin has been designed to perform tasks on spreadsheets on Google Drive.

Prerequisites:

- Google developer console account should be created and subscribed -<u>https://console.developers.google.com/</u>.
- 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 11: Google Refresh Token Generation for enabling APIs, creating Client ID and Client Secret and generating Refresh Token.

11.1 Append Row

11.1.1 Description

Google Spreadsheet: Append Spreadsheet Plugin Step appends rows to a spreadsheet on Google Drive.

11.1.2 Configurations

	5	
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.

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	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.

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.



		(e.g. Spreadsheet ID reference URL - For example, consider the following URL that references a Google Sheets spreadsheet: <u>https://docs.google.com/spreadsheets/d/1CJnkal5pj3SLpv-</u> <u>HdmyguX/edit#gid=0</u> Then, Spreadsheet ID is: 1CJnkal5pj3SLpv- HdmyguX) as highlighted above.
2	Sheet Name	The unique name of the sheet such as Sheet1, Sheet2 likewise.

Field	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 eancel Cot Fields	
		button.	
2	Туре	The data Type of field Names above. Type values are only for user information purposes on plugin window.	
		At least one combination of Name and Type should be provided.	



11.2 Read

11.2.1 Description

Google Spreadsheets: Read step reads a spreadsheet on Google Drive.

11.2.2 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. 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.

Inpu	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. (e.g. 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 <u>Sheet1!A1:B2</u> , 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.
		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>.</null></null>
		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.



12 Intune

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: <u>https://portal.azure.com/</u>
- 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.

Permission	Permission (from least to most privileged)
Application	DeviceManagementManagedDevices.PrivilegedOperations.All, DeviceManagementManagedDevices.ReadWrite.All

• The following permissions are required:

Please refer Appendix 12: Intune- Generate Client Credentials to generate Credentials and assign the permissions mentioned in the table above.

References:

- Manage Devices with Microsoft Endpoint: <u>http://endpoint.microsoft.com/</u>
- Intune Device Enrollment: <u>https://docs.microsoft.com/en-us/mem/intune/enrollment/</u>
- API Reference: <u>https://docs.microsoft.com/en-us/graph/api/resources/intune-graph-overview?view=graph-rest-1.0</u>
- <u>https://docs.microsoft.com/en-us/mem/intune/</u>
- <u>https://docs.microsoft.com/en-us/azure/active-directory/develop/quickstart-configure-app-access-web-apis</u>
- Supported operating systems and browsers in Intune
 <u>https://docs.microsoft.com/en-us/mem/intune/fundamentals/supported-devices-browsers</u>

Notes:

• The Plugin has been tested on Android and Windows devices

.



- 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.

12.1 Intune: Delete Device By ID

12.1.1 Description

Intune: Delete Device By ID plugin step sends a Device Delete command to the devices identified by device ID and Deletes the device.

12.1.2	Configurations	
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Con	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:



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).

12.2 Intune: Remote Lock Device By ID

12.2.1 Description

Intune: Remote Lock Device By ID plugin step locks a device in Intune remotely, by Device ID.

12.2.2 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. 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
		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).		

12.3 Intune: Retire Device By ID

12.3.1 Description

Intune: Retire Device By ID plugin step retires a device in Intune by Device ID.

12.3.2 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. Note: To create Client ID refer plugin prerequisites.		
	Client Secret:	Note: To create Client Secret refer plugin prerequisites.		

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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.

Inpu	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).	

12.4 Intune: Wipe Device By ID

12.4.1 Description

'Intune: Wipe Device by ID' plugin step wipes a device in Intune identified by Device ID.

	4.2 Oonnguland	
Cor	figuration:	
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.

12.4.2 Configurations

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		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).

13 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: <u>https://confluence.atlassian.com/cloud/api-tokens-938839638.html</u>

13.1 Jira: Add Comment

13.1.1 Description

JIRA Add Comment plugin step adds a new comment to an issue in On-premise and On-cloud version of a Jira instance.

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: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.

13.1.2 Configurations

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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: <u>https://confluence.atlassian.com/cloud/api-</u> 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.

Inpu	Input Tab:		
No.	Field Name	Description	
	Input Fields:		
1	Issue Key	Issue key of the issue for which comment is to be added. This field is mandatory.	
2	Button: Get	Clicking on this button brings up the issue keys available as per the access permission of Username provided in Connection. Note Limitation: 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.	

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.

13.2 Jira: Add Label

13.2.1 Description

This plugin adds a label to an issue in on-premise or on-cloud version of a JIRA instance.

13.2.2 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: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. 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.

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		Note Limitation: 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.

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.

13.3 Jira: Create Issue

13.3.1 Description

"Jira Create Issue" plugin step creates an issue in an on-premise or on-cloud version of a JIRA instance.

13.3.2 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: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.
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.

Inpu	nput 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:	Choose fields and provide field values to create a Jira issue.	
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.
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 throws error mentioning the mandatory field that is missing

Outp	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	Кеу	Output field to hold the key of the issue created on successful plugin execution Errors can be captured in error handling as discussed Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.	

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.

13.4 Jira: Attach File to Issue

13.4.1 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.



13.4.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. 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.
	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/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-
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:	

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1	Issue Key	Issue Key of the issue to be deleted.
		Note Limitation: 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	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.

13.5 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.

13.5.1	Configurations
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	J H H H	
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: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: 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.

Inpu	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.	

13.6 Jira: Download Attachments

13.6.1 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. •

13.6.2 Configurations		
No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
1	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. 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
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	Issue Key of the issue to be deleted. Note Limitation: REST API can get 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	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'.

Outp	out 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 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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13.7 Jira: Get Transition

13.7.1 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.

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: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 get Transitions. This field is mandatory.
	Password:	
5	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
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.

13.7.2 Configurations



Input	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 Limitation: 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.	

Outp	out 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.

Note: 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.

13.8 Jira: Link Issues

13.8.1 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.

13.8.2 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	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. 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. 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. 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.
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.

13.9 Jira: Perform Transition

13.9.1 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.

13.9.2 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.
	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: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. 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/apitokens-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.

Inpu	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 Limitation: 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.

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.

13.10 Jira: Remove Label

Jira Remove Label Plugin step removes a label value 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.

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: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:	

13.10.1 Configurations

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	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: 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.

Inpu	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.	

13.11 Jira: Update Issue

This plugin step updates a JIRA issue on on-premise or on-cloud versions of a JIRA instance.

13.11.1 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: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		Description
	Input Fields:	
1	Issue Key	The key of an issue 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 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:	Choose fields and provide field values to create a Jira issue.
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.

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.

13.12 Jira: Add User to Group

13.12.1 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:

• JIRA instance and access details



• json-20180130.jar must be present in lib folder of Process Studio as well as AE.

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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	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. 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: 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.

13.12.2 Configurations

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Inpu	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.	

13.13 Jira Remove User from Group

Jira Remove User from Group Plugin Step removes a specified user from a group on onpremise 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.

13.13.1 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	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.

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	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 oncloud JIRA instance: https://confluence.atlassian.com/cloud/apitokens-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.

Inpu	t 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/s/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.

13.14 Jira Create Project

13.14.1 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.



Prerequisites:

- JIRA instance and access details
- json-20180130.jar must be present in lib folder of Process Studio as well as AE.

13.14.2 Configurations



No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	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
		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.

Inpu	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.	

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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 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-task-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

13.15 Jira Delete Project

13.15.1 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.

13.15.2 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	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. 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:	
2	Project Key/Id	Provide Project key or id of the project to be deleted.



13.16 Jira Delete User

13.16.1 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.

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:

13.16.2 Configurations



		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.

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

13.17 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.

13.17.1 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.

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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/).
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.

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

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13.18 Jira: Remove Group

13.18.1 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.

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: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:	
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

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		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.

Inpu	nput 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.	

13.19 Jira: Change User Password (Server)

13.19.1 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.

13.19.2	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	Base URL	For on-premise JIRA instance specify IP/Fully Qualified Domain Name/Hostname:Port of the JIRA Server (e.g. 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 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 oncloud JIRA instance: https://confluence.atlassian.com/cloud/apitokens-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	Input Tab:		
No.	Field Name	Description	
	Input Fields:		
1	Username	Username of the user who's password is to be changed. The data type is String. This field is mandatory.	





3	New Password	New password to be set for the specific user.
		The data type is String. This field is mandatory.

13.20 Jira Get Issue

13.20.1 Description

Jira Get Issue Plugin step gets an issue from 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.

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.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 get issue. This field is mandatory.
	Password/AP Key:	
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 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

13.20.2 Configurations


		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.

Inpu	nput 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 Limitation: 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.	

Outp	Dutput 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 denote 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,
		<pre>"key": "new", "colorName": "blue-gray", "name": "To Do" } Note: At least one output field must be provided. Either using ISON or</pre>
		 At least one output held must be provided. Either using 350N of 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.

14 Jira Service Desk

14.1 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.

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 (<u>http://xx.xx.xxx.8081</u>). 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: <u>https://confluence.atlassian.com/cloud/api-tokens-938839638.html</u>
		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

14.1.1 Configurations



accessed when workflow is in running state. Static values and environment variables are allowed.
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.

Inpu	nput 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.
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.

Outp	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	

14.2 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.

14.2.1 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	Server name or IP address with port of the JIRA Service Desk instance in case of on-premise (<u>http://xx.xx.xx.x8081</u>). 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: <u>https://confluence.atlassian.com/cloud/api-tokens-938839638.html</u>
		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
	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. Request Type and Summary are mandatory fields for all Service Requests. Some Service Requests may have additional mandatory fields.





15 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.

15.1 Linux: Add User

15.1.1 Description

This Linux plugin step is used to create a new user in Linux operating system.

-		
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:	

15.1.2 Configurations

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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 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.

Inpu	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.	

Outp	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.	
		The error 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.	

15.2 Linux: Kill Process

15.2.1 Description



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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.

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 above is disabled Password field appears as a drop down to select fields from previous steps.

15.2.2 Configuration

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.

Outp	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.	
		Appendix 1: Error Handling in IT Plugins to make the error message visible on AutomationEdge Requests.	

NOTE:

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.

15.3 Linux: Start Service

15.3.1 Description

This plugin is designed to start Linux Service.

15.3.2 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 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.

Inpu	nput:		
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	

Outp	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.	



The error 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.

15.4 Linux Stop Service

15.4.1 Description

This plugin is designed to stop Linux Service.

15.4.2 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. 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:

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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

Outp	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. The error 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.	

15.5 Linux Restart Service

15.5.1 Description

This plugin is designed to restart Linux Service.

15.5.2 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.
		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.

Inpu	nput:		
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	

Outp	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. The error 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.	

15.6 Linux: Run Linux Commands

15.6.1 Description

This plugin is designed to execute Linux commands.



Prerequisite: Linux Instance with requisite User Access.

15.6.2 Configurations

Inpu	t 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: 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.
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15.7 Linux: Start Session

15.7.1 Description

This plugin is designed to start a Linux session.

This step is not a row generating step hence; it must be an intermediate step in a workflow.

Prerequisite: Linux Instance with requisite User Access.

Inpu	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	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.	

15.7.2 Configurations



		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).
		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.
--	--	--

Outp	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.	
		 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. 	

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

15.8 Linux: Stop Session

15.8.1 Description

This step is designed to stop a running Linux session.

This step is not a row generating step hence; it must be an intermediate step in a workflow.

Prerequisites:

• Linux Instance with necessary User Access.



15.8.2 Configurations

Inpu	nput Tab:		
No.	Field Name	Description	
1	Step Name	Name of the step. This name has to be unique in a single workflow.	
	Input Field:		
In 1 So	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: 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 	

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

16 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 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:

- 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\Sc ripts;
- 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)

16.1 Classification Model Builder

16.1.1 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.

16.1.2 Configurations

Conf	Configuration Tab		
No.	Field Name	Description	
	Row Handling		
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	File name	Used to specify name and location of the file which will contain the model	
	Algorithm		
5	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	

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6	Algorithm Parameters*	Based on the algorithm selected, corresponding algorithm parameters are shown. These are described in the last table of this plugin description.
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Field	Fields Tab			
No.	Field Name	Description		
	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'
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	Fext 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,

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		 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. 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)



		 Wh into 	ether to sl batches.	nuffle e	each cla	ss's samp	bles before splittir	ıg
6	Evaluation Output File Name	Absolute h	tml report	output	file path	۱.		
		For Train/T Confusion Matrix [[1210 0] [183 0]] Classification Rep	Fest Split:					
			precision	recall	fl-score	support		
		ham	0.87	1.00	0.93	1210		
		spam	0.00	0.00	0.00	183		
		micro avg	0.87	0.8 7	0.87	1393		
		macro avg	0.43	0.50	0.46	1393		
		weighted avg	0.75	0.8 7	0.81	1393		
		For Stratified k-Fold Cross-Validation: Stratified k-Fold Cross-Validation						
		k-Fold	Stratified k-Fold Cr	oss-Validatio	on Score			
		2	0.8659127625201939	, ,			-	
		3	0.8659127625201939	,			-	
		Average	0.8659368183575603	l				
7	Add output filename to result	Enable che output file	eckbox to on AE por	display tal.	/ downlo	adable lin	nk of html report	

*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)	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



to more computation mely fast machine algorithm for solving n problems from ultra	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 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 (<i>int, default=1000</i>) is the maximum number of iterations to be run for convergence.
ar (kernel) SVC fier) is to fit to the returning a "best fit" s, or categorizes, in there, after getting in then feed some ier to see what the t passes/fails based scores umerical data and ed for high acy without fficiency.	 Kernel (<i>string, optional (default='rbf'))</i> 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.
	to more computation mely fast machine algorithm for solving problems from ultra ar (kernel) SVC "ier) is to fit to the returning a "best fit" s, or categorizes, n there, after getting n then feed some ier to see what the t passes/fails based scores umerical data and ed for high acy without fficiency.

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		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. 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.	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. <i>Ensembled algorithms</i> 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	max_depth <i>int or None, optional</i> (<i>default=None</i>). It is the maximum depth of each tree in the Random Forest. If None, then nodes are expanded until all leaves are pure.



 the most used algorithms, because it's simplicity and the fact that it can be used for both classification and regression tasks. 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) Max_depth Random Forest Classifier Use Cases: Decision Tree Classifier /Random Forest Classifier /Random Forest Classifier are predominantly used in recommendation systems/problems. Predicting the risk(high/low/medium) of a loan application Predicting the talinear model's raw prediction into a value between 0 and 1. You can interpret the value between 0 and 1. You can interpret the value between 0 and 1. You can interpret the value between 0 and 1. You can interpret the value between 0 and 1. Sa value to be compared against a classification problem. As a value to be compared against a 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 					
 etc. 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 			 the most used algorithms, because it's simplicity and the fact that it can be used for both classification and regression tasks. 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) max_depth		
	Ę	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 	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_depth Logistic Regression Use Cases: 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.	alpha (float, optional (default=1.0)) Additive (Laplace/Lidstone) smoothing parameter (0 for no smoothing).
	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.	
	alpha 1.0 Multinomial NB Use Cases: • illness forecast • Grouping information (blog posts etc.)	
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	 max_iter (<i>int, default=1000</i>) 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).



 analytically (e.g. using linear algebra) and must be searched for by an optimization algorithm. 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. K Neighbours Classifier: KNN is not really a training algorithm. K nearest neighbors is a simple algorithm that stores all available cases and classifies react classifiers the cases the classifiers. In pattern recognition, the <i>k</i>-nearest neighbors algorithm (<i>k</i>-NN) is a non-parametric method used for classification and regression. In both cases, the input consists of the <i>k</i> closest training examples in the feature space. n_neighbors [5] 			
 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 <i>k</i>-nearest neighbors algorithm (<i>k</i>-NN) is a non- parametric method used for classification and regression. In both cases, the input consists of the <i>k</i> closest training examples in the feature space. 		analytically (e.g. using linear algebra) and must be searched for by an optimization algorithm. 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. $\underbrace{max_iter 1000}_{penalty 12}$ loss hinge 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.	<pre>penalty: string, '11' or '12' (default='12') Specifies the norm used in the penalization. The '12' penalty is the standard used in SVC. The '11' leads to coef_vectors that are sparse. loss: It specifies the loss function. Options are hinge, log, modified_huber, squared_hinge, perception.</pre>
K Neighbors Classifier Use Cases:	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 <i>k</i> -nearest neighbors algorithm (<i>k</i> -NN) is a non- parametric method used for classification and regression. In both cases, the input consists of the <i>k</i> closest training examples in the feature space.	n_neighbours: It defines the no. of nearest neighbors to be considered for prediction based on the distance.



• Retail analytics (Finding a similar product which customer is likely to buy or put in the basket).

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 labels.

16.2 **Prediction**

16.2.1 Description

Prediction step lets you predict the label based on the model built in 'Classification Model Builder' step.

16.2.2 Configurations

Model Tab

ivioa	errad	
No.	Field Name	Description
1	Model File	Used to specify path of the model file built with 'Classification Model Builder' Step
2	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	ïeld Mapping Tab				
No.	Field Name	Description			
1	Feature	Feature name used during model building step			
2	Туре	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			
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			

16.3 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".



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*.

16.3.1 Description

This step builds a model for Intent Classification and Entity Extraction.

16.3.2 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	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.
3	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.
4	JSON Filename	<pre>Specify path of a JSON Filename containing Intent and Entities data. Sample JSON file contents: { "nlu_data": { "nlu_data": { "common_examples": [{ "text": "i'm looking for a place to eat", "intent": "restaurant_search", "entities": [] }, {</pre>
		"end": 36, "value": "north",

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		"entity": "location"
		}
		}
		}
5	Button: Browse	Click to browse for a JSON filename.
6	Model Directory Name	Specify or Browse for a Directory for the built Model file.
7	Button: Browse	Click to browse for a Model Directory.
	Output Field:	
8	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	ОК	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		

16.4 Intent Entity Prediction

16.4.1 Description

This step predicts Intent Classification and Entity Extraction based on the model built in 'Build Model for Intent Classification and Entity Extraction' step.

16.4.2 Configurations

Model Tab		
No.	Field Name	Description



1	Step name	Specify the name of the step. Step names should be unique within a workflow.
	Input Fields:	
1	Model Directory Name	Specify path of the model file built with 'Build model for Intent Classification and Entity Extraction' Step
2	Button: Browse	Click to browse for a Model file.
3	Input Data to Parse	Specify an input data (string) to be parsed for Intent Classification and Entity.
	Output Fields:	
4	Intent Field Name	Specify a fieldname to hold the Intent Field Name. The default value is intent.
5	Show intent confidence?	Enable checkbox to enable the Intent Confidence field below.
6	Intent Confidence Field Name	Specify a fieldname to hold Intent Confidence. The default value of the field name is intentConfidence.
7	Show Entities (in JSON format)?	Enable checkbox to enable the Entities field below.
8	Entities Field Name	Specify a fieldname to hold the Entities in JSON format. The default value of the field name is jsonEntities.
9	Show Intent Ranking (in JSON format)?	Enable checkbox to enable the Intent Ranking field below.
10	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		
	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
--	------	---	------	-------
		-	 	



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

17 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 15: Managed Engine SDP- Generate Auth Token/Refresh Token for generating the refresh token and auth token.

References:

- Cloud API documentation and common error codes: <u>https://www.manageengine.com/products/service-desk/sdpod-v3-api/SDPOD-V3-API.html</u>
- 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

Modulo	Cl	oud	On-p	remise
Plugin Step	Insert Record	Update Record	Insert Record	Update Record





17.1 Add Request Worklog

Compatibility: Add Request Worklog is compatible with ManageEngine Cloud; on Linux and Windows environments

Limitation:

As of now, Worklog can only be created for ManageEngine SDP cloud deployment as there is no API available to get the Worklog fields for on-premise deployment.

17.1.1 Description

ManagedEngine SDP: Add Request Worklog step adds a worklog to an existing request in ManageEngine ServiceDesk Plus.

17.1.2 Configurations

Gene	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.
		 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. <u>https://sdpondemand.manageengine.com</u> for on cloud instance) The data type is string. This field is mandatory.
	Auth Token:	Auth Token is displayed only for Deployment Type – ON_PREMISE. However ON_PREMISE is not supported as mentioned in the limitation.
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	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:	
6	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.
7	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:	



8	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.
9	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.
	 Note: Even though the provided occurs intermittently for t 	d connection details may be valid, the "access_denied" error he cloud deployment.

• HTTP-401 unauthorized error occurs intermittently due to a limitation from ManageEngine SDP cloud.

Inpu	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. Sample JSON key value pairs: [

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		<pre>}, { "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.</pre>
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 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:

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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).
 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.

Outp	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	

Com	imon Buttons:	
No.	Field Name	Description
	Buttons:	
1	ОК	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

17.2 Insert Record

17.2.1 Description

ManagedEngine SDP: Insert Record step inserts a record in a module in ManageEngine ServiceDesk Plus.

Compatibility: Insert Plugin step works for on premise as well as cloud instances of Manage Engine SDP, on Linux and Windows environments.

17.2.2 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:	
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. <u>https://sdpondemand.manageengine.com</u> 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	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:	
6	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.
7	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.

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	Refresh Token:	
8	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.
9	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.
	Note:Even though the provided	d 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.

Inpu	nput 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. 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 guotes (") 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" }, { "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). 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.



3	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.
4	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
5	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). 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.

Outp	Output Tab		
No.	Field Name	Description	
	Output Field:		
1	ID	Output field to hold the ID of the Record created on successful plugin execution.	

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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 Update Record

17.3.1 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;.

17.3.2 Configurations

General Tab:

CCI			
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. <u>https://sdpondemand.manageengine.com</u> 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	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:	
6	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.
7	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:	
8	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.
9	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.
	 Note: Even though the provided occurs intermittently for the HTTP-401 unauthorized exponential solution. 	d connection details may be valid, the "access_denied" error ne cloud deployment. error occurs intermittently due to a limitation from ManageEngine

Input Tab		
No.	Field Name	Description

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	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: 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:



		<pre>[{ "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). 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. </pre>
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	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.
ε	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). 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.

Corr	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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	

18 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).

Error Handling:

Refer Appendix 1: Error Handling in IT Plugins

Following is a description of MSSQL steps.

18.1 Add Data files or Log files

18.1.1 Description

The plugin is designed to add Data file or Log file in MSSQL server database.

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.
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

18.1.2 Configurations

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		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.

Inpu	nput 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.	
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:		
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

18.2 Assign Server Roles

18.2.1 Description

The plugin is designed to give server related roles to the particular login user to perform server operations.



18.2.2 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. NOTE: Test Connection button does not work for Previous step fields. Test Connection button only works with static values and environment variables.

Inpu	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



18.3 Create Database

18.3.1 Description

The step is used to create a database in MSSQL server.

18.3.2 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.
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.

Outp	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	

18.4 Create Login User

18.4.1 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.

18.4.2 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:	

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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	 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.

Inpu	nput Tab:		
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 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.

Outp	out 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

18.5 Delete Login User

18.5.1 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.

18.5	0.2 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 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.

10 E D -0

Input	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

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	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

18.6 Modify Data files or Log files

18.6.1 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

18.6.2 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	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

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		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.

Inpu	t 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	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: Outogrowth 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

Outp	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

18.7 Reset Login User Password

18.7.1 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.

18.7.2 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. 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.

Inpu	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

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	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

18.8 Shrink Database

18.8.1 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.

	•	
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

18.8.2 Configurations



		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	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:		
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.	

Outp	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	

18.9 Shrink Files

18.9.1 Description





The plugin is designed to shrink the size of the data and log files in the specified database of SQL server.

	- J. J.	
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:	
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.

18.9.2 Configurations



Inpu	nput 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.	

Outp	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: Refer Appendix 1: Error Handling in IT Plugins	

18.10 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

18.10.1 Description

This plugin is designed to Run or start Agent Job to handle other automated tasks.

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 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.

18.10.2 Configurations

Input Tab:		
No.	Field Name	Description
	Input Fields:	

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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

18.11 Stop SQL Agent Job

18.11.1 Description

This plugin is designed to stop Agent Job of particular SQL server agent to handle other automated tasks.

18.11.2 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.
---	-----------------	---

Inpu	nput 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.	

Outp	Output Tab:		
No.	Field Name	Description	
1	Output Fields:		
2	Result	Output field to hold the result of the successful plugin execution	

18.12 Unlock Login User

18.12.1 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.

18.12.2 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.
	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.
		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	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

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	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

19 MS Word

MS Word Plugin has been designed to perform operations with MS Word files.

19.1 MS Word: Convert To PDF

19.1.1 Description

MS Word: Convert to PDF plugin step converts one or more word documents to PDF files.

Compatibility: PDF 1.5 and above

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.)

19.1.2 Configurations

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

Input	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.	

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		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	Clicking on this button brings up the dialog to browse the input file path.
3	Button: Folder	Clicking 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	Clicking on this button brings up the dialog to browse the output directory path.

Common Buttons:		
No.	Field Name	Description
	Buttons:	
1	ОК	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

19.2 MS Word: Mail Merge

19.2.1 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.

19.2.2 Configurations



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

Field	ields:		
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.	
		\${PageNo}	
		This is regarding your confirmation of <i>\${Designation}</i> position in vyom labs on <i>\${Date}</i>	
		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.	

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		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.
		ABC SoftwareEngg 10-07-2019 15-01-2018 AE0176 GC OLetter1 Sneha 15 DEF Doctor 12-07-2019 15-11-2016 SIE092 Wadhva OLetter1 Pallavi 9 GHI Accountant 06-06-2012 23-05-2004 MAS07 MRCNagar Medica3 Sudha 7
		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. 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.)

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	On click of this button field values are checked. If any required field values are missing then validation error message is displayed.	
		field values.	



2	Cancel	Click this button to cancel the window without saving any values.
2	Cancel	Click this button to cancel the window without saving any values.



20 OCR

OCR Plugin steps have been designed to convert images to text with tools using Optical Character Recognition technology.

20.1 OCR: Google Vision

20.1.1 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.





20.1.2 Configurations

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

Inpu	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	Туре	 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. 'OBJECT_LOCALIZATION' Detects multiple objects in an image and provides information about the objects and where the object was found in the image.
	iounu 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.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

20.2 OCR: Tesseract

20.2.1 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
- 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)
 - o https://aka.ms/vs/16/release/vc_redist.x64.exe or
 - o https://aka.ms/vs/16/release/vc_redist.x86.exe

20.2.2 Configurations

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

Inpu	nput 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.	
		https://muthu.co/all-tesseract-ocr-options/ Default value is: eng. The data type is String.	

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6 Page Segment Mode Select Page Segmentation type. Allowed values are 0 Please refer table below fo with a description.	n Mode required as per the input file)-13. The data type is String. or a list of Page Segmentation Mode
--	--

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

21 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 Appendix 5: Office 365 App Registration Permissions in Azure AD).
- Tenant ID, Client ID and Client Secret should be known for Authentication.

References:

- <u>https://docs.microsoft.com/en-us/graph/api/resources/groups-overview?view=graph-rest-1.0</u>
- https://docs.microsoft.com/en-us/graph/api/group-post-members?view=graph-rest-1.0

21.1 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 Appendix 5: 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)



Delegated (work or school	GroupMember.ReadWrite.All, Group.ReadWrite.All,
account)	Directory.ReadWrite.All, Directory.AccessAsUser.All
Application	GroupMember.ReadWrite.All, Group.ReadWrite.All and
	Directory.ReadWrite.All

References:

- https://docs.microsoft.com/en-us/graph/api/group-post-members?view=graph-rest-1.0&tabs=http
- <u>https://github.com/microsoftgraph/microsoft-graph-docs/issues/4771</u>
- <u>https://github.com/microsoftgraph/microsoft-graph-docs/issues/546</u>

Limitation:

• Users can only be added to Office 365 Groups.

21.1.1 Description

Office 365: Add Member to Group plugin step adds an Office 365 user to a Group.

	-	
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.

21.1.2 Configurations

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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.

Inpu	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.	

21.2 Office 365: Create Office 365 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 Appendix 5: Office 365 App Registration).

Additionally, to Create Group in Office365 the following permissions are needed.

Permission type	Permission (from least to most privileged)
Delegated (work or school	Group.ReadWrite.All, Directory.ReadWrite.All,
account)	Directory.AccessAsUser.All





Application	Group.Create, Group.ReadWrite.All,
	Directory.ReadWrite.All

References:

• <u>https://docs.microsoft.com/en-us/graph/api/group-post-groups?view=graph-rest-1.0&tabs=cs</u>

21.2.1 Description

Office 365: Create Office 365 Group plugin step creates an Office 365 Group.

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.

21.2.2 Configurations





Inpu	Input Tab:		
No.	Field Name	Description	
1	Input Fields:		
2	Group Name	Specify the name to display in the address book for the group.	
5	Mail Nickname	Specify the mail alias for the group.	
6	Group Description	Specify description of the Group.	
7	Group Owner	Specify the group owner's name.	
8	Get	Click to display list of available Group Owners.	

Outp	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.	

21.3 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.
- The Microsoft Account should have the required O365 App Authentication and Permissions (Refer Appendix 5: Office 365 App Registration).
 Additionally, for Office365Create Security Group step the following permissions are needed.

Permission type	Permission (from least to most privileged)
Delegated (work or school	Group.ReadWrite.All, Directory.ReadWrite.All,
Application	Group.Create. Group.ReadWrite.All.
	Directory.ReadWrite.All

References:

1. <u>https://docs.microsoft.com/en-us/graph/api/group-post-groups?view=graph-rest-1.0&tabs=cs</u>



2. <u>https://docs.microsoft.com/en-us/graph/api/resources/groups-overview?view=graph-rest-</u> <u>1.0#security-groups-and-mail-enabled-security-groups</u>

21.3.1 Description

Office 365: Create Security Group plugin step creates a Security Group.

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	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	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.
5	Group Description	Specify the description of the group. The data type is String. This field is optional.
6	Group Owner	Specify the Group Owner's name. The data type is String. This field is optional.

Outp	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. Note: After successful execution, it takes some time for the created group to get reflected on the instance.	

21.4 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 Appendix 5: Office 365 App Registration).

Additionally, Office365 Create User Step needs the following permissions.

Permission type	Permission Name (from least to most privileged)
Delegated (work or school account)	User.ReadWrite.All, Directory.ReadWrite.All, Directory.AccessAsUser.All
Application	User.ReadWrite.All, Directory.ReadWrite.All

References:

• https://docs.microsoft.com/en-us/graph/api/user-post-users?view=graph-rest-1.0



21.4.1 Description

Office 365: Create User plugin step creates an Office 365 user.

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	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	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 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	



Con	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.	
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 I	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.	



Outp	Output Tab:		
No.	Field Name	Description	
1	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.	

21.5 Office 365: Delete 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 Appendix 5: Office 365 App Registration). Additionally, Office365 Delete Group Step needs the following permissions.

Permission type	Permission Name (from least to most privileged)
Delegated (work or school account)	Group.ReadWrite.All, Directory.AccessAsUser.All
Application	Group.ReadWrite.All

References:

• https://docs.microsoft.com/en-us/graph/api/group-delete?view=graph-rest-1.0

21.5.1 Description

Office 365: Delete Group plugin step deletes an Office 365 group.

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	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.

Inpu	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.	

21.6 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 Appendix 5: Office 365 App Registration).
 Additionally, Office365 Delete User Step needs the following permissions.

Permission type	Permission Name (from least to most privileged)
Delegated (work or school account)	Directory.AccessAsUser.All
Application	User.ReadWrite.All

References:

• <u>https://docs.microsoft.com/en-us/graph/api/user-delete?view=graph-rest-1.0</u>

21.6.1 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.

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	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.

Inpu	nput 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.	

21.7 Office 365: Download Email Attachment

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 Appendix 5: Office 365 App Registration or <u>Appendix 17: Office 365</u> <u>App Registration for Grant Type Refresh Token</u>).
- For Office365 download emails attachment the following are the permissions needed.

Permission Type	Permission Name
Delegated	Mail.ReadWrite
	As seen in this screenshot.

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	API / Permissions name	Туре	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
	Openid –		
Delegated	As seen in screenshot above.		

References:

• https://docs.microsoft.com/en-us/graph/api/user-delete?view=graph-rest-1.0

21.7.1 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.

21.7.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Grant Type	Select the Grant Type: Password Grant (Default) or Refresh Token. The data type is string. This field is mandatory.
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.
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.



		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 a Username whose Email Attachments are to be downloaded.
	Password:	
8	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.
9	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.
10	Refresh Token	 Provide the refresh token to authenticate. Provide either Username & Password or Refresh Token based on Grant Type. For MFA enabled user account. Select Grant Type as Refresh Token.
11	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	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.	

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		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.

21.8 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 Appendix 5: Office 365 App Registration or Appendix 17: Office 365 App Registration for Grant Type Refresh Token).
- Additionally, Office365 Email Messages Input Step needs the following permissions to fetch emails.

Permission Type	API /Permission	name	
Delegated	Mail.ReadWrite		
	As seen in this sc	reenshot	
	API / Permissions name	Туре	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
Delegated	Openid		
	As seen in screen	shot belo	ow.

References:

• https://docs.microsoft.com/en-us/graph/api/user-delete?view=graph-rest-1.0

21.8.1 Description

Office 365: Email Message Input plugin step fetches the mails for an Office 365 user.

21.8.2 Configurations



No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	Grant Type	Select the Grant Type: Password Grant (Default) or Refresh Token. The data type is string. This field is mandatory.
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	Refresh Token	 Provide the refresh token to authenticate. Provide either Username & Password or Refresh Token based on Grant Type. For MFA enabled user account. Select Grant Type as Refresh Token.
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.

Inpu	nput Tab:			
No.	Field Name	Description		
	Input Fields:			
1	Folder	Specify the folder for which emails are to be fetched. It must be a valid email folder. The data type is String. This field is mandatory.		
2	Get	Displays a list of Folders for email account.		
3	Retrieve	Select from the following retrieve options:Get All MessagesGet 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'.		

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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.

Filter	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.	
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:		

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7	Condition	Select the condition to filter mail by received date. Allowed values are: 'None', 'Equal to', 'Smaller than', 'Greater than', 'Betweenand'. 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 'Betweenand'; and if Date1 value is greater than Date 2 value then the workflow executes successfully without any output.

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

21.9 Office 365: Remove Member from 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 Appendix 5: Office 365 App Registration).



Additionally, Office365 Remove Member from Group Step needs the following permissions.

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	Member.ReadWrite.All, Group.ReadWrite.All, Directory.ReadWrite.All, Directory.AccessAsUser.All
Application	Member.ReadWrite.All, Group.ReadWrite.All, Directory.ReadWrite.All

References:

- <u>https://docs.microsoft.com/en-us/graph/api/group-delete-members?view=graph-rest-1.0</u>
- https://github.com/microsoftgraph/microsoft-graph-docs/issues/4771
- https://github.com/microsoftgraph/microsoft-graph-docs/issues/546

21.9.1 Description

Office 365: Remove Member from Group plugin step removes an Office 365 user from a Group

21.9.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	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.

Inpu	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. After successful execution, the removed member takes some time to get reflected on the instance. To remove member to security group use Group ID as the security group doesn't have an email address. We cannot remove members of Mail-Enabled Security Group through the plugin step. 	

21.10 Office 365: Reset Password

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 Appendix 5: Office 365 App Registration).
- To reset the password of user "Password Administrator" 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.

Permission type	Permission (from least to most privileged)
Delegated (work or school account)	User.ReadWrite, User.ReadWrite.All, Directory.ReadWrite.All, Directory.AccessAsUser.All
Delegated (personal Microsoft account)	User.ReadWrite
Application	User.ReadWrite.All, Directory.ReadWrite.All

Additionally, Office365 Reset Password Step needs the following permissions.

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

21.10.1 Description

Office 365: Reset Password plugin step resets the password for a user in Office 365.

21.10.2	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	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.

Inpu	t 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. 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.

21.11 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 Appendix 5: Office 365 App Registration or <u>Appendix 17: Office 365</u> <u>App Registration for Grant Type Refresh Token</u>).
- Additionally, Office365 Send Email Step needs the following permissions.

Permission	Type Permissio	ns		
Delegated	Mail.Send (As seen in the screenshot below).			
	Mail.Send	Delegated	Send mail as a user	
	openid	Delegated	Sign users in	
Delegated	Opened (As seen in the screenshot above).			

References:

https://docs.microsoft.com/en-us/graph/api/user-delete?view=graph-rest-1.0

21.11.1 Description

Office 365: Send Email plugin step sends emails, with one or multiple attachments.

21.11.2 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 Grant Type: Password Grant (Default) or Refresh Token. The data type is string. This field is mandatory.
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. The data type is string. This field is mandatory.
10	Refresh Token	 Provide the refresh token to authenticate. Provide either Username & Password or Refresh Token based on Grant Type. For MFA enabled user account. Select Grant Type as Refresh Token.
11	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.

General Tab:				
No.	Field Name	Description		
	Destination Addresses:			
1	То	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.
	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.
	Message:	
	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.
	Body	Specify the Body of email. The data type is string. This field is optional. At least a value in any one of Subject or Body is mandatory.

Atta	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.		
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.		
		 a) Sample JSON for multiple attachments JSON using double slash: {		

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		<pre>} } } b) Sample JSON for Multiple Attachments JSON using forward slash: { "attachments":[{ "filePath":"D:/Folder/abc.txt" }, { "filePath":"D:/Folder/Capture.JPG" } }</pre>
3	Browse	Browse a single Attachment file. The data type is string. This field is optional.

22 OneDrive

Prerequisites:

- Azure AD instance with access details.
- Appropriate user (Delegated) permissions. For more information, refer Microsoft Documentation as mentioned in references below.

References:

 For information on application setup and refresh token refer Microsoft documentation link <u>https://docs.microsoft.com/en-us/azure/active-directory/develop/quickstart-register-app#register-an-application</u>

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 13: OneDrive Refresh Token: Register app for OneDrive on Azure AD:)
- ii. Generate Refresh Token for OneDrive (Refer Appendix 13: OneDrive Refresh Token: Generate Refresh Token for OneDrive)

Get OneDrive Folder or File - Path

Folder or File – Path/ID is required in most OneDrive Plugin steps. Refer Appendix 14: OneDrive Folder/File Path to get Path.

OneDrive Plugin steps are discussed below,

22.1 Delete File Or Folder

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

References:

• 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

22.1.1 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.



Con	ontiguration:			
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 13: 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 13: 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.		

22.1.2 Configurations

Input	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 14: 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 == <u>https://organization-</u> <u>my.sharepoint.com/personal/xyz/Documents/demofolder/File.xls</u> <u>X</u>
 Then provide, Documents/demofolder/File.xlsx demofolder/File.xlsx

22.2 Download File

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.
 <u>https://docs.microsoft.com/en-us/graph/api/driveitem-get-content?view=graph-rest-</u>
 <u>1.0&tabs=http</u>
- For File conversion refer Microsoft documentation.
 <u>https://docs.microsoft.com/en-us/onedrive/developer/rest-api/api/driveitem_get_content_format?view=odsp-graph-online</u>

22.2.1 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.

22.2.2 Configurations

Configuration:		
No.	Io. 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	Client ID	Select the client ID for which you want to download a file. For connecting with OneDrive, refer Appendix 13: 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 13: 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.
4	Button: Test Connection	Verifies whether the connection is established or not.

Inpu	nput 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 14: 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 - <u>https://organization-</u> my.sharepoint.com/personal/xyz/Documents/demofolder/File.xls <u>x</u>	
		 Then, provide – Documents/demofolder/File.xlsx or demofolder/File.xlsx 	
2	Output Folder Path	Specify the folder to store the downloaded file.	

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		The field data type is	String. This is manda	itory.
3	Browse	On click of this buttor folder path.	n brings up the dialog	to select the output
4	Convert In Format	Specify the format in field data type is Strin For Supported file co References. Note: There are man Microsoft documenta	which the file is to be ng. nversions refer URL r ny supported file forma tion. The following for	downloaded. The nentioned in ats mentioned in mats have been
		lested with expected	results.	
		Supported source extensions for "pdf"	Supported source extensions for "jpg"	Supported source extensions for "html"
		doc, docx, epub, eml, htm, html, md, msg, odp, ods, odt, pps, ppsx, ppt, pptx, rtf, tif, tiff, xls, xlsm, xlsx.	bmp, jpeg, jpg, png.	eml, md, msg.
5	Delete Output Folder Contents Before	Specify from the allow The field data type is	wed values: Yes/No. String. This is manda	itory.
6	Add DateTimeStamp For Duplicate File	Specify from the allow The field data type is	wed values: Yes/No. String. This is manda	itory.
7	Add File To Result	Specify from the allow Specify Yes to make AutomationEdge serv workflow execution. The field data type is	wed values: Yes/No. the file available for d ver (through Requesu String. This is manda	iownload on ts menu) after tory.
8	Width	Provide the width of o This field is mandator is String.	output JPG image (JP ry for conversion to jp	'G width). g. The field data type
9	Height	Provide the height of This field is mandator is String.	output JPG image (JI ry for conversion to jp	PG width). g. The field data type



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.

22.3 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.
- <u>https://docs.microsoft.com/en-us/graph/api/driveitem-createuploadsession?view=graph-rest-1.0</u>

1.1.1 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.

1.1.2 Configurations

Conf	iguration:	
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 13: 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.

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		Else enable checkbox for Refresh Token field to appear as Text box.
4	Refresh Token	Generate and specify Refresh Token as detailed in Appendix 13: 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.

Inpu	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 14: 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 <i>file is to be uploaded</i> 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 == <u>https://organization-</u> my.sharepoint.com/personal/xyz/Documents/abc
		If abc folder is to be created then provide, Document/abc abc
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:

Outp	ouput rub.		
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.	

23 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, **OracleOraDB12homeTNSListener** & **OracleServiceSID** should be started



23.1 Create User

23.1.1 Description

This plugin is used to create a new oracle user.

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, **OracleOraDB12homeTNSListener** & **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).

-011	eeningaraalenie	
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.

23.1.2 Configurations



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.
		Var. Else if checkbox above is enabled Password field appears as Text 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.

Inpu	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.	

Adva	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.	
1107			

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

23.2 Delete User

23.2.1 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).

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.

23.2.2 Configurations

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		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	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:

C aip		
No.	Field Name	Description
	Output Fields:	
1	Result	Output field to hold the result of the successful plugin execution

23.3 Create Tablespace

23.3.1 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.
- 6. For connecting to the Oracle Server, **OracleOraDB12homeTNSListener** & **OracleServiceORCL** should be started

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:	

23.3.2 Configurations





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.

Inpu	nput Tab:		
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	ОК	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

23.4 Extend Tablespace

23.4.1 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, **OracleOraDB12homeTNSListener** & **OracleServiceORCL** should be started

23.4.2 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.
	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.

Inpu	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.	

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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.
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

Corr	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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	

23.5 Reset User Password

23.5.1 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).



23.5.2 Configurations

No.	Field Name	Description
1	Step Name	Name of the step. This name has to be unique in a single workflow.
	Connection:	
2	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
	Dutton	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.

Inpu	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:

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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

23.6 Unlock User

23.6.1 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).

23.6.2 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.

Inpu	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.	

Outp	out 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

PDF Utility 24

24.1 **Decrypt PDF**

24.1.1 Description

Decrypt PDF plugin step decrypts a pdf file.

Configurations 24.1.2

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:	
1	PDF Path	Provide the path of a pdf to decrypt. The data type is string. This field is mandatory.
2	Browse	Browse to select the PDF files to decrypt the password.

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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 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.

24.2 Encrypt PDF

24.2.1 Description

Encrypt PDF plugin step encrypts a pdf file.

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. This is a mandatory field.
	Input Fields:	
1	PDF Path	Provide the path of a pdf to encrypt. The data type is string. This field is mandatory.
2	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.
4	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.



24.3 Merge Multiple PDFs

24.3.1 Description

Merge multiple PDFs plugin step merges multiple PDF files.

Note: Use the Decrypt PDF plugin step before passing the information to this step.

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:		
1	Accept Values from folder	Check to enable the PDF Folder Path field. Else, leave unchecked to enter values in the Table Fields below.	
2	PDF Folder Path	Specify the folder path containing the PDF files to merge. The data type is string. This field is mandatory.	
3	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.	
4	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.	
5	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.	
6	Output PDF path	Specify an output path to store the merged pdf file.	
7	Browse	Click to open a dialog to browse the directory to save the merged file.	

24.3.2 Configurations

Addi	tional Input Tab	
No.	Field Name	Description
	Output Field:	
1	Delete Output Folder Contents Before Downloading	Specify Yes to delete output folder contents before downloading else Specify No. Allowed values: Yes, No. The data type is String.

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2	Add Date TimeStamp For Duplicate File	Specify Yes to add Date TimeStamp for duplicate files. Allowed values: Yes, No. The data type is String.
3	Add File To Result	Specify Yes to add the downloaded files to result set and display download link on AutomationEdge otherwise else select No. Allowed values: Yes, No. The data type is String. Note: In Output File Path, if a path specified does not exists the step will create it.

Outp	ut Tab	
No.	Field Name	Description
	Output Field:	
1	Files 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 The default value for this field is No.

25 ServiceNow

Service now plugin step 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.

25.1 Service Now: Delete Record

25.1.1 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.

25.1.2 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	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 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	ОК	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.

25.2 Service Now: Download Attachments

25.2.1 Description

Service Now: Download Attachment plugin step downloads all attachments associated with a ServiceNow record.

25.2.2 Configurations

Conn	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.

Input	Input Fields:				
No.	o. 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 screeenshot 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.			

Outp	Dutput 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.

Com	Common Buttons:				
No.	Field Name	Description			
	Buttons:				
1	ОК	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			

25.3 Service Now: Input

25.3.1 Description

Service Now: Input plugin step fetches chosen fields for all ServiceNow records matching criteria query.

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.			
	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. 			

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		 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.

Field	ls 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. 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,

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- short_description=RPA Test
- number= <u>INC0010097</u>



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.

Service Management 🕘 System Administrator - 🤉 🗗 🛞 🥸									
(♀ Incident	=	Incidents	New Go to	Assigned to	٣	Search			
E ↓ 0						~ .	44 4	1 to 20 of 32	b bb
	7	All > Activ	e = true						
Denhale Arre	0	Q.	≡ Number	≡ Opened	≡:	Short description	\equiv Caller	\equiv Priority	\equiv State
Service Desk		()	INC0000045	2019-07-06 15:04:15	Can soft	't access SFA ware	Bud Richman	3 - Moderate	New
Incidents		(j)	INC000058	2016-08-10 09:37:45	Perf with	ormance problems remail	Bow Ruggeri	5 - Planning	New
Create New		G	INC0000039	2019-04-28 17:41:01	Tros	ible getting to gon mail server	Bud Richman	5 - Planning	New
Assigned to me		1	INC0000059	2016-08-10 09:14:29	Una file :	ble to access team share	Bick Berzle	3 - Moderate	New
Open		0	INC0010004	2019-08-06 06:00:15	test	_1	(empty)	5 - Planning	New
Open - Unassigned Resolved		0	INC0000054	2015-11-02 12:49:08	SAP Man ther	Materials agement is slow or e is an outage	Christen <u>Mitchell</u>	• 1 - Critical	On Hold
AI		G	INC0000057	2016-08-10 09:14:59	Perf with	ormance problems wifi	Bertle Luby	5 - Planning	New
Overview		(j)	INC0000047	2019-07-06 13:53:18	Issu	e with email	Joe Employee	3 - Moderate	in Progress
0	97		_		_	_			

You may right click on the filter and click Copy query to copy the Criteria Query.



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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.



Right click on the filter and click Copy query.



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		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 6: Build Criteria Query in SNOW UI
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.

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		
1	ОК	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.		

25.4 Service Now: Insert Record

25.4.1 Description

ServiceNow: Insert Record plugin step inserts a Record (e.g. Incident, Request, Problem, Change etc.) in ServiceNow application.

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:	
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.

25.4.2 Configurations



Inpu	t 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 denote 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 fields.
		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. Form Name incident Accept Fields As JSON JSON Sample value of JSON: {"short description": "Test Incident"}

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		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. Form Name incident Accept Fields As JSON JSON JSON For example for Problem {"short_description": "Hello There!", "work_notes": "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. Following, is a sample snapshot of input tab with Table Fields with Static Field Name. Form Name incident Accept Fields As JSON Table Fields Following, is a sample snapshot of input tab with Table Fields with Variable Field Name.



Form Name	incid	lent		Get
Accept Fields As JSON				
JSON				- €
Table Fields	#	Variable Field Name	Static Field Name	Field Value
	1	{\$short_description}		Backup Failed
	2	{\$comments}		Backup took an hour before it failed
Note: If the selected backend then, in the Field Va	Fie in	eld Name is n that case, it v	napped with vill accept or	any Lookup List on the Ily valid mapped values
	iiue			aleu. Dul li all ilivaliu
value is provid	led	to such Field	Is then the tid	cket will take the default

Outp	out 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.

Con	Confirmation Buttons:			
No.	Field Name	Description		
1	ОК	Click OK to confirm Insert operation. Note: User must have appropriate permissions in ServiceNow to insert a record through ServiceNow Insert Plugin.		
2	Cancel	Click Cancel to Cancel the operation.		

25.5 Service Now: Update Record

25.5.1 Description

Service Now: Update Record plugin step is designed to update a record in a ServiceNow Appllication such as Incident, Request, Problem, Change etc.

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.				
	Connection:					
2	ServiceNow Base URL	Specify URL of the Service Now Instance. (e.g. https://XXXXX.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. 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 denote 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.
		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.



1		
		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.
		Form Name incident Get
		Accept Fields As JSON
		JSON 🚽 🕤
		Table Fields 🗍 Variable Field Name Static Field Name Field Value
		1 {Sshort_description} Backup Failed
		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.
		Form Name incident Get
		Criteria Field number
		Accept Fields As JSON 🔽
		JSON JSON
		Sample value of ISON1 for Problem application:
		{"short description"."Hello There!", "work notes"."Test
		updating Record."}
	Table Fielder	
	Table Fields:	
8	Table Fields: Variable Field Name	This is an optional field. Choose a field in input stream from drop
8	Table Fields: 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	Table Fields: 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 9	Table Fields: Variable Field Name Static 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. On click of this column field, it opens a dialog with the list of
8 9	Table Fields: Variable Field Name Static 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.On click of this column field, it opens a dialog with the list of available form fields of the provided Form Name.
8 9	Table Fields: Variable Field Name Static 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. 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
8 9	Table Fields: Variable Field Name Static 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. 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
8	Table Fields: Variable Field Name Static 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. 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.
8	Table Fields: Variable Field Name Static 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. 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.
9	Table Fields: Variable Field Name Static 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. 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.
8 9 10	Table Fields: Variable Field Name Static Field Name Field Value	 This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable. 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. Provide field values to be updated in the corresponding chosen fields
8 9 10	Table Fields: Variable Field Name Static Field Name Field Value	 This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable. 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. Provide field values to be updated in the corresponding chosen fields.
8 9 10	Table Fields: Variable Field Name Static Field Name Field Value	 This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable. 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. Provide field values to be updated in the corresponding chosen fields. Following, is a sample snapshot of input tab with Table Fields with Statia Field Name
8 9 10	Table Fields: Variable Field Name Static Field Name Field Value	 This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable. 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. 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.
8 9 10	Table Fields: Variable Field Name Static Field Name Field Value	 This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable. 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. 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.
8 9 10	Table Fields: Variable Field Name Static Field Name Field Value	 This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable. 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. 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.
8 9 10	Table Fields: Variable Field Name Static Field Name Field Value	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable. 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. 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. Form Name problem Get Criteria Field number + 3 Get = PRB0000055 + 3
8 9 10	Table Fields: Variable Field Name Static Field Name Field Value	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable. 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. 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. Form Name problem Get = PRB0000055 • © Accept Fields As JSON V
8 9 10	Table Fields: Variable Field Name Static Field Name Field Value	This is an optional field. Choose a field in input stream from drop down list or provide a user or system defined variable. 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. 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. Form Name problem Get = PRB0000055 + G Accept Fields As JSON JSON + G

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Following, is Variable Field	a : d N	sample snaps Name.	shot of input	tab with Table Fields with
Form Name Accept Fields As JSON JSON	inci	dent		Get 🗸
Table Fields	# 1	Variable Field Name	Static Field Name short description	Field Value Backup Failed
	2		comments	Backup took half an hour before in failed.
Note: If the selecte backend ther in the Field V value is provi value mappe	d F n, i 'alı ide d v	Field Name is n that case, i ue and the tic ed to such Fie with that Fielc	mapped wit t will accept ket will be cr lds then the l on the back	h any Lookup List on the only valid mapped values reated. But if an invalid ticket will take the default cend.

Outp	out 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.

Con	Confirmation Buttons:		
No.	Field Name	Description	
1	ОК	Click OK to confirm Update operation. Note: User must have appropriate permissions in ServiceNow to update a record through ServiceNow Update Plugin.	
2	Cancel	Click Cancel to Cancel the operation.	

25.6 Service Now: Upload Attachment

25.6.1 Description

Service Now: Upload Attachment step is used to upload a file to a Service Now record.

25.6.2 Configurations

0

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	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 have Electric 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 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 uploaded. The following scr right clicking ≡ o	e record eenshot n a parti	to which an attach shows that sys_id icular record.	nent needs can be cop	ied by
					👰 System Administrator +	<u>ର ଜୁଉ</u> ଭ
		(<u>♥ sectore</u>)	Secident Tam	Ø ↓ ⊇ ·	ne folios e lipide lino	ter Delens 🕂 🕹
		E * 0	Copy meldent	Opened	2019-07-06.1458.34	
		bolderds	Create Report Create Child Weidert	St. N. D. Cond.	1-16gh	
		mathed incidents	Create Normal Change Onate Standard Change	State	in Progress.	
		Service Desk 🔅 Sho	Onate Emergency Change Reliesh Impacted Services	Sange server - is it down?		Q
		lections	Metrics Timeline Follow en Livé Fred Show Free Dard	Related Search Results 🔉		
		Credit Rese Additor	Configure 3	wents Thedamor Willia		î de
		Autgood for me	Ven 3		T 127.4	-
		Dam. Usersend	Create Raiotte Copy URL		100	1
		Resided	Show Dit.	n Fundaval John, Prog there wat respond, well tots of	Additional comments = 2019-07-00112000	
			Neloat form	Bend # locky to be San 3, Done 4		
4	Input File Path	 Provide the a an attachment Alternately, B Alternatively wastream, you not from the drop 	bsolute in it. rowse th when the nay sele down lis	file path for the file ne file using the Bro e filename is comin ect the field containi st.	to be uploa owse button g from an ir ing the filen	ided as n. nput ame
5	Button: Browse	Click button to brinstance.	owse a f	file to be uploaded	to a SNOW	1

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	ОК	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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26 SharePoint Online

SharePoint Online Plugin has been designed to perform and automate SharePoint Online operations.

Compatibility: SharePoint Online

Following sections describe the Plugin steps:

26.1 Delete File or Folder

26.1.1 Description

Delete File or Folder plugin step deletes a Document Library from the specified site in SharePoint Online.

26.1.2 **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)
Work or School	Delegated	Files.ReadWrite,
account		Files.ReadWrite.All,
		Sites.ReadWrite.All

26.1.3 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.

 2
 Connection:
 Specify the Client ID of SharePoint App. For information about creating a client ID, see Appendix 18: SharePoint: App Registration & Refresh Token Generation. The field data type is String. This is a mandatory field.

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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 <u>App in Azure AD</u> . 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.

Inpu	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 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.		

26.2 Download File

26.2.1 Description

Download File plugin step downloads a file from the Document Library present in a specified site in SharePoint Online.

26.2.2 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	Delegated	Files.Read, Files.ReadWrite,
account		Files.Read.All, Files.ReadWrite.All,
		Sites.Read.All, Sites.ReadWrite.All

26.2.2.1 Configurations

Con	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 <u>Appendix 18: SharePoint: App</u> <u>Registration & Refresh Token Generation</u> . 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 <u>App in Azure AD</u> . 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.		

Inpu	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.
		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".	

Output tab:	
Field Name	Description
Output Fields:	
File Overwritten	Specify if file is overwritten and returns Yes else No.

26.3 Upload File

26.3.1 Description

Upload File plugin uploads a file from local machine to Document Library present in a specified site in SharePoint Online.

26.3.2 Prerequisites

• SharePointOnline instance with access details.



• You require the following permissions for app on Azure:

Account Type	Permission type	Permission (from least to most privileged)
Work or School	Delegated	Files.ReadWrite,
account		Files.ReadWrite.All,
		Sites.ReadWrite.All

26.3.3 Configurations

Con	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 <u>Appendix 18: SharePoint: App</u> <u>Registration & Refresh Token Generation</u> . 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 <u>App in Azure AD</u> . 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.	

Inpu	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 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'.

27 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.

27.1 Get Alerts

27.1.1 Description

The plugin is designed to get alerts of particular type either All Alerts or only Active Alerts.

Prerequisites: Solarwinds instance and access details

27.1.2 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.
		box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

Inpu	Input:		
No.	Field Name	Description	
	Input:		
1	Alert Type(String)	Select Alert Type either All or Active. This field is mandatory.	
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, AcknowledgedNote, TriggeredDateTime, TriggeredMessage, NumberOfNotes, 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.

27.2 Get Nodes

The plugin is designed to get nodes configured on SolarWinds.

Prerequisites: SolarWinds instance and access details.

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.
		box. Else if checkbox above is disabled Password field appears as a drop down to select fields from previous steps.

27.2.1 Configurations



Input	nput:		
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.

27.3 Acknowledge Alerts

27.3.1 Description

The plugin is designed to Acknowledge Alerts.

Prerequisites: Solarwinds instance and access details.

27.3.2 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	Input:		
No.	Field Name	Description	
	Input:		
1	AlertObjectID	AlertObjectID of the alert to be acknowledged. This field is not mandatory.	
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.

Outp	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.	



27.4 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.

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:	
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.
		mandatory.

27.4.1 Configurations

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	Note: Test Connection Button does not work if the connection
	fields are populated from previous steps.

Inpu	it 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, AcknowledgedNote, TriggeredDateTime, TriggeredMessage, NumberOfNotes, LastExecutedEscalationLevel From Orion.AlertActive
		 SELECT AlertHistoryID, EventType, Message, TimeStamp, AccountID, AlertActiveID, AlertObjectID, ActionID FROM Orion.AlertHistory SELECT NodeID, Caption, IPAddress, Status FROM Orion Nodes ORDER BY Caption

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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 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.
- Twilio account with a sender number and appropriate access.

References

- https://www.twilio.com/docs/sms/send-messages
- <u>https://www.twilio.com/docs/api/errors</u>
- 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 <u>www.twilio.com</u>.
- In the General tab under Settings scroll to look for API Credentials.

Viev	w and Create projects	Jettings /	
	Dashboard Billing	API Credentials	
	Usage	LIVE Credentials	Learn about REST API Credentials 🤊
	Settings General	ACCOUNT SID ACb7b88fd98eb3610d0edb96b Used to exercise the REST API	bfd26ad5a1
	Subaccounts Manage Users	AUTH TOKEN Request a Secondary Token	•••••
	API Keys Credentials	Keep this somewhere safe and s	ecure

 For prerequisites and appropriate access to send SMS using Twilio's Trial Account refer to the following URL: <u>https://support.twilio.com/hc/en-us/articles/223134087-</u> <u>Twilio-s-Global-SMS-on-trial-accounts</u>

28.1 Send SMS

28.1.1 Description

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Twilio: Send SMS Plugin step sends a new outgoing message from Twilio phone number to an outside phone number.

	i oonngaraalono	
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.

|--|

Inpu	nput 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.	

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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.

Outp	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.	

Corr	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29 VMWare

VMWare Plugin can be used for managing VMware vSphere - vCenter server.

Compatibility: vSphere Web Client (Version 6.5.0.13000 Build 8024368)

Prerequisites:

- vCenter Server with access details (Login credentials to authenticate VMwarevCenter 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 9: 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,
 - o 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.

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.

- 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%253A <mark>datacenter-21</mark> ~
VM Folder	Folder%253A <mark>group-v381</mark> ~

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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.

← → C ▲ Not secure Ob	vjectRef~ddcd6458-ecac-4116-968	la-c443eecfa5ef%253A	older%253Agro	oup-v381~
vmware: vSphere Web Clic	ent ft≣	O I stema	k@vyom labs.com	n v i Help
Navigator	🔁 Folder1 🛛 😚 🛞 🗐	🏫 🎯 Actions 👻		·
A Back	Getting Started Summary Mon	tor Permissions VMs		
	Virtual Machines VM Templates in	n Folders vApps VM Fold	ders	
Datacenter_M0940 Discovered with all mar.	50 59 59	× 0	Q Filler	
 Oscovereo vinuar mac mymfolder 	Name	State	Status	Provisioned
Folder		This list is empty.		
Folder1				

Following is the list of VMWare Plugin steps,

29.1 VMware: Convert Template to VM

VMware: Convert Template to VM plugin step converts a template to a virtual machine.

29.1.1 Configurations	S
-----------------------	---

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.

Inpu	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 		

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		 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. Notes: 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.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29.2 VMware: Convert VM to Template

VMware: Convert VM to Template plugin step converts a virtual machine to a template.

29.2.1 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 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	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.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29.3 VMware: Delete Snapshot

29.3.1 Description

VMware: Delete Snapshot plugin step deletes a specified snapshot optionally along with its child snapshots associated with a virtual machine.

29.3.2 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. 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.

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			The data type is String. This field is mandatory.
			Notes:
			 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	But	ton: 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	Op	tional 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. 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	De	ete 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.



Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29.4 VMware: Delete All Snapshots

29.4.1 Description

VMware: Delete Snapshot plugin step deletes all Snapshots associated with a Virtual Machine on the specified vCenter server.

20.4	e oonngarations	
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.

29.4.2 Configurations

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		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.

Inpu	nput 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. Notes: 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.	

Common Buttons:				
No.	Field Name	Description		
	Buttons:			
1	ОК	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.

29.5 VMware: Deploy VM from Template

29.5.1 Description

VMware: Deploy VM from Template plugin step deploys (creates) VM from a template available on the specified vCenter server.

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

29.5.2 Configurations



		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.

Inpu	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 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 Get 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.	

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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. Notes: 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.

Com	mon Buttons:	
No.	Field Name	Description
	Buttons:	
1	ОК	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.

29.6 VMware: Get VM Properties

29.6.1 Description

VMware: Get VM Properties plugin step fetches the properties of a virtual machine.



29.6.2 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.
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	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.
		Notes:
		 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.

Oup	Ouput Tab		
No.	Field Name	Description	
	Input Fields:		
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.	

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.

29.7 VMware: Increase Hard Disk Size

VMware: Increase Disk plugin step increases the hard disk size of a virtual machine on the specified vCenter server.

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.
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

29.7.1 Configurations



		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.

Inpu	nput Tab:	
No.	Field Name	Description
	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 '%' abaracter 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.

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		'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	ОК	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.

29.8 VMWare: Modify CPU Count

29.8.1 Description

VMware: Modify CPU Count Plugin step modifies the count of CPUs in a virtual machine.

29.8.2 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.

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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	nput 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.	
		Notes:	
		 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.	

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		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.
		 Notes: 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. 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. To hot add multicore CPUs, verify that the virtual machine has hardware version 8. Not all guest operating systems support CPU hot add and hot remove. You can disable these settings if not supported.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29.9 VMWare: Modify CPU Properties

29.9.1 Description

VMware: Modify CPU Properties Plugin step modifies the CPU-related settings of a virtual machine.

Additional Prerequisites:



29.9.2 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)
		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.

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Inpu	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.	
		 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	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.	

*Notes:

- 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.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29.10 VMWare: Modify Memory Property

29.10.1 Description

VMware: Modify Memory Property Plugin step enables or disables the memory hot add property of a virtual machine.

29.10.2	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.
	Configuration:	
1	vCenter Server Base URL	Specify the vCenter Server Base URL to connect to vCenter. (e.g.: <u>https://vmware.example.com</u>) Note: If vCenter IP is given instead of vCenter server name, it throws certificate error if the vCenter IP entry is not present in
		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.

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	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.

Inpu	nput 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.	
		 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.	

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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.
		 Notes: Ensure that the virtual machine is using hardware version 7 or later. Ensure that the virtual machine has a guest operating system that supports memory hot-add functionality. Ensure that VMware Tools is installed.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29.11 VMWare: Modify Memory Size

29.11.1 Description

VMware: Modify Memory Size Plugin step modifies the available memory size of a virtual machine.

29.11.2 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.

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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	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.

Inpu	nput 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.	
		 Notes: 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 '9' 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. Notes: Ensure that the virtual machine is using hardware version 7 or later. 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. 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. 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.

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29.12 VMWare: Power off VM

29.12.1 Description



VMware: Power Off VM plugin step powers off a powered-on or suspended virtual machine.

	j	
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 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.

29.12.2 Configurations

Input Tab:		
No.	Field Name	Description
	Input Fields:	

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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.
		Notes:
		 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

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29.13 VMWare: Power On VM

29.13.1 Description

VMware: Power On VM powers on a powered-off or suspended virtual machine.

29.13.2 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.

Inpu	Input Tab:		
No. Field Name Description		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.	
		Notes:	



 Refer Get VM UUID in the VM steps to fetch the VM UUID. If two or more virtual machine in the vCenter Server invento UUID which is unique to each If VM name contains '%' spect the plugin step, provide VM n with '%25'. 		 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.

Corr	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29.14 VMware: Rename Snapshot

29.14.1 Description

VMware: Rename Snapshot plugin step is designed to rename snapshot associated with VM on specified vCenter server.

29.14.2 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) 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	nput 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.	
		Notes:	
		• 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	Butto	on: 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	Optic	onal Input Fields:	
	İ	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	Snap	shot 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
1	<valid datetime=""></valid>	





	2		<valid snapshotname=""></valid>
--	---	--	---------------------------------

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

29.15 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.

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.
2	Port	Specify the vCenter server port. (Default port is 443).

29.15.1 Configurations



		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.

Inpu	nput 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. Notes: 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.
	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=""></valid>		
2		<valid name=""></valid>	
3			<yes></yes>

Common Buttons:		
No.	Field Name	Description
	Buttons:	

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1	ОК	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.

29.16 VMWare: Shutdown VM

29.16.1 Description

VMware: Shutdown VM plugin step shuts down a virtual machine.

29.16.2 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.
		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.

Inpu	nput 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. Notes:	
		 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	ОК	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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29.17 VMWare: Suspend VM

29.17.1 Description

VMware: Suspend VM plugin step suspends a virtual machine.

29.17.2 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 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.	
--	--

Inpu	t 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. Notes:		
		 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.		

Com	Common Buttons:			
No.	Field Name	Description		
	Buttons:			
1	ОК	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.		



29.18 VMware: Take VM Snapshot

29.18.1 Description

VMware: Take VM Snapshot plugin step takes a snapshot of a virtual machine's state.

29.18.2 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 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	nput 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. Notes: Refer Get VM UUIDError! Reference source not found. 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	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. Allowed combinations of values for 'Snapshot The Virtual Machine' and 'Quiesce Guest File System' are: No. Snapshot The Virtual Machine File System' are: No. Snapshot The Virtual Machine 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.		

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Also, refer Note above.

30 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 7: 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

Adjust your computer's settir	ngs	View by: Small icons 💌
Action Center	2 Administrative Tools	ad AutoPlay
Backup and Restore	State Color Management	Credential Manager
Date and Time	🕢 Default Programs	😭 Desktop Gadgets
Device Manager	B Devices and Printers	📮 Display
Ease of Access Center	🔀 Flash Player (32-bit)	Folder Options
A Fonts	Getting Started	🔧 HomeGroup
A Indexing Options	🔛 Intel® Graphics Settings	C Internet Options
Java	E Keyboard	100 Location and Other Sensors
🕗 Mail (32-bit)	J Mouse	Setwork and Sharing Center
Notification Area Icons	Performance Information and Tools	Personalization
Phone and Modern	Power Options	Programs and Features
Recovery	🧶 Region and Language	RemoteApp and Desktop Connections
Sound	Speech Recognition	Sync Center
System	Taskbar and Start Menu	Troubleshooting
User Accounts	Standows Anytime Upgrade	I Windows CardSpace
Mindows Defender	P Windows Firewall	Windows Mobility Center
🚈 Windows Update	Windows Firewall Set firewall security options protect your computer from and malicious software.	i to help n hackers





3. Enable to allow Windows Management Instrumentation (WMI) at all levels as shown below.

at are the risks of allowing a program to cor	nmunicate	nick Change settings.		Change settin
For your security, some settings are mana	ged by you	r system administrato	or.	g energe settin
llowed programs and features:				
Name	Domain	Home/Work (Pri	Public	Group Policy
Windows Firewall Remote Management				No
Windows Management Instrumentatio				Yes
Windows Management Instrumentatio		V	¥	No
Windows Media Player				No
Windows Media Player Network Sharin				No
Windows Media Player Network Sharin				No
Windows Peer to Peer Collaboration Fo				No
□ Windows Remote Management				No
Wireless Portable Devices				No
✓ WSUS				Yes
☑ Zoom Video Conference				No
		()		10/00

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Following are the steps to setup Power Shell version 5 or above,

A. Set PowerShell Execution Policy:

- Open PowerShell command prompt in Run as administrator mode (Go to Start-> Search PowerShell -> Right Click on Windows PowerShell -> Click Run as administrator option)
- 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 <u>Installing the .NET Framework</u>.
- 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

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
PSRemotingProtocolVe	ersion 2.3
SerializationVersion	1.1.0.1



30.1 Windows: Get Disk Utilization

30.1.1 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.

30.1.2 Configurations

Inpu	ıt 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.</domain></computer></domain>
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:

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.





		A Form Explorer
		Filter [M] Q
		Drive Capacity (GB) Used Space (GB) Free Space (GB) File System OK Cancel 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.

30.2 Windows: Get Service Status

30.2.1 Description

Windows: Get Service Status plugin step gets the status of a service on a local or remote computer.

30.2.2 Configurations

Inpu	t 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.</domain></computer></domain



	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".		

30.3 Windows: Pause Service

30.3.1 Description

Windows: Pause Service plugin step pause's a service on a local or remote windows machine.

30.3.2 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. However, if you need to connect to a remote machine you need to provide <domain name="">\username. This field is mandatory.</domain></computer></domain
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'

30.4 Windows: Restart Machine

30.4.1 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.

30.4.2 Configurations

Input	t 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 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.

30.5 Windows: Restart Service

30.5.1 Description

Windows: Restart Service plugin step restarts a service on a local or remote windows machine.

30.5.2 Configurations

Inpu	t lab:	
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

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		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.

30.6 Windows: Resume Service

30.6.1 Description

Windows: Resume Service plugin step resumes a paused service on a local or remote windows machine.

30.6.2 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.</domain></computer></domain>	
	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.	

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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. 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. Make sure to get the Windows Service name by right clicking on the service and clicking Properties. Copy the 'Service name'

30.7 Windows: Run DOS/PowerShell Commands

30.7.1 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.

Inpu	nput 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. 	

30.7.2 Configurations

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		 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
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'

Com	Common Buttons:		
No.	Field Name	Description	
	Buttons:		
1	ОК	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.	

30.8 Windows: Shutdown Machine

30.8.1 Description

Windows: Shutdown Machine plugin step shuts down a remote windows machine.

30.8.2 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:	
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.

30.9 Windows: Start DOS / PowerShell Session

30.9.1 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.

Inpu	nput 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.	

30.9.2 Configurations



		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.</domain></computer></domain
	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.
		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.

Outp	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

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	Buttons:	
1	ОК	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.

30.10 Windows: Stop DOS / PowerShell Session

30.10.1 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.

ld Namo	
	Description
ep Name	Name of the step. This name has to be unique in a single workflow.
out Field:	
ssion 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.
	ld Name p Name ut Field: ssion Name*

30.10.2 Configurations

Common Buttons:		
No.	Field Name	Description
	Buttons:	





1	ОК	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.

30.11 Windows: Start Service

30.11.1 Description

Windows: Start Service plugin step starts a service on a local or remote windows machine.

Inpu	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'	

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30.12 Windows: Stop Service

30.12.1 Description

Windows: Stop Service plugin step stops a service on a local or remote windows machine.

Inpu	nput 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. 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.	

30.12.2 Configurations



Note: In case of exception a windows Return value does not
occur if Force Stop option is YES.

31 Experimental in Advanced Plugins

31.1 Write Spreadsheet

31.1.1 Description

Write Spreadsheet step writes to a spreadsheet on Google Drive.

31.1.2 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.
	Input Fields:	
3	Token Type	Token type by default is bearer.
4	Access Token	Access token is mandatory to access google spreadsheet using google REST APIs with specified scope.
5	Spreadsheet Name	Name of the spreadsheet.
6	Spreadsheet File Name	Name of the spreadsheet file.
7	Append Values to existing Spreadsheet?	Enable checkbox to Append Values to an existing Spreadsheet.
8	Spreadsheet Id	Unique ID of that spreadsheet.
	Range	Range should be provided in A1 notation. This is a string like <u>Sheet1!A1:B2</u> , that refers to a group of cells in the spreadsheet, and is typically used in formulas.
	Column Fields :	
8	Name	These headers can now be used as output fields.
9	Туре	
10	Get Fields Button	Click this button to fetch headers from the excel file.

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Com	mon Buttons:	
No.	Field Name	Description
	Buttons:	
1	ОК	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



IV. Appendices

1



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.

	Generate	Rows	>	Get Alerts 2	
4					
Exec	ution Results				
(b E	Execution History	🖃 Logging 🔠 Stej	p Metrics 📈 Perfor	mance Graph [🔁 Met	rics 💿 Preview data
⊙ F	irstrows C Lastr	ows C Off			
	AlertActiveID	AlertObjectID	Acknowledged	AcknowledgedBy	
1	163	118	<null></null>	<null></null>	
2	164	119	<null></null>	<null></null>	
3	165	120	true	admin	
4	166	121	<null></null>	<null></null>	
5	167	122	<null></null>	<null></null>	
6	168	123	<null></null>	<null></null>	
7	169	124	<null></null>	<null></null>	
8	170	125	<null></null>	<null></null>	
9	171	126	<null></null>	<null></null>	
10	172	127	<null></null>	<null></null>	
11	973	224	<null></null>	<null></null>	
12	1151	129	<null></null>	<null></null>	

2. In case any step fails the workflow aborts.

Generate Rows	Get Alerts 2
1	
Execution Results	
Execution History 📃 Logging 🔡 Step Metri	cs 📈 Performance Graph 🔁 Metrics 🔕 Preview data
● First rows ○ Last rows ○ Off	
2018/06/23 11:43:38 - Get Alerts 2.0 - ERROR (ve 2018/06/23 11:43:38 - Get Alerts 2.0 - Finished pro	rsion Unknown, build 0 from 2018/06/23 07:11:29.429 by Administrator) : java.net.ConnectException: Connection timed out: connect ocessing (I=0, O=0, R=1, W=0, U=0, E=1)

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	c	Administrator@LPT0540	23-Jun-2018 11:34:55	23-Jun-2018 11:34:58
Error! : Wor	kflow 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.

E ,			~~ - C				
Generate Rows		Get Alerts 2	Set Workflow Result Success				
🔆 Step error handling se	ettings						
Error handling stepname	Get Alerts 2			-			ı.
Target step	Set Workflow Result Failure	•		Set Workflow Res	sult		
Enable the error handling?	V			Step name	Set Workflow Result Failure		
Nr of errors fieldname		6	Set Workflow Result Failure	Success	false	S	
Error descriptions	Error Message	6		Status	Failure	 (5)	
Error fields fieldname		6		Message	Error Message	v (5)	
Error codes fieldname		6		Total Operations	0	- <u></u> (5)	
Max nr errors allowed		3		Successful	0	v (S)	
Max % errors allowed		<u>s</u>		Attribute 1		v (S)	
Min nr of rows to read		6		Attribute 2		v (S)	
	OK Cancel			Attribute 3		v (S)	
				Attribute 4		V (3)	
				Attribute 5		V (3)	
				Attribute 6		 (S)	
Execution Results				Output Parameters			
🕒 Execution History 🗐 Logging	🔠 Step Metrics 📈 Performance	e Graph 🔁 Metrics	💿 Preview data		OK Cancel		
ⓒ Firstrows ○ Lastrows ○ Off	f						
2018/06/23 11:43:38 - Get Alerts 2. 2018/06/23 11:43:38 - Get Alerts 2.	.0 - ERROR (version Unknown, buil .0 - Finished processing (I=0, O=0,	d 0 from 2018/06/23 , R=1, W=0, U=0, E	07:11:29.429 by Administrator) : java.net.Conner =1)	ctException: Connection	timed out: connect		

5. If the workflow is now published on AutomationEdge and run, it displays the complete error message as shown below.

ld	Workflow Name	Status	Agent Name	Created	Completed Date
42	Alert1	Failure 3 🕤	Administrator@LPT0540	23-Jun-2018 12:10:49	23-Jun-2018 12:11:12
Error! : java	.net.ConnectException: Connection timed out: connec	t Error Message : ja	va.net.ConnectException: Conr	nection timed out: connect	

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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)

- Change execution policy of computer to allow running PowerShell scripts by using below: command: Set-ExecutionPolicy unrestricted –Force
- Check if execution policy is changed by using below command: command: Get-ExecutionPolicy

2.3 Updating PowerShell Version

4. 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 <u>Installing the .NET Framework.</u>

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.

5. 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
PSRemotingProtocolVe	ersion 2.3
SerializationVersion	1.1.0.1

2.4 Modules required for Active Directory Plugins:

Module name: ActiveDirectory

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\Wind	lowsPowerShell\v1.0\Modules
ModuleType Version Name	ExportedCommands
Manifest 1.0.0.0 ActiveDirectory Move-ADObject}	{Get-ADRootDSE, New-ADObject, Rename-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.

- Requires Microsoft .NET Framework 4.5 or above. You can install Microsoft .NET Framework 4.5 or above by following the instructions at <u>Installing the</u> .<u>NET Framework.</u>
- 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:

- <u>Remote Server Administration Tools for Windows 10</u>
- Remote Server Administration Tools (RSAT) for Windows 8.1
- Remote Server Administration Tools (RSAT) for Windows 8
- <u>Remote Server Administration Tools (RSAT) for Windows 7 with SP1</u> (both x86 and x64)
- <u>Remote Server Administration Tools (RSAT) for Windows Vista 32-bit</u> (x86)
- <u>Remote Server Administration Tools (RSAT) for Windows Vista 64-bit</u> (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. (See the following figure.)

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. (See the following screen shot.)

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

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 <u>Installing the</u> .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. (See the following screen shot.)





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

Expected output:

Directory: C:\Windows\system32\WindowsF	PowerShell\v1.0\Modules
ModuleType Version Name	ExportedCommands
Manifest 1.0.0.0 ActiveDirectory ADObject, Move-ADObject}	{Get-ADRootDSE, New-ADObject, Rename-

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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
PSCompatibleVersid	ons {1.0, 2.0, 3.0,
BuildVersion	10.0.14409.1005
CLRVersion	4.0.30319.42000
WSManStackVersio	n 3.0
PSRemotingProtoco	IVersion 2.3
SerializationVersion	1.1.0.1



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:

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-Azur	eAutomationConnection, Remove-AzureAutom
Script 0.5.0 Azure.AnalysisService	s {Add-AzureAnalysisServicesAccount, Restart-
AzureAnalysisServicesInstance, Export-	AzureAnalysisServicesInstanceLo
Script 4.0.2 Azure.Storage	{Get-AzureStorageTable, New-
AzureStorageTableSASToken, New-Azu	<pre>ireStorageTableStoredAccessPolicy, New-AzureStorage</pre>
Script 4.0.0 Azure.Storage	{Get-AzureStorageTable, New-
AzureStorageTableSASToken, New-Azu	ireStorageTableStoredAccessPolicy, New-AzureStorage
Binary 2.0.0.131 AzureAD	{Add-AzureADApplicationOwner, Get-
AzureADApplication, Get-AzureADApplic	cationExtensionProperty, Get-AzureADApplic
Script 5.0.1 AzureRM	{Add-AzureAnalysisServicesAccount, Add-
AzureKeyVaultCertificate, Add-AzureKey	/VaultCertificateContact, Add-AzureK
Script 0.5.0 AzureRM.AnalysisServ	vices {Resume-AzureRmAnalysisServicesServer,
Suspend-AzureRmAnalysisServicesServ	/er, Get-AzureRmAnalysisServicesServer,
Script 5.0.1 AzureRM.ApiManagen	nent {Add-AzureRmApiManagementRegion, Get-
AzureRmApiManagementSsoToken, Ne	w-AzureRmApiManagementHostnameConfiguration
Script 0.1.0 AzureRM.ApplicationIr	sights {Get-AzureRmApplicationInsights, New-
AzureRmApplicationInsights, Remove-A	zureRmApplicationInsights, Set-AzureRmA
Script 4.0.0 AzureRM.Automation	{Get-AzureRMAutomationHybridWorkerGroup, Get-
AzureRmAutomationJobOutputRecord, I	mport-AzureRmAutomationDscNodeCo
Script 4.0.1 AzureRM.Backup	{Backup-AzureRmBackupItem, Enable-
AzureRmBackupContainerReregistration	n, Get-AzureRmBackupContainer, Register-Azu
Script 4.0.1 AzureRM.Batch	{Remove-AzureRmBatchAccount, Get-
AzureRmBatchAccount, Get-AzureRmBa	atchAccountKeys, New-AzureRmBatchAccount}
Script 0.14.0 AzureRM.Billing	{Get-AzureRmBillingInvoice, Get-AzureRmBillingPeriod}
Script 4.0.0 AzureRM.Cdn	{Get-AzureRmCdnProfile, Get-
AzureRmCdnProfileSsoUrl, New-AzureR	RmCdnProfile, Remove-AzureRmCdnProfile}
Script 0.9.0 AzureRM.CognitiveSet	rvices {Get-AzureRmCognitiveServicesAccount, Get-
AzureRmCognitiveServicesAccountKey,	Get-AzureRmCognitiveServicesAccoun
Script 4.0.1 AzureRM.Compute	Remove-AzureRmAvailabilitySet, Get-
AzureRmAvailabilitySet, New-AzureRmA	AvailabilitySet, Update-AzureRmAvailabili
Script 0.3.0 AzureRM.Consumption	n Get-AzureRmConsumptionUsageDetail
Script 0.1.0 AzureRM.ContainerIns	stance {New-AzureRmContainerGroup, Get-
AzureRmContainerGroup, Remove-Azur	reRmContainerGroup, Get-AzureRmContainerInstanc
Script 0.3.0 AzureRM.ContainerRe	gistry {New-AzureRmContainerRegistry, Get-
AzureRmContainerRegistry, Update-Azu	IreRmContainerRegistry, Remove-AzureRmCont
Script 4.0.1 AzureRM.DataFactorie	es {Remove-AzureRmDataFactory, Get-
AzureRmDataFactoryRun, Get-AzureRm	nDataFactorySlice, Save-AzureRmDataFactoryLog}
Script 0.3.0 AzureRM.DataFactory	V2 {Set-AzureRmDataFactoryV2, Get-
AzureRmDataFactoryV2, Remove-Azure	eRmDataFactoryV2, Set-AzureRmDataFactoryV2Linked
Script 4.0.0 AzureRM.DataLakeAn	alytics {Get-AzureRmDataLakeAnalyticsDataSource,
New-AzureRmDataLakeAnalyticsCatalog	gCredential, Remove-AzureRmDataLakeAn
Script 5.0.0 AzureRM.DataLakeSto	ore {Get-AzureRmDataLakeStoreTrustedIdProvider,
Remove-AzureRmDataLakeStoreTruste	dldProvider, Remove-AzureRmDataLake
Script 4.0.0 AzureRM.DevTestLabs	s {Get-AzureRmDtlAllowedVMSizesPolicy, Get-
AzureRmDtlAutoShutdownPolicy, Get-A	zureRmDtlAutoStartPolicy, Get-AzureR
Script 4.0.0 AzureRM.Dns	{Get-AzureRmDnsRecordSet, New-
AzureRmDnsRecordConfig, Remove-Az	ureRmDnsRecordSet, Set-AzureRmDnsRecordSet}
Script 0.2.0 AzureRM.EventGrid	{New-AzureRmEventGridTopic, Get-
AzureRmEventGridTopic, Set-AzureRmI	EventGridTopic, New-AzureRmEventGridTopicKey}
Script 0.5.0 AzureRM.EventHub	{New-AzureRmEventHubNamespace, Get-
AzureRmEventHubNamespace, Set-Azu	<pre>ireRmEventHubNamespace, Remove-AzureRmEventHu</pre>
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-Azure	RmLogProfile}



Script AzureRr	3.0.0 nlotHubF	AzureRM.lotHub {Add-AzureRmlotHubKey, Get- ventHubConsumerGroup, Get-AzureRmlotHubConnectionString, Get-AzureRmlot
Script	4.0.1	AzureRM.KevVault {Add-AzureKevVaultCertificate. Set-
AzureKe	vVaultCe	rtificateAttribute, Stop-AzureKeyVaultCertificateOperation, Ge
Script	4.0.0	AzureRM.LogicApp {Get-AzureRmIntegrationAccountAgreement, Get-
AzureRr	nIntegrati	onAccountCallbackUrl, Get-AzureRmIntegrationAccount
Script	0.16.0	AzureRM.MachineLearning {Move-AzureRmMICommitmentAssociation, Get-
AzureRr	nMIComr	hitmentAssociation, Get-AzureRmMICommitmentPlanUsageHistor
Script	0.2.0	AzureRM.MachineLearningCompute {Get-AzureRmMIOpCluster, Get-
AzureRr	nMIOpClu	isterKey, Test-AzureRmMIOpClusterSystemServicesUpdateAvailability, Upd
Script	0.2.0	AzureRM.MarketplaceOrdering {Get-AzureRmMarketplaceTerms, Set-
AzureRr	nMarketp	laceTerms}
Script	0.8.0	AzureRM.Media {Sync-AzureRmMediaServiceStorageKeys, Set-
AzureRr	nMediaS	erviceKey, Get-AzureRmMediaServiceKeys, Get-AzureRmMediaS
Script	5.0.0	AzureRM.Network {Add-
AzureRr	nApplicat	onGatewayAuthenticationCertificate, Get-
AzureRr	nApplicat	onGatewayAuthenticationCertificate,
Script	4.0.0	AzureRM.NotificationHubs {Get-AzureRmNotificationHub, Get-
AzureRr	nNotificat	ionHubAuthorizationRules, Get-AzureRmNotificationHubListKeys, G
Script	4.0.0	AzureRM.OperationalInsights {New-
AzureRr	nOperatio	nalInsightsAzureActivityLogDataSource, New-
AzureRr	nOperatio	nalInsightsCustomLogDataSource, Di
Script	4.0.0	AzureRM.PowerBIEmbedded {Remove-
AzureRr	nPowerB	WorkspaceCollection, Get-AzureRmPowerBIWorkspaceCollection, Get-
AzureRr	nPowerB	WorkspaceCol
Script	4.1.1	AzureRM.profile {Disable-AzureRmDataCollection, Disable-
AzureRr	nContext	Autosave, Enable-AzureRmDataCollection, Enable-AzureRmCont
Script	4.0.1	AzureRM.RecoveryServices {Get-AzureRmRecoveryServicesBackupProperty,
Get-Azu	reRmRed	overyServicesVault, Get-AzureRmRecoveryServicesVaultSe
Script	4.0.1	AzureRM.RecoveryServices.Backup {Backup-
AzureRr	nRecove	yServicesBackupItem, Get-AzureRmRecoveryServicesBackupManagementServer,
Get-Azu	reRmRed	over
Script	0.2.1	AzureRM.RecoveryServices.SiteRec {Edit-
AzureRr	nRecove	yServicesAsrRecoveryPlan, Get-AzureRmRecoveryServicesAsrAlertSetting, Get-
AzureRr	nRecove	ySer
Script	4.0.1	AzureRM.RedisCache {Remove-AzureRmRedisCachePatchSchedule,
New-Az	ureRmRe	disCacheScheduleEntry, Get-AzureRmRedisCachePatchSchedule,
Script	0.3.0	AzureRM.Relay {New-AzureRmRelayNamespace, Get-
AzureRr	nRelayNa	mespace, Set-AzureRmRelayNamespace, Remove-AzureRmRelayNamespace}
Script	5.0.0	AzureRM.Resources {Get-AzureRmProviderOperation, Remove-
AzureRr	nRoleAss	lignment, Get-AzureRmRoleAssignment, New-AzureRmRoleAssignmen
Script	0.16.0	AzureRM.Scheduler {Disable-AzureRmSchedulerJobCollection, Enable-
AzureRr	nSchedu	erJobCollection, Get-AzureRmSchedulerJobCollection,
Script	4.0.0	AzureRM.ServerManagement {Invoke-
AzureRr	nServeriv	anagementPowerShellCommand, Get-AzureRmServerManagementSession, New-
AzureRr	nServeriv	anagemen Anum DM One in Dur
Script	0.5.0	AzureRM.ServiceBus {New-AzureRmServiceBusNamespace, Get-
AzureRr	nService	BusNamespace, Set-AzureRmServiceBusNamespace, Remove-AzureRmS
Script	0.3.0	AzureRM.ServiceFabric {Add-AzureRmServiceFabricApplicationCertificate,
Add-Azl	Irekmsei	ViceFabricUllentUertificate, Add-AzureRmServiceFa
Script	5.0.1	AzureRivi.SiteRecovery (Get-AzureRmSiteRecoveryFabric, New-
AzureRr		overyFabric, Remove-AzureRmSiteRecoveryFabric, Stop-AzureRmSit
Script	4.0.1	Azurekiw.Sqr {Get-AzurekinSqrDatabaseTransparentDataEncryption,
Get-AZU		Azuro PM Storago
	4.U.I	AzureKivi.Storage (Get-AzureKinStorageAccount, Get-
Script		AccountRey, New-AzureRinStorageAccount, New-AzureRinStorageAccountRe
	4.0.1	AzureRmStreamAnalytics {Get-AzureRmStreamAnalyticsFunction, Get-
Script		AraryiicsDerauliFunctionDerinition, New-AzureRmStreamAnaly
	4.0.0 nTaal	Azurekini ays {keinove-Azurekini ay, Get-Azurekini ay, New-
Script	4 0 0	AzureRM TrafficManager/Disable-AzureRmTrafficManagerEndpoint_Enable_
AzureRr	nTrafficM	anagerEndpoint_Set_AzureRmTrafficManagerEndpoint
	minuli	anagerinapoint, oet Azaren manemanagerinapoint,

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 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

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".
- 2. Client Id and Authentication Key:
 - Create an Azure Active Directory application.
 - Select Azure Active Directory.



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• Select App registrations.

mi _{Azur}	CrOSOft e Active Directory
0	Overview
đ	Quick start
МА	NAGE
я	Users and groups
	Enterprise applications
	Devices (Preview)
	App registrations
10	Application proxy

• Select New application registration.





evening only	~
Application type 0	
Web app / API	<u> </u>
* Sign-on URL 🛛	
https://contoso.org/exampleapp	~

You have created your application.

• From App registrations in Azure Active Directory, select your application.

New application registration	Endpoints	🗙 Troubleshoot			
To view and manage your registrat Console.	tions for converge	d applications, plea	ase visit the	Microsoft Application	
example-app			~	My apps	4
DISPLAY NAME		APPLICATION TYPE	APPLICAT	ION ID	
EX example-app		Web app / API	9ba6178	5-e7b9-4526-89d9-84c.	

AutomationEdge



• Copy the **Application ID** and store it in your application code. This is your "Client Id".



• To generate an authentication key, select Settings option as shown in above image and then select **Keys**.

Settings	
GENERAL	
Properties	>
🚝 Reply URLs	>
Owners	>
API ACCESS	
🚴 Required permissions	>
💡 Keys	>

• Provide a description of the key, and duration for the key. When done, select **Save**.

R Save X Discard	Upload Public Key		
Passwords			
DESCRIPTION	EXPIRES	VALUE	
first key	✓ Never expires	Value will be displayed on 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.

1 0 ,		
Keys		
🕞 Save 🗙 Discard		
🛕 Copy the key value. You w	on't be able to retrieve after yo	ou leave this blade.
DESCRIPTION	EXPIRES	VALUE
first key	9/8/2018	syH8cFAWotOvXIZPQXIVhQhkyNeWDCW8rXHaIYWDsvs=

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- 3. Get Tenant Id:
 - Select Azure Active Directory.





• To get the tenant ID, select **Properties** for your Azure AD tenant.

mic _{Azure}	rOSOft Active Directory
0	Overview
ď	Quick start
MAN	IAGE
RR	Users and groups
15	Enterprise applications
	Devices (Preview)
15	App registrations
-	Application proxy
Å	Licenses
•	Azure AD Connect
=	Domain names
٢	Mobility (MDM and MAM)
	Company branding
۵	User settings
†1†	Properties



• Copy the **Directory ID**. This value is your tenant ID.

R Save X Discard	
* Name	_
Microsoft	
Country or region	
United States	
Location	
Asia, United States, Europe datacenters	
Notification language	
English	ý.
Global admin can manage Azure Subscriptions	
Yes No	
Directory ID	
X00000000-X000-X000-X0000-X0000-X0000-X000-X0000	ð

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.

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.

Subscriptions Microsoft	
📥 Add	
My role 0	
All	
Apply	
SUBSCRIPTION	ŤJ
📼 Visual Studio Enterprise	

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• Select Access Control (IAM).



• Select Add



• Select the role you wish to assign to the application.

Add permissions	
Role 🔀	
Owner	*
Assign access to	
Azure AD user, group, or application	~
test	~
test	~

- 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: <u>https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-create-service-principal-portal</u>

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
- 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 <u>About Office 365 admin roles</u>.

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:\Windo	ows\system3	32\WindowsPowerShell\v1.0\Modules
ModuleType Version	Name	ExportedCommands
Manifest 1.1.166.0 M MsolDevice Enable-M	/ISOnline IsolDevice	{Get-MsolDevice, Remove-



- 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: <u>Microsoft Online Services Sign-in Assistant for IT Professionals RTW</u>.

5 Appendix 5: Office 365 App Registration & Permissions in Azure AD

5.1 Register App

- 1. Sign in to your Azure Account through the <u>Azure portal</u>.
- 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.
- 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**.



example-app		
Supported acco	unt types	
Who can use this a	oplication or acces	s this API?
Accounts in thi	s organizational di	ectory only (Microsoft only - Single tenant)
Accounts in an	y organizational di	ectory (Any Azure AD directory - Multitenant)
Accounts in any	y organizational di	ectory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox
Help me choose		
Redirect URI (op	tional)	
We'll return the auti changed later, but a	nentication respon- value is required f	e to this URI after successfully authenticating the user. Providing this now is optional and it can b or most authentication scenarios.
Web	~	https://graph.microsoft.com

7. Upon registration fetch Tenant ID and Client ID for the App as seen below.



5.2 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

P Search (Ctrl+/) «	♡ Got feedback2			
Overview Quickstant Jintegration assistant Preview	Add a client secret Description Test			
fanage Sranding Authentication	Explices in 1 year in 2 years Novar			
Certificates & secrets Token configuration All permissions	Add Cancel			
Expose an API Owners Roles and administrators Preview	Client secrets A secret string that the application uses to prove its identit	when requesting a token. Also ta	an be referred to as application password.	
Manifest	+ New dient secret Description	Expires	Value	
mont + Troubleshooting				

5.3 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.

😃 Quiclatert		10.14.1740.1		Commonly used Microsoft APIs		
🖌 Integration assistant (Preview Manage	Configured permissions Applications are outhorized to call AF all the permitators the application ne	fs when they are eds. Learn mare	granted permissions by users/solmins as part shous permissions and content	Microsoft Graph Take advantage of the ther Access Acure AQ. Ercol Int single endpoint.	nerdous amount of data in Office 3/8. Enterpris une, Outbook,Bichtange, OneDhine, OneNote, Sh	e Notility + Security, and Windows 10. ano ^{lo} int, Planner, and more through a
 Branding Authentication 	+ Add a permission V Grant a	dmin consent for	yanoto(863			
Centificates & secrets Token configuration	AP(/ Permissions dame	Туре	Description	Acure Rights Management Services Alburvalidated users to read and write	Acure Service Management Programmatic access to much of title	Data Export Service for Microsoft Dynamics 365 Export data from Microsoft Dynamics
AR permission	Vat Read	Delegated	Read user wail	protected content	functionality available through the foure portal	CRM organization to an external destination
Espose an API Owners	Val.Send	Delegated	Send mail at a user			
Roles and administrators Freview	openid Liver Read	Delegated	Sign users in	Oynamics 365 Susiness Central Programmatic access to data and	Dynamics CMM	Flow Service
📕 ManYest	Liter Read/Write.A)	Delegated	Read and write all users' full profiles	functionality in Dynamics 355 Business Central	software and BRP systems	1992 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 999 - 99
Support + Troubleshooting	Liter Read Write All	Application	Read and write all users full profiles			
New support request				Fing Senare	Office 365 Management APb Remove internation aboutuser admin system, and policy actions and events from Office 365 and Azure AD activity logs	Power EE Service Programmatic access to Destocerdinesources such as Destocerdinesources such

- 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.



5.4 Consent for Permission to App

5.4.1 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.

×	Dashboard > VYOM LABS PVT, LTD. > e	xample-app					
Dashboard	🚗 example-app API p	ermissions 🖈					×
All services	a 1111 - 1						
* FAVORITES	Search (Ctrl+/) «	💛 Refresh 🛛 🌣 Got fe	edback?				
Azure Active Directory & Users	4 Quickstart	Successfully granted adr	nin consent for	the requested permissions.			
Loterprise applications	Integration assistant Preview Manage Sranding	Configured permissions Applications are authorized to configured permissions shoul	call APIs whe d include <mark>all</mark> ti	in they are granted permission te permissions the application	is by users/admins as pa needs. Learn more abou	rt of the consent process. The li it permissions and consent	ist of
	Authentication	+ Add a permission 🗸	Grant admin	consent for VYOM LABS PVT, I	TG.		
	Certificates & secrets Token configuration	API / Permissions n	Туре	Description	Admin consent req	Status	
	API permissions	Microsoft Graph (2) emeil	Delegated	View users' email address	S.	Granted for VVOM LABS	
	Expose an API Expose an API Soles and administrators Pre Manifest Support + Troubleshooting New support request .	User Read	Delegated	Sign in and read user profile	(+	Granted for VVOM LA85	



6 Appendix 6: 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.

	lanager	nent			🌏 Syst	tem Administrator	- Q É	P 🕐 🕸
(Y Inclident	=	Incidents	New Go to	Assigned to	▼ Search			1
0 ★ 🗉					~ .	44 4	1 to 20 of 32	+ ++
Self-Service.	() ()	All>Activ	e=true = Number	≡ Opened	■ Short description	≡ Caller	≡ Priority	≡ State
Service Desk		()	INC0000046	2019-07-06 15:04:15	Can't access SFA software	Bud Richman	3 - Moderate	New
Incidents		0	INC0000058	2016-08-10 09:37:45	Performance problems with email	Bow Ruggeri	5 - Planning	New
Create New		G	INC0000039	2019-04-28 17:41:01	Trouble getting to Oregon mail server	Bud Richman	5 - Planning	New
Assigned to me		0	<u>INC0000059</u>	2016-08-10 09-14-29	Unable to access team file share	Rick Berzle	3 - Moderate	New
Open		0	INC0010004	2019-08-06 06:00:15	test_1	(empty)	5 - Planning	New
Open - Unassigned Resolved		(j)	INC0000054	2015-11-02 12:49:08	SAP Materials Management is slow or there is an outage	Christen <u>Mitchell</u>	• 1 · Critical	On Hold
All		G	INC0000057	2016-08-10 09:14:59	Performance problems with wifi	Bertie Luby	5 - Planning	New
Overview v		0	INC0000047	2019-07-06	Issue with email	Joe Employee	3 - Moderate	In Progress
0	4			1.5.13.10				, *

2. You may right click on the filter and click Copy query to copy the Criteria Query.

🖓 incident 🛞	≡	Incidents	New Go to	Assigned to	▼ Search			
च ५ 0						v •• •	1 to 20 of 32	+ ++
II-Service	₽ @	Alt>Activ	e = Open new v E Copy URL	vindow ed	≡ Short descrip	tion		≡ State
rvice Desk Incidents	D	0	Copy query INC0000054	2015-11-02 12:49:08	SAP Materials Management is s there is an outag	low.or <u>Christen</u> e <u>Mitchell</u>	• 1 - Critical	On Hold
ident		(i)	INC0000057	2016-08-10 09:14:59	Performance pro with wifi	blems Bertle Luby	5 - Planning	New
reate New		(j)	INC0000045	2019-07-06 15:04:15	Can't access SFA software	Bud Richman	3 - Moderate	New
ssigned to me		0	INC0000058	2016-08-10 09:37:45	Performance pro with email	blems Bow Ruggeri	5 - Planning	New
pen - Unassigned		(i)	INC0000039	2019-04-28 17:41:01	Trouble getting b Oregon mail serv	o Bud Richman	5 - Planning	New
esolved		(j)	<u>INC0000059</u>	2016-08-10 09-14:29	Unable to access file share	team <u>Rick Berzle</u>	3 - Moderate	New
u .		()	INC0010004	2019-08-06 06:00:15	test_1	(empty)	5 - Planning	New
vervlew		(i)	INC0000055	2019-07-06	SAP Sales app is	not <u>Carol</u>	• 1 - Critical	In Progres

- 3. You may paste this as Criteria Query in the plugin step.
 - active=true



5. Click Edit personal filters.

Servicendw service	Managem	ent				💮 Syst	em <mark>Adm</mark> inistrato	r• Q ¢	7 () 🔯
[♥ incident		incidents iew	New Go to	 Assigned to 	Ψ.	Search			
e \star O	F	lters roun Ry	Edit p	ersonal filters		γ		1 10 20 01 3	
Self-Service	SI R	how efresh List	> Active	- Unassigned	≡sł	ort description	≡ Caller		\equiv State
Service Desk	C	reate Favori	te Assign Close	ned to me	Can't softw	access SFA are	Bud Richman	3 - Moderate	New
Incidents		0	INCOL TestFi	oen Incidents Iter	Perfo with e	rmance problems email	Bow Ruggeri	5 - Planning	New
Create New		(i)	INC0000039	2019-04-28 17:41:01	Troub Orego	ole getting to on mail server	Bud Richman	5 - Planning	New
Assigned to me		0	INC0000059	2016-08-10 09:14:29	Unab file sh	le to access team ure	<u>Rick Berzle</u>	3 - Moderate	New
Open		(j)	INC0010004	2019-08-06 06:00:15	test_1	L	(empty)	5 - Planning	New
Open - Unassigned Resolved		0	INC0000054	2015-11-02 12:49:08	SAP N Mana there	faterials gement is slow or is an outage	Christen Mitchell	• 1 - Critical	On Hold
All		()	INC0000057	2016-08-10 09:14:59	Perfo with v	rmance problems wifi	Bertie Luby	5 - Planning	New
Overview		0	INC000047	2019-07-06 13:53:18	Issue	with email	Joe Employee	3 - Moderate	in Progress
https://dev89566.service-now.com/incident.do?sys_	d=4716f		_						

6. Once you click Edit personal filters you can see your filters. Click New to create a new filter.

Servicendw Service	tanagen	ieit .					(🕦 System Adri	iinistrator + C	(日 ⁽⁾ ()
(7 incident 🛞	=	Filters	New Search	h for text	• Isamh			44	< to	zotz 🕨 🍽
0 ★ 🗉	7	All > Tabl	e = inclident > U	set = System A	dministrator					
Self Service	12	Q	≡ Title	■ Table	■ Filter	■ Updated	■ Roles	≡ Mobile	≣ User	≡ Last used
Service Desk		(1)	MyEilter	incident [incident]	incident_state=1*EQ	2019-06-15 22:10:05		false	System Administrator	(empty)
Incidents		0	JestFilter	Incident (incident)	numberSTARTSWITHINCOD*EQ	2019-08-13 02:35:11		false	System Administrator	(empty)
Incident										1.12
Create New		Actions	in selected rows.					44	4 1 6	52072 > >>
Assigned to me										đ
Open										
Open - Linastigned										
Resolved										
All										
Overview										
0										

7. The following screen appears.

	ot.	🎯 System Administrator - 🔍 🗗 🛞 🚳
(F incident 🛞 🤇	Filter New record	₿ ∰ 000 <mark>Salant</mark>
	Tide	
Self Service	Table Incident (incident)	*
Service Desk	Filter Add Filter Condition Add "OR" Clause Add Sort	
Incidents	- choose field - v - oper -	value
Indident	Application Global	0
Create New		
Assigned to me		
Open		Ċ
Open - Unassigned		
Resolved		
All		
Overview		
•		

8. Provide a Title. In Choose field Select Short description, in oper select is and in value type RPA. Click OR.

Service NUCendw Service Mi	anagement				0	System Administr	ator •	٩	c7	9 4
(🖓 incident	< = Filter New record	ŧ					4	1	i 000	Submit
■ ★ ©	Title	WyCritertaFilter								
Sell Service	Table	Incident (Incident)						٠		
Service Desk	Filter	Add Filter Condition	Add "OR" Clause	Add Sort						
Incidents		Short description		в	RP4	AMD	OR	х		
incident	Application	Global							0	
Create New	Cardowalk .									
Assigned to me	adomix									
Open										Ū
Open Unassigned										
Resolved										
AB										
Cherview -										
0										

9. In the second OR condition select Opened on Today. Click Submit.

	🌍 System Administrator + Q 🛱 ĝ
(Verified and the second secon	∦ ± ••• Submit
🗐 ★ 🕐 Title	MyGritteriaFilter
Self Service Table	Incident (Incident)
Service Desk Filter	Add Filtur Condition Add "GR" Clause Add Sort
Incidents	Short description 🔻 Is 🔻 RPA AND OR 🗙
Incident	ar Opened 🔻 on 🔹 Today 🔹 😨 🗙
Create New Application	Gebal
Assigned to me	
Open	
Open - Unassigned	Ŭ
Resolved	
All	
Overview	
0	

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- 10. MyCriteriaFilter is now visible in the filter list.
- 11. Click Incident menu on the left navigation to see All incident records.

						🅘 Sys	tem Administr	ntor - Q	5 () () () () () () () () () () () () () (
(7 incident	=	Filters 🚺	Search	for text *	Snarch		44 4	1 to 3	of3 🕨 🕨
	₽ @	All > Table	= Incident > Diar = = Title	System Adm = Table	inistrator	\equiv Updated	≡ Roles	≡ Mobile	≡User
Service Desk		0	MyEilter	Incident [incident]	incident_state=1*EQ	2019-08-15 22:10:05		false	Svislem Administrator
Incident		0	Testfilter	Incident [Incident]	numberSTARTSWITHINC00/EQ	2019-08-13 02:35:11		false	System Administrator
-Create New Assigned to me		0	MyCriteriaFilter	Incident [Incident]	short_description=RPM*ORopened_atONToday	2019-08-15 22:46:41		false	System Administrator
Open Open Unassigned		Actions o	on selected rows	ŧ			44 4	1 to	1 of 1 🕨 🕨
Resolved									¢
All									
••••••••••••••••••••••••••••••••••••••	4								

12. <u>Click</u> ≡. Select Filter menu and then select MyCriteriaFilter.

							🏐 System Administrator 🔹 🔍 🗗 🕐					
(7 incldent	Ξ	View	2 601	b State	 Séarch 			√	1 to 2	10 of 34 🕨 🕨		
■ ★ 0	9	Elics Group By Show	> Edi	t personal filters tone	≡ Short description	≡ Caller	■ Priority	State 🛦		≡ Assignment grou		
Self Service	Ē	Refrech L Create Fa	ist Act votite Ass	ive - Unassigned igned to me	Performance problems with email	Bow Ruggeri	5- Planning	New	inquiry / Help	(empty)		
tecidents	1	0	INCOX Clo	sed Open Incidents	Trouble getting to Oregon mail server	BudRichman	5- Planning	New	Network	Network		
Incident		0	INCON MY	Critenai-Titer Hiter	Unable to access learn file share	Rick Berzle	3 - Moderate	New	inquiry/Hslp	(empty)		
Create New	Ĩ.	O	INCODE Tes	Fiter 15:04:15	Carrt access SFA software	<u>Bud Richman</u>	3 - Moderato	New	Software	Software		
Assigned to me		0	INC0000052	2016-05-10 09:14:59	Performance problems with with	Bertie Luby	5- Planning	New	inquiry/Help	(empty)		
Open - Unassigned	1	0	INC0030008	2019-08-15 22:13:51	RPA	Abei Tuter	5- Planning	New	Inquiry/Help	(empty)		
Resolved		0	INC 00 10004	2019-08-05 06-00.15	test_1	(empty)	5-Flanning	New	inquiry / Help	(empty)		
AI	Ĩ.	0	INC 09 10609	2019-08-15 22:14:30	RPA	Abel Tuter	5- Planning	New	Inquiry/Hdp	(empty)		
0	4 88	10	ac	2019-07-06	Network slorage	Mark Karalia	- 3 104	- Re	********	11		

13. You can now see the filtered list with MyCriteriaFilter applied. You can see the filter applied: Short_description=RPA or Opened Today.

SELVICE	e Manager	ment.						System Ad	ninistrator -	¢ م	1
(🍸 incident	=	Incidents	New Go to	State	▼ Search			√ 44	•	to 2 of 2	* * *
E \star O	7	All> Shor	t description = RA	A .or. Opened on	Today						
Self-Service	-	- S.	≡ Number	≡ Opened	Short description	≡ Caller	≡ Priority	II Sate A	≡ Category	≡ Assigr	ment group
Service Desk	13	(i)	INC0010008	2019-08-15 22:13:51	RPA	Abel Tuter	5 - Planning	New	Inquiry / Help	(empty)	
incidents	13	(i)	INC0010009	2019-08-15 22:14:30	RPA	Abel Tuter	5 - Planning	New	Inquiry/Help	(empty)	
Incident	Ū.	Actions	on selected rows	•				44	•	to 2 of 2	
Create New											dt
Assigned to me											
Open											
Open Unassigned											
Resolved											
All											- 1
•	-							_			

14. Right click on the filter and click Copy query.

							🐏 System Adı	ainistrator -	Q 🗗 (0 🕸			
(7 inclident	8	=	Incidents	New Go to	State	• Sea	(h			∿ ∢∢	•	to 2 of 2 🕨	••
= * 0	9	7	All>Shor	t description = RPM	.ce. Cm	Open new window	l.						
Self-Service	A.	455		= Number	201	Copy URL Copy query	scription	= Caller	= Priority	= Sizte A	≡ Category	= Assignm	ent group
Service Desk			0	INC0010008	77:1 e	51		Abel Tuter	5 - Planning	New	Inquiry / Help	(empty)	
Incidents			0	INC0010009	2019-0 22:14	08-15 RPA 30		Abel Tuter	5 - Planning	New	Inquiry / Help	(empty)	
Incident			Actions	on selected rows	•					44	1 4	to 2 of 2 🕨	++
Create New													Ċ)
Assigned to me													· .
Open													
Open - Unassigned													
Resolved													
													1
0					_								

- 15. The Criteria query is as follows: <u>short_description=RPA^ORopened_atONToday@javascript:gs.beginningOfToday()@jav</u> <u>ascript:gs.endOfToday()</u>
- 16. You may now use it in the Plugin step.



7 Appendix 7: Power Shell Remote Connection

7.1 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)

7.2 Parameters

Input	: Tab:	
No.	Field Name	Description
1	Computer Name	IP Address of remote Machine.
2	Credentials	Username and Password of Remote Machine.

7.3 Prerequisites

7.3.1 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.
```

7.3.2 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
```

7.3.3 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 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

7.3.4 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.

7.3.5 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:

- <u>Restricted</u> 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. <u>RemoteSigned</u>

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

Nothing is blocked and there are no warnings or prompts.

6. <u>Undefined</u>

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.

7.3.6 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,

7.3.7 Parse output of Remote Command

\$variablename=Invoke-Command -ComputerName COMPUTER -ScriptBlock {COMMAND} -credential
foreach (\$xyz in \$variablename)





8 Appendix 8: Cisco

8.1 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
- 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.

PuTTY Configuration	? ×
Category:	
Category: Session Logging Terminal Keyboard Bell Features Window Appearance Behaviour Translation Selection Colours Connection Proxy Telnet Rlogin SSH	Basic options for your PuTTY session Specify the destination you want to connect to Host Name (or IP address) Port 172.24.50.9 22 Connection type: 22 O Raw O Telnet O Rogin Saved Sessions Save Default Settings Load Save Delete
Serial	Close window on exit: O Always O Never O Only on clean exit
About Help	Open Cancel





8.2 Commands used for Plugins.

1. Backup Configuration:

- To take backup you require to have TFTP Server. Download and install Tftp Server.
- 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

8.3 Additional Commands used for Plugins.

- 1. To get host name
 - show configuration | inc hostname
- 2. set terminal
 - terminal length 0



9 Appendix 9: Install VMware certificate

We need to instal VMware certificate to jvm

9.1 Export Certificate

 Log in to vCenter Server using specified server name (https://vmware.example.com) and follow the below procedure to install the certificate.

🕜 vSphere Web	Client × +						×
← → C (A Not secure https://m0940	.vyom-labs.com/v	sphere-client/?cs	p#extensionId%	3Dvsphere.core.host.rel	atedN 🏂 🏠 🥥 🛛 🌀	
vmware [,] vs	Your connection to this site i	s not secure ×	ē) anjalipa@vy	om-labs.com = Help ·	- I Q Search	•
Navigator	You should not enter any sensitive is site (for example, passwords or cred	Mon Con	Per VMs	s + I≣* Rés Dat Net	Work In Progress		
₩ 0940 vyc	It could be stolen by attackers. Lear You have chosen to disable security site. Re-enable warnings	n more warnings for this	buted Switches		Here Dollar Here		
	🛊 Flash	Allow •	1.	Type Standard networ	Filter •) Ne(*)	C Alarms	¥ ×
80 81 81	Certificate (Invalid)			Standard networ Standard networ Standard networ	k II k k	All (3) New (3) Acknowledg datastore 1 Datastore usage on disk	ped (C
<u>a</u> r	Cookies (9 in use)	Show	certificate	18 Objects	Export Copy +	Storage1 Datastore usage on disk	
		C Recent Obje	ets I :	× 😨 Recent	Tasks		¥×
		Viewed 10.51.4.15 7 VM1 7 M0940.vyom-1 8 CentOS6.8 7 Test Rohan 1 Datacenter	Created	All	Running	Failed All Users' Tasks • More	e Tasks

- 2. The Certificate Windows opens.
- 3. Navigate to the Details tab.

Certificate	×
General Details Certification Path	
Certificate Information	
This certificate is intended for the following purpose(s): • All application policies	
Issued to:	
Issued by: CA	
Valid from 8/ 17/ 2018 to 8/ 11/ 2028	
, Issuer <u>Statement</u>]
ОК	



4. Click Copy to File button while on Details tab.

Certificate	X
General Details Certification Path	
Show: <all></all>	•
Field	Value
Version Serial number Signature algorithm Signature hash algorithm Signature hash algorithm Signature hash algorithm Valid from Valid from Subject	V3 00 fb 63 e6 7e e5 93 da 95 sha256RSA sha256 VMware Engineering, M0940, 02 May 2019 10:30:35 26 April 2029 10:30:32 US_M0940 yyom-labs.com
Ed	it Properties
	ОК



- 5. The Certificate Export Wizard appears.
- 6. Click Next





8. Click Next.

Wizard
nat s can be exported in a variety of file formats.
format you want to use:
encoded binary X.509 (.CER)
e-64 encoded X.509 (.CER)
ptographic Message Syntax Standard - PKCS #7 Certificates (.P7B)
Include all certificates in the certification path if possible
sonal Information Exchange - PKCS #12 (.PFX)
Include all certificates in the certification path if possible
Delete the private key if the export is successful
Export all extended properties
rosoft Serialized Certificate Store (.SST)
ut certificate file formats

9. Browse a file path to download the certificate.

rtificate Export Wizard			5
File to Export			
Specify the name of the file you want to exp	port		
File name:			
		Browse]
	< Back Ne	ext > Car	ncel

- 10. Provide a name for the certificate.
- 11. Click Save.

🖉 🗸 🖉 Deskt	ъћ 🔸	• 4	Search Desktop
Organize 👻 Ne	v folder		<u>*</u> = • (6
🔶 Favorites 📃 Desktop	Libraries System Folder	yyomadmin System Folder	
🔛 Recent Places	E Computer System Folder	Network System Folder	
Libraries Documents Music Fictures Videos	Output File folder	Rahul File folder	
💐 Computer	*		
File name:	VMware_Certificate		
Save as type:	DER Encoded Binary X.509 (*.cer)		
Hide Folders			Save Cancel

12. You can now see the file path in the Certificate Export Wizard.

13. Click Next

Specify the name of the file you	want to export	
NF 20 07		
File name:		
C:\Users\Administrator\Desktop	p\VMware_Certificate.cer Browse.]
		_

14. This is the final step: Completing the Certificate Export.

15. Click Finish.

Completing the Certificate Exp	port
Wizard	
You have successfully completed the Certificate wizard.	Export
You have specified the following settings:	
File Name	C:\User
Export Keys	No
Include all certificates in the certification path	No
File Format	DER En
•	•
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	



- 16. A pop-up window appears showing the export was successful.
- 17. Click OK.

Certificate Export Wizard		X
	Completing the Certif Wizard You have successfully completed twizard. You have specified the following s	ficate Export the Certificate Export ettings:
	Export Keys Include all certificates in the cert File Format	tification path No DER En
	Certificate Export	port Wizard
		ОК



18. Click OK.

Certificate	X
General Details Certification Path	
Show: <all></all>	•
Field Version Serial number Signature algorithm Signature hash algorithm Valid from Valid to Subject	Value V3 00 fb 63 e6 7e e5 93 da 95 sha256RSA sha256 VMware Engineering, M0940, 02 May 2019 10:30:35 26 April 2029 10:30:32 US_M0940_vvom-labs_com
Learn more about <u>certificate details</u>	it Properties
L	ОК

19. This completes the process of exporting the Certificate.



9.2 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]: v
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
          0
             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.

10 Appendix 10: Enrolling devices for MDM in AirWatch

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

Following are the steps to Setup Mobile Devices,

10.1 **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.

😓 Works	bace ONE UEM		M101520374 Add ~ Q D 🕁 🕐	seema.koth 👻 🔛
GETTING STARTED	Getting Started	~	Getting Started	
MONITOR	Workspace ONE Device		Getting Started	* *
교 Devices 양 ACCOUNTS	Content Application Settings	ß	More about Getting Started Getting Started provides a step by step solution to help configure the enterprise management tools needed to secure and manage your device fleet.	
### APP5 & BOOKS			Workspace ONE	7% Completed
CONTENT CONTENT ENAAL ENAAL			 Frictionless access from any employee or corporate owned device Secure connectivity to enterprise productivity apps such as email, calendar, contacts, documents and more Instant, Single Sign-On (SSO) access to mobile, cloud and Windows applications Powerful data security that protects the enterprise and employees again compromised devices 	CONTINUE st Skip Section
GROUPS &			Mobile Device Management	7% Completed
		4	Perform actions on MDM enrolled devices such as lock, notify, or enterprise wipe Deploy profiles to configure email, restrictions, settings, and more	CONTINUE

2. Click Continue next to Mobile Device Management.

🙄 Works	ace ONE UEM		M101520374	Add 🗸	¢Φ	☆ ⑦	seema.koth_ 👻	
	Getting Started	~	Getting Started					
	Workspace ONE Device		Getting Sta	rted			ń	*
DEVICES	Content		Mobile Device M	anagement			7% Completed	
8 ACCOUNTS	Settings	ß		 Perform actions on MDM enrolled devices such enterprise wipe Deploy profiles to configure email, restrictions, Configure compliance rules to ensure security 	settings, and	lfy, or d more being met in	CONTINUE	
APPS & BOOKS				your device fleet • View how best to manage your devices from th	e Dashboard	d and Monitor	Skip Section	
CONTENT			Content Manage	ment			0% Completed	
				Within the Content Locker application, deploy or go. View & Manage your content with Content Dasi Use Personal Content to share and collaborate	content and hboards, Rep	access it on th ports, and Loj	BEGIN SETUP	
(C) GROUPS &				 Integrate with existing repositories and deploy devices 	your conten	it to mobile	Skip Section	
SETTINGS			Application Man	agement			6% Completed	Ì.

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).
- 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.

🕼 Works	pace ONE UEM		M101520374		Add 🗸	σţ	☆ ②	seema.koth 👻	
GETTING STARTED	Getting Started	×	Getting Started > Get	ting Started	7% Completed			-	l.
	Workspace ONE	_	Device					ń	*
	Content		SETUP						-
DEVICES 양	Application Settings	ß	Apple MDM *						
ACCOUNTS	048900h = 114			Will you be using Workspace DNE IOS or macOS devices)?	UEM to manage App	le devices (either	NO	YE5	
APPS & BOOKS			Email Domain						
				If your email domain is related to environment, you can configure y their email address during enrollin your organization group.	only one Workspace our email domain to nent and be automat	ONE UEM allow users to ty tically added to	be 🕨	CONFIGURE	
& TELECOM			ENROLL						258
GROUPS & SETTINGS			Add User *						
() ABOUT		¢		Add a basic enroliment user in Wo you will create a new user and ser instructions	orkspace ONE UEM. I nd them a message v	Ouring this proces with enrollment	ss, 🕨	CONFIGURE	





6. Once you click Yes above you get a popup as shown below. Click Yes to navigate to Apple Push Notification(APN) setup.

Confirm Navigation	×
You are about to navigate away from this Gettin track to set up your APNs. Would you like to con	g Started tinue?
YES	NO



7. Click on the link to download Certificate Request (MDM_APNsRequest.plist)



8. Click Continue.

	Link Your Apple Account
o ma nd re	anage your Apple devices, we need to set up a secure connection from your Apple account to Workspace ONE UEM. We do this by uploading a Workspace ONE UEM file to Apple eceiving a certificate back. This certificate is only valid for one year, so it must be renewed annually.
~	Download Certificate Request
	Get started by downloading the certificate request file. In the next step, we will give this file to Apple to establish the connection.
0	R MDM_APNsRequest_plist
	Please check your download folder on your computer. If you cannot find it please click the download button again.
	CONTINUE
C	reate an Apple Certificate





2. Sign In to Apple Push Certificates Portal.

Sign In.							
seema535@gmail.ci	om					-	
Forgot your Apple II	D?				6	12.5	3
					6	-	
Forgot your passwo	rd?				(O) 12		
		Sig	gn in				





4. Click to Save your MDM_ AirWatch_Certificate.







5. Browse a file path to save MDM_AirWatch_Certificate.

🖌 💵 Computer					
🖻 🏭 Local Disk (C:))				
P 👝 New Volume	(D:)				
 New Volume (New Volume (New Volume ((E:) (F:)				
			III /		
File name:	MDM_Air	Watch_Certificat	e.pem		
Save as type:	PEM File (*	.pem)			
🔿 Hide Folders				Save	Cancel

6. You have successfully created a new push certificate Confirmation screen appears.







8. Go back to Workspace ONE UEM. On the third step upload the Apple Certificate.

>	Download Certificate Request		0
>	Create an Apple Certificate		0
,	Upload Apple Certificate		
	Upload the MDM certificate you received from	Apple to complete the connection between Apple and Workspace ONE UEM.	
	Apple issued Workspace ONE UEM MDM certificate (.pem)	MDM_AirWatch_Certificate.pem	



> Download Certificate Request		Ø.
> Create an Apple Certificate		0
🗸 Upload Apple Certificate		
Upload the MDM certificate you received from Apple issued Workspace ONE UEM MDM certificate (.pem)	n Apple to complete the connection between Apple and Workspace ONE UEM MDM_ AirWatch_Certificate.pem	UPLOAD
	nado il 15 elavinas far vavir usars	

10. Apple MDM step is now complete.

🕲 Works	bace ONE UEM		M101520374	Add 🗸 🔍 🗘	🛧 🕐 seema.koth. 🗸 🏢
	Getting Started Workspace ONE	Ŷ	Getting Started > Get Device	ting Started	
Content Device Content Device Content S Accounts S Content Conten	C	SETUP Apple MDM * COMPLETE Apple Certifica	Will you be using Workspace ONE UEM to manage Apple devices (either IOS or macOS devices)?		
		¢		do not have an APNs certificate, you can start the certificate request process from the APNs for MDM Settings page using this link. If your email domain is related to only one Workspace ONE UEM environment, you can configure your email domain to allow users to typ their email address during enrollment and be automatically added to yo organization group.	
11. You may Skip or configure Email Domain. In this case we have skipped configuring email domain.

😳 Worksp	ace ONE UEM		M101520374		Add 🛩	۹	۵	☆	0	seema koth		
	Getting Started Workspace ONE	~	Getting Started > Gettin	g Started	15% Completed						-	*
MONTON 1	Device											1
CONTENT ACCOUNTS ADDS & BOOKS CONTENT EMAL EMAL FILECOM	Application Settings	Ø	Apple MDM * COMPLETE Apple Certificate COMPLETE Email Domain	Will you be using Workspace C IOS or macOS devices)? An Apple Certificate for MDM i do not have an APNs certificat process from the APNs for MD	DNE UEM to manage Ap is required to manage A e, you can start the cert M Settings page using I	ple device opple dev ificate re this link.	es (eithe ices. If y quest	r (NO	YES EDIT		
GROUPS & SETTINGS												r.

10.2 Enroll Users

This section explains steps to enroll users for all devices.

1. Next you can enroll users.





2. Provide the general user information.

General Advanced				
Security Type *	BASIC			
User Name *	Kush			
Password *	••••••	Show		
Confirm Password *		Show		
Full Name *	Kush	Middle Name	Kothari	

3. Provide Advanced Information.

Email Address *	seema535@gmail.com	
5		
Email User Name	seema535@gmail.cc	
Domain		
Phone Number	+919561084561	
Mobile Phone	Mobile Phone	
> Enrollment		



4. Enroll Device for the newly enrolled user.

General			
Friendly Name	Kush's Device	+	
Organization Group	M101520374		
Device Ownership Type*	Corporate - Dedicated	×	
Platform *	Apple iOS		
	Show advanced device infor	mation options	

5. For User is enrolled.

🕲 Works	Dace ONE UEM		M101520374		add 🗸 🔍	0 ☆ 0	seema.kot	n • 🛛 🏢
GETTING STARTED	Users	~	Accounts > Users					
	List View		List View					* *
MONITOR	Rales							20.000
	Enrollment Status	÷	Filters 🔅	ADD 🗸	LAYOUT 🛩	C EXPORT .	Search Us	t
DEVICES	Batch Status		General Info	Contact Info	Enrollment Organization Group	User Groups	Devices	Status
8 ACCOUNTS	Users Settings	>	Kush	seema535@gmail.com	M101520374	0	0	0
515 515	User Groups	>	/ Kush Kothari	+919561084561				Active
APPS & BOOKS	Administrators	>						
55 EMAIL								
6 TELECOM								
<u>ه</u>			-					
GROUPS &				Items 1 - 1 of 1			Page Size:	50 *
C ABOUT		<						



- 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.





9. Enrollment user receives email for Device Activation.



10.3 Enroll Device

This section explains steps to enroll devices.

- 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.
- 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.

10.4 Device Dashboard

 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.

🙄 Works	bace ONE UEM		M101520374	Add 🗸	۹	ф т	۵ £	seema.koth		:::
GETTING STARTED	Getting Started Workspace ONE	~	Getting Started > Get Device	26% Completed				·	- 1	*
DEVICES	Content Application Settings	Ø	ENROLL Add User *							-
			COMPLETE Enroll Device	Add a basic enrollment user in Workspace DNE UEM. you will create a new user and send them a message instructions.	During th with enrol	is process, liment	-	EDIT		
			COMPLETE	Drice a user is created, enroll a device using the instru- user. New your enrolled device from the dashboard of oard Manage enrolled devices from the Dashboard includi	uctions ser using this l ing the abil	nt to the ink. lity to Lock		EDIT		
SETTINGS *		<	+	Wipe, and Reset Passcodes. Lock your enrolled device Dashboard using this link.	e from the	50 3				

2. You can now start using the AirWatch Plugin steps.



11 Appendix 11: 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

11.1 Enable APIs

In this section we will Enable APIs for Google Drive and Google Spreadsheet.

1. Go to the Google Developer Console (https://console.developers.google.com/)

	Google APIs select a p	roject 💌	Q. Search for APIs and Services	~	0		:
API	APIs & Services	Dashboa	ard				
	Dashboard						
Ш	Library	0	To view this page, select a project.		CR	EATER	ROJECI
Ov	Credentials						
9	OAuth consent screen						
	Domain verification						
\overline{v}_0	Page usage agreements						

2. Click Select a Project or create a New Project. If you have an existing project, you can select it from ALL.

Select a project	NEW PROJECT
Q Search projects and folders	
RECENT ALL	
Name	ID
No organization	0

3. Provide valid values for the project and click on the **Create** button.

Google APIs	٩	-
New Project		
Project name *	•	
My Project 65018	9	
Project ID. metal-hope-274111. It cannot be changed	later. EDIT	
Porganization *		
1.52	• 0	
Select an organization to attach it to a project. This s	ection can't be changed later.	
location *		
	BROWSE	
Parent organization or folder		
CREATE CANCEL		

4. Navigate to Dashboard on Google Developer console and Click on ENABLE APIS AND SERVICES.

Ш	Google APIs 🔹 Test 👻	Q Sea	rch for APIs and Services		~	11	0	1	
API	APIs & Services	APIs & Services	+ ENABLE APIS AND SERVICES						
φ	Dashboard	_							
ш	Library	You don't have a	ny APIS available to use yet. To get started, clici	C Enable APIs and services or go to the <u>API library</u> .					
0v	Credentials								
99	0Auth consent screen								
2	Domain verification								
÷0	Page usage agreements								

5. Search for Google Drive API and Google Sheets API. Click on Enable.

Google APIs	🕈 Test 👻	Q. Search for APIs and Service	C9	*	19 0 🕦 I 🤮
	Google Driv	ve API			
	Baogle				
	The Google Drive	API allows clients to access resources from	Google Drive		
	ENABLE	THIS API			
OVERVIEW	DOCUMENTATION				
Overview					
The Google Driv	e API allows clients to	o access resources from Google Drive	Additional details		
			Type: APIs & services		
About Google			Last updated: 10/12/2019		
Google's missio	n is to organize the w	orid's information and make it	Category Storage, G Suite		



⊟ Google APis	🛊 Test 👻	٩	Search for APIs and Servi	ces			~	#	0	0	F (
÷												
	Google Sheet	ts API										Î
Ħ	Google											
The Sheets API gives you full control over the content and appearence of your opreadsheet data.												
	ENABLE TRY TH	IS AFI 🕑										
OVERVIEW	DOCUMENTATION	SUPPOR	Γ.									
Overview												
Reads and write	es Google Sheets,			Additional det	ails							
About Google				Type: APIs & ser Last undated: 10	vices 1/12/2019							

11.2 Get a Client ID and Client Secret

1. Navigate to the tab OAuth consent screen and choose the valid option.





2. Enter the Application name, Authorized domains, and click on the Save button.



3. Click on **Credentials** menu >> **Create Credentials** and from the dropdown list select **OAuth client ID.**



4. From the Application type, select the **Web Application.**

≡	Google APIs 🔹 Test 👻	Q Search for APIs and Services	~	n	0	1	E	
API	APIs & Services	← Create 0Auth client ID						
ф Ш	Dashboard Library	A client ID is used to identify a single app to Google's OAuth servers. If your app runs on multiple platforms, each will need its own client ID. See <u>Setting up OAuth 2.0</u> for more information.						
04	Credentials	Application type *						
Ψ	OAuth consent screen	Web application						
	Domain verification	Android Chrome app						
Fo	Page usage agreements	iOS TVs and Limited input devices Desktop app Universal Windows Platform (UWP)						



5. Enter valid Name and Authorized Redirect URIs. Click on the Create button.

6. Copy Client ID and Client Secret. Click on the OK button.

CANCE

https://developers.google.com/oauthplayground

+ ADD URI

+ ADD URI

CREATE

URIS

<1

Authorised redirect URIs @ For use with requests from a web server

	Google APIs S My Fir	st Project 🔻	٩			٠		e 🕦 i 🙎
API	APIs & Services	Credentials	OAuth client	created				
¢	Dashboard	Create credentials to acci	The client ID and secret Services	can always be accessed f	rom Credentials in APIs &			
쁥	Library	ADI Kava						
0.	Crodentials	AFINEys	0 OAuth is lim	ited to 100 sensitive scop	e logins until the OAuth			
2636		Name Name	process that	can take several days.	require a versication	nage with all servi	ces (last 30 days) 🕜	
19	OAuth consent screen	No API keys to display						
日	Domain verification		Your Client ID		anns oc 🗖			
-	Enco upono ogrammento	OAuth 2.0 Clier				1		
-0	rage usage agreements	□ Name	Your Client Secret					
		Web client I	83	1-	סי	M85-oline	n	1 1 +
						CAN STREET		
		Service Account						Manage service accounts
		00111001100000			01	EX		
		Email .				8		
		No service accounts to t	lisplay					
227								
4								





11.3 Generate Refresh Token

In this section we will generate Refresh Tokens using Client ID and Client Secret on Google OAuth 2.0 Playground.

- 1. Go to the Google OAuth Playground (https://developers.google.com/oauthplayground/)
- 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. Copy the following URL 'https://developers.google.com/oauthplayground'



0 co ¢
OAuth flow: Server-side 💠
OAuth endpoints: Google \$
Authorization endpoint: https://accounts.google.com/o/oauth2/v2/aut
Token endpoint: https://oauth2.googleapis.com/token
Access token location: Authorization header w/ Bearer prefix \$
Access type: Offline \$
Force prompt: Consent Screen \$
Use your own OAuth credentials
You will need to list the URL https://developers.google.com/oauthplayground as a valid redirect URI in your Google APIs Console's project. Then enter the client ID and secret assigned to a web application on your project below.
OAuth Client ID Client ID
OAuth Client secret: Client secret
NUME AND ADDRESS AND ADDRESS AND ADDRESS

5. Open the **Credentials** tab on <u>Google Developer Console</u>, select created Client ID by clicking on the **Name**.

≡ G	Google APIs 🔹 DriveP	ibject 🔻		Q. Search for AP	is and Services		*		80 A I 🤮
RPI A	APIs & Services	Credent	tials + cri	ATE CREDENTIALS					
ф р	le shboavd	Creato cre	denciale to accese your	enabled APIs. Learn more					
38 L	brary	140	To electer up i and in	in second addressed approach and sealing	winn meet to be used find by Seco	da Long mag			
Dr 6	Sederitale		to protect you and yo			and the second second			
16 O	Huth consent screen	APIk	eys						
m o	Iomain verification		Name	Creation date 👍	Restrictions	Кау	Usage with all services (last 9	0 days) 😡	
T ₀ P	laga soage agreements	No API	i eya to diapley						
		OAst	th 2.0 Client IDs						
			Name	Creation date 4	Top		Client ID		
			AutomationEdge	17 Aug 2020	We	appRostion	757622858797 (0.68)	6	/ • •
			Oauthlegin	17 Aug 2020	9101	application	163822858707 up11	6	/ 1 1
			getpostman	26 Feb 2020	Yes	application	757622858797-2×2g	10	/ # ±
		Servi	ce Accounts						Manage 641Vol-ancounte
			Emuil	Neme 🛧	Usage w	ith all services (last 30 days) 😡)		
		No serv	ice accounts to display						
								Activ Goto	ate Windows Settinge to activate Windows
41									





- 7. Navigate back to Google OAuth Playground and click on Select & authorize APIs.
- 8. Select the **Select & authorize APIs**. Select the desired scope you want for your application and click on **Authorize APIs**.

Coogle Development	elopers
OAuth 2.0 Playground	×
Step 1 Select & authorize APIs	
Select the scope for the APIs you wou OAuth scopes below. Then click the "Aut	Id like to access or input your own thorize APIs" button.
Al Platform Training & Prediction AF	9 v1
Access Approval API v1	
Access Context Manager API v1	
Ad Exchange Buyer API II v2beta1	
Ad Exchange Buyer API v1.4	
AdSense Host API v4.1	
 AdSense Management API v1.4 	
G Admin Reports API reports v1	
Input your own scopes	Authorize APIs



9. Select the following scope under tab Drive API v3 - 'https://www.googleapis.com/auth/drive'

() Google Developers
OAuth 2.0 Playground ×
Step 1 Select & authorize APIs
Select the scope for the APIs you would like to access or input your own OAuth scopes below. Then click the "Authorize APIs" button.
• G Dialogflow API v2
G Display & Video 360 API v1
G DoubleClick Bid Manager API v1.1
- API v3
✓ https://www.googleapis.com/auth/drive
https://www.googleapis.com/auth/drive.appdata
https://www.googleapis.com/auth/drive.file
https://www.googleapis.com/auth/drive.metadata
https://www.googleapis.com/auth/drive.metadata.readonly
https://www.googleapis.com/auth/drive.photos.readonly
https://www.googleapis.com/auth/drive.readonly
Input your own scopes Authorize APIs



- Step 2 Exchange authorization code for tokens
Once you got the Authorization Code from Step 1 click the Exchange authorization code for tokens button, you will get a refresh and an access token which is required to access OAuth protected resources.
Authorization code: 4/ygH(
Exchange authorization code for tokens
Refresh token: 1//04 JpJAUx
Access token: ya29
Auto-refresh the token before it expires.
The access token will expire in 3587 seconds.
Note: The OAuth Playground will automatically revoke refresh tokens after 24h. You can avoid this by specifying your own application OAuth credentials using the Configuration panel.

- 11. You'll get the Authorization code, Click on the **Exchange authorization code for tokens** button.
- 12. Copy Refresh Token.

This completes the process of Enabling APIs, getting Client ID and Client Secret and Generation of Refresh Token required for connecting to google Spreadsheet.



12 Appendix 12: 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.

Microsoft Azure	P Search resou	nces, services, and dacs	E	G 🖓 O (3) ? ©	mahesh.badge@vyo vyom LAIIS PVT. LTD.
« + Create a resource	Azure services See all (100+)	> Create a resource >				
🟫 Home	1		SQL W	12	33	< <u>+></u>
Nashboard	Virtual machines App Servic	es Storage accounts SQL d	atabases Azure Database fo	r Azure Cosmos DB	Kubernetes	Function App
All services			PostgreSQL		services	
* FAVORITES			1 227			
All resources	Microsoft Learn	Azure Monitor Monitor your apps a	ecurity	Center	Cost Managen	nent otimize vour
Resource groups	online training from	infrastructure	infrastru	icture	cloud spend fo	or free
Recent	WILLISSOIT					
App Services						
Virtual machines (classic)	Recent resources See all you	ir recent resources 👌 - See all your re	sources >	Useful links		
Virtual machines	NAME	TYPE	LAST VIEWED	Technical Docume	intation 🗹	
SQL databases	AEDBSERVER.	Virtual machine	z wk ago	Azure Services 🗠		
Cloud services (classic)	(m) AETEST	Resource group	2 wk ago	Azure Bion 12	ates 🗠	
Subscriptions	(😭 ae-images	Resource group	2 wk ago	1.55		
Azure Active Directory	aeengine-image	Image	3 wk ago	Azure mobile	e app	
Monitor	aemessaging-image	Image	3 wk ago	Counterst on the	Google Play	
Security Center	AETESTNETWORK	Virtual network	4 wk ago			
Ocst Management + Bill	Access to Azure Active Dire	ectory (4 Subscription	1 mo ago			
tps://portal.azure.com/#home	Rec	hath AL Coherenties	1			





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.

Microsoft Azure	,D Search resources, services,	and docs	N G	Q	ø		٢	mahesh.badge@vyo
	Home > VYOM LABS PVT, LTD, - Properties							
+ Create a resource	VYOM LABS PVT. LTD Properties							×
Create a resource Home Dashboard Call services FAVORITS All resource groups Resource groups Recent All p Services Call Resources Call Resource groups Call Resources Call Resource groups Call Resource group Call R	Aver Active Directory Aver Active Active Directory Aver Active Directory Aver Active Directory Aver Active Directory Aver Active Directory Aver Active Directory Aver Active Directory Aver Active Directory Aver Active Directory Aver Active Active Directory	Ve X Dincard tory properties e I LASS PVT. LTD. y or region in nited States, Europe datacenters		11-11-03000				~
Virtual machines (classic) Virtual machines SQL databases Cloud services (classic) Subscriptions	Custom domain names Mobility (MDM and MAM) Password reset Company branding Ver settings Wer settings	abon anguage an ory ID cal contact sh.bodge@vyonmail.com				~		
Azure Active Directory	III Properties Global	privacy contact						
Monitor Security Center Cost Management + Bil	Notifications settings Security Overview (Preview)	sh:badge@vyom-labs.com r statement URL						

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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.

■ Microsoft Azure P Search resources, services, and docs (G+/)	E	6	Q	۲	?	۲	automationedge@aepl AEPLUGNDEV
Home > aeplugindev >							
Register an application							×
Name							
The user-facing display name for this application (this can be changed later).							
Intune Plugin							
Supported account types							
Who can use this application or access this API?							
Accounts in this organizational directory only (aeplugindev only - Single tenant)							
 Accounts in any organizational directory (Any Azure AD directory - Multitenant) 							
Accounts in any organizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox).							
Personal Microsoft accounts only							
Help me choose							
Dadirart URI /antiaash							
By proceeding, you agree to the Microsoft Platform Policies 🖻							
Register							

 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.



Microsoft Azure	₽ Search resources, ser	rvices, and docs	☑ ☞ ᆄ ◎ ? ♡	mahesh.badge@vyo
Greate a resource	Iome > VYOM LABS PVT, LTD App registrati Office365Plugin	iions ≥ Office365Plugin		\$ X
	Authentication Authentication	Delete Endpoints isplay name tune Plugin prication (clent) ID rown rown was not a none not constant on inectory (terant) ID Totana constant on the noted not constant on isplay table table table table table table table isplay table table table table table table isplay table table table table table isplay table table table table isplay table table table table isplay table table table isplay table table table isplay table table	Supported account types My organization only Redirect URIs Adda Redirect URI Managed application in local directory Office365Plugin	
Virtual machines (classic) Virtual machines SQL databases Cloud services (classic) Subscriptions Acure Active Directory Monitor Socurity Center O Cost Management + BilL Help + support V	Expose an API Owners Manifest upport - Troubleshooting New support request Ba	Welcome to the new and improved App registrations Call APIs Call definition of the new and improved App registrations Call definition of the new and improved App registrations	Looking to learn how it's charged from App registrations Documentation Microsoft identity platform Authentication libraries Code samples Microsoft Graph Glossary Help and Support	Kegarçıl' Laam more

9. To generate client secret, click on the **Certificates & Secrets** and then click on **+ New Client Secret**.

Microsoft Azure	P Search resources, services, and docs (G+/)
Home > aeplugindev > In	ne Plugin
P Search (Ctrl+/)	« Ø Got feedback?
E Overview	* <u>* * * * * * * * * * * * * * * * * * </u>
44 Quickstart	
💉 Integration assistant	Thumbprint Start date Expires 1D
Manage	No certificates have been added for this application.
Branding	
Authentication	
+ Certificates & secrets	Client secrets
III Token configuration	A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.
 API permissions 	The Name client surrent
 Expose an API 	Texture Contractory Contractor
App roles Preview	nacrubinou szbius Antos ID
E Owners	No client secrets have been created for this application.
Roles and administrators	18
Manifest	



10. Now enter the **Description**, **Expiry**, and click on **Add**.

😑 Microsoft Azure 🔎	earch resources, services, and docs (G +/)			t) Q	٥	6	7	٥	automationedge@aepl
Home > aeplugindev > Intune Plu Intune Plugin C	gin ertificates & secrets ≉ ≪ ♡ Got feedback?									×
Overview Quickstant fntegration assistant Manage	Add a client secret Description Indue Secret Expires in 1 year									
eranding Authentication Certificates & secrets III Token configuration	In 2 years Never Add Cancel									
API permissions Expose an API App roles Preview	+ New client secret Description	Expires	Value			ID				
Owners Poles and administrators Pre-	No client secrets have been created fo	or this application.								

11. Copy the value of the client secret as it will be not visible the second time.

😑 Microsoft Azure 🔎 Searc	h resources, services, and docs (G+/)			13	6 0 0 7 0	automationedge@aepl VarLucevcev
Home > aeplugindev > Intune Plugin	ificates & secrets 🔌					×
P Search (Ctrl+/)	🗇 Got feedback?					
Overview Overview Overview	Copy the new client secret value	e. You won't be able to retrieve it af	ter you perform another	operation or leave this blac	e.	
💅 Integration assistant	Thumbprint		Start date	Expires	ID	.*.
Manage	No certificates have been added for	this application.				
Branding						
Authentication	C ¹					
Certificates & secrets	Client secrets					
III Token configuration	A secret string that the application u	ises to prove its identity when rec	juesting a token. Also	can be referred to as app	ication password.	
API permissions	+ New client secret					
Expose an API	Description	Expires	Value		ID	
App roles Preview	Intune Secret	12/11/2021	31	11- FV II	D b367939d-f5a1-4641-88f7-f	15805812742 🖏 🗐
II. Owners			-		-	
💈 Roles and administrators Pre						
Manifest						



12. Click on API Permission and then click on Add Permission.



13. Click on Microsoft Graph, and then click on Application permissions.





14. Select Application permission.

Microsoft Azure	P Search resources, ser	wices, and docs	N	Ŗ	ţ P	٢		٢	mahesh.badge@vyo vvom LABS PVT. LTD.	
 	Home > VYOM LABS PVT.LTD App registr ShwetaApp2 - API permissions & © Overview	Request API permissions (All APIs Microsoft Graph https://graph.microsoft.com/ Docs [2] What type of permissions does your application r	require	e?						×
	Quickstant Manage Branding Authentication Certificates & secrets API permissions Expose an API Cowners Manifest Support + Troubleshooting X Troubleshooting	Delegated permissions Your application needs to access the API as the signed-in user		Appl Your signe	lication p applicati ed-in user	ermission on runs a r	15 s a back	ground se	rvice or deemon without a	
Co Monitor	Piew support request	Add permissions Discard								

15. Search and select the required permission. Click on Add Permission.

Microsoft Azure	$\mathcal P$ -Search resources, se	ervices, and docs	Σ	G,	Q	ø	?	٢	mahesh.badge@vyo
Create a resource	Home 3 ShwetaApp2 - API permissions ShwetaApp2 - API permissions	Request API permissions							×
Dashboard All services All services	م الله Overview هو Quickstart Manage	What type of permissions does your application r Delegated permissions Your application needs to access the API as the signed-in user.	equir	ne? Apr You	plication	permissi	ons as a bac	kground s	ervice or deemon without a
Resource groups Recent App Services		Select permissions Directory, ReadWrite All PERMISSION		sigr	ted-in us	er,			expand all
Virtual machines (classic) Virtual machines SQL databases Cloud services (classic) Subscriptions	Expose an API Gowners. Manifest Support - Troubleshooting	✓ Directory (1) ✓ Directory.ReadWrite.All Read and write directory data ●							Yes
Azure Active Directory Monitor Security Center	Traubleshooting New support request	Add permissions Discard							





17. It will prompt for confirmation, click on Yes.

Microsoft Azure	P Search resource	is, services, and docs D. 🕞 C. 😳 mahesh.badge@vyo. VYOM LAIS PVT. LT	. 0
*	Home > ShwetaApp2 - API permissions		
+ Create a resource	ShwetaApp2 - API permission	5	\$ >
Home Dashboard Eall services FAVORITES	« Uverview Quickstart	Do you want to grant consent for the requested permissions for all accounts in VYOM LABS PVT. LTD.? This will update any exists admin consent records this application already has to match what is listed below.	ng
All resources All resources Resource groups Recent App Services	Brending Authentication Certificates & secrets API permissions	Add a permission APL/ PERMISsions NAME 1YPE DESCRIPTION ADMIN CONSENT REQUIRED ✓ Microsoft Graph []	
Virtual machines (classic) Virtual machines SQL databases Cloud services (classic)	 Expose an API Owners Manifest 	Directory.ReadWrite.All Application Read and write directory data Yes 🧿 Granted for WOM These are the permissions that this application requests statically. You may also request user consent- able permissions dynamically through code. See best practices for requesting permissions	2000 2000
 Subscriptions Azure Active Directory Monitor 	Y Troubleshooting New support request	Grant consent As an administrator, you can grant consent on behalf of all users in this directory. Granting admin consent for all users means that end users will not be shown a consent screen when using the application.	

18. Similarly, we can assign the permissions required by Intune Plugins mentioned below,

- DeviceManagementManagedDevices.PrivilegedOperations.All
- DeviceManagementManagedDevices.ReadWrite.All



13 Appendix 13: 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,

13.1 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.

=	Microsoft Azure	P Search resources, services, and docs (G+/)		Q 0			0
Hon	ne >	App registrations 🛷					
•	Overview Getting started	 ≪ + New registration ⊕ Endpoints Proubleshooting ↓ Dow Try out the new App registrations search preview! Click to enable the p 	vnload Preview features	♥ Got	feedbac	k?	
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*	Users Groups	All applications Owned applications					
0	External Identities Roles and administrators	Start typing a name or Application ID to filter these results					
	Administrative units	Display name	Application (client)	ID		Creater	d on
щ	Enterprise applications	OneDrivePluginsEmailTest				1/2/20;	20
-	Devices	OneDriveApp				/2/20;	20
Ш,	App registrations	ow OneDriveRefreshTokenEmailTest				/3/20	20
(A)	Identity Governance Application proxy	MyTestAppN				0/20/2	2020

3. Provide an application name. Click Register.



 * Name The user-facing display name for this application (this can be changed later). Test OneDrive Supported account types Who can use this application or access this API? Accounts in this organizational directory only (yanoso9863 only - Single tenant) Accounts in any organizational directory (Any Azure AD directory - Multitenant) Accounts in any organizational directory (Any Azure AD directory - Multitenant) Accounts in any organizational directory (Any Azure AD directory - Multitenant) Accounts in any organizational directory (Any Azure AD directory - Multitenant) Personal Microsoft accounts only Help me choose Redirect URI (optional) We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios. Public diret/native (mobile v) [https://automationedge.com Register an app you're working on here. Integrate gallery apps and other apps from outside your organization by adding from Enterprise applications. By proceeding. you agree to the Microsoft Platform Policies g*	legister an application
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Register	Proceeding, you agree to the Microsoft Planoth Policies (2)
	Register

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. <u>https://automationedge.com</u>). Click Configure.



Note: For information on setting up redirect URI, refer <u>https://docs.microsoft.com/en-us/azure/active-directory/develop/reply-url</u>

7. In the application page, copy Client ID, and then click API permissions.

Note: Client ID is mandatory for personal account.

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💉 Integration assistant	∧ Essentials				
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a Authanication	Object ID	: 35a53a5a-0564-4f07-b920-a43cc1ecda5f	Application ID URI	: Add an Application ID URI	
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API permissions Expose an API	Starting June 30th, but we will no long	2020 we will so longer add any new features to Acure Active Director er provide feiture updates. Applications will need to be upgraded to	y Authentication Library (ADAL) and Azure AD G Microsoft Authentication Library (MSAL) and Mic	raph. We will continue to provide technical support and security updat crostift Graph. Learn more	tes ×
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Boles and administrators Preview	Get Started Docum	ientation.			
Manifest		Build your application	with the Microsoft id	entity platform	
Support + Troubleshooting		The Microsoft identity platform is an authentication serv	ice, open-source libraries, and application m	anagement tools. You can create modern,	

8. Click Add a Permission, and then select Microsoft Graph.



🚽 Test OneDrive API	l permissions 👒		Request API permission	ns					
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Monage Branding D Authentication	The "Admin consent require in organizations where the	ed" column shows the default valu app will be used. Loarn more	tor , Take ackiencage of the tree Access Acum AD, Excel. In single empoint.	mendous amount of data in Office 365, Enterpris tune, Outlook/Exchange, OneDrive, OneNote, St	e Mobility + Socurity, and Windows 10, arePoint, Planner, and more through a				
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Token configuration	Applications are authorized to o	all APIs when they are granted p	einie		No. Base Second Second Sec				
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Expose an API	+ Add a permission 🗸 G	rant admin consent for yannao9	Allow validated users to read and write protected content.	Programmatic access to much of the functionality available through	Export data from Microsoft Dynamics CRM organization to an external				
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upport + Troubleshooting	offline_access	Delegated Maintain a	cess Central	software and SRP systems	tious				
Troubleshooting	Uses Read	Delegated Sign in and	read						
New support request	To view and manage permission	is and user consent, try Enterpris	e apt 🕞 Influnc	Office 355 Management APIs	Power BI Service				
			Programmatic access to Inforce data	fletrieve information about user, admin,	Programmatic access				

9. Provide all required permissions. See the respective step for permission details.

Request API permission	s	
Select an API		
Microsoft APIs APIs my organization	uses My APIs	
Commonly used Microsoft APIs		
Microsoft Graph Take advantage of the trem Access Azure AD, Excel, Intu single endpoint.	endous amount of data in Office 365, Enterprise ane, Outlook/Exchange, OneDrive, OneNote, Sha	Mobility + Security, and Windows 10. rePoint, Planner, and more through a
Azure Rights Management Services Allow validated users to read and write protected content	Azure Service Management Programmatic access to much of the functionality available through the Azure portal	Data Export Service for Microsoft Dynamics 365 Export data from Microsoft Dynamics CRM organization to an external destination
Dynamics 365 Business Central Programmatic access to data and functionality in Dynamics 365 Business Central	Dynamics CRM Access the capabilities of CRM business software and ERP systems	Flow Service Embed flow templates and manage flows

Note: Delegated offline_access permission is mandatory to generate the refresh token.



- Test OneDrive API	l permissions 🔌 …			Req	uest API permissions	×			
(P. Search (Ctrl+/)	🕐 Refresh 🔰 💝 Got leed	back?		4 AULATIS					
	A You are editing permission() to your application, users will have to			Microsoft Graph https://graph.microsoft.com/ Docs <u>c</u> *					
Integration assistant	ant Starting Nevember Still, 2020 end users will no longer be able to pr		Vinat 1 Dele Your	Application permissions Your application runs as a background service or daemon without a					
Branding Authentication	The "Admin consent required" column shows the default value for in organizations where this app will be used. Users more			signed in user.		signed in user.			
📍 Certificates & secrets	Configured permissions			P 54	in typing a permission to filter these results				
11 Token configuration	Applications are authorized to call APIs when they are granted permit		р	ermission	Admin content required				
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Support + Troubleshooting	offline_access	Delegated	Maintain access		profile 🛈	No.			
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New support request	To view and manage permission	is and user consent,	try Etterprise app	Adi	d permissions Discard				

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-registerapp#register-an-application

For more information about redirect URI setup, refer documentation. <u>https://docs.microsoft.com/en-us/azure/active-directory/develop/reply-url</u>

13.2 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.

GET

https://login.microsoftonline.com/common/oauth2/v2.0/authorize?client_id={client_id}&sco pe={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.



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.





 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/graphoauth?view=odsp-graph-online#code-flow

Example:

Postman Request:

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Client,	id				
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grant_type		authorization_code	authorization_code		

Postman Response:

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POST	~	https://login.r	nicrosoftonline	.com/con	nmon/oauth	2/v2.0/token					Sen	d ~
Params	Authoriz	tation Heade	ers (11) Bo	dy 🔹 🕴	Pre-request	Script Tests	Settings					Cookies
Body C	bokies (3)	Headers (14)	Test Results					¢	Status: 200 OK	Time: 440 ms Size: 4	1.24 KB Save Res	ponse 🗸
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14 Appendix 14: OneDrive Folder/File Path

14.1.1 Get Folder Path

Following are the steps to get Folder Path,

1. Open your One Drive.

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	18	CogniBot	October 15	Seema Kothari	2 items	g ^q Shared
	18	OnDemand Cloud 5.6.2 and 1.8	September 18	Seema Kothari	7 items	g ^q Shared
		Microsoft Teams Chat Files	September 16	Seema Kothari	48 items	Private



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Microsoft Teams Chat Files	Details	ema Kothari	48 items	Private

3. Alternatively, right click on the folder and select Details.

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-	N	Details		September 16	Seema Kothari	48 items	Private

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	-	CogniBot		October 15	Seema Kothari	2 items	g ^R Shared
	De .	OnDemand Cloud 5.6.2 and 1.8		September 18	Seema Kothari	7 items	g ^A Shared
	-	Microsoft Teams Chat Files		September 16	Seema Kothari	48 items	Private

5. In the details pane navigate to the bottom and click the 'Copy direct link' icon for the Path.

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	Micros	oft Teams Cha	t Files		September 16	Seema Kothari				
							*			

6. In this case the folder path appears as follows,

https://automationedge1my.sharepoint.com/personal/seema_kothari_automationedge_com/Documents/Test

- 7. In the OneDrive plugin steps
 - Refer the root folder as: Documents/
 - 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>

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 \circ or simply

/<a sub-folder1 under root>/<a sub-folder2>

14.1.2 Get File Path

Following are the steps to get File path,

1. Navigate to the desired file on OneDrive.

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D	Name 🖂		Modifie	ed \sim	Modified By \searrow	File size 🚿	Sharing	
X	³¹ Numbers.xlsx		A few se	conds ago	Seema Kothari	7.98 KB	Private	

2. Follow one of the methods to go to the details pane as described for folders in the previous section.

ConeDrive Description			@ ?	Seema Kothari 🗌
 My files > Test Name > 	Open > Preview Share Copy link Manage access	··· IF Sort	File size V	cted = V ①
Vumbers.xlsx	Download Delete Move to Copy to Rename Automate > Version history Details	sema kotnari	7.98 KB	Private



3. Copy the Path URL.



4. Following is a sample File path URI.

https://automationedge1my.sharepoint.com/personal/seema kothari automationedge com/Documents/Test/Num bers.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>
 - o or simply
 - /<a sub-folder1 under root>/<a filename>



15 Appendix 15: Managed Engine SDP- Generate Auth Token/Refresh Token

15.1 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.

15.1.1 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.

15.2 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.

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15.2.1 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 Zoho Developer Console (<u>https://api-console.zoho.com</u>).
- 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.
- 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. Please note that after this time, 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 following URL: https://accounts.zoho.com/oauth/v2/token

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

Request Parameters

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.



16 Appendix 16: Office 365 App Registration for Grant Type – Password Grant

16.1 Register App

- 1. Sign in to your Azure Account through the <u>Azure portal</u>.
- 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.
- 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**.

* Name The user-facing disp	name for this application (this can be changed later).	
example-app		1
Supported accou	types	
Who can use this ap	ation or access this API?	
 Accounts in any 	parizational directory (Any Azure AD directory - Multitenant)	
 Accounts in any 	ganizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)
Help me choose		
Redirect URI (op	nal)	
We'll return the auth changed later, but a	ication response to this URI after successfully authenticating the user. Providing this now is optional and it can l ue is required for most authentication scenarios.	e.
Web	https://graph.microsoft.com	
By proceeding, you	ee to the Microsoft Platform Policies 🖻	
Register		

Upon registration fetch Tenant ID and Client ID for the App as seen below.





16.2 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

,O Search (Ctrl+/) «	💛 Got feedback?			
Coverview	Add a client secret Description			
Sintegration assistant Preview Manage Sranding Authentication Certificates & secrets Token configuration	Test Explices in 1 year in 2 years Nover Add Cancel			
Alif permissions Expose an API Expose an API Owners Cowners Roles and administrators Preview Manifesc Support + Troubleshooding	Client secrets A secret string that the application uses to prove its identit Waw client secret Description	y when requesting a token. Also ra Expires	an be referred to as application password. Value	
C Troubleshocking	Password uploaded on Thu Jun 25 2020	0(25/2021	5P3*********	0

16.3 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.

😃 Quiclatert				Commonly used Microsoft APIs				
🖌 Integration assistant l Preview Manage 📴 Brancing	Configured permissions Applications are suthorized to call AF all the permissions the application of	Ys when they are seets. Learn mare	granted permissions by usera/solming as part about parmusions and consert	Microsoft Gaph Take sources of the transmission of data in Office 365 Enterprise Vocitity - Source, and Windows 30 Associations 20 Social Intrae Custool(Biodrags OneDires Onalises Shape) on Source and more through a single property.				
Authentication Certificates & secrets	API / Permission Grant a	Type	Description	Azure Rights Nanagement.	Asure Service Management	Data Export Service for Nicrosoft Dynamics 365		
Taken contiguistion AR permission	Vac Read	Delegated	Read user mail	Allow validated users to read and write protected content	Programmatic access to much of the functionality available through the Roure portal	Export data from Microsoft Dynamics CRM organization to an external destination		
🙆 Espose an API	VerSerd	Delegated	Read and write access to user mail					
 Roles and administrators Review MaxNest 	openid Uper/Read	Delegated	Sign users in Sign in and read user profile	 G+ Dynamics 365 Business Central Programmatic access to data and functionality in Dynamics 365 Business 	Access the capabilities of CRM business software and ERP systems	Embed from Service		
Support + Traubleshooting	Uter Read/Write.All	Delegated Application	Read and write all users' full profiles Read and write all users' full profiles	Central				
6 ² Troubleckoopg				Inture Programmatic access to bitume cara	Office 365 Management APGs Ramaus internation about user admin system and policy actions and events from Office 355 and Azure AD activity logs	Fower ELService Programmatic across toDest-boardinesource such asDetasets Tables and Ravelin Fower EL		

- 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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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 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.

Dashboard All services	Dashboard > VYOM LABS PVT. LTD. >	example-app permissions &					×
FAVORITES Acture Active Directory Users Directory	Search (Ctrl+/) « Quickstart Integration assistant Preview	 Kefresh Got fe Successfully granted addition 	edback? nin consent for	the requested permissions.			
energinas oppresenta :	Manage Branding Authentication	Applications are authorized to configured permissions shoul + Add a permission	o call APIs whe d include all t Grant admin	en they are granted permission he permissions the application consent for VYOM LABS PVT. I	s by users/admins as pai needs. Learn more abou TD.	rt of the consent process. The l it permissions and consent	ist of
	Certificates & secrets Token configuration	API / Permissions n V Microsoft Graph (2)	Туре	Description	Admin consent req	Status	
	API permissions Expose an API Domers Department Department	ensel User,Read	Delegated Delegated	View users' email address Sign in and read user profile	Q (†	 Granted for VVOM LABS_ Granted for VVOM LABS_ 	
	Nones and summitiations (ref. Manifest Support + Troubleshooting P Troubleshooting New support request						

16.4.2 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. <u>https://login.microsoftonline.com/Tenant_id</u>/oauth2/v2.0/authorize?cl ient_id=value&scope=Permissions &response_type=code.

Example:

https://login.microsoftonline.com/2f906216-6aaa-4ee5-8c13-5bbb3af06089/oauth2/v2.0/authorize?client_id=e6080cc9dccc-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.



AutomationEdge



iii. After login Permissions Requested screen appears. Click on Accept Button.

demouser@aepluging	dev.onmicrosof	t.com
Permissions r	equested	
newdemoapp		
This application is n	ot published b	y Microsoft.
This app would like to	0.	
 Send mail as you View your basic pro 	Jm Tite	
 Maintain access to c 	data you have giv	en it access to
Accepting these permission your data as specified in th statement. You can change https://myapps.microsoft.c	ns means that you eir terms of service these permissions om. Show details	allow this app to use and privacy at
Does this app look suspicio	ous? Report it here	
	C	2

17 Appendix 17: Office 365 App Registration for Grant Type Refresh Token

17.1 Register App

Following are the steps to register App,

- 1. Sign in to your Azure Account through the <u>Azure portal</u>.
- 2. Select the Azure Active Directory.
- 3. Select App registrations.
- 4. Select New registration.
- 5. Name the application. Select a supported account type, which determines who can use the application.



- 6. Under **Redirect URI**, select **Web** for the type of application you want to create. For example, <u>https://automationedge.com</u>.
- 7. Select Register.

* Name
The user-facing display name for this application (this can be changed later).
Test Email
Supported account types
Who can use this application or access this API?
 Accounts in this organizational directory only (yanosce)863 only - Single tenant)
O Accounts in any organizational directory (Any Azure AD directory - Multitenant)
O Accounts in any organizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)
O Personal Microsoft accounts only
Help me choose
Redirect URI (optional)
We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.
Web
Register an app you're working on here. Integrate gallery apps and other apps from outside your organization by adding from Enterprise applications.
By proceeding, you agree to the Microsoft Platform Policies 🖻
Register

8. After creating app, click on Redirect URIs.

📋 Delete 🌐 Endpoint	Delete Endpoints Endpoints Preview features								
() Got a second? We we	buld love your feedback on Microsoft identity platform (previously Azure AD for developer). $ ightarrow$								
▲ Essentials									
Display name	: Test Email	Client credentials	Add a certificate or secret						
Application (client) ID	: 3ef8a 260-2159-4b27-b314-61c 2ce1a 24c7	Redirect URIs	1 web, 0 spa, 0 public client						
Object ID	: 93de056b-af1a-4d67-abe9-fdcdcc3d41cb	Application ID URI	Add an Application ID URI						
Directory (tenant) ID	: d7fa3489-f18c-4084-a786-941c7f1f224e	Managed application in Io	: Test Email						
Supported account type	s : My organization only								

9. Check the checkbox provided in below screen shot and click on save.



Implicit grant and hybrid flows

Request a token directly from the authorization endpoint. If the application has a single-page architecture (SRA) and doesn't use the authorization code flow, or if it invokes a web API via JavaScript, select both access tokens and ID tokens. For ASP.NET Core web apps and other web apps that use hybrid authentication, select only ID tokens. Learn more about tokens.

Select the tokens you would like to be issued by the authorization endpoint:

Access tokens (used for implicit flows).

ID tokens (used for implicit and hybrid flows)

17.2 Provide API Permission

- 1. Click on API Permission.
- 2. Click on Add Permission.
- 3. Click on Microsoft Graph.
- 4. Provide all required permissions.

4 Quickstart				Commonly used Microsoft APIs		
🖌 Integration assistant Preview Manage	Configured permissions Applications are authorized to call Al all the permissions the application re	Pls when they are seds. Learn more	granted permissions by users/admins as part about permissions and consent	Microsoft Graph Taice advantage of the tren Access Azure AD, Excel, Int single endpoint.	nendous amount of data in Office 365, Enterpris une, Outlook/Exchange, OneOnve, OneNote, Sh	e Mobility + Security, and Windows 10. arePoint, Planner, and more through a
Authentication Certificates & secrets	API / Permission Grant	Type	Description	Azure Rights Management	Azure Service Management	Data Export Service for Microsoft Dynamics 365
Token configuration	MailRead	Delegated	Read user mail	Allow validated users to read and write protected content	Programmatic access to much of the functionality available through the Azure portal	Export data from Microsoft Dynamics CRM organization to an external destination
Expose an API Gwners	MailSend	Delegated	Send mail as a user	● Dynamics 365 Business Central	Dynamics CRM	Hove Service
 Roles and administrators Preview Manifest 	User Read	Delegated Delegated	Sign in and read user profile Read and write all users' full profiles	Programmatic sccess to data and functionality in Dynamics 365 Business Central	Access the capabilities of CRM business software and ERP systems	Embed flow templates and manage flows
Support + Troubleshooting	User,Read/Write,All	Application	Read and write all users' full profiles			
New support request				Programmatic access to Intune data	Retrieve information about user, admin, system, and policy actions and events from Office 365 and Azure AD activity logs	Programmatic access to Dashboordnessurces such as Datasets, Tables, and Rows in Power BL

Note: Delegated Offline_access permission is mandatory to generate the refresh token.



Disputer	Configured permissions	What type of permissions does your application require?	
Cuckstart	Applications are authorized to call APs when they are grained permise all the perturbions the application medic leave more about permission + And a permission of Cases atmin conservice vance/MES	Deleganed permasons Your application needs to access the API as the signed in user.	Application permanens Trow application num as a background service or Germon without a lapeed in user
tranding	AP1/Permissions name Type Description	Select permissions	econd #
Authentication	Witness Graph (7)	D Start typing a reply of to titter these results	
Centificates & secrets	Uner-lead Delegated Sign in and a	Permission	Admin consent required
Token configuration			
Alt permissions		Coperad permissions (1)	
Express an API		enal Very user's enal address	
App roles (Preview		- office access	
Owners		Maintain access to data you have given it access to	e)
Roles and administrators Pre-		□ openid ©	•
Manifest		Sgnumin	
pport + Troubleshooting		View users' basic profile	15
Toubleshooting			

17.3 Creating Client Secret

- 1. Click on **Certificates and secrets**.
- 2. Click on New client secret.
- 3. Enter **Description**.
- 4. Select the Expires value.

Provine Convolution Control Control </th <th>N</th> <th></th> <th>Oxectiption</th> <th>[?ext</th>	N		Oxectiption	[?ext
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	Cethoner & second	Thumapter Start data Expires Cartificate 30	<u> </u>	all second and s
A R permission: A R permission: A p	Token configuration	No pertificates have been added for this application.		
	AR permissions			
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Comme A server conduction of the server of the se	App roles	Client secrets		
Role Led administration (Preview Interview + Their divert same Description Egimes Value Second ID Production operation No client same from their base operated for this applications. The target region in regiont No	Outure	A secret arring that the application uses to prove its liberity when requesting a price. Also can be referred to as application personnel.		
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Toutlehouring Toutlehouring The start securit have been coarded for 900 applications. There support reports Toutlehouring Toutlehou	genert - Treshtesheating	Description traine take security		
Ther lapport rejoint	0 Toublehoolina	The client seconts have been created for this application.		
And approximate	The summer second			
Aug. Cale	- Her addance addance			
			Castle	

5. Copy and save the value with you as it visible only for one time.

Client secrets			
A secret string that the application	n uses to prove its identity when r	requesting a token. Also can be referred to as applicat	ion password.
7			
+ New client secret		1	
Description	Expires	Value	Secret ID
Test	1/8/2022	4GsuYa1P4NWwMHfbOyn8a4f.NL~YAK3 🖒	436dcb2e-6658-4a15-87ce-00cc5bf0ebbe 🗈 💼

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17.4 How to generate Refresh Token URL and Run in Browser

 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.

Pick	an account	
Å	demouser demouser@aeplugindev.onmicrosoft.com Signed in	÷
Å	demo2 demo2@aeplugindev.onmicrosoft.com Signed in	:
+	Use another account	

3. After login below screen will appear, on below screen click on Accept Button.



demouser@aeplugir	ndev.onmicrosof	t.com
Permissions	requested	ł
newdemoapp App_infd		
This application is i	not published b	y Microsoft.
This app would like	to:	
✓ Send mail as you	الم	
✓ View your basic pr	ofile	
 Maintain access to 	data you have giv	en it access to
Accepting these permissi your data as specified in t statement. You can chang https://myapps.microsoft	ons means that you their terms of service je these permissions .com. Show details	allow this app to use e and privacy at
Does this app look suspic	tious? Report it here	
	Cancel	Accont

 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.



https://automationedge.com/?code=<mark>0.AXAAYm3WWr80bEmDKvoYvZo1C3Qg4ajcf7RAr1zDaFf3I8c-</mark> <mark>ABw.AQABAAIAAAD--</mark>

DLA3VO7QrddgJg7WevrEDcwe3CazdnZdEVDH6PKczECUNfFkX00KGiTPy29vLa5Du541zsE_befath7-XLjywGxeMu9njmxcmDTb4pBeQkcbBkOPtnK0NQ7QkaNQDuTAUlqcuhvdUaVxNwL8LCziDV1kcZPw6Pul8 YbuHG7-

Mt4vGGRA9cZwXnJVSSGg7LbXLYRHcBPy0XTE3GuiOU6O8vpoxDwyOsMyBeU0IQmsmQzpr0sFnd0FG6Nqj 34iShehUFDZYYdZNhVzPBqRKtf76Lx02JyVsRnC2fzm9MRDnXR3367lCA12LcGz7ufAQpFVb9S1OTQDOjQz DEOt3sZbhCQGebpXKS-

2IIzuBKdvVeuhN_uvYkgTmwhKI_8544jiBeHC8CE0TdMZioM2ZOyRpIghM_iXWnW5tjHx4VvQ8zggcPNnYp A2GPjg0StxU7uTKRj82RCGZsp_cb9mCvgqqDjOYG7mP6C7AIw75CIizJsieKyguT7MjIgKFVFD2ZEBH7KmaXU h6pli5jLUxSTbhR0FE8vnmAliSOHxGgSVC2_QbakA-27VwvEPNjUtyVVrPMZ61Aq4ZqUfkglflFOowTz5utyuhs7CL9VWHcXPZ10UwYXBAtI9b_dtPaWXk0fecsw7zR3mJovsKvS6g90YSaVgYM4RumWvklQR8V xhzRlzEwhxQGnohNoGlMquMgAA &session_state=2aefe38f-e098-418e-95e0-493088594ee9#

 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:

POS	5T	~	https://	(login.microsoftonlin	e.com/		b/o	auth2/v2.0/token
Para	ims	Author	ization	Headers (12)	Body 鱼	Pre-request Script	Tests 鱼	Settings
•	попе	• form	n-data	● x-www-form-urb	encoded 🛛 🔵 r	aw 🔵 binary (● GraphQL	
	KEY					VALUE		
~	clienț	_id					ol 4 (5 - 2 - 2	
~	clienț	_secret						
~	code							
\checkmark	grant	_type				authorization_co	de	

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Postman Response:

POST	~	https://login.m	nicrosoftonline.c	:om/ 2.000010				🔜/oauth	12/v2.0/to	ken	s	iend 🗸
Params	Authoriz	zation Heade	ers (9) Body	• Pre-rec	juest Script	Tests	Settinç	js				Cookles
none	form-	-data 🦲 x-ww	vw-form-urlenc	oded 🔵 raw	binary	Graph	nQL					
KE	Υ			VALUE				DESC	RIPTION		000	Bulk Edit
Body Co	ookies <mark>(3)</mark>	Headers (14)	Test Results				æ	200 OK	353 ms	5.69 KB	Save	Response 🗸
Pretty	Raw	Preview	Visualize	JSON \vee	<u>-</u>							Q
7	"refi	resh_token": AgABAAAAAAD Bfjdm40GHT-IM GGsWUZw_x6-XM itTXf-mviG_H2: oLv2kzvxTLFvx. IIJjN6zT2tBN1 dPeY36QazMug1 <3JOMsGre7uTW JN8MBrgc3sRew 76tiZvoNq0dBC	"Ö. AVYAF MOQL DL A3VO7Qrddg 7k_X10L SkcNn: 8pfVbcO3utQRI c8Q-ff03tI1; 208arANZnyHVz: 1YReSPnenPta: 118oBBselaiRI DdETxhTQLI3x: XFc-zV5aK_K1I GdZ90110iHi6'	00k5U6HE1e40 1g7WevrAgDs_ (F36aIm-AwJD (06y5ZwWHIzh (dfjn4w7Yewp (488H-Owf9b- (ei51FYCw54t tZQrPv6s8UeT [-1C46-iyHU (1h313X7eJ6k f02XIjEH1ryV	vBgibØHFZx wQA9P8Dxer mZSVjAhEJd bPpAOA3XQp EpOY30sKaG -YXJØyXcCr GB7bjlosuV Iy7RTHhSkH SywxledB_o nHmgEgyRlL	3KWRBvfsy K4djL_aMR qsZllSL3h PHXiEI5Ec 15WWsfvZ- vG2NxMwcH IG6GSvX7Z W1oeJCOdh 59bTDfc3e K_hxi8fyN Y4-X6ndNH	dDy2BPI JMxBbE- pfvSOPI hu8TTd: oVbgg2I uVOaeSI JAA1rLI zYipRv: qdQamPI gSyhawi W9s69q0	FWAHQ. 41hm@Ldl PVUilSLI iNobjwF4 no8TDoHu K5jlMTO4 HTNdwIV0 sruxLmpf hIWpy754 3-tmxTF1 Ø85pH5G3	LYFQwaX3 M3B2B152 WHTP7q53 WHTP7q53 W1Nur S4Us2HkC Hko43L_1 HTD3iGU3 K7XYGUa3 16NOV1b)	ZbSGepJQ 2SQh9PRfp 7HLdO87d7 aFpZzAwPa GG@axA93Y 6EqWE1Hzb c_yz1vOj_ 2IJWR4qq3 cDdAoeqF9 CbbnjrUcc	KM-qKas KN4hGmr 1daHKhf n9AFjNJ ro9svt XerPo6f YZLdyi 6zb1Dmr hoRJAWJ RiBU-QJ	D8zgSacE1 hwTlCyrJj QSD64PdA LIIEVrqkX LIT-j9Zk7D BRqh_r004 _4G7d7PT1 wHDmBhBY K1DecDCbt 4sFyW41r5

18 Appendix 18: SharePoint Online: App Registration & Refresh Token Generation

18.1 Register App

Following are the steps to register App,

- 10. Sign in to your Azure Account through the Azure portal.
- 11. Select the **Azure Active Directory**.
- 12. Select App Registrations.
- 13. Select New Registration.
- 14. Name the application. Select a supported account type, which determines who can use the application.
- 15. Under **Redirect URI**, select **Public Client/native (mobile & desktop)** for the type of application you want to create and provide valid URL. For example, <u>https://automationedge.com</u>.

For more information about redirect URI setup, see <u>https://docs.microsoft.com/en-us/azure/active-directory/develop/reply-url</u>

16. Select Register.



Register an application	on …
* Name	
The user-facing display name for this a	oplication (this can be changed later).
Test OneDrive	v
Supported account types	
Who can use this application or access	this API?
O Accounts in this organizational dire	ectory only (yanoso9863 only - Single tenant)
O Accounts in any organizational dire	ectory (Any Azure AD directory - Multitenant)
Accounts in any organizational direction	ectory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)
O Personal Microsoft accounts only	
Help me choose	
Redirect URI (optional)	
We'll return the authentication respons changed later, but a value is required fo	e to this URI after successfully authenticating the user. Providing this now is optional and it can be or most authentication scenarios.
Public client/native (mobile 🗸	https://automationedge.com
Register an app you're working on here	. Integrate gallery apps and other apps from outside your organization by adding from Enterprise applications.
Purpresenting you agree to the Migrae	raft Distance Delicies =7
by proceeding, you agree to the Micros	ANT FRANKING FOR
Register	

18.2 Provide API Permission

5. Copy Client.

Test OneDrive 🖉	60				
Bearch (Ctrl+)) o	t 📋 Delete 🖶 Endpoint	s 👼 Provlew features			
Overview	Got a second? We weat	dd low your feedback on Microsoft identity platform (previously Acu	er AD for cleveloper). →		
Quickstart					
Integration assistant	→ Essentials				
aue	Display name	: Test OneDrive	Cleat credentials	: Add a certificate or secret	
Randian	Application (client) ID	: 35a4cd61-01cl7-449b-9991-649ccl508cle8	Redirect UBIs	: D web, 0 spr. 1 public client	
diamong.	Object ID	: 35a53a5a-0564-4107-b920-a43cc1ecda5t	Application ID UBI	- And an Application ID URI	
Authentication	Directory (tenant) ID	: d75+3489-#18c-4084-a786-941c7#1t224e	Managed application in L.	: Test OneBrive	
Certificates & accrets	Supported account type	es : All Microsoft account users			
Token configuration					
API permissions	Starting June 30th, but we will no loop	2020 we will no longer add any new features to Azure Active Director or preside traduction and the Active Director	ry Authentication Library (ADAL) and Azure AD G Mannach Authentication Library (ADAL) and Mil	kaph. We will continue to provide technical support and	security updates 🗙
Expose an API	ou ac mano org				
App roles	A Starting November	9th 2020 and users will no longer be able to grant consent to needly	registered multitenant apps without verified out	bishers, Add MPN ID to write outlisher	×
Owners	A TO A CONTRACTOR				
Roles and administrators Preview	Get Started Docum	ientation			
Monifest		Build your application	with the Microsoft id	entity platform	
port + Troubleshooting					
Tankladantan	•	The Microsoft Identity platform is an authentication serv	ice, open-source libraries, and application m	anagement tools. You can create modern,	

- 6. Click on API Permission.
- 7. Click on Add Permission.
- 8. Click on Microsoft Graph.
- 9. Provide all required permissions.



🚽 Test OneDrive API	l permissions 🔌 …		Request API permission	15				
,P Scarch (Ctrl+/) α	🗘 Refresh 🎔 Got leed	back?	Select an API					
Cuerviaw	A You are editing permission	(g to your application, users will have to	Microsoft APIs my organization uses My APIs Commonly used Microsoft APIs					
 Integration existent 	A Starting November 9th, 20	20 end users will no longer be able to gr.						
Manage Branding D Authentication	The "Admin consent requi to organizations where this	red" column shows the default value for a spowii be used. Learn more	Microsoft Graph Date advantage of the tree Access Azure AD, Excel, Int single endpoint.	nendous amount of data in Office 365, Emergets June, Dutlook/Exchange, OneDrive, OneNote, Sh	e Mobility = Security, and Windows 10. arePoint, Planner, and more through a			
Certificatos & secrets	Configured permissions							
Taken configuration	Applications are authorized to o	all AFIs when they are granted permi- on needs, Learn more about bermissi	Azure Rights Management Services Allow validated users to read and write	Azure Service Management Programmatic access to much of the	Data Export Service for			
API permissions Express an API	+ Add a permission VG	rant admin conserv. for variosci986.1			Export data from Nicrosoft Dynamics			
App roles	API / Permissions name	Type Description	protected (decent	the Azure portal	destination			
Owners	Microsoft Graph (4)							
Boles and administrators Preview	RiesRead	Delegated Read user files	Dynamics 365 Business	Dynamics CRM	Flow Service			
Manifest	Files/Read All	Delegated Read all files tha	Programmatic access to data and	Access the capabilities of CRM business	Embed flow templates and manage			
upport + Troubleshooting	offline_access	Delegated Maintain access	functionality in Dynamics 365 Business Central	software and ERP systems	flows-			
9 Troubleshooting	User Read	Delegated Sign in and read						
New support request	To view and manage permission	s and user consent, try Enterprise app	E Intune	Office 365 Management APIs	Power BI Service			
			Programmatic access to infune data	Retrieve information about siter, admin,	Programmatic access			

NOTE: Delegated offline_access permission is mandatory to generate the refresh token.

ے۔ Test OneDrive API	permissions 🖈 -			Rec	uest API permissions	>			
/O Search (Ctrl+/) 8	🖒 Flefresh 🌣 Got feed	back?		¢ NI A	76				
Coverview Quickstart	A You are editing permesion	(s) to your application	on, users will have to	What	Microsoft Graph https://graphanicrosoft.com/ Docs g* turns of operations close your application (courties?				
nnegration assistant	grafion assistant 🔥 Scarting November 9th, 2000 end users will no longer be able to ge			Dell	gated permissions gated permissions application needs to access the API as the signed-in some	Application pennissions Your application error as a background service or deemon without a stored in voor			
Brending Authentication	g Phe 'Admin solvery's required' column shows the default value for in organizations when this sop will be used. Usern more reside securits Configured permissions configuration Applications are authorized to call Aris when they are granted permi-				Select permissions				
Certificates & secrets					$\mathcal P$ Start typing a permission to lifter these results				
Taken configuration					termission	Admin consent required			
API permissions Expose an API	all the permissions the application needs. Learn more about permission + Add a permission Grant admin.concent for vanose9063			✓ OpenId permissions (1)					
App roles	API / Permissions name	Туре	Description		email © View users' email address	No			
Owners	Microsoft Graph (4)				offine_access. 🔘	ba			
Roles and administrators Preview	Files Read	Delegated	Read user files	_	Maintain access to data you have given it access to	177			
Manifest	Files Read, All	Delegated	Read all files the		openid (2) Sian users in	No			
upport + Troubleshooting	offine_access	Delegated	Maintein access		profile ()	12			
P Troubleshooting	User/Read	Delegated	Sign in and read		View users' basic profile	RC			
New support request.	To view and menage permission	s and user consent	t, try Enterprise app	Ad	d permissions Elecard				

For more information, see <u>https://docs.microsoft.com/en-us/azure/active-</u> <u>directory/develop/quickstart-register-app#register-an-application</u>

18.3 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/authori
ze?client_id={client_id}&scope={scope} &response_type=code
```

Example:

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https://login.microsoftonline.com/common/oauth2/v2.0/authori
ze?client_id=bc096046-323f-4f98-91e6fc1f28canks&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.

Pick	an account	
Å	demouser demouser@aeplugindev.onmicrosoft.com Signed in	:
Ř	demo2 demo2@aeplugindev.onmicrosoft.com Signed in	:
+	Use another account	

4. After login below screen will appear, on below screen click on Accept button.

demouser@aeplugin	dev.onmicrosof	t.com
Permissions I	requested	I
newdemoapp		
This application is n	ot published b	y Microsoft.
This app would like to	D);	
✓ Send mail as you	Jhn	
 View your basic pro 	file	
 Maintain access to i 	data you have giv	en it access to
Accepting these permissio your data as specified in the statement. You can change https://myapps.microsoft.co	ns means that you teir terms of service these permissions com. Show details	allow this app to us and privacy at
Does this app look suspici	ous? Report it here	

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.





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 <u>https://docs.microsoft.com/en-us/onedrive/developer/rest-api/getting-started/graph-oauth?view=odsp-graph-online#code-flow</u>

Example: Postman Request:

POS	T ~ http:	s://login.microsofton	line.com/co	ommon/o	auth2/v2.0/1	token			Send 🗸
Param	ns Authorization	Headers (11)	Body •	Pre-req	uest Script	Tests	Settings		Cookies
@ no	one 🔘 form-data	x-www-form-ur	lencoded	I raw	binary	GraphQL			
	KEY				VALUE			DESCRIPTION	ooo Bulk Edit
	client_id								
	code						м		
	grant_type				authorizat	ion_code			

Postman Response:

POST	~	https://login.r	nicrosoftonlin	e.com/co	mmon/oa	uth2/v2.0	/token						Send	~
Params	Authoriz	ation Head	ers (11) Bo	ody 🕳	Pre-requ	est Script	Tests •	Settings					c	lookies
Body Co	okies (3)	Headers (14)	Test Result	s					¢	Status: 200 OK	Time: 440 ms	Size: 4.24 KB	Save Respo	onse 🗸
Pretty	Raw	Preview	Visualize	JSON	× 3	P							ļ	🖻 Q
7	ys Trefre Ag	WW9LExczOjan wsh_token": "@ WABAAAAAADDL WedPKMRIDBvb3	/yxA_bkelijpy).AT4AiTRq14: .A3V07Qrddg]g (im4]60mygf58	vbYq_FZy zxhECnhpi g7WevrAg FT1U48d0	ivYzU9VN Qcfx8iTml Ds_wQA9P wZBV3UY6	h/AltjHpU NpDXXA5t FuA0dv12 /182f43dk	vLQ", EmZFknM9Qje f-QX3fbe2ZZ YGoX6z04eiM	rg-ABw. InsAx-LvRN1ZUcil IoWfokuZkJoIWO6	DATnfXKzUKYkj	gvh5Vj-lipSbLsb D_tdKeDbR02LHs	MLuAe_kDq4WZF	RHgptcXF4QiME1	12Rdmt FxQM2yv XzXueUz fosWmF	JNKP





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