

Polarion Connector for Mendix 1.0

Developer's Guide

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Getting started with Polarion Connector

Introduction

Polarion is an application lifecycle management (ALM) enterprise solution. Software is an integral part of product development across all industries and ALM enables manufacturers to continuously integrate, verify and validate the growing software content they build into their products. Together with Teamcenter, Polarion is an integral part of the product development process and systems driven product development.

Polarion Connector for Mendix enables Mendix developers to access ALM data from Polarion or create and modify ALM data in Polarion.

This documentation provides guidance on using Polarion Connector for Mendix. It assumes that you are familiar with Mendix concepts, processes, and terminology for application development.

Prerequisites

To use Polarion Connector for Mendix, you need the following:

- Mendix Business Modeler 8.5.0
- Appropriate Polarion licenses
- A running and accessible Polarion instance. The minimum Polarion version supported is version 20R1.

Download Polarion Connector, the sample application, and dependencies

Polarion Connector for Mendix is available on the <u>Mendix App Store</u>. To add the connector to your project:

- 1. Open your Mendix Modeler project.
- 2. Click the AppStore icon \bowtie on the menu bar to access the Mendix App Store.
- 3. Search or navigate to the Polarion Mendix Connector and click the link.

4. On the Polarion Connector for Mendix page, click Download. In the **Import Module** dialog box, click Import.

The connector is imported in your project in the **App Store Modules** folder.

Similarly, download the following applications from the Mendix App Store:

- (Optional) Siemens PLM Software UI Resources. This application should be in the project that contains the Polarion Connector.
- (Optional) Polarion Sample Application. The Sample Application contains sample microflows. You *do not* require to download the Sample Application in the same project that also contains the Polarion Connector.

Configure to connect to Polarion

To help administrators configure the connection to Polarion, the Polarion Connector contains configuration microflows and pages. To configure the connection to Polarion, the Mendix administrator must do the following:

1. In the navigation, update the Default home page and the Home menu item to connect to the **AdminLogin** microflow.

General Application title	Polarion Connector for Mendix	Edit
Home pages		
Default home page	PolarionConnector.AdminLogin Select	Show
Role-based home pages	(none)	Edit
Menu	subitem Zedit Delete Go to target Expand all Collapse all Role-based view	
A Home	Call microflow 'PolarionConnector.AdminLogin' Administrator	5
C+ Logout	Call microflow 'PolarionConnector.ExecuteLogout' Administrator, User	



2. Run your project. The browser displays the AdminHomePage.

- 3. Click the **CONFIGURATIONS** tile in the web browser.
- 4. Click **New** in the Configurations page.
- 5. In the Add Polarion Configuration dialog box, specify the required fields such as the **Polarion Host Address** and click **Save**. Be sure to toggle on the **Yes** radio button for the **Active** option selection. The Configurations page is used for creating multiple Polarion Configurations but only one configuration can be active at any given time.

Add Polarion Configuration	×
Configuration Name	
omega-latest	
Polarion Host Address	
https://omega-latest.net.plm.eds.com/polarion/	
Active Ves ONO	
Save Cancel	

6. Once you have added the Polarion configuration information, log on to Polarion server using the **LOGIN** icon.

i.

In the previous steps, the configuration shows the Home page included in the Polarion Connector for administrators. If you want to customize the page that you finally see, create a new microflow that contains the core microflow, **ExecuteAdminLogin**. Update your **Default home page** and the **Home** menu item to connect to the new microflow you create.

As an example, the Polarion Sample Application has a microflow called **Act_AdminLogin** that uses the **ExecuteAdminLogin** microflow. Refer to that microflow for help.



Configure to connect to Polarion in production mode

You can use the **AdminLogin** and the **UserLogin** microflows to configure the security of the Polarion Connector when the security level of your Mendix project is set to **Production**. Configure the security as follows:

1. In navigation, update the **Role-based home pages** to connect to **AdminLogin** and **UserLogin** microflows based on the role.

General Application title	Polarion Connector for Men	dix			Edit	
Home pages Default home page Role-based home pages	PolarionConnector.AdminLo	ogin		Select	Show Edit	
Role-based home pages	for responsive			_		×
🗋 New 🚫 Delete 🖬	Move up 💌 Move dow	n 🛛 🧷 Select target 🗋	Go to target			
User role			Target			N
Administrator			PolarionConnector.AdminLogin			13
🕑 User			PolarionConnector.UserLogin			
				OK	Cano	cel

2. In navigation, update the Home menu items to include the **AdminLogin** and **UserLogin** microflows.

Application title	Polarion Connector for Mendix			Edit
lome pages				
Default home page	PolarionConnector.AdminLogin	Se	elect	Show
lole-based home pages	Administrator, User			Edit
1enu -				
🗅 New item 🗋 Nev	v subitem 🥒 Edit 🚫 Delete 🔿 Go to target 🛨 Expand all 📃 Collapse all	×	•	
Caption	Action	User Roles	_	
A Home	Call microflow 'PolarionConnector.AdminLogin'	Administrator		
A Home	Call microflow 'PolarionConnector.UserLogin'	User		
C+ Logout	Call microflow 'PolarionConnector.ExecuteLogout'	Administrator, Us	er	
Go Back	Close page			

3. In the security page of your project, add the respective administrator and user roles in the **User roles** tab.

Project Security	$ \Box$ \times			
Security level				
Security level	○ Off ○ Prototype / demo			
	Full security is applied. Configure administrator and anonymous access and define user roles and security for forms, microflows, entities, and reports.			
Check security	● Yes ○ No			
	If there are no other errors, Mendix Studio Pro checks per user role whether forms that are accessible for a certain role only refer to attributes and associations that are accessible for that same role. This assumes that each user role is independent and that users do not need two or more roles to			
Project status	Complete			
Module status User roles	Administrator Demo users Anonymous users Password policy			
🗋 New 🧷 Edit 🚫	Delete			
Name 🔺 Mod	dule roles			
Administrator Adm Pola	ninistration.Administrator, System.Administrator, rionConnector.Administrator			
User Adn	ninistration.User, System.User, PolarionConnector.User			

4. Run your project and ensure that administrators and users can view their configured login pages.

With the configuration done in the previous steps, it shows the Home pages included in the Polarion Connector. If you want to customize the home pages that you finally see, call **ExecuteAdminLogin** and the **ExecuteUserLogin** microflows in the new microflows you create. In the security page of Polarion Connector, select the appropriate permissions for the new microflows you created. Update your **Default home page** and the **Home** menu item in Project Explorer's Navigation editor to connect to the microflows you create.

As an example, the Polarion Sample Application has an additional role defined, called **Anonymous**, to enable anonymous users sign in. It also has microflows called **Act_AdminLogin** and **Act_UserLogin** which are setup in the Navigation menu to enable role-based access to the home pages. These microflows have appropriate permissions setup in the Security menu for controlling access to Anonymous, Administrator and User roles respectively.

Module roles Page access Nanoflow access Microflow access Entity access

Note: Changes you make here modify the corresponding microflows. Yellow cells indicate microflows that have roles assigned to them but are never used from the client API.

0	Ø Open microflow						
	Microflow	Administrator	Anonymous	User			
	Act_AdminLogin	\checkmark	\checkmark				
D	Act_LoadDocListBasedOnLocation	\checkmark	\checkmark	\checkmark			
⊘	Act_OpenMyPolarionPage	\checkmark	\checkmark	\checkmark			
⊘	Act_OpenWorkItemInfoPage	\checkmark	\checkmark	\checkmark			
⊘	$\label{eq:loss_constraint} Act_PcsModule_TriggerSearchOnDocu$	\checkmark	\checkmark	\checkmark			
⊘	Act_PcsSearchBox_AppendQuery	\checkmark	\checkmark	\checkmark			
⊳	Act_PcsSearchBox_ExecuteWorkItems	\checkmark	\checkmark	\checkmark			
⊘	Act_PcsSearchBox_ResetSearchResults	\checkmark	\checkmark	\checkmark			
⊳	Act_PcsWorkItem_CreateWorkItem	\checkmark	\checkmark	\checkmark			
⊳	Act_PcsWorkItem_DeleteWorkItem	\checkmark	\checkmark	\checkmark			
⊳	Act_PcsWorkItem_OpenUpdateWorkIt	\checkmark	\checkmark	\checkmark			
⊳	Act_PcsWorkItem_RefreshWorkItemTa	\checkmark	\checkmark	\checkmark			
⊳	Act_PcsWorkItem_UpdateWorkItem	\checkmark	\checkmark	\checkmark			
⊳	Act_PLApproval_ApproveWorkItem	\checkmark	\checkmark	\checkmark			
⊳	Act_PLApproval_DisApproveWorkItem	\checkmark	\checkmark	\checkmark			
⊘	Act_PLAttachment_GetAttachment	\checkmark	\checkmark	\checkmark			
⊳	Act_PLCategory_AddSelectedCategory	\checkmark	\checkmark	\checkmark			
⊳	Act_PLCategory_RemoveSelectedCate	\checkmark	\checkmark	\checkmark			
⊳	Act_PLCustomEnumValue_RemoveCu	\checkmark	\checkmark	\checkmark			
⊳	Act_PLCustomMultiEnumValues_Add	\checkmark	\checkmark	\checkmark			
⊳	Act_PLModule_DownloadAsPDF	\checkmark	\checkmark	\checkmark			
⊳	Act_PLProject_ProjectSelectionAction	\checkmark	\checkmark	\checkmark			
⊳	Act_PLUser_AddSelectedAssignee	\checkmark	\checkmark	\checkmark			
⊳	Act_PLUser_RemoveSelectedAssignee	\checkmark	\checkmark	\checkmark			
⊳	Act_ShowDocumentPage	\checkmark	\checkmark	\checkmark			
⊳	Act_UserLogin			\checkmark			

Please note that in order to facilitate a full anonymous access of the Sample Application, the Anonymous role has been granted full administrator access to all the pages, entities, and microflows of the application. For a production deployment of your custom application (or if you use some features from this sample application), the Anonymous access may need to be amended or restricted according to your business requirements.

Understanding the Polarion Connector Domain Model

The Domain Model is a data model that describes the information in your application domain in an abstract way. It is central to the architecture of your application. The Domain Model consists of <u>entities</u> and their relations that are represented by <u>associations</u>.

The Polarion Connector for Mendix Domain Model represents Polarion Work Item types, associated objects and their properties.

You can view the Polarion Connector Domain Model by navigating to PolarionConnector→Domain Model from the **Project Explorer**.

To export the Domain Model documentation, right-click the **Project Explorer** and choose **Export documentation**. The Domain Model documentation is exported as an HTML file.

Using Polarion web services through Polarion Connector: process workflow



Using Polarion services included with Polarion Connector

Introduction

Polarion web services are provided through microflows which are referred to as "Polarion service microflows" from here on in this document. You can see the available Polarion services microflows in the **Polarion Connector** section of the **Toolbox**.



- 💯 RemoveLinkedWorkItem
- SetCustomField
- SetCustomFields
- Transaction Exists
- 🕀 UpdateWorkItem

Supported services

For information about the supported Polarion services, see Polarion Connector services.

Process to use Polarion service microflows available in the Polarion Connector

- 1. Design a microflow as per your business logic.
- 2. Drag a Polarion service microflow from the Polarion Connector category of the toolbox into your microflow.
- 3. Specify input parameters for the Polarion service microflow.
- 4. Specify how data is retrieved.
- 5. Test your application.

Example of using the available Polarion services microflows

The Sample Application has microflows that make use of the Polarion services microflows available in the Polarion Connector. Two such examples are the Act_PcsWorkItem_CreateWorkItem and Act_PcsSearchBox_ExecuteWorkItemsSearch microflows in the Sample Application. Act_PcsWorkItem_CreateWorkItem makes use of the CreateWorkItem microflow from Polarion Connector which in turn calls the createWorkItem Polarion service. Similarly, Act_PcsSearchBox_ExecuteWorkItemsSearch makes use of the QueryWorkItemsLimited microflow from Polarion Connector which in turn calls queryWorkItemsLimited Polarion service. For additional details, download the Sample Application from the Mendix App Store and import it into your project.

How to handle errors

It is a good practice to set up error handling on all your microflows that call Polarion services microflows. The Sample Application provides the microflow **Sub_HandleException** as an example for error handling. Developers can make use of this microflow or write a similar one of their own.

To handle errors using the **Sub_HandleException** microflow:

1. In your microflow, right-click your Polarion service microflow and choose **Set error** handling.

2. In the **Error handling** dialog box, choose the error handling component as **Custom** without rollback. Note that the Custom with rollback error handling is already done within the Connector's Polarion service microflow and, it is therefore not needed in the Sample Application.

Error handling		—	\times
Туре	Custom without rollback		\sim
	Rollback Custom with rollback		
	Custom without rollback		
	Continue		

- 3. Drag the **Microflow call** service from the **Toolbox** to your microflow.
 - a. Update the Action section of the microflow and select the Sub_HandleException microflow.
 - b. Update the LatestError and LatestSoapFault parameters and set them to system maintained objects latestError and latestSoapFault.

Call Microflow						\times
Action Microflow	PolarionConr	nectorSample.Sub_HandleException		Select]	Show
🖉 Edit parameter v	alue					
Name		Туре	Argument			
LatestError		System.Error	\$latestError			
LatestSoapFault		System.SoapFault	\$latestSoapF	Fault		

4. Connect the Microflow call activity (set to Sub_HandleException microflow in the previous step) with the Polarion service microflow from where the error will originate.



5. Right-click the anchor point of the Polarion service microflow and choose Set as error handler.



6. Note if the current microflow is a sub-microflow then use Error Event action from Toolbox as the next action after the **Sub_HandleException** microflow. For this case, proceed with the next step in the calling microflow.



7. Formulate a message to notify the user of the error. This message can be shown to the user either through the Show Page or Show Message actions from the Toolbox. The Sample Application commonly uses the method of creating **PcsNotification** object and sets one of its member attributes to error message details (\$latestError/Message) which are then displayed on the **PcsNotificationPage_View** page.



8. Specify an End Event after the error message has been displayed to the user and to end the error handling part for your microflow.



Extending the Domain Model

Guidelines to extend the Polarion Connector Domain Model

The Domain Model in Mendix consists of objects/entities and their attributes and associations. It is analogous to the Polarion data model of Work Items which are a major focal point of data and activity in Polarion. Work Item Types represent various artifacts - requirements, tasks, change requests, for example. The Domain Model of Polarion Connector works for all these types but, if and when, a need arises to extend the Domain Model, ensure that:

- You extend the Domain Model in a separate module and not the Polarion Connector Domain Model. This will ensure that you can smoothly get updated versions of the Polarion Connector module.
- You use the methods of generalization (inheritance) or associated entities if you want to add additional information to some specializations of an entity but not to others.
- The entities and associations preferably should match the corresponding Polarion Work Item names, its related features and their properties. You can find information about out-of-thebox Polarion Work Items, its types and properties in the <u>Configure Work Items</u> and <u>Polarion</u> <u>SDK</u> documentation.

Process to extend the domain model while using available Polarion service microflows

- Create the required entities in a separate module as a subtype of an existing entity (specialized entity).
- For example, due to some special handling needs you want to create a separate entity for the Supplier Part business artifact, you can create it as a specialization entity of the PLWorkItem entity. PLWorkItem entity would be the generalization entity (or the super class) in this case.
- If the required entity is available but the required attributes are not available, create a specialization of the entity in a new module and then add the required attributes to this new entity.

Caution

Siemens recommends that you always create new entities and not make any changes to the entities that come with Polarion Connector.

- Design a main microflow as per your business logic.
- Drag a Polarion service microflow from the Polarion Connector section of the toolbox into the microflow.
- Instantiate and specify input parameters to the Polarion service microflow.

- Specify new (if needed) or existing import/export mappings for the Polarion service microflow.
- Specify how data is retrieved in the main microflow.
- Test your application.

Example: Extend the Domain Model to access additional information

To access other Polarion object types or attributes which are not already defined in Polarion Connector's Domain Model, you must add their definition to your app's Domain Model. This process is the same regardless of whether the object or attribute is out-of-the-box or custom.

A more common scenario likely to happen is that the desired objects and attributes may already be present in the Doman Model but are linked to the main entity through different levels of associations. They are thus not easily accessible via the main entity to the Mendix UI widgets such as a Data Grid or a Template Grid. The example below tackles such a scenario of the Work Items overview page WorkItemInfoPage_Overview in the Sample Application. This page is populated by an initial query of Work Items and its associations in the microflow Act_OpenWorkItemInfoPage but this microflow also needs to pass a singleton view of the retrieved data to the overview page. For this purpose, the example also illustrates the composition of the Domain Model entities needed to support this feature. That is where we start first.

I. Examine the PLWorkItem entity and its associations

Examine the PLWorkItem entity and its associations to determine which attributes you want to retrieve.

- a. This entity has associations representing Type, Priority, Severity and Status which are of interest for displaying on the Work Items page.
- b. Attributes Type, Priority, Severity and Status have enum (enumeration) options.



II. Create a new Domain Model entity

1. In your module's Domain Model, create a new entity.



2. Change the entity's name to somewhat resemble the name of Polarion Connector Work Item type you intend to extend. Also, switch the Persistable property of the entity to be a non-persistent entity. Properties of Entity 'PolarionConnectorSample.PcsWorkItem'

General	
Name	PcsWorkItem
Generalization	PolarionConr Select Show
Image	(none) Select
Persistable	🔿 Yes 💿 No
	Objects of this entity can only be stored in the database if it is persistable.

3. Define the new entity's *generalization* to be the Polarion Connector Work Item type you intend to extend.

Select Entity	—	\times
Q. Filter		
🛨 Expand All 📃 Collapse All		
E 🍄 PolarionConnector		\sim
E AddHyperlink		
E AddRemoveLinkedItem		
E ArrayOf_xsd_string		
E PLUser		\sim
E PLVoteURIs		
E PLWatcheURIs		
PLWorkItem		
E PLWorkRecord		

III. Define new attributes to match the Polarion Connector Work Item Type attributes

 Inspect the Polarion Connector associations, attributes, attribute types, and other parameters to create an equivalent attribute in your module's Domain Model. As an example, note that the attribute Status is of type PLStatusOptionId, that is, it is an enumeration option with an id and it is linked to PLWorkItem through the association PLStatusOptionId_PLWorkItem. Since, the name (label) of the Status enumeration option id is to be displayed on a UI page, you can choose to represent it as a simple string attribute in your module's Domain Model.

Polarion Connector



• Polarion Connector Sample Application

Properties of Entity 'PolarionConnectorSample.PcsWorkItem'

General					
Name	PcsWorkItem)			
Generalization	PolarionConr	Select	Show		
Image	(none)		Select		
Persistable	🔿 Yes 🔘 N	◯ Yes			
Objects of this entity can only be stored in the database if it is persistable.					
Attributes Associations	Validation rules	Event handlers	Indexes Ac		
🗅 New 🗋 Insert new above selected 🧷 Edit 🚫 Delete 🔺					
Name		Туре			
Status	9	String (200)			

Other attributes such as Type, Priority, and Severity have a similar schema and they can be modeled the same way in your Domain Model.

IV. Complete Entity Definitions

Finish the process of defining other attributes with appropriate data types, entities and associations needed by your module's Domain Model entity.

• For the PcsWorkItem domain entity, additional attributes are added to track permissions, Approval State, URL path to Polarion Work Item, etc.

Domain I	Model [PolarionConnecto	rSample]
🕅 🕑 Ent	ity a Annotation View •	🕄 Update
	PolarionConnector.PLWorkItem	
	PcsWorkItem	
	Status (String) Severity (String) WorkItemType (String) URLConstructor (String) ApprovalState (String) Priority (String) CanModifyInstance (Boole CanReadInstance (Boole	

- PcsRootcontext is an entity that sets up all the context information needed by various microflows. Through its various associations, it establishes links to the session entity, selected project, search criteria entity and PcsWorkItemHelper entity, etc.
- PcsWorkItemHelper is an entity created in the Domain Model with associations to carry a list of PcsWorkItem and PcsRootContext entities.

The Domain Model will be similar to the graphic below. You can now start using your new Domain Model entities and its attributes.



Repeat this process for each object whose properties you want to work with in your module.

V. Build Microflow and Sub-Microflows

 Microflows allow you to express the custom logic for your module. Plan your microflow and decide what services you want to use. The Polarion services microflows are available in the Toolbox under the Polarion Connector category. For querying Work Items, a microflow such as Act_OpenWorkItemInfoPage typically consists of the following activities:



2. In the first few steps, ensure that a root context is available for Work Items, and a project selection is made from the initial landing page.



3. Create a sub-microflow to launch the query. In our example it is Sub_GetAllWorkItemsOfProject. The required input to this sub-microflow is PcsWorkItemHelper and through its association PcsRootContext_PcsWorkItemHelper, the PcsRootContext is also passed in. Set Sub_HandleException microflow as the error handler of type Custom without rollback for this microflow. Refer to <u>How to handle errors</u> to complete the steps. Your microflow appears as in the graphic below.



The sub-microflow Sub_GetAllWorkItemsOfProject further calls other sub-microflows some of which are described below.

a. Prepare a list of input Work Item attributes to fetch through the query. Use the constants of type **WORKITEM_<field name>_FIELD** defined in the Configuration folder of the Polarion Connector. Microflow Sub_GetWorkItemFields creates such a list of fields with Work Item type, status, project, id, title, and severity.

- 🗆 🛯 🚞 Configuration

 - \circ T TOKEN_FOR_WORKITEM_ID_IN_URL_PATH

 - \circ T WORKITEM_CUSTOMFIELDS_FIELD
 - π WORKITEM_DESCRIPTION_FIELD
 - \circ T WORKITEM_DUEDATE_FIELD
 - \circ T Workitem_externallyLinkedworkitem
 - π WORKITEM_HYPERLINKS_FIELD
 - π WORKITEM_ID_FIELD
 - \circ π workitem_linkedresources_field
 - \circ T WORKITEM_LINKEDREVISIONS_FIELD
 - \circ π workitem_linkedworkitem_field

 - \circ T Workitem_planningconstraint_field

 - π WORKITEM_RESOLUTION_FIELD
 - π workitem_severity_field

 - \circ π workitem_timepoint_field
 - π WORKITEM_TITLE_FIELD
- b. Select the appropriate Polarion service microflow, microflow
 - QueryWorkItemsLimited in this case, from Toolbox and drag it to your microflow. Microflow QueryWorkItemsLimited calls the Polarion service **queryWorkItemsLimited** and returns a list of PLWorkItem. The input parameters needed for this microflow are the Lucene query string, sort criteria, list of fields to fetch, and the limit on the number of Work Items to fetch. The constant PCS_WORKITEMS_RESULTS_LIMIT sets the default limit of Work Items to retrieve from the query to 500. Set the error handler and trigger an error event to be handled in the calling microflow. The inputs needed and the extended microflow are shown in the graphic below.

Ø	QueryWorkItemsL	imited					×
	Action Microflow	PolarionCon	PolarionConnector.QueryWorkItemsLimited			Si	how
ption	/ Edit parame	ter value	Tura	A			
	Query		String	\$Query			
QueryWorkItem	Sort Fields		String List of PolarionConnector.PLString	'~updated' \$WorkItemF	ieldList		
PLWorkItemList List of PLWorkItem	ResultsLimit		Integer/Long	@PolarionCo	onnectorSam	ple.PCS_	WO

c. Count the number of Work Items returned by the limited query and compare it with the actual number of Work Items present in Polarion project's database. Warn the user if more exist in the Polarion database than what was returned by the query. Make use of Polarion service microflow **GetWorkItemsCount** from Polarion Connector category of the Toolbox to get a total count of the number of Work Items existing in Polarion database. This microflow internally calls the Polarion Service **getWorkItemsCount** to which the Lucene query string is passed. Also, don't forget to do proper error handling as mentioned in the previous steps. The extended microflow now appears similar to the graphic below.



- d. Next task is to extract all the pertinent information from the list of PLWorkItem and its associations to create an equivalent list of PcsWorkItem. For this, the submicroflow Sub_CreateWorkItemTableData performs these functions:
 - i. Accumulates information on create, read, modify, and delete permissions by calling Polarion service microflows **CanCreateInstances**, **CanReadInstance**, **CanModifyInstance**, and **CanDeleteInstance**.
 - ii. Creates a cache of enumeration options for Type, Status and Severity by calling a sub-microflow **GetCachedEnumOptionsForld** which internally calls the Polarion service microflow **GetAllEnumOptionsForld**. The microflow GetCachedEnumOptionsForld has an in-built logic to first check if enumeration options exist in the session cache. If found, it returns the cached data otherwise it fetches data from Polarion and caches it.



iii. Extracts enumeration option information for each of the PLWorkItem by matching their assigned enumeration option ids to the elements in the cache (generated in the previous step). This is repeated for each of the enumeration option types - Type, Status, Severity. Below image takes Status's enumeration option as an example and gives details of the related microflow activities.

		Retrieve PLStatusOptionI d by SiteratorPLWork PLStatusOptionId PLStatusOptionId	Find NewStatusEnumOption EnumOption	-		
List Operation						×
Action						
Operation	Find					\sim
List	StatusEnumOptio	ons (List of PolarionConnec	tor.EnumOption)			\sim
Member	_id (String (unlim	ited))				\sim
Equals	\$PLStatusOption	ld/_id		3	Edit	
Output						
Object name	NewStatusEnum	Option				
				OK	Can	cel

iv. Creates a PcsWorkItem object for each of the PLWorkItem by assembling all the relevant information to be processed by the UI pages. This includes the attribute information needed for display purposes on pages, for example Id, Title, and names (labels) of the enumeration option types -Type, Status, Severity.

Create	Object						\times
Action	1						
Entity	Polario	nConnectorSample.PcsWorkItem			Select	Sh	ow
Comn	nit 🔿 Yes	O Yes without events No					
Refre	sh in client OYes	No					
C I	New 🧷 Edit 🛇 Delete	Move up Vove down					
	Member	Member type	Туре	Value			
\bigcirc	_id	String (unlimited)	Set	\$IteratorPLWorkItem/_id			
\bigcirc	Title	String (unlimited)	Set	\$IteratorPLWorkItem/Title			
\bigcirc	Severity	String (200)	Set	\$NewSeverityEnumOption/Name			
\bigcirc	WorkItemType	String (200)	Set	<pre>\$NewTypeEnumOption/Name</pre>			
2	PolarionConnectorSample.Po	PolarionConnectorSample.Pc	Set	\$PcsWorkItemHelper			
\bigcirc	Uri String (unlimited) Set \$IteratorPLWorkItem/Uri						
\bigcirc	Status	String (200)	Set	\$NewStatusEnumOption/Name			
\bigcirc	CanModifyInstance	Boolean	Set	\$CanModifyWorkItem			
\bigcirc	CanReadInstance	Boolean	Set	\$CanReadWorkItem			
\bigcirc	CanDeleteInstance	Boolean	Set	\$CanDeleteInstance			
			_				
Outpu	t						
Objec	t name NewPc	sWorkItem					
?					ОК	Car	ncel

4. At this point, you have all the Work Items returned by the query and you also have all their attribute information in the form of a list of PcsWorkItem, ready to be displayed on the WorkItemInfoPage_Overview page. Note that the object passed in as page parameter is PcsRootContext. Upon page initialization, PcsRootContext's associations are navigated (PcsRootContext → PcsWorkItemHelper → PcsWorkItem) through nested data views to access the list of PcsWorkItem and displayed in the data grid.

Show Page				×
Input				
Object to pass	NewPcsRootContext (PolarionConnectorSample	.PcsRootConte	xt) 🗸
Action				
Page	PolarionConnectorSar	nple.WorkItemInfoP Se	lect Sł	ow
Page title	Override page title	Work Items		
				incol
		Or		
Project				
_				
_				
PcsRootCont	text, by microflow 'Sub_Crea	teRootContext']		
((Nama)	Salact Project			
	<u>Select Project</u>			
-				
L				
Work It	- m .c			
VVOIR IL	ems			
Powered by Me	nix 8.0			
[PcsRootContext,	, page parameter]			
PcsWorkItemHelp	er, over association 'PcsRoc	tContext_PcsWorkItemH	elper']	
		12		
{WITableLimitTi	itle}			
0A/IT-blatinsit	Cult Title)			
{vviiabieLimit	SubTitle}			
[PcsWorkItem, o	ver association 'PcsWorkIter	m_PcsWorkItemHelper']		[] -))
+ Create	🖸 Edit [default] 🛛 💼	Delete		$\triangleleft \mid \triangleright \mid \triangleright \mid$
C Refresh All				
	Citle	Turne	Ctatus	Covertty
	Title]	[WorkItemType]	[Status]	[Severity]
18%	- 34%	18%	15%	15%

Example: Extend the domain model to call a service to create a Work Item

This example takes the Create Work Item feature of the Sample Application and illustrates the composition of the main microflow Act_PcsWorkItem_CreateWorkItem which is the logic engine behind this feature.

- 1. Create a new module that represents your own business area. Skip this step if the module already exists.
 - \square \bigcirc O PolarionConnectorSample
 - O 🖁 Domain Model
- 2. Define the Domain Model.

Create a new non-persistent entity PcsWorkItem by selecting Generalization as **PolarionConnector.PLWorkItem**. Skip this step if the entity already exists. By the virtue of inheritance, PcsWorkItem will have access to all the same associations that were defined for the parent PLWorkItem in PolarionConnector's Domain Model. As a good practice, ensure that any new attributes or associations of the PcsWorkItem entity reflect the appropriate business intent.

Properties of Entity Pola	nonconnectorsample.Pcsworkitem		
General		System members	Documentation
Name PcsWorkItem Generalization PolarionConr Select Image (none) Select Persistable Yes<		Store 'createdDate' Store 'changedDate' Store 'owner' Store 'changedBy'	This entity inherits from the parent class PLWorkItem in PolarionConnector module. It carries some extra attributes that provide easy access to runtime information needed in the UI such as Work Item's type, URL link to Polarion system, etc.
Select Entity		- 🗆 X	
Q. Filter			
🛨 Expand All 📃 Coll	apse All		Microflow
E PLUser E PLVoteURIs PLWatcheUR PLWorkItem E PLWorkRecord	ls rd	^	

Properties of Entity 'PolarionConnectorSample.PcsWorkItem'



Tip: You can find information on out-of-the-box Polarion Work Items, its types and properties in the <u>Configure Work Items</u> and <u>Polarion SDK</u> documentation.

3. Plan your microflow and decide what services you want to use. The Polarion services microflows are available in the Toolbox under the Polarion Connector category. For creating a Work Item, the microflow typically consists of the following activities:



4. Ensure inputs for the mandatory fields such as Title, Type, Severity and Priority have been provided by the user. These are needed to create a Work Item and they can be obtained through a UI input page like CreateWorkItemPage_New included in the Sample Application. These mandatory inputs are retrieved through associated entities of PcsWorkItem (inherited from PLWorkItem) – PLTypeOptionId, PLSeverityOptionId, PLPriorityOptionId.



5. Specify any special processing if needed. For example, Description field's content needs to be treated as regular text instead of markup text.

6. Select the appropriate Polarion service microflow from Toolbox and drag it to your microflow. For example, you can use the **CreateWorkItem** microflow under the Polarion Connector category to create a Work Item.

Toolbox	×
Q Filter	
+ Expand All - Collapse All	
Object activities	~
List activities	
Action call activities	
Variable activities	
Client activities	
Integration activities	
Logging activities	
Document generation	
Polarion Connector	
AddApprovee	
AddAssignee	
AddCategory	
AddComment	
S AddHyperlink	
G AddLinkedRevisions	
AddLinkedWorkItem	
V/9 AddWorkRecords	
Begin Transaction	
And CanReadInstance	
CanReadKey	
CreateAttachments	
CreateWorkitem	
DeleteAttachments	
🛞 DeleteWorkitem	
Contraction DeleteWorkRecords	
🦻 EditApproval	
End Transaction	
C Execute Logout	
	\sim
Properties Toolbox Connector	

7. In your microflow, specify the input parameters that the Polarion service microflow will use. The CreateWorkItem microflow requires only one input parameter:
Х

An input object of entity *PolarionConnector.CreateWorkItem* which has an association called *WorkItem_CreateWorkItemRoot* to *PLWorkItem*. Create input object of type CreateWorkItem with its association set to PcsWorkItem. PcsWorkItem carries all the information gathered from the input page CreateWorkItemPage_New which is eventually passed on to the Polarion service createWorkItem. Your microflow is now extended as follows:
 Create Object



8. In the previous step, a successful CreateWorkItem microflow returns a valid Work Item URI returned from the Polarion service createWorkItem but this is also where error handling should be done to cover errors and exceptions thrown by this service. Set Sub_HandleException microflow as the error handler of type Custom without rollback for CreateWorkItem microflow. Refer to How to handle errors to complete the steps. Your microflow appears as follows:



9. Display a success message and a refreshed list of Work Items in the client UI. For this, query Polarion to fetch an updated list of Work Items. A new sub-microflow Sub_GetAllWorkItemsOfProject does this job. This sub-microflow is very much a part of the microflow Act_OpenWorkItemInfoPage explained in the preceding topic. Complete the error handling steps for the sub-microflow Sub_GetAllWorkItemsOfProject.



Your microflow appears as follows:



10. Test your microflow.



Using Polarion services not included in Polarion Connector

The Polarion Connector supports a library of Polarion web services through microflows written to call these services. For a list of supported services, see <u>Polarion Connector services</u>. If the web service you intend to use is not in this list, you can follow the steps described below in this section to easily write a new microflow in your module and call the desired service. The steps described here are also illustrated by taking the Polarion web service **queryWorkItemUrisLimited**, currently not in Polarion Connector's list of supported services, as an example. 'queryWorkItemUrisLimited' service queries for Work Item URIs with a given limit. Refer to <u>Polarion Web Services API</u> for a complete list.

I. Examine the Consumed Web Service Definition

Check if a Consumed Web Service definition for your intended web service exists in Polarion Connector's Published → Mappings folder. Currently, web service definitions for ProjectWebService, SecurityWebService, SessionWebService and TrackerWebService already exist in the Polarion Connector. If a newer one is desired, create a new Consumed Web Service and import its WSDL (Web Services Definition Language) from Polarion Web Services API. The example web service queryWorkItemUrisLimited is part of the TrackerWebService definition and therefore a new one is not needed.



II. Create Import Mappings

Examine the intended web service's return parameters and create an import mapping to map the web service's SOAP Response to your Domain Model's entities.

- a. Check if an appropriate import mapping exists to map the web service's SOAP Response to your Domain Model's entities. Existing import mappings can be found in sub-folders under Polarion Connector's *Published* → *Mappings* folder.
- b. If none of the existing mappings suits, create a new import mapping starting with the command *File* → *New Document...* → *Import mapping*. Toggle on *Web service operation* selection and expand the applicable consumed web service definition to select your web service of interest. The images below show the example case of selecting queryWorkItemUrisLimited service for creating import mapping.

New Document	×
Document type	Location
 À Java action À Java Script action Rule Enumeration Data set Constant Regular expression Scheduled event Document template Mappings Message definitions JSON structure XML schema Export mapping Gonsumed app service (deprecated) Consumed mp service Published REST service Published app service (deprecated) Published app service (deprecated) Published app service Published app service (deprecated) 	Filter • Expand All Collapse All • DocumentsAndPages • MyPolarion • MyPolarion • PolarionConnector • PolarionConnector • Internal • Published • Published • O Documents • Documents • Users • Workflow • Pages
Select schema elements for import mapping 'QueryWorkItemUrisLimited_In Schema source O XML schema @ Web service operation O JSON structure O Message definition	nport_mapping' - C X
Schema elements Filter	queryWorkItemUrisLimited Query the URIs of a Work Item. @param query the Lucene query, @param soft The key used to sort the result. @param resultsLimit The maximum number of returned Work Items. (-1 for unlimited.) @since 3.3.0 Request header (none) Request body query/WorkItemUrisLimited query (String) sort (String) (String); resultsLimit (Integer) Response query/WorkItemUrisLimitedResponse query/WorkItemUrisLimitedResune (content) (String)
Select Web Service Operation Filter Filter Expand All Collapse All Expand All Collapse All Expand All Collapse All CupyWorkItemUriselnBaseline CupyWorkItemUriselnBasel Cup	eysQL ine ineSySQL incLimited

c. From the Select schema elements for import mapping ... dialog box, you can optionally select the entities and associations to map as return values of the web service. For the

querymonkitemonseinnitee	meturn un		icine	110.			
Select schema elements for import mapping 'QueryWor	kltemUrisLimited_Impo	rt_mapping'					\times
Schema source							
O XML schema			Select	Start at			\sim
Web service operation 'queryWorkItemUrisLing	nited' in PolarionConnecto	or.Tracker_consumed	Select				
O JSON structure			Select				
O Message definition			Select				
Schema elements							
Filter							
🛨 Expand all 🖃 Collapse all 🗹 Check all 🔲 Uno	heck all						
Name	Primitive Type	Occurrence Nillable	Namespa	ice			
😑 🗌 📄 queryWorkItemUrisLimitedResponse		1	http://ws.	polarion.com/TrackerWeb	Servic		
ueryWorkItemUrisLimitedReturn		1*	http://ws.	polarion.com/TrackerWeb	Servic		
(content)	String	1					

example web service queryWorkItemUrisLimited, we need to map only the *aueryWorkItemUrisLimitedReturn* and its sub-element.

d. In the editor, double click the selected elements (on the right of the arrow) and select suitable existing entities from your Domain Model in the *Select Entity* dialog box. You also have the option of either creating new entities and then mapping them or using the *Map automatically*... option from the editor's toolbar. Polarion Connector's Domain Model is quite extensive, and, in many cases, its pre-existing entities and associations may prove to be sufficient for your import mapping needs. In the example case, *queryWorkItemUrisLimitedReturn* can be mapped directly to PLWorkItem entity and *content* can be mapped to PLWorkItem's *Uri* attribute.

🚴 Select eleme	ents <u>व</u> ि Map aut	omatically 🚫 Clear mapp	bings							
						^	No too	ls available		
	Click	or drag a parameter entity here (optional)								
		PLWorkItem Uri (String) Urresolvable (Boolean) Created (Date and time) DueDate (Date and time) Jid (String)	to create new obj ◀	queryWe (content	orkitemUris 🚯					
		Location (String) ModuleURI (String)	Map entity 'PLWorkl	tem' from schema ob	ject element 'queryWorkIter	mUrisLimitedReturn'	2			×
		OutlineNumber (String) PlannedEnd (Date and ti PlannedEnt (Date and t	Obtain Mendix Object	t _						
		RemainingEstimate (Stri	Method	Create an obj	ect O Find an object (by key)	Call a microflow				
		TimeSpent (String)	If no object was found	Create	gnore Crror					
		Updated (Date and time)		Decide this at	the place where the mapping ge	ets used				
			Map attributes							
								Map attrit	butes by na	ame
:			Entity attribute		Schema value element	Occurrence Conv	ert using			Key
Variables			1 Uri (String (un	limited))	(content) (String)			2	select	
	Туре	Value								

III. Create Export Mapping

Examine the intended web service's input parameters and create an export mapping to generate an XML for the SOAP request.

a. Start with the command *File* → *New Document...* → *Export mapping.* Toggle on *Web service operation* selection and expand the applicable consumed web service definition to select your web service of interest. Keep the default selection of all elements in the *Select schema elements for export mapping ...* dialog box to complete this step. The images below show the example case of creating export mapping for the web service queryWorkItemUrisLimited.

Select schema elements for e	r export mapping 'QueryWorkItemUrisLimited_Export_mapping'			\times
Schema source				
O XML schema	Select Start at			\sim
 Web service operation 	Select Request part			\sim
 JSON structure 	Select			
O Message definition	Rolant	1		
Schema elements	Select Web Service Operation X			
Filter	Filter			
Expand all Collaps	P Expand All Collapse All queryWorkttemUrisLimited Query Workleges Query the URS of a Work Item. (param query the Lucene query. @param sort The key used to sort the result. Query Wirkl@geselh8aseline queryWirkl@geselh8aselineBySQL @param sort The key used to sort the result. Query Wirkl@geselh8aselineBySQL @param sort The key used to sort the result. @param sort The key used to sort the result. Query Wirkl@geselh8aselineBySQL @queryWorkttemUris @param sort The key used to sort the result. Query WorkltemUris queryWorkttemUris @since 3.3.0 Request header (none) Request body queryWorkttemUrisInBaselineBySQL queryWorkttemUrisLimited queryWorktemUrisLimited queryWorkttemUrisInBaselineLimited queryWorkttemUrisLimited queryWorktemUrisLimited queryWorkttemUrisLimited queryWorkttemUrisLimited queryWorktemUrisLimited queryWorkttems queryWorktemUrisLimited queryWorktemUrisLimited queryWorkttems queryWorktemUrisLimited queryWorktemUrisLimited queryWorkttems queryWorktemUrisLimited queryWorktemUrisLimited queryWorktemSySQL queryWorktemUrisLimited queryWorktemUrisLimited queryWorktemSySQL queryWorktem			
0	image: strain and seline in the seline by SQL (content) (String) image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL image: strain and seline by SQL </th <th>ОК</th> <th>Car</th> <th>ncel</th>	ОК	Car	ncel

Select schema elements for export mapping 'QueryWor	kltemUrisLimited_Expo	rt_mapping'				_	×
Schema source							
◯ XML schema			Select	Start at			\sim
Web service operation 'queryWorkItemUrisLi	mited' in PolarionConnecto	or.Tracker_consum	ec Select	Request part	Body		\sim
◯ JSON structure			Select				
O Message definition			Select				
Schema elements							
Filter							
🛨 Expand all 😑 Collapse all 🗹 Check all 🗍 Un	check all						
Name	Primitive Type	Occurrence Nil	lable Namespa	ice			
😑 🖂 📄 🔄 queryWorkItemUrisLimited		1	http://ws.	polarion.com/TrackerWe	bServic		
v 🖻 query	String	1	http://ws.	polarion.com/TrackerWe	bServic		
sort	String	1	http://ws.	polarion.com/TrackerWe	bServic		1
resultsLimit	Integer	1	http://ws.	polarion.com/TrackerWe	bServic		

b. In the editor, double click the selected elements (on the right of the arrow) and select a suitable existing entity from your Domain Model in the *Select Entity* dialog box. You also have the option of creating new entities and then mapping them or using the *Map automatically*... option from the editor's toolbar. Polarion Connector's Domain Model is quite extensive, and, in many cases, its pre-existing entities and associations may prove to be sufficient for your export mapping needs. In the example case, there is a pre-existing entity *QueryWorkItemsLimited* which nicely fits the export mapping since its attributes match one-to-one with the input parameters of the service

Image: Solution of the solution		Select Entity		-		×			
Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited)) Schema value element Occurrence Convert using Image: String (unlimited) Schema value element Occurrence Convert using Image: String (unlimited) Schema value element Occurrence Convert using Image: String (unlimited) Schema value element Schema value element Image: String (unlimited) Schema value element Schema value		Q Query				×			
Image: String (unlimited)) Schema value element Occurrence Convert using Select Image: String (unlimited)) Valuery (String) Select Select Solution (Unlimited)) Valuery (String) Select Select Solution (Unlimited)) Valuery (String) Select Select		🛨 Expand All 📃 Collapse	All						
Map entity 'QueryWorkItemsLimited' to schema object element 'queryWorkItemUrisLimited' - - × Map attributes Map attributes Map attributes by name I Query (String (unlimited)) × query (String) 1 Select 2 Sort (String (unlimited)) × sort (String) 1 Select 3 ResultsLimit (Integer) × resultsLimit (Integer) 1 Select		 PolarionConnector QueryModuleField QueryModules QueryWorkItems QueryWorkItemsL 	ds Limited				query(Work/tem Uris () query (String) sort (String) resultsLimit (integer)		L ₈
Entity attribute Schema value element Occurrence Convert using 1 Query (String (unlimited)) ✓ query (String) 1 Select 2 Sort (String (unlimited)) ✓ sort (String) 1 Select 3 ResultsLimit (Integer) ✓ resultsLimit (Integer) 1 Select									> 1
1 Query (String (unlimited)) query (String) 1 Select 2 Sort (String (unlimited)) sort (String) sort (String) resultsLimit (Integer) resultsLimit (Integer) Select	ap e Map a	entity 'QueryWorkItemsLimited' to	o sche	ma object element 'queryWorkIte	emUrisL	imited'		Map attribute:	□ × s by name
2 Sort (String (unlimited))	ap e Map a	entity 'QueryWorkItemsLimited' to attributes Entity attribute	o sche	ma object element 'queryWorkIte Schema value element	emUrisL	imited' Occurren	ce Convert using	Map attribute:	s by name
3 ResultsLimit (Integer) V resultsLimit (Integer) 1 Select	lap e Map a	entity 'QueryWorkItemsLimited' to attributes Entity attribute Query (String (unlimited))	o sche	ma object element 'queryWorkIte Schema value element query (String)	emUrisL	imited' Occurren	ce Convertusing	Map attributes	Select
	ap e Map a 1	entity 'QueryWorkItemsLimited' to attributes Entity attribute Query (String (unlimited)) Sort (String (unlimited))	o sche	ma object element 'queryWorkIte Schema value element query (String) sort (String)	emUrisL	imited' Occurren I	ce Convert using	Map attributed	s by name Select Select
	ap e Map a 1 2 3	entity 'QueryWorkItemsLimited' to attributes Entity attribute Query (String (unlimited)) Sort (String (unlimited)) ResultsLimit (Integer)	v v	ma object element 'queryWorkIte Schema value element query (String) sort (String) resultsLimit (Integer)	emUrisL	Occurren I	CE Convertusing	Map attribute	Solution Solution Solution Solution Solution Solution Solution Solution

queryWorkItemUrisLimited. Following images show the selection of this entity, mapping of the attributes and creation of the export mapping for queryWorkItemUrisLimited.



IV. Use the 'Call web service' activity

Mendix's 'call-web-service' activity can be used to call an imported web service operation. Compose a wrapper microflow to stage the required input needed for 'call-web-service' activity to call the desired Polarion service. This microflow is also responsible for processing the response received back from the web service and returning it to the calling microflow. Such microflows have also been referred to as "Polarion services microflows" in this document.

- a. Start your microflow by instantiating all the input parameters needed for calling the Polarion web service. For the example case of queryWorkItemUrisLimited service, the input parameters to be passed in are: Lucene query string, sort criteria and the number of Work Items to fetch.
- b. Initialize Polarion session information. This needs to be done for each Polarion service microflow you write. There are two sub-microflows available in Polarion Connector responsible for handling this:
 - I. GetPolarionSession Retrieves the existing Polarion Session from Mendix database. Creates a new Polarion Session if none is found.
 - II. GetServiceRequestHeader Creates a web service request header string with Polarion login cookie which is used to populate the SOAP Request Header template of the 'call-web-service' activity.



c. Create the export mapping object with its attribute values initialized to the input parameters. For the example case, create a QueryWorkItemsLimited object and set its attributes as shown.

	Create Object								
	Action Entity	PolarionConnector.QueryWorkItemsL	imited		Select	Show			
	Commit Refresh in client	 Yes () Yes without events (● No O Yes (● No Edit (>) Delete (▲ Move up ▼ Move down 							
	Member	Member type	Туре	Value					
	🚫 Query	String (unlimited)	Set	\$Query					
Create	🖏 Sort	String (unlimited)	Set	\$Sort					
sLimited(Query,	🟷 ResultsLimit	Integer	Set	\$ResultsLimit					
NewQueryWorkItemsLimited QueryWorkItemsLimited									
	Output								
	Object name	NewQueryWorkItemsLimited							
	0				ОК	Cancel			

- d. Drag and drop the 'call-web-service' activity in to your microflow and start populating the information in its various tabs:
 - I. Operation tab: Select the applicable web service in the Operation field. For the Location field, toggle on the 'Override location' option and set Location to the URL address of Polarion server's web service operation. The URL is an expression composed of a concatenation of Polarion server's host address and a standard default path to the web service. The host address is extracted from the Polarion session object returned by the earlier GetPolarionSession call. Set the Timeout setting to the default of 300 seconds to throw an exception when the web service takes too long to respond after connecting. The image below shows the Operation tab for the example web service queryWorkItemUrisLimited.

all Web S	ervice						X
peration	HTTP Headers	SOAP Request Header	SOAP Request Body	SOAP Response			
Operatio	n						
Operation	n	queryWorkItemUrisLimi	ted in PolarionConnect	or.Tracker_consum	ed_web_serv	Select.	
Location							
✓ Overr	ide location						
Lo	ocation	<pre>\$PolarionSession/Host</pre>	Address+'/ws/services	/TrackerWebServic	ce'	Edit	
Timeout							
Use time	out on request	● Yes ○ No					
Timeout	(s)	300				Edit	
Validatio	n						
Validate	against wsdl	🔾 Yes 🔘 No					
Proxy co	nfiguration						
		Use project settings (default) Override	O No proxy			
							5
2					OK	Can	cel

II. SOAP Request Header tab: Use the 'Custom request template' option. Define a parameter for the header string generated by the earlier GetServiceRequestHeader call. This string has the XML structure of the SOAP envelope in plain text and it also has the login cookie embedded in it. Set the Template field to the parameter you just defined which in turn points to the header string which has all the required information to establish an authenticated connection. The image below shows the SOAP Request Header tab for the example web service queryWorkItemUrisLimited.

Custom request template The operation does not expect a SOAP Request header. You can still use a custom request template if you are sure you want to send data anyway. Insert template Template Parameters Image: New Control Contrelete Contrelete Control Control Control Contro Control	Operation	HTTP Headers	SOAP Req	uest Header	SOAP Ree	quest Body	SOA	Respon	se			
The operation does not expect a SOAP Request header. You can still use a custom request template if you are sure you want to send data anyway. Insert template Template {1} Parameters Index Expression (1) \$RequestHeaderString	Custom re	equest template			\sim							
Insert template Template {1} Parameters Image: New Edit Delete ▲ Move up Move down Index Expression (1) SRequestHeaderString	The opera want to se	tion does not expe nd data anyway.	ct a SOAP F	Request heade	er. You can	still use a c	ustom r	equest ter	mplate if	you are s	sure you	
Template {1} Parameters Image: New Edit So Delete ▲ Move up ▼ Move down Index Expression (1) SRequestHeaderString						Ins	erttem	plate				``
Parameters Parameters Constraints Parameters Parameters Index Expression (1) SRequestHeaderString	Template		{1}									^
Parameters Parameters Index Expression (1) SRequestHeaderString												
Parameters Image: New C Edit O Delete Move up Move down Index Expression (1) SRequestHeaderString												
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Index Expression {1} \$RequestHeaderString	Parameter	rs	🗋 New 🖌	/ Edit 🚫	Delete	Move u	р 💌	Move do	wn			
(1) SRequestHeaderString			Index	Expression								
									_			

III. SOAP Request Body tab: Select the option 'Export mapping for the entire request'. In the Mapping field, you can choose an existing export mapping pre-created to use for this request. This was explained earlier in the <u>Create Export Mapping</u> section. The 'Parameter Type' field is automatically set to the entity based on the export mapping selected. If applicable, the Parameter field can be set to an object or list that you want to use as parameter for the mapping. The image below shows the SOAP Request Body tab for the example web service queryWorkItemUrisLimited.

Call Web Se	ervice					
Operation	HTTP Headers	SOAP Request Head	er SOAP Request Body	SOAP Response		
Export ma	apping for the entir	re request	\sim			
Build the re	equest using a sin	igle export mapping. This	is the recommended opti	on.		
Export m	apping					
Mapping		PolarionConnector.Qu	eryWorkItemUrisLimited	_Export_mapping	Select	Show
Paramete	er type	PolarionConnector.Qu	ieryWorkItemsLimited			
Paramete	er	NewQueryWorkItems	Limited			~
	Select Export	Mapping		_		×
	Q Filter					
	🛨 Expand All	I 📃 Collapse All				
	🗄 🐡 App Sto	ore modules				^
	🖤 System	1 				
	E Polario	nConnectorSample				
	E Tolario	rnal				
	E Layo	outs				
	🗉 🚞 Pub	lished				
(?)	🕀 ᅼ A	API (Microflows)				Cancel
	L 📃 🗌	avaActions				
		Mappings				
		CustomFields				
		Documents				
_		Login				
_		Search				
			_Export_mapping			
	1		Scimiled_Export_mapp	ing		🔷 0 De
			Unscimiled_export_ma	pping		r Code
		Workflow				
		Workltem				286
		RemoveLinkedWor	kltem Export mapping	l.		
	F	Pages				~
			Select New	None	Can	cel
_			JCIECT IVEW	NOTE	Call	

IV. SOAP Response tab: In the Mapping field, you can choose an existing import mapping pre-created to use for this request. This was explained earlier in the <u>Create Import Mappings</u> section. The Type field is automatically set to an entity or a list based on the import mapping selected. Assign a variable in the 'Variable name' field to store the result of the 'call-web-service' activity. The image below shows the SOAP Response tab for the example web service queryWorkItemUrisLimited.



e. Set error handler of type *Custom with rollback* for 'call-web-service' activity to handle all errors that occur during the processing of the service request. This includes networking errors (HTTP errors connecting to the Polarion server), session time-out, and parsing errors. These errors can optionally be logged to a custom log node for your module using the Log Message activity. The errors are processed as an Error Event, and the calling microflow must also set an error handler on the Polarion service microflow to process the returned error and must also display the \$latestError/Message and then exit the microflow. Below images show the error handling and details of Log Message for the

example case.					
	Log Message				×
	Action				
	Log level	Error			\sim
	Log node name	@PolarionConnectorSample.PCS_LOG_NODE		Edit	t
	Template	Query Work Item URIs Limited failed:			^
Call web service 'queryWorkItem UrisLimited' PLWorkItems List of PLWorkItem		{1}			>
Log message (error)	Parameters	🗋 New 🧷 Edit 🛇 Delete 🔺 Move up 🔍 Move down			
•		Index Expression			
Ť		(1) SlatestError/Message			
	Include latest stack trace	⊖Yes ●No			
			ОК	Can	icel

f. Optionally, perform any further processing per your needs before ending the microflow by returning applicable variable, object, list or nothing. The complete Polarion service microflow for the example case of queryWorkItemUrisLimited service is shown in the image below.



g. Test your microflow.

V. Expose as Microflow Action

Optionally, by right-clicking in the microflow editor and selecting *Properties* and then further selecting the *Expose as microflow action* option, your microflow will be exposed in the *Toolbar* under a category of your choice with an icon of your choice. By doing so, your microflow will become a drag and drop activity just like the others in the Toolbox.

	Microflow propertie	25		
	General Expose as	microflow action		
	Information Exposing this Micr When this action is	oflow will make it appear in the Toolbox window when editing a mid used in a microflow, it will show the provided caption and icon.	croflow, in the category you	choose.
Toolbox	Settings			
Q Filter	Expose as micro	oflow action		
🛨 Expand All 📃 Collapse All	Caption	QueryWorkItemUrisLimited		
ど RemoveLinkedWorkItem	Category	Polarion Connector Sample		
SetCustomField	Icon	System.Images.Microflow	Select	Show
SetCustomFields				
Transaction Exists				
OpdateWorkItem				
QueryWorkItemUrisLimited				
			ОК	Cancel

Configuration Settings

Query Limits

The Polarion service microflow QueryWorkItemsLimited expects a number to be passed in which sets a limit on the number of search results returned. As an example, the constant PCS_WORKITEMS_RESULTS_LIMIT in the Sample Application sets a default limit of 500 on the number of Work Items to be retrieved wherever the microflow QueryWorkItemsLimited is called. This limit can be adjusted up or down according to the needs of the customizers. When this limit is hit by the microflow, a warning message is displayed (see the image below). It informs the user that the number of Work Items existing in the selected project's database are more than the query limit and that the user should resort to a refined query if their Work Item(s) of interest is not found. In the case of Sample application, the user can refine the query by providing a search criteria in the search fields.

■	Project UnificationBac	:kupPerf •	/ Work It	tems			
€	Search						
h	Type or build sea	rch query					Q 2
	Search by Column	~	Search Valu	ie(s) parated by spa	ce	0	1
	Not all Work In Only first 500 o	tems loaded f 10650 items were rch query to get a	loaded. more refined re	esult.			
•	Adjust your sea	ion query to get u					
€ 2	Adjust your sea	🖸 Edit 💼 1	Delete	Refresh All		k 4	1 to 15 of 500
•	Adjust your sea	C Edit 1	Delete 📿	Refresh All	Туре	M M	1 to 15 of 500
	Adjust your sea	G Edit 💼 I	Delete	Refresh All	Type System Requir	K 4 Status Draft	1 to 15 of 500 Severity Should Have

Runtime Settings

Custom runtime settings as described in below mentioned sections are included in the Sample Application. These settings can be changed according to your needs by going to Project Settings \rightarrow Configurations \rightarrow Edit \rightarrow Custom.

Http Client Settings

A user may experience a hang of the Sample Application if multiple consecutive exceptions are encountered from Polarion web services within a short period of time. This is a known issue with Mendix 8.5 where the Http client is not closed (till it times out) after receiving an error from a published web service. To mitigate this issue, runtime settings of

http.client.CleanupAfterSeconds is set to 10 seconds and *http.client.MaxConnectionsPerRoute* is set to 5 in the Sample Application. This allows the Sample Application to have 5 Http clients per session and close any unused Http clients after 10 seconds. These settings can be adjusted up or down by customizers according to their expected application usage patterns. More information about these settings is described in the online documentation at <u>Runtime Customization</u>.

State Threshold Level

Sample Application pages may need to process a large amount of non-persistable objects to display the data. By default, Mendix Runtime will log a warning message to console in case the number of objects exceeds the State Threshold Level. This level can be configured with the custom setting of *com.mendix.webui.StateSizeWarningThreshold* which is set to 5000 to allow processing of larger amounts of objects and to prevent the warning from being logged too often. This setting can be adjusted up or down by customizers according to their expected application usage patterns. More information about this setting is described in the online documentation at <u>Runtime Customization</u>.

Project Setti	ings					\times	
Configuratio	ns Runtime Languages	Certificates Theme	Miscellaneous	3			
Configurations contain database and server settings. Any number of configurations can be defined. The active configuration is user specific and can also be changed through the Run menu. A configuration is used when running locally from Mendix Studio Pro or from Eclipse.							
🗋 New	🖉 Edit 🚫 Delete 🛛 🗅	Duplicate 🗸 Make	e active				
Active	Configuration name	 Database 	e type	Applicatio	on root URL		
 ✓ 							
	Edit Configuration			—			
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	Name	Default					
Database Server Constants Custom							
	These are custom config exactly what you are doin	uration settings for the ng. Wrong values can p	Runtime. Only revent the Run	use this functionality if yo time from starting.	ou know		
	🗋 New 🧷 Edit 🛇) Delete					
	Name		Value				
	com.mendix.webui.Stat	eSizeWarningThreshol	d 5000				
	http.client.CleanupAfte	rSeconds	10				
	http.client.MaxConnect	ionsPerRoute	5				

Limited Support

Following are some of the known issues with limited support in Polarion Connector:

- 1. All custom fields for a Work Item are supported except for specialized custom fields like *Test Steps* and *Feature Selection*.
- 2. During update of a Work Item, *Linked OSLC Resources* field will not be updated.
- 3. Most of the information structures linked to a Work Item are available in the Connector except for *Watches*.
- 4. Where hierarchical recursive data types are encountered, only the first level is processed. For example, if a Work Item has an association to Plan and Plan has recursive association to itself (Work Item -> Plan -> Plan), only the Work Item and its first level Plan is retrieved.
- 5. Fetching images for enumerations (Work Item type icons, custom enumeration icons, icons for Work Items, Documents, etc...) is not supported.
- 6. Limited support of Documents, for example getting Document attachments, working with comments, etc. is not supported.

Appendix A: Polarion Connector services (Microflow APIs)

Microflow 'AddApprovee' Microflow 'AddAssignee' Microflow 'AddCategory' Microflow 'AddComment' Microflow 'AddHyperlink' Microflow 'AddLinkedRevisions' Microflow 'AddLinkedWorkItem' Microflow 'AddPolarionConfiguration' Microflow 'AddWorkRecords' Microflow 'AdminLogin' Microflow 'BeginTransaction' Microflow 'CanAddElementToKey' Microflow 'CanCreateInstances' Microflow 'CanDeleteInstance' Microflow 'CanModifyInstance' Microflow 'CanModifyKey' Microflow 'CanReadInstance' Microflow 'CanReadKey' Microflow 'CreateAttachments' Microflow 'CreateWorkItem' Microflow 'DeleteAttachments' Microflow 'DeleteWorkItem' Microflow 'DeleteWorkRecords' Microflow 'EditApproval' Microflow 'EndTransaction' Microflow 'ExecuteAdminLogin' Microflow 'ExecuteLogin' Microflow 'ExecuteLogout'

Microflow 'ExecuteUserLogin'

Microflow 'ExportDocumentToPDF'

Microflow 'GetAllEnumOptionsForld'

Microflow 'GetAllLinkedWorkItems'

Microflow 'GetAttachmentFile'

Microflow 'GetAvailableActions'

Microflow 'GetBackLinkedWorkItems'

Microflow 'GetCachedCustomFieldTypes'

Microflow 'GetCachedEnumOptionsForId'

Microflow 'GetCategories'

Microflow 'GetChildFolders'

Microflow 'GetConstructedWorkItemURL'

Microflow 'GetCustomField'

Microflow 'GetCustomFields'

Microflow 'GetCustomFieldTypes'

Microflow 'GetDeepContainedProjects'

Microflow 'GetDefinedCustomFieldKeys'

Microflow 'GetDefinedCustomFieldTypes'

Microflow 'GetDocumentSpaces'

Microflow 'GetLinkedWorkItems'

Microflow 'GetModules'

Microflow 'GetPolarionConfiguration'

Microflow 'GetPolarionSession'

Microflow 'GetProjectUsers'

Microflow 'GetRootFolders'

Microflow 'GetServiceRequestHeader'

Microflow 'GetUser'

Microflow 'GetUsers'

Microflow 'GetWorkItemById'

Microflow 'GetWorkItemByIDWithFields'

Microflow 'GetWorkItemByURI'

Microflow 'GetWorkItemsCount'

Microflow 'HasCurrentUserPermission'

Microflow 'HasPermission'

Microflow 'LoginWithToken'

Microflow 'PerformWorkflowAction'

Microflow 'PerformWorkItemWorkflowAction'

Microflow 'QueryModules'

Microflow 'QueryWorkItems'

Microflow 'QueryWorkItemsLimited'

Microflow 'RemoveApprovee'

Microflow 'RemoveAssignee'

Microflow 'RemoveCategory'

Microflow 'RemoveHyperlink'

Microflow 'RemoveLinkedRevisions'

Microflow 'RemoveLinkedWorkItem'

Microflow 'SavePolarionConfiguration'

Microflow 'SetConfigurationAsActive'

Microflow 'SetCustomField'

Microflow 'SetCustomFields'

Microflow 'ShowLoginPage'

Microflow 'TransactionExists'

Microflow 'UpdateWorkItem'

Microflow 'UserLogin'

Microflow 'AddApprovee'

Adds Work Item approvals and changes the status of approval.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with approval data associated to it. Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'AddAssignee'

Adds Work Item assignee(s).

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with assignee data associated to it. Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'AddCategory'

Adds Categories to a Work Item.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with category data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'AddComment'

Adds comments to a Work Item.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with comment data associated to it. Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'AddHyperlink'

Adds hyperlinks to a Work Item.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with hyperlink data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'AddLinkedRevisions'

Adds linked revisions to a Work Item.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with linked revision data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'AddLinkedWorkItem'

Adds linked Work Items.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with linked work item data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'AddPolarionConfiguration'

Creates a new Polarion configuration record in the database

Parameters

Name	Туре	Documentation
PolarionConfiguration	PolarionConnector.PolarionConfiguration	Polarion configuration

Return type

Nothing

Microflow 'AddWorkRecords'

Creates Work Records to a Work Item.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with work record data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'AdminLogin'

Shows admin page if valid polarion session exists otherwise shows default home page

Parameters

This microflow has no parameters.

Return type

Nothing

Microflow 'BeginTransaction'

Starts an explicit transaction for the current session.

Parameters

This microflow has no parameters.

Return type

Nothing

Microflow 'CanAddElementToKey'

This microflow checks if the current user can add elements to the collection at given key of the object. It returns true if the permission is granted, false otherwise.

Parameters

Name	Туре	Documentation
InputKey	String	The key of the field that contains the collection.
InputURI	String	The uri of the given object.

Return type

Boolean

Microflow 'CanCreateInstances'

This microflow checks if the current user can create instances of the given prototype in the given project. For all Work Item types, the prototype class is 'WorkItem' (see constant WORKITEM_PROTOTYPE). It returns true if the permission is granted, false otherwise.

Parameters

Name	Туре	Documentation
InputProjectId	String	The id of the project to check the permission in, null to check global permissions.
InputPrototype	String	The prototype of the objects. For a Work Item, the prototype as set in the global constant WORKITEM_PROTOTYPE should be passed in.

Return type

Boolean
Microflow 'CanDeleteInstance'

This microflow checks the Polarion permissions to see if the current user can modify the given object. The URI of the given object is passed in. It returns true if the permission is granted, false otherwise.

Parameters

Name	Туре	Documentation
InputURI	String	The uri of the given object.

Return type

Boolean

Microflow 'CanModifyInstance'

This microflow checks the Polarion permissions to see if the current user can modify the given object. The URI of the given object is passed in. It returns true if the permission is granted, false otherwise.

Parameters

Name	Туре	Documentation
InputURI	String	The uri of the given object.

Return type

Boolean

Microflow 'CanModifyKey'

This microflow checks the Polarion permissions to see if the current user can modify the field with given key of the object. The URI of the given object and the key of the given field are passed in. It returns true if the permission is granted, false otherwise.

Parameters

Name	Туре	Documentation
InputKey	String	The key of the given field.
InputURI	String	The uri of the given object.

Return type

Boolean

Microflow 'CanReadInstance'

This microflow checks the Polarion permissions to see if the current user can read the given object. The URI of the given object is passed in. It returns true if the permission is granted, false otherwise.

Parameters

Name	Туре	Documentation
InputURI	String	The uri of the given object.

Return type

Boolean

Microflow 'CanReadKey'

This microflow checks the Polarion permissions to see if the current user can read the field with given key of the object. The URI of the given object and the key of the given field are passed in. It returns true if the permission is granted, false otherwise.

Parameters

Name	Туре	Documentation
InputKey	String	The key of the given field.
InputURI	String	The uri of the given object.

Return type

Boolean

Microflow 'CreateAttachments'

Creates Work Item attachments.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with attachment data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'CreateWorkItem'

Creates a new Work Item with the given content. The Project and the Type must be set or the Work Item will not be created. The URI MUST NOT be set, otherwise the creation will fail.

Parameters

Name	Туре	Documentation
CreateWorkItem	PolarionConnector.CreateWorkItem	Data of the Work Item to be created.

Return type

String

Microflow 'DeleteAttachments'

Removes Work Item attachments.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with attachment data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'DeleteWorkItem'

Deletes a Work Item from Polarion.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item to be deleted.

Return type

Nothing

Microflow 'DeleteWorkRecords'

Deletes Work Records of a Work Item.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with work record data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'EditApproval'

Changes the status of an approval.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with approval data associated to it. Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'EndTransaction'

Ends the explicit transaction of the current session by either commit or rollback.

Parameters

Name	Туре	Documentation
Rollback	Boolean	If true the transaction is rolled back otherwise it is committed.

Return type

Nothing

Microflow 'ExecuteAdminLogin'

Shows admin home page if valid Polarion session exists

Parameters

This microflow has no parameters.

Return type

Boolean

Microflow 'ExecuteLogin'

Logs a user into Polarion and creates a session.

Parameters

Name	Туре	Documentation
Credentials	PolarionConnector.Credentials	User credential information.

Return type

Nothing

Microflow 'ExecuteLogout'

Ends current Polarion session.

Parameters

This microflow has no parameters.

Return type

Nothing

Microflow 'ExecuteUserLogin'

Shows user home page if valid Polarion session exists

Parameters

This microflow has no parameters.

Return type

Boolean

Microflow 'ExportDocumentToPDF'

This action allows you to export and download document as a PDF file. It uses "exportDocumentToPDF" webservice call. Note: This action is available from Polarion V20R1 onwards.

Parameters

Name	Туре	Documentation
PLModule	PolarionConnector.PLModule	PLModule object with associated PLProject object. (PLProject should not be null) and "uri" attribute is not null.

Return type

Nothing

Microflow 'GetAllEnumOptionsForId'

Gets all enumeration options.

Parameters

Name	Туре	Documentation
GetAllEnumOptionsForIdIn put	PolarionConnector.GetAllEn umOptionsForIdInput	Input object to retrieve enum options for. Project ID and EnumID should be provided.

Return type

List of PolarionConnector.EnumOption

Microflow 'GetAllLinkedWorkItems'

Gets all linked work items (direct, back) of a Work Item.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item information object

Return type

List of PolarionConnector.PLLinkedWorkItem

Microflow 'GetAttachmentFile'

Downloads a file attached to Work Item.

Parameters

Name	Туре	Documentation
PLAttachment	PolarionConnector.PLAttachment	Attachment of the Work Item
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object

Return type

Nothing

Microflow 'GetAvailableActions'

Gets all the available actions that can be used on the workflow object.

Parameters

Name	Туре	Documentation
WorkFlowObjectURI	String	URI of any WorkflowObject, e.g. WorkItem or Module.

Return type

List of PolarionConnector.WorkflowAction

Microflow 'GetBackLinkedWorkItems'

Gets the back linked Work Items of a Work Item.

Parameters

Name	Туре	Documentation
WorkItemUri	String	Work Item URI

Return type

List of PolarionConnector.PLLinkedWorkItem

Microflow 'GetCachedCustomFieldTypes'

Gets all custom field definitions for a Work Item Type. First checks if the Work Item custom field definitions exists in session cache. If found returns the cached data otherwise fetches data from Polarion and caches it.

Parameters

Name	Туре	Documentation
ProjectId	String	ID of the Project
WorkItemTypeId	String	Work Item Type ID
WorkItemURI	String	The URI of the Work Item

Return type

List of PolarionConnector.CustomFieldType

Microflow 'GetCachedEnumOptionsForId'

Gets all enumeration options. First checks if the enumeration options exists in session cache. If found returns the cached data otherwise fetches data from Polarion and caches it.

Parameters

Name	Туре	Documentation
EnumID	String	ID of the enumeration to get the options for
ObjectTypeID	String	ID of the Work Item Type
ProjectID	String	ID of the Project

Return type

List of PolarionConnector.EnumOption

Microflow 'GetCategories'

Get the categories defined for the give project id.

Parameters

Name	Туре	Documentation
ProjectID	String	ID of the Project

Return type

List of PolarionConnector.PLCategory

Microflow 'GetChildFolders'

This action uses 'getChildFoldes' webservice calls to get list of folders contained in a parent folder and returns list of PLModules with location fields.

Parameters

Name	Туре	Documentation
PLModule	PolarionConnector.PLModule	PLModule object with associated PLProject object. (PLProject should not be null) and location field set.

Return type

List of PolarionConnector.PLModule

Microflow 'GetConstructedWorkItemURL'

This microflow returns a constructed URL link to access the input Work Item in Polarion. It makes use of two constants TOKEN_FOR_PROJECT_ID_IN_URL_PATH and TOKEN_FOR_WORKITEM_ID_IN_URL_PATH to construct the URL path. The URL returned by this microflow is of the default type <Polarion Host Address>#/project/<ProjectId>/workitem?id=<WorkItemId>. Write your own microflow similar to this one if your installation does not follow the default install paths.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	The Work Item

Return type

String

Microflow 'GetCustomField'

Gets custom field of a Work Item.

Parameters

Name	Туре	Documentation
GetCustomFieldInput	PolarionConnector.GetCustomFieldInput	Input object with Work Item URI and custom field name to be retrieved.

Return type

PolarionConnector.PLCustom

Microflow 'GetCustomFields'

Gets all the custom fields of a Work Item.

Parameters

Name	Туре	Documentation
IgnoreCustomFieldsList	List of PolarionConnector.IgnoreCustomFields	List of custom fields to be ignored.
PLWorkItem	PolarionConnector.PLWorkItem	Work Item of custom fields to be retrieved.

Return type

Nothing

Microflow 'GetCustomFieldTypes'

Gets all custom field definitions for a specific Work Item.

Parameters

Name	Туре	Documentation
WorkItemURI	String	The URI of the Work Item

Return type

List of PolarionConnector.CustomFieldType

Microflow 'GetDeepContainedProjects'

This action retrieves all available Projects for current user by using "getRootProjectGroup" and "getDeepContainedProjects" webservice calls. Note: This action retrieves flat list of all available projects for logged in user.

Parameters

This microflow has no parameters.

Return type

List of PolarionConnector.PLProject

Microflow 'GetDefinedCustomFieldKeys'

Gets all custom field keys defined for a Work Item Type in a Project.

Parameters

Name	Туре	Documentation
GetDefinedCustomFieldKey sInput	PolarionConnector.GetDefin edCustomFieldKeysInput	Input object having information required to retrieve custom field keys. Project ID and Work Item Type ID should be provided.

Return type

List of PolarionConnector.PLString

Microflow 'GetDefinedCustomFieldTypes'

Gets all custom field definitions for a Work Item Type.

Parameters

Name	Туре	Documentation
GetDefinedCustomFieldKey sInput	PolarionConnector.GetDefin edCustomFieldKeysInput	Input object having information required to retrieve custom field definitions. Project ID and Work Item Type ID should be provided.

Return type

List of PolarionConnector.CustomFieldType

Microflow 'GetDocumentSpaces'

This action invokes "getDocumentSpaces" webservice to fetch list of spaces for a given project.

Parameters

Name	Туре	Documentation
PLModule	PolarionConnector.PLModule	PLModule object with associated PLProject object. (PLProject should not be null).

Return type

List of PolarionConnector.PLModule

Microflow 'GetLinkedWorkItems'

Gets direct Linked Work Items of a Work Item.

Parameters

Name	Туре	Documentation
ProjectID	String	Project ID
WorkItemID	String	Work Item ID

Return type

List of PolarionConnector.PLLinkedWorkItem

Microflow 'GetModules'

This action uses 'getModules' webservice call to return list of available Modules/Documents relative to Module location for a given project.

a. If this location field is available with PLModule object, action will return list of Modules relative to available location.

b. If location field at PLModule object is empty, action "GetDocumentSpaces" will be run to get all available locations and getModules call on those locations.

Parameters

Name	Туре	Documentation
PLModule	PolarionConnector.PLModule	PLModule object with associated PLProject object. (PLProject should not be null) and location field (optional)

Return type

List of PolarionConnector.PLModule
Microflow 'GetPolarionConfiguration'

Retrieves active Polarion configuration from Mendix database. Returns empty configuration object and throws a warning message if there is no active configuration found.

Parameters

This microflow has no parameters.

Return type

PolarionConnector.PolarionConfiguration

Microflow 'GetPolarionSession'

Retrieves the existing Polarion Session from Mendix database. Creates a new Polarion Session if none is found.

Parameters

This microflow has no parameters.

Return type

PolarionConnector.PolarionSession

Microflow 'GetProjectUsers'

Gets users of a project.

Parameters

Name	Туре	Documentation
ProjectID	String	ID of the project to get the users for.

Return type

List of PolarionConnector.PLUser

Microflow 'GetRootFolders'

This action calls 'getRootFolders' and returns a list of parent folders (top-level) for a project.(Sorted in ascending order by name)

Parameters

Name	Туре	Documentation
PLModule	PolarionConnector.PLModule	PLModule object with associated PLProject object. (PLProject should not be null).

Return type

List of PolarionConnector.PLModule

Microflow 'GetServiceRequestHeader'

Creates a webservice request header string with Polarion login cookie which can be used as value to Request Header of webservice activity

Parameters

Name	Туре	Documentation
PolarionSession	PolarionConnector.PolarionSession	Polarion session

Return type

String

Microflow 'GetUser'

Get the User information by User ID.

Parameters

Name	Туре	Documentation
UserID	String	User ID

Return type

PolarionConnector.PLUser

Microflow 'GetUsers'

Gets all users.

Parameters

This microflow has no parameters.

Return type

List of PolarionConnector.PLUser

Microflow 'GetWorkItemById'

Gets Work Item by ID and its field information as per the input mapping fields.

Parameters

Name	Туре	Documentation
GetWorkItemByIdInput	PolarionConnector.GetWorkItemByIdInput	Input object with data required to fetch Work Item

Return type

PolarionConnector.PLWorkItem

Microflow 'GetWorkItemByIDWithFields'

Gets a Work Item by ID with only the fields specified filled in with values from Polarion.

Parameters

Name	Туре	Documentation
ProjectID	String	Project ID
WorkItemFieldList	List of PolarionConnector.PLString	List of Work Item fields to be fetched from Polarion.
WorkItemID	String	Work Item ID

Return type

PolarionConnector.PLWorkItem

Microflow 'GetWorkItemByURI'

Gets Work Item by URI and its field information as per the input mapping fields.

Parameters

Name	Туре	Documentation
WorkItemURI	String	Work Item URI

Return type

PolarionConnector.PLWorkItem

Microflow 'GetWorkItemsCount'

Counts the number of Work Items returned by the given query.

Parameters

Name	Туре	Documentation
Query	String	The Lucene query to be used.

Return type

Integer/Long

Microflow 'HasCurrentUserPermission'

This microflow checks the Polarion permissions to see if the current user is granted the given permission for the given project. For example, to check modify permissions for Work Items of a given project for a given user, pass in the string 'com.polarion.persistence.object.WorkItem.modify' as an input parameter. It returns true if the permission is granted, false otherwise.

Parameters

Name	Туре	Documentation
InputPermission	String	The permission to check. For example, to check modify permission set it to 'com.polarion.persistence.object.WorkItem.modify'.
InputProjectId	String	The id of the project to check the permission in, null to check global permissions.

Return type

Boolean

Microflow 'HasPermission'

This microflow checks the Polarion permissions to see if the given user is granted the given permission for the given project. For example, to check modify permissions for Work Items of a given project for a given user, pass in the string 'com.polarion.persistence.object.WorkItem.modify' as an input parameter. It returns true if the permission is granted, false otherwise.

Parameters

Name	Туре	Documentation
InputPermission	String	The permission to check. For example, to check modify permission set it to 'com.polarion.persistence.object.WorkItem.modify'.
InputProjectId	String	The id of the project to check the permission in, null to check global permissions.
InputUserId	String	The id of the user to check the permission for

Return type

Boolean

Microflow 'LoginWithToken'

Logs in user to Polarion using token.

Parameters

Name	Туре	Documentation
Mechanism	String	The mechanism which client request for authentication (server must be configured for given mechanism otherwise login will be rejected)
Token	String	The token of the user to log-in
UserName	String	The name of the user to log-in

Return type

Nothing

Microflow 'PerformWorkflowAction'

Executes a workflow action. GetAvailableActions can be used to get the actions that can be performed.

Parameters

Name	Туре	Documentation
ActionID	Integer/Long	The Id of the action to execute.Use GetAvailableActions microflow to get action information
WorkflowObjectURI	String	URI of any WorkflowObject, e.g. WorkItem or Module.

Return type

Nothing

Microflow 'PerformWorkItemWorkflowAction'

Executes a workflow action.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with workflow action data associated to it. Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'QueryModules'

QueryModule microflow uses 'queryModules' webservice to performs a Lucene search on Live Documents based on query input with fields and returns a list of searched Document.

Parameters

Name	Туре	Documentation
PLModule	PolarionConnector.PLModule	PLModule object with associated PLProject object. (PLProject should not be null)
QueryModuleFieldsList	List of PolarionConnector.QueryModuleFields	List of QueryModuleFields objects containing an array of Module Fields to retrieve from query.
QueryModules	PolarionConnector.QueryModules	Query object to pass. This object will contain query, sort and resultsLimit attributes.

Return type

List of PolarionConnector.PLModule

Microflow 'QueryWorkItems'

Action QueryWorkitems invokes "queryWorkitems" webservice that performs a Luncene query on workitems to retrive a list of searched workitems.

Parameters

Name	Туре	Documentation
QueryWorkItems	PolarionConnector.QueryWorkItems	Query object to pass. This object has to contain lucene query.
WorkItemFieldsList	List of PolarionConnector.PLString	List of PLString object containing arry of fields to be retrieved from search.

Return type

List of PolarionConnector.PLWorkItem

Microflow 'QueryWorkItemsLimited'

Queries for Work Items.

Parameters

Name	Туре	Documentation
Fields	List of PolarionConnector.PLString	The keys of the fields that should be filled in.
Query	String	The Lucene query to be used.
ResultsLimit	Integer/Long	The maximum number of returned Work Items. (-1 for unlimited.)
Sort	String	The field to be used for sorting.

Return type

List of PolarionConnector.PLWorkItem

Microflow 'RemoveApprovee'

Removes an approving user.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with approval data associated to it. Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'RemoveAssignee'

Removes Work Item assignee(s).

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with assignee data associated to it. Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'RemoveCategory'

Removes Work Item categories.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with category data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'RemoveHyperlink'

Removes Work Item hyperlinks.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with hyperlink data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'RemoveLinkedRevisions'

Removes linked revisions associated to a Work Item.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with linked revision data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'RemoveLinkedWorkItem'

Removes linked work items associated to a Work Item.

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with linked work item data associated to it.Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'SavePolarionConfiguration'

Saves Polarion configuration to the database

Parameters

Name	Туре	Documentation
PolarionConfiguration	PolarionConnector.PolarionConfiguration	Polarion configuration to be saved

Return type

Nothing

Microflow 'SetConfigurationAsActive'

Sets the input Polarion configuration record as Active and all other configuration records as InActive.

Parameters

Name	Туре	Documentation
PolarionConfiguration	PolarionConnector.PolarionConfiguration	Polarion Configuration to set active

Return type

Nothing

Microflow 'SetCustomField'

Sets a custom field of a Work Item.

Parameters

Name	Туре	Documentation
SetCustomFieldInput	PolarionConnector.SetCustomFieldInput	Custom field information to be set to Work Item.

Return type

Nothing

Microflow 'SetCustomFields'

Sets the custom fields to a Work Item,

Parameters

Name	Туре	Documentation
PLWorkItem	PolarionConnector.PLWorkItem	Work Item object with custom fields associated to it. Work Item URI should be set otherwise it will fail.

Return type

Nothing

Microflow 'ShowLoginPage'

Displays the login page after it is determined that there is no valid pre-existing session. It also returns a boolean to the calling microflow to take action accordingly (for example, show Home page).

Parameters

This microflow has no parameters.

Return type

Boolean

Microflow 'TransactionExists'

Checks if there is a transaction exist for the current session.

Parameters

This microflow has no parameters.

Return type

Boolean

Microflow 'UpdateWorkItem'

Updates a Work Item. The Work Item passed has to contain the valid URI of the Work Item to be updated.

Parameters

Name	Туре	Documentation
UpdateWorkItem	PolarionConnector.UpdateWorkItem	Work Item data to be updated.

Return type

Nothing

Microflow 'UserLogin'

This microflow shows the login page (via ShowLoginPage microflow) and then the default Home page for user roles.

Parameters

This microflow has no parameters.

Return type

Nothing

Siemens Industry Software

Headquarters

Granite Park One 5800 Granite Parkway Suite 600 Plano, TX 75024 USA +1 972 987 3000

Americas

Granite Park One 5800 Granite Parkway Suite 600 Plano, TX 75024 USA +1 314 264 8499

Europe

Stephenson House Sir William Siemens Square Frimley, Camberley Surrey, GU16 8QD +44 (0) 1276 413200

Asia-Pacific

Suites 4301-4302, 43/F AlA Kowloon Tower, Landmark East 100 How Ming Street Kwun Tong, Kowloon Hong Kong +852 2230 3308

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