HP Operations Orchestration Software

Software Version: 7.50

HP Project and Portfolio Management Integration Guide

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Documentation enhancements are a continual project at Hewlett-Packard Software. You can obtain or update the HP OO documentation set and tutorials at any time from the HP Software Product Manuals web site. You will need an HP Passport to log in to the web site.

To obtain HP OO documentation and tutorials

1. Go to the HP Software Product Manuals web site (*http://support.openview.hp.com/selfsolve/manuals*).

2. Log in with your HP Passport user name and password.

   OR

   If you do not have an HP Passport, click **New users – please register** to create an HP Passport, then return to this page and log in.

   If you need help getting an HP Passport, see your HP OO contact.

3. In the **Product** list box, scroll down to and select **Operations Orchestration**.

4. In the **Product Version** list, click the version of the manuals that you're interested in.

5. In the **Operating System** list, click the relevant operating system.

6. Click the **Search** button.

7. In the **Results** list, click the link for the file that you want.

Where to Find Help, Tutorials, and More

The HP Operations Orchestration software (HP OO) documentation set is made up of the following:

- Help for Central

  Central Help provides information to the following:

  - Finding and running flows
  - For HP OO administrators, configuring the functioning of HP OO
  - Generating and viewing the information available from the outcomes of flow runs

  The Central Help system is also available as a PDF document in the HP OO home directory, in the \Central\docs subdirectory.

- Help for Studio

  Studio Help instructs flow authors at varying levels of programming ability.

  The Studio Help system is also available as a PDF document in the HP OO home directory, in the \Studio\docs subdirectory.

- Animated tutorials for Central and Studio

  HP OO tutorials can each be completed in less than half an hour and provide basic instruction on the following:

  - In Central, finding, running, and viewing information from flows
  - In Studio, modifying flows

  The tutorials are available in the Central and Studio subdirectories of the HP OO home directory.

- Self-documentation for operations and flows in the Accelerator Packs and ITIL folders

  Self-documentation is available in the descriptions of the operations and steps that are included in the flows.

Support

For support information, including patches, troubleshooting aids, support contract management, product manuals and more, visit the following site:

- *http://support.openview.hp.com*

Table of Contents

Overview

Using the flows and operations in the HP Project and Portfolio Management (HP PPM) integration, administrators can:

- Build HP Operations Orchestration (OO) flows that are integrated into their HP PPM ticketing system.
- Control flows from within PPM.

This document explains this integration's implementation and how to launch flows from within PPM. It also explains the operations that are included for communicating back and forth between OO and PPM to create, update, and close requests.

Note: This document always speaks of "PPM workflows" and "OO flows" in order to keep them distinct.
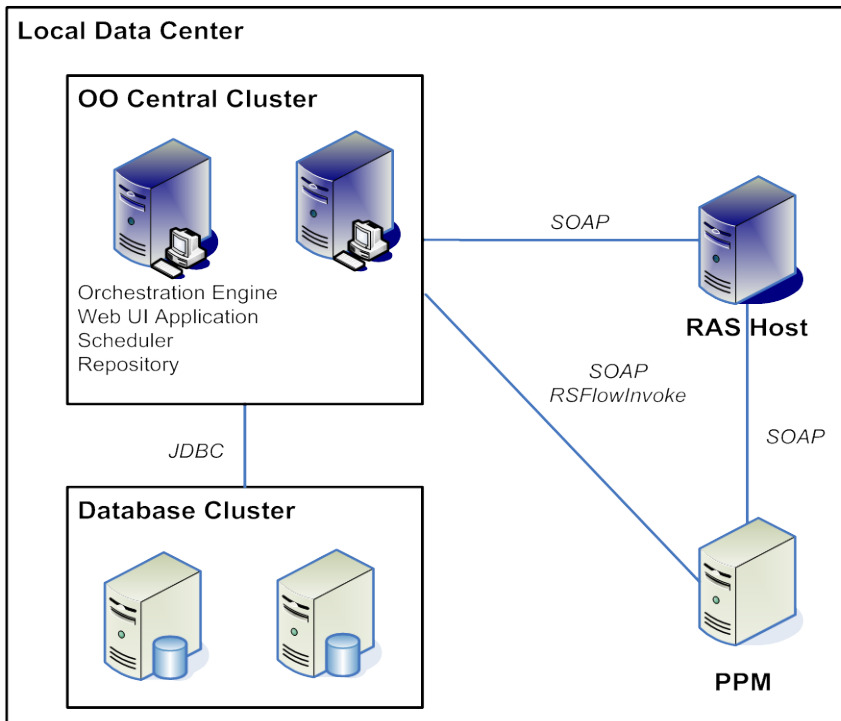
Use cases and scenarios

1. Create/Update/Close tickets (also called requests) from within a PPM workflow.

   These capabilities allow a PPM workflow to create, update, and close or escalate requests based on the OO flow. As a result, everything that the OO flow does or finds can be populated in the requests.

2. Verify that a change ticket is approved before allowing a change to be made.

3. Service-aware orchestration:

   a. A change ticket is opened in PPM.

   b. Once the change is approved, PPM launches an OO flow to perform the change.

   c. OO validates that the change is approved.

   d. OO queries the universal Configuration Management Database (uCMDB) for a list of devices for a given service.

   e. OO coordinates installing a patch of devices while maintaining the application's status via:

      - Client
      - Server
      - Network

   f. OO updates and closes the change ticket.

Versions and components

Operations Orchestration Version	PPM Version
7.50	7.5

Architecture

PPM can launch an OO flow via the RSFlowInvoke.exe utility. This flow can then query PPM through a RAS.

Local Data Center

OO Central Cluster

Orchestration Engine
Web UI Application
Scheduler
Repository

SOAP

RAS Host

SOAP
RSFlowInvoke

SOAP

JDBC

Database Cluster

PPM

Installation and configuration instructions

Your RAS must be able to connect to the PPM Web service in order for the OO flow's operations to work. By default, the PPM Web service is enabled on port 8080 over HTTP.

Operation specifics

PPM allows custom requests, and you can use OO operations with any PPM request. OO's PPM integration includes subflows that simplify interactions with the default PPM 'Bug' and 'Enhancement' type tickets. It is recommended that you create similar OO subflows for any custom tickets when creating OO flows that employ the operations that integrate with PPM.

The OO operations that integrate with PPM to automate your PPM processes are located in the OO Studio \Library\Integrations\Hewlett-Packard\Project and Portfolio Manager\ folder. These operations are:

Add Note To Request
  Adds a note to an existing request.

Create Request
  Creates a new request.

  To use this operation:

  - Add a new input named **field_fieldname**, where **fieldname** is the name of the field as defined in PPM.
  - If you have a multi-value field, add an input named **fieldDelimiter_fieldName** to specify a delimiter that separates the multiple values given in the multivalue field.

For example, if the delimiter is a pipe (|), then the value for the input **field_fieldName** input should be a pipe-delimited list.

Some of the PPM Integration pack's subflows already contain the required inputs for the default 'bug' and 'enhancement' PPM request types. It is recommended that you make similar subflows for any custom requests you have.

Delete Requests

Deletes one or more requests in PPM.

Execute Workflow Transition

PPM contains a built-in workflow engine that is used to move a request through its lifecycle. As a result, there is no means of querying PPM for a transition. When authoring an OO flow, therefore, you need to know the name of any PPM workflow transitions that the OO flow should execute.

Get Request

Retrieves a list of all defined field values for a current request.

Update Request Fields

Changes the value of one or more fields in a PPM request.

To use this operation:

- Add a new input named **field_fieldname**, where **fieldname** is the name of the field as defined in PPM.
- If you have a multi-valued field, add an input named **fieldDelimiter_fieldName** to specify a delimiter that separates the multiple values given in the multivalue field.

  For example, if the delimiter is a pipe (|), then the value for the input **field_fieldName** input should be a pipe-delimited list.

Some of the PPM integration pack's subflows already contain the required inputs for the default 'bug' and 'enhancement' PPM request types. It is recommended that you make similar subflows for any custom requests you have.

OO flow specifics

The PPM Integration includes flows that customize the creation and updating of requests to match the default 'bug' and 'enhancement' PPM request types. These flows are located in the following OO Studio folders:

\Library\Integrations\Hewlett-Packard\Project and Portfolio Manager\Default Bug Tickets\

\Library\Integrations\Hewlett-Packard\Project and Portfolio Manager\Default Enhancement Ticket\

Hidden inputs

The **field_fieldname** and **fieldDelimiter_fieldname** inputs are hidden. For more information, see *Operation specifics*.

Troubleshooting

Errors that PPM integration operations return

No matching requests could be found

Of the list of request IDs that the OO flow provided to PPM, none could be found. This error is also thrown if there is only one request ID, and it does not exist.

1 or more specified ids could not be matched to requests

One of the request IDs supplied by the OO flow to PPM does not exist in PPM.

You didn't specify any fields to update...

The **Update Requests Fields** operation was called, but no inputs named **field_fieldname** were defined.

Thread already contains username/password

A potential attempt to compromise the PPM Authentication mechanisms security was detected and prevented. Please contact Support.

Thread did not have a username/password

A potential attempt to compromise the PPM Authentication mechanism's security was detected. Please contact Support.

Customizing the integration

To customize the integration

1. For each custom request type, create a new OO flow.
2. In the flow, add inputs with the name of the fields in PPM.
3. Add a step for the **Create Request** operation.
4. In the new step, add new inputs named **field_fieldname** for each PPM field.
5. For each multi-value PPM field, add an input named **fieldDelimiter_fieldname** to specify the delimiter for the **field_fieldname** input.
6. Repeat this for the **Update Request** operation.
7. Repeat steps 1 through 6 for any other custom requests defined in PPM.

Launching flows

Using the various REST-based services, you can use the following URL syntaxes to interact with HP OO Central.

Note: In the following, synchronous flow execution means that Central does not return a result until the flow run has completed. In asynchronous flow execution, the flow result is returned immediately after the flow is launched.

- To retrieve a list of flows from Central:
  `https://<ooserver>:<port>/PAS/services/http/list`
  where

`<ooserver>` is the machine on which Central is installed.

`<port>` is the port that was specified for the HTTPS (HTTP over Secure Sockets Layer [SSL]) protocol when Central was installed.

- To synchronously execute a flow identified by name and location in the Library, or Central repository:
  `https://<ooserver>:<port>/PAS/services/http/execute/<library_path>`
  where

  `<ooserver>` is the machine on which Central is installed.

  `<port>` is the port that was specified for the HTTPS (HTTP over SSL) protocol when Central was installed.

  `<library_path>` is the location of the flow within the Central repository, including the name of the flow.

- To synchronously execute a flow by UUID:
  `https://<ooserver>:<port>/PAS/services/http/execute/<flow_UUID>`
  where

  `<ooserver>` is the machine on which Central is installed.

  `<port>` is the port that was specified for the HTTPS (HTTP over SSL) protocol when Central was installed.

  `<flow_UUID>` is the universally unique ID of the flow within the Central repository.

- To asynchronously execute a flow by name:
  `https://<ooserver>:<port>/PAS/services/http/execute_async/<library_path>`
  where

  `<ooserver>` is the machine on which Central is installed.

  `<port>` is the port that was specified for the HTTPS (HTTP over SSL) protocol when Central was installed.

  `<library_path>` is the location of the flow within the Central repository, including the name of the flow.

- To execute a flow by UUID (returns immediately after the flow is launched):
  `https://<ooserver>:<port>/PAS/services/http/execute_async/<flow_UUID>`
  where

  `<ooserver>` is the machine on which Central is installed.

  `<port>` is the port that was specified for the HTTPS (HTTP over SSL) protocol when Central was installed.

  `<flow_UUID>` is the universally unique ID of the flow within the Central repository.

Starting OO flows from PPM workflows

To configure a step in a PPM workflow to execute an OO flow using RSFlowInvoke

1. From an installation of OO Central, obtain a copy of RSFlowInvoke.exe and copy it to an appropriate location on the computer on which PPM is installed.
2. In a Web browser, open the PPM Web page.

3. In the **Administration** panel, choose **Open Workbench on Desktop**.

4. In the PPM Workbench, open the **Configuration** panel, and choose **Workflows**.

5. Create a new PPM workflow to launch an OO flow.

6. On the **Workflow Step Source** panel, open the **Executions** dialog, and choose **New**.

7. Set **Execution Type** to **WorkFlow Step Commands** and set **Workflow Scope** to **Requests**.

8. To create a new command, click the **New Command** button.

9. Under **Steps**, type:

   ```
   ksc_local_exec c:\rsFlowInvoke <arguments>
   ```

   It is recommended that you pass the request ID in as one of the inputs to the flow (referencing it as [REQ.REQUEST_ID]). This enables you to query the request from the OO flow.

10. On the **Layout** page, select and drag your new step to it.

11. Type the name of a security group that can execute the step and then click **OK**.

12. Add the **Close (Immediate success)** step.

13. Right-click **Run OO Flow**, choose **Add Transition**, and drag to **Close (Immediate Success)**.

14. Back in the UI, create a new request, using your PPM workflow to ensure your step works properly. You can now use this step in any other PPM workflow, to run an OO flow.

Security

This integration uses WS-Security Digest to authenticate against PPM.

Tools

JRSFlowInvoke

A command-line tool with which flows can be started from outside the OO Central Web application. RSFlowInvoke.exe is located in the \%OO_home%\Studio\tools\ folder.

Web Service Wizard

A tool that displays a list of the methods in the interface of the Web service that you specify in the Wizard. Within the Wizard, you pick the methods that you want to use, and with one click, for each method you have selected, the Wizard creates an HP OO operation that can execute the method. The wizard, named wswizard.exe, is located in the \%OO_home%\Studio\tools\ folder.