HP Operations Orchestration

For Windows and Linux operating systems

HP OO Software Version Content Pack 16

Network Node Manager i Integration Guide

Document Release Date: November 2014

Software Release Date: November 2014

Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notice

Trademark Notices

Adobe™ is a trademark of Adobe Systems Incorporated.

This product includes an interface of the 'zlib' general purpose compression library, which is Copyright © 1995-2002 Jean-loup Gailly and Mark Adler.

AMD and the AMD Arrow symbol are trademarks of Advanced Micro Devices, Inc.

Google™ and Google Maps™ are trademarks of Google Inc.

Intel®, Itanium®, Pentium®, and Intel® Xeon® are trademarks of Intel Corporation in the U.S. and other countries.

Java is a registered trademark of Oracle and/or its affiliates.

Microsoft®, Windows®, Windows NT®, Windows® XP, and Windows Vista® are U.S. registered trademarks of Microsoft Corporation.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates.

UNIX® is a registered trademark of The Open Group.

Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.

- Document Release Date, which changes each time the document is updated.

- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

http://h20230.www2.hp.com/selfsolve/manuals

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Support

Visit the HP Software Support Online web site at:

http://www.hp.com/go/hpsoftwaresupport

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest

- Submit and track support cases and enhancement requests

- Download software patches

- Manage support contracts

- Look up HP support contacts

- Review information about available services

- Enter into discussions with other software customers

- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

Contents

Introduction

This chapter includes:

Overview

With this integration, administrators can build HP Operations Orchestration (OO) flows that are integrated into HP Network Node Manager i Series (NNMi), and also launch OO flows via the NNMi Event Console.

This document explains how this integration has been implemented and how to launch OO flows from within NNMi. It also explains how the integration's operations communicate between OO and NNMi.

Use Cases and Scenarios

OO integration with NNMi is suitable for the following types of scenarios :

1. To launch an OO flow from within the NNMi console.

   This allows administrators to connect specific events to OO flows. This type of integration is a simple Incident Management/Runbook use case, in which the following takes place:

   a. NNMi detects an error and raises an alarm on the console.

   b. A context-sensitive runbook is launched to remediate the fault.

   c. OO automatically acknowledges the event and runs the runbook.

   d. OO fixes the problem.

   e. OO updates and resets the alarm.

2. To create operations that automate the gathering and processing of NNMi node information.

Supported Versions

Operations Orchestration Version	NNMi Version
9.00	7.5, 8.10, 9.0, 9.1, 9.11, 9.20, 9.22, 9.23, 10.00

Downloading OO Releases and Documents on HP Live Network

HP Live Network provides an Operations Orchestration Community page where you can find and download supported releases of OO and associated documents.

To download OO releases and documents, visit the following site:

https://hpln.hp.com/

Note: This site requires that you register for an HP Passport and sign-in.

To register for an HP Passport ID:

1. Go to: http://h20229.www2.hp.com/passport-registration.html

    Or

    Click the New users - please register link on the HP Passport login page.

2. On the HP Live Network page, click Operations Orchestration.

3. On the left-hand side, click Operations Orchestration Content Packs.

4. In the Operations Orchestration Content Packs box, click Content. The HP Passport and sign-in page appears.

5. Enter your user ID and Password to access to continue.

6. Click HP Operations Orchestration 10.00.

7. Search for the required HP Operations Orchestration Content Pack.

HP NNMi Architecture

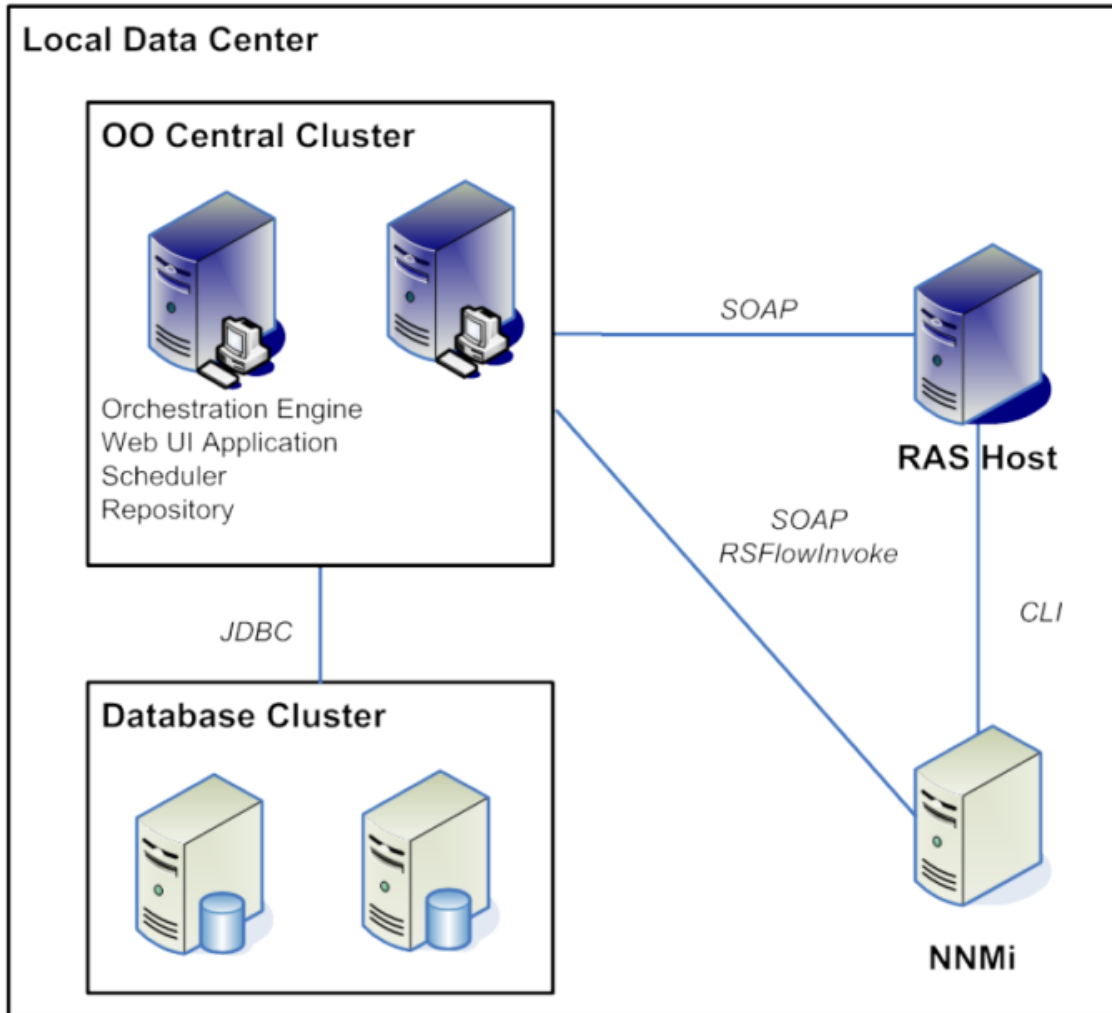**NNMi 8.1x**

.

NNM 7.5

Local Data Center

OO Central Cluster

Orchestration Engine
Web UI Application
Scheduler
Repository

SOAP

RAS Host

SOAP
RSFlowInvoke

CLI

JDBC

Database Cluster

NNMi

.
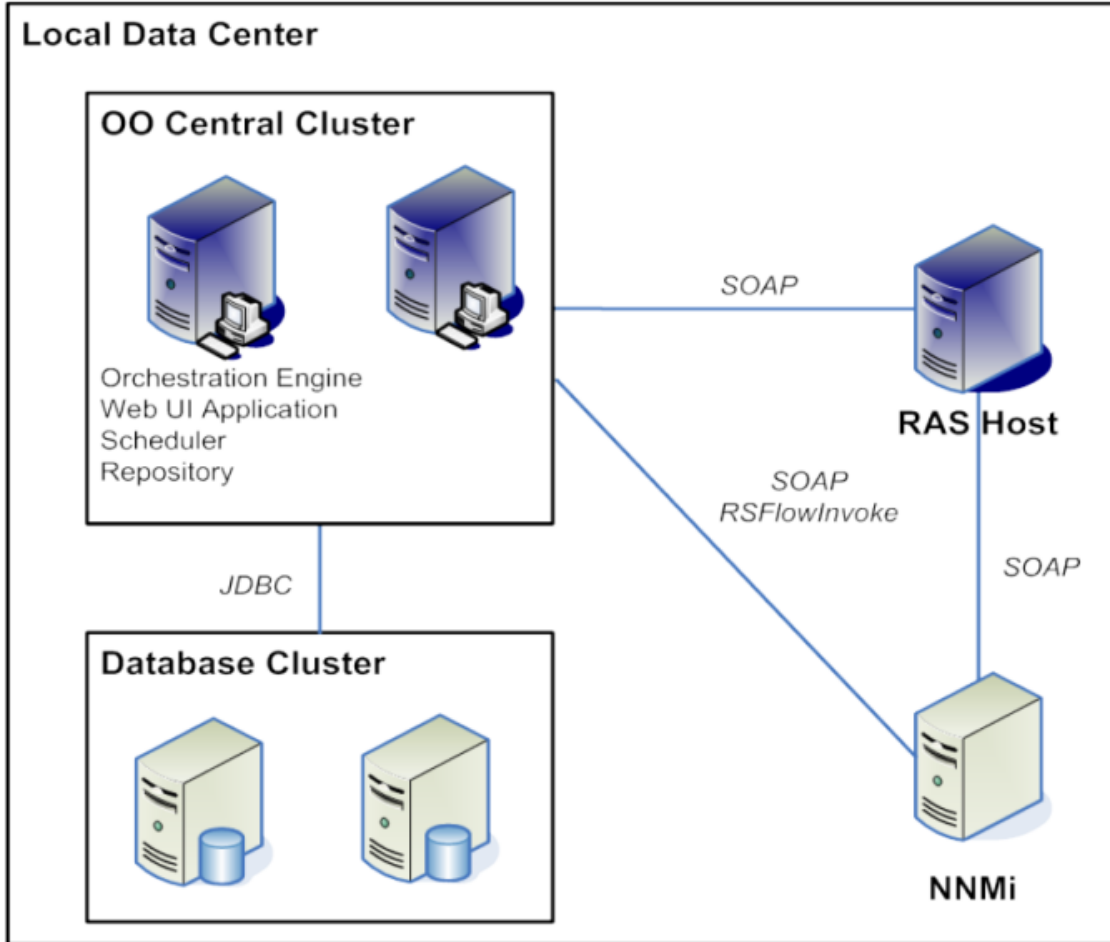
Installation and Configuration

For NNM 7.5, you must install a RAS on your NNM server (Windows) or be able to reach your NNM server by SSH or Telnet (Unix). If integrating to a Unix installation of NNM, you must also update the path to the NNM \bin folder on the steps of your flow. This folder is set correctly for a default Windows installation of NNM.

For NNMi 8.1x, you need a RAS that can open up an HTTP or HTTPS command to the port on which the NNM WS-I Web service is running. By default, this is port 8080.

Operation and Flow Specifics

This section describes the NNMi integration's operations and flows, including any operation- or flow-specific inputs. The flows and operations are grouped first by version:

- 7.5

- 8.10 and later

The 8.1x flows and operations are grouped by their basic functionality:

- Incidents

- Nodes

- Samples

NNM 7.5 has operations and flows for getting lists of events and for adding events. NNM 7.5 also enables a user to get a list of nodes and to read any information from the NNM Database for a given node.

NNMi 8.1x has a deeper integration. With the integration's operations, the user can:

- Add, delete, search, and modify NNMi incidents.

- Query, delete, and update nodes.

Troubleshooting

General Troubleshooting Procedures

If an operation is not working, make sure that it can connect to the NNMi server, and that you are using valid credentials.

Troubleshooting the Operations

There are currently no known issues with these operations.

Errors That the Operations Return

Error	Description
Connection refused	The RAS cannot reach the NNMi server.
Bad Username or Password	Check your credentials.
Unauthorized	Ensure that your user has been given access inside NNMi.

Customizing the Integration

The NNM 7.5 integration uses the following NNM Command Line interfaces:

- ovevent

- ovdumpevents

- ovobjprint

If the operations need to be customized, additional information on these CLIs can be found in the NNM online documentation.

The NNMi 8.1x integration is made through the NNMi Web service. This Web service is static and does not change.

Launching Flows

You can interact with HP OO using the various REST-based services:

Service	Description
https://ooserver:port/PAS/services/http/list	Retrieves a list of flows from OO.
https://ooserver:port/PAS/services/http/execute/<Library Path>	Executes a flow by name (waits for the flow to finish before returning).
https://ooserver:port/PAS/services/http/execute/<Flow UUID>	Executes a flow by UUID (waits for the flow to finish before returning).
https://ooserver:port/PAS/services/http/execute_async/<Library Path>	Executes a flow by name (returns immediately after the flow is launched).
https://ooserver:port/PAS/services/http/execute_async/<Flow UUID>	Executes a flow by UUID (returns immediately after the flow is launched).

Integrating Central into the NNMi Actions Menu

This integration allows you to add a menu item which launches Central interactively to the HP Network Node Manager (NNMi) interface.

To add a command that launches Central:

1. Open the NNMi Web User Interface.

2. Select **Configuration > URL Actions**.

3. Click **New**.

4. Enter a menu label, such as Launch Network Diagnostic.

5. Enter a unique key.

   The recommended format is:

   `com.<Company name/Group>.nnm.urlAction.<MenuLabel>`

   For example:

   `com.hp.pas.nnm.urlAction.LaunchNetworkDiagnostic`

   The key can be up to 80 characters in length.

6. Specify the allowed target types.

Each type requires the URL that is launched. This should be:

```
https://<HPOOhost>:8443/PAS/app?service=RCLinkService/
FlowLinkDispatch&sp=SAUTOMATIC&sp=uuid&sp=l0&host=${name}&uuid=${uuid}
```

where `<HPOOhost>` is the name of the HP OO server.

7. Replace the UUID with the UUID of the flow that will be launched.

   The arguments `host=${name}` and `uuid=${uuid}` allow information to be passed from NNMi to the flow automatically.

   The `host=` and `uuid=` portion of these arguments specify the HP OO input that is being supplied.

To test the integration

1. Open an instance of the object to which you associated the menu.

2. Click **Actions**.

3. Click the action name you specified in step 4 of the preceding procedure.

Security

The username/password used in the flow must have full access to NNMi.

Tools

RSFlowInvoke.exe and JRSFlowInvoke.jar

RSFlowInvoke (RSFlowInvoke.exe or the Java version, JRSFlowInvoke.jar) is a command-line utility that allows you to start a flow without using Central (although the Central service must be running). RSFlowInvoke is useful when you want to start a flow from an external system, such as a monitoring application that can use a command line to start a flow.