

# HP Operations Orchestration

Software Version: 7.20

## HP Network Node Manager (i series) Integration

Document Release Date: July 2008

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# Overview

This integration allows an administrator to build HP Operations Orchestration (OO) flows that are integrated into HP Network Node Manager i Series (NNMi) and also to launch OO flows via the NNMi Event Console.

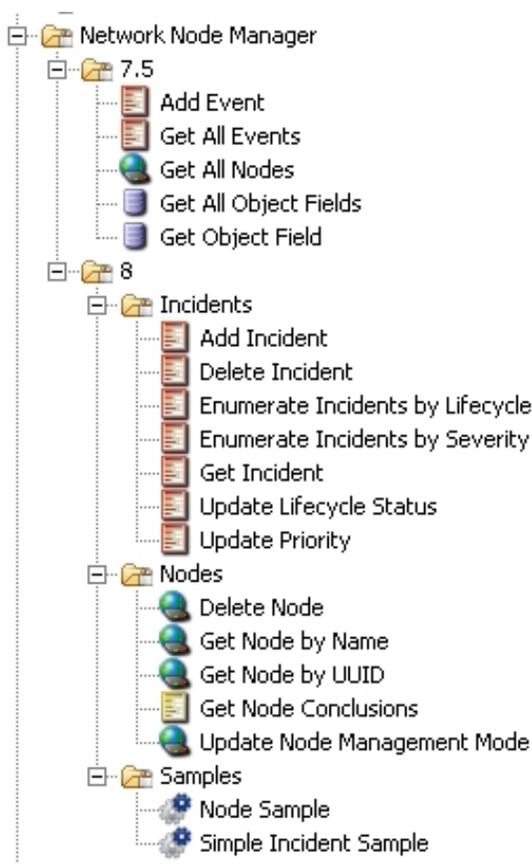
This document will explain how this integration has been implemented and how to launch flows from within NNMi. It will also explain the operations that are included for communicating back and forth between OO and NNMi.

## Use cases and scenarios

The following are among the possible use cases for which integration of OO with NNMi is well-suited:

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. Context-Sensitive run book is launched to remediate the fault.
  - c. OO automatically acknowledges the event and runs the run book.
  - d. OO remediates the problem.
  - e. OO updates and resets the alarm.
2. To create operations that automate the gathering and processing of NNMi node information.

## Flows and Operations



NNM 7.5 has operations for getting a list 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.

NNM 8 has a much deeper integration. With the integration's operations, the user can:

- Add, delete, search, and modify NNM incidents
- Query, delete, and update nodes.

When running the NNM 8 sample flows, you will need to provide data to the inputs as follows:

- nnmHost - the host you have NNM installed on.

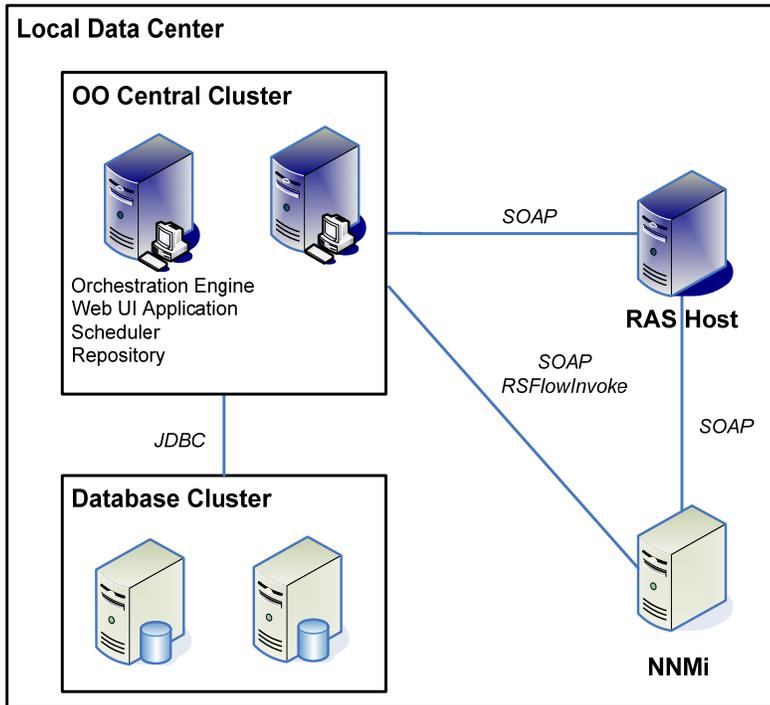
- nnmPort - the Port the NNM web service is running on.
- nnmProtocol - Either http or https, depending on how NNM is configured.
- nnmUsername - A username for nnm.
- nnmPassword - password for nnm.
- name - The name of a node on your network that the sample will take offline briefly.

## Versions and Components

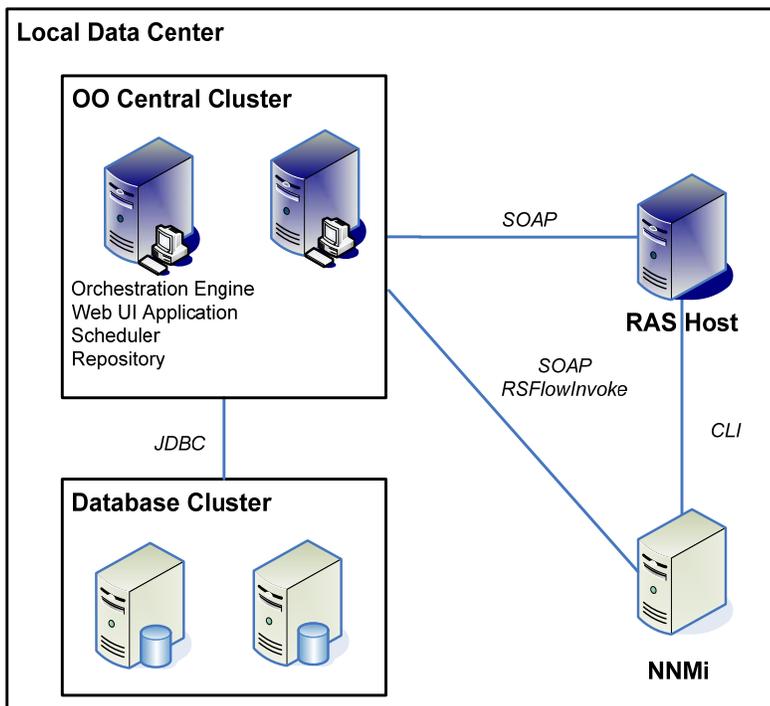
Operations Orchestration Version	NNMi Version
7.10	8.x
7.20	7.5, 8.x

# Architecture

## NNMi 8.x



## NNMi 7.5



# Installation and Configuration Instructions

For NNM 7.5 you must either install a RAS on your NNM server (Windows), or be able to reach your NNM Server by either 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 install of NNM.

For NNM 8, you need a RAS that can open up an HTTP or HTTPS command to the port that the NNM WS-I Web Service is running on. By default this is port 8080.

## Troubleshooting

### General troubleshooting procedures

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

### Troubleshooting this operation

There are currently no known frequent issues with these operations.

### Errors that the operation returns

Connection refused - The RAS Cannot reach the NNM Server.

Bad Username or Password - Check your credentials.

Unauthorized -- Ensure your user has been given access inside NNM.

## Customizing the Integration

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

- ovent
- ovdumpevents
- ovobjprint

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

The NNM 8 integration is made through the NNM Web Service. This Web service is static and does not change.

## Launching Flows

You can interact with HP Operations Orchestration (OO) by using the various REST based services:

- <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 flow to finish before returning).
- `https://ooserver:port/PAS/services/http/execute/<Flow UUID>`  
Executes a flow by UUID (waits for 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 NNM Actions Menu

This integration allows a menu item to be added to the HP Network Node Manager (NNM) interface that launches Central interactively.

### To add a command that launches Central

1. Open the NNM 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://<HP00host>:8443/PAS/app?service=RCLinkService/FlowLinkDispatch&sp=SAUTOM  
ATIC&sp=uuid&sp=10&host=${name}&uuid=${uuid}
```

Where `<HP00host>` 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 NNM into 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 that you associated the menu to.
2. Click **Actions**.
3. Click the action name you specified in step #4 of the preceding procedure.

## Automated Incident Integration

This integration allows a flow to automatically be launched when a specific Incident type changes its lifecycle.

## To automatically trigger a flow from an event

1. From the **Configuration** menu, select **Incident Configuration**.
2. Click **Management Event Configuration**.
3. Open the event of interest.
4. Click the **Action Configuration** tab.
5. Click **New**.
6. Specify the triggering lifecycle state.  
The **Registered** lifecycle state triggers on new incidents.
7. Specify **Command Type** as **Script** or **Executable**.
8. Specify the command as being a .bat file that runs RSFlowInvoke.

The command that makes up the .bat file should be of the following form:

```
RSFlowInvoke.exe -u <username> -ep <encrypted password>  
https://<HPO0server:port>/PAS/services/http/execute/<full library path for flow>
```

To execute the command using a non-encrypted password, the first part of the command would be as follows:

```
RSFlowInvoke.exe -u <username> -p <password>
```

9. To pass the UUID of the incident to the command, add either %1 or \${uuid}:

If the command is in a batch file and you have added \${uuid} in the run field of the NNM UI as described above, add %1 to the end of the command. %1 reads the first argument passed to a batch file:

```
RSFlowInvoke.exe -u <username> -ep <encrypted password>  
https://<HPO0server:port>/PAS/services/http/execute/<full library path for flow>  
%1
```

If you use the command by itself, add \${uuid} (note that those are curly braces) to the end of the command:

```
RSFlowInvoke.exe -u <username> -ep <encrypted password>  
https://<HPO0server:port>/PAS/services/http/execute/<full library path for flow>  
${uuid}
```

The .bat file must be located in the C:\program Files\Hp Openview\data\shared\nnm\actions folder.

## Security

The username/Password used in the flow must have full access to NNM.

## Tools

### RSFlowInvoke and JRSFlowInvoke

Command-line tools with which flows can be started from outside the OO Central Web application.