HP Operations Orchestration Software

Software Version: 7.50

HP Network Automation Integration

Document Release Date: March 2009

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Finding or updating documentation on the Web

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

This describes the value of the integration. For a monitoring system/console, this explains how the reader can configure the product to launch a flow manually, and how to configure it to launch a flow automatically. It will also show the operations that allow us to talk back to the console to acknowledge, update, or close the event. For ticketing, it shows how to launch flows from the ticket and how our operations create and modify tickets.

This document describes the configuration and usage of the HP Network Automation (NA), formerly Opsware Network Automation System (NAS), in integration with HP Operations Orchestration.

The following Network Automation versions are supported:

6.x, 7.x

Installation and Configuration Instructions

The integration to NA 6.x utilizes the SSH command line interface available for NA 6.x and requires that the NA SSH service is accessible from JRAS. Version 7.x integration requires that NA has the SOAP Web service available and running (default).

In all versions of the NA integration, a Java Remote Action Service (JRAS) must be installed that can access the NA core(s) that are targeted.

Flows and Operations

```
Network Automation
  6.x
    Ops
      Configuration and Snapshots
        Deploy Configuration
        Get Config
        Get Device Snapshot IDs
        Take Snapshot
      Devices
        Add Device
        List Devices
        Remove Device
      Tasks
        Approve or Reject Task
        Get Task Info
        List Tasks
        Remove Task
        Stop Task
      Construct Command Line Parameters
      Filter Inputs
      Run Command
      Send NAS Command
    Samples
      Remedy
        Ticket Creation and Change Approval
        Update Task Approval Status
      Bulk Device Update With Rollback
      Check Task Status
      Rollback to Last Snapshot
```

```
7.x
  Commands
    List Scripts
    Run Command Script
  Configurations
    Deploy Configuration
    Diff Configurations
    Get Configurations By IP
    Show Configuration Details
    Take Snapshot
  Devices
    Add Device By IP
    Get ACL
    Get Device ACLs
    Get Device Diagnostics
    Get Devices
    List Diagnostic Runs
    Remove Device By IP
  Samples
    Ticketing
      Ticket Creation and Change Approval
      Update Task Approval Status
    Bulk Device Update With Rollback
    Check Task Status
    Config Change with Rollback
    Diagnose Devices
    Rollback to Last Snapshot
  Tasks
    Approve Task
    Diagnose Device
    List Tasks
    Modify Task
    Remove Task
    Stop Task
    Update Task Ticket
```

Each NA operation's inputs are documented in detail on its **Description** tab. For more specific information, consult the NA documentation for corresponding shell commands. For example, the NA command **show config** corresponds to the OO operation **Get Config** (6.x) or **Show Configuration Details** (7.x) and the command **run command** corresponds to the OO operation **Run Command** (6.x) or **Run Command Script** (7.x). Since NA 7.x enables the command line administration interface out of the box, NA 6.x operations are forward-compatible with NA 7.x.

Hidden Inputs

closeSession

This input is applicable only for NA 7.x. Closes the internal session used by OO to maintain the NA session. In previous versions of the NA integration, OO would login and logout of the NA system for every step, potentially slowing down flows. When set to False (the default) or not defined, the

session will be maintained through the lifetime of the flow's execution. When set to True, the internal session as well as the underlying NA connection will be terminated at the end of the step. This input may be exposed in future versions of the NA integration.

Customizing the Integration

Adding Custom Fields

Custom fields in NA entities must be added from within the NA Web interface Administration page. Please see the NA documentation for more details on adding custom fields.

(NA 6.x) Using a different remote shell (for instance, Telnet)

Non-SSH access to NA 6.x is no longer supported, but it is possible to change the protocol used. Users will have to create a local copy of the NA integration. Users can then change the local copy of the OO **Send NAS Command** operation to use the Telnet protocol with, for example, the **JRAS Telnet Shell** operation.

Launching Flows

NA can be configured to launch OO flows via OO's REST service. 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 OO Studio 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.

Security

OO uses the standard SSH protocol to integrate with NA 6.x and SOAP to integrate with NA 7.x. Since NA 7.x does not automatically forward to secured ports in its SOAP service and allows HTTP communication in its Web service, users should confirm that the protocol used is HTTPS before sending sensitive information in the clear. As of OO 7.50, an internal session is maintained within the flow run context to avoid repeated logon authentication. This session information aside from the ID of the session is not readily visible or logged within the OO system.

Tools

JRSFlowInvoke

A command-line tool with which flows can be started from outside the OO Central Web application.