HP Server Automation Operations Orchestration

SA Software Version: 9.0

Supported Platforms:

For SA - Red Hat Enterprise Linux, Solaris

For OO - Linux and Windows® operating systems

Implementation Guide

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Document Changes

Chapter	Date	Version	Changes

For more information on Central Help (online product help for OO products), Studio Help, (help for flow authors), and their related animated tutorials, check the HP OO home directory. For flow and operation descriptions, see individual flows.

Support

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Contents

1 Operations Orchestrations SA Integration

The Operations Orchestration (OO) integration with HP Server Automation (SA) allows administrators to build HP OO flows that are integrated with SA.

This manual contains the following information:

- Supported Versions
- Use Cases and Scenarios
- Installation and Configuration Instructions
- Flows and Operations
- Security
- Troubleshooting
- Customizing the Integration
- Tools
- Launching Flows

SA operations are located in the Central repository at:

```
/Library/Integrations/Hewlett-Packard/Server Automation/
```

See the *OO Installation Guide* and *SA Planning and Installation Guide* for more information about supported OO and SA architecture configurations.

Supported Versions

This section describes the OO and SA versions that this integration supports.

Operations Orchestration Version	HP Server Automation (SA) Versions
9.0	6.x, 7.0, 7.5, 7.8 & 9.0

Use Cases and Scenarios

Integrating SA and OO makes it possible to use many SA features in higher-level processes, including the following supported SA use cases:

1 OS provisioning, including bare-metal provisioning

2 Administering SA-managed servers:

— Managing patch levels and patch policies

— Managing software updates and software policies

— Patch and software compliance scans

— Remediating servers

— Managing device groups

3 Reporting:

— Software and Patch Compliance reports

— Audit reports

4 Virtualization:

— Creating and starting virtual machines

5 Managing Application Configuration

6 Managing Jobs.

Installation and Configuration Instructions

The HP SA integration with OO does not require any special installation. However, you will need to know the information in the following table to connect to SA. You might need to obtain this information from your SA administrator.

Required Information	Required Input Parameter	Default
SA IP address or DNS name	`coreHost`	
SA web service port number	`corePort`	`443`
Supported connection protocols (http/https)	`coreProtocol`	`https`
SA username of the user who has the required permissions for the operation	`coreUsername`	
SA password (corresponding to the SA user)	`corePassword`	
SA software version The parameter supplies a selection list of values for each supported SA version. For example, the parameter value for the 9.0 SA version is: `sas9`. If a software version is *not* provided, results might be unpredictable.	`coreVersion`	

Some operations are run asynchronously, returning information about the SA jobs they represent. Often, users will have to query these jobs to see if they are complete or wait for them to complete. Certain operations might also need approval and can only continue after approval is received.

Operations related to OS provisioning, virtualization, and other functions might require further preparation or configuration in the SA and can be configured either in the user interface or with other SA tools. See the SA documentation for more information.

The SA operations support all SA versions mentioned in Supported Versions on page 7 (unless otherwise specified in the Description tab of an operation).

Flows and Operations

The OO sample flows perform some of the most common automated SA tasks, such as remediating servers, installing patches, and creating virtual machines. Each of these sample flows has a description that describes in detail what it does.

Sample flows are in the OO folder: `Library/Integrations/Hewlett-Packard/Server Automation/Samples/`

OO operations for SA are provided in the following OO groups:

OO Group	Operation Function
Application Configuration	Create or modify application configurations
Audits	Retrieve audit tasks and latest audit results
Custom Attributes	Attach custom attributes to various SA objects, such as managed servers, software policies, and device groups
Custom Fields	Attach custom fields to various SA objects, such as managed servers, software policies, and device groups
Customers	Retrieve information about SA customers
Device Groups	Create, modify, and remove device groups
Folders	Create, delete, and retrieve information about folders in the SA file system
Jobs	Run operations related to asynchronous SA jobs, such as audits and scans
OS Sequences	Retrieve and start OS sequences
Patch Policies	Create and delete patch policies, attach or detach patch policies from servers Perform compliance scans
Patches	Retrieve install, uninstall, and policy override information for patches
Platforms	Retrieve platform information
Scripts	Retrieve information for, and run, existing scripts
Servers	Retrieve information about managed servers Remediate servers (either in full mode or with the given set of software policies) Add/remove servers in device groups

OO Group	Operation Function
Software Policies	Create, modify, or destroy software policies
	Attach or detach software policies from servers
	Perform compliance scans
Units	Retrieve information about unit objects
Virtualization	Create and start virtual machines on a hypervisor

Security

▶ Passwords and inputs sent between SA and OO are encrypted *only* if you use the HTTPS protocol.

SA provides many out-of-the-box security features to manage users, groups, and overall security.

To run SA operations successfully, the SA user (defined in the `coreUsername` input parameter) must have the proper SA permissions. See SA documentations and online help for more information on required permissions.

Troubleshooting

To troubleshoot your SA integration, use the following suggestions:

- Verify that all your parameters and their values (including SA version) are correct.

- Check that your operation and input-parameter values function correctly when you use the SA user interface or command-line interface (OCLI).

- If you have access to the Web Services Data Access Engine, which provides a user interface for executing API calls, try to run the underlying API calls. The OO operations use similar API calls.

  The default location for Web Services Data Access Engine is: `https://${coreHost}:1032/twister/docs/index.html`.

  Or contact your SA Administrator to find the correct location.

Customizing the Integration

You can add new operations to your SA integration in the following ways:

- Create operations with the OO web services wizard tool (`wswizard.exe`). Use the exact `osapi` web services that the OO integration uses with SA. You can use the `wswizard.exe` tool to create operations against any of the exposed web service calls.

  The `wswizard.exe` tool is normally located in: `%OO_home%/Studio/tools/`

  The default URL for the SA web service is:
  `https://${coreHost}/osapi/com/opsware/folder/FolderService`

  Or contact your SA administrator to find the correct folder.

- Create operations using command-line interface (OCLI) commands in a secure socket shell (SSH) operation against SA.

  See SA documentation for more information about OCLI commands.

➤ Various deprecated operations, which were previously created using the two methods described in this section, can be viewed at:
`/Library/Integrations/Hewlett-Packard/Server Automation/Deprecated`

Tools

The following table displays information about useful OO studio tools:.

Tool	Description
`RSFlowInvoke.exe` `JRSFlowInvoke.jar`	Command-line tools that start flows from outside the OO central web application Location: `%OO_home%/Studio/tools/` See the *HP OO Software Development Kit Guide* (`SDKGuide.pdf`) for more information on these tools.
`wswizard.exe`	OO web services wizard that creates operations from an arbitrary set of web services Location: `%OO_home%/Studio/tools/`

Launching Flows

This section lists the URL syntax you can use with the HP OO Central. You can use these with Representational State Transfer (REST)-based services.

Syntax	Definition
`https://<ooserver>:<port>/PAS/ services/http/list`	Retrieves a list of flows from Central Where: `<ooserver>` = Central installation server `<port>` = HTTPS (HTTP over Secure Sockets Layer (SSL)) port, designated when Central was installed
`https://<ooserver>:<port>/PAS/ services/http/execute/ <library_path>`	Synchronously executes a flow identified by name and location in the Library or Central repository where `<ooserver>` = Central installation server `<port>` = HTTPS (HTTP over Secure Sockets Layer (SSL)) port, designated when Central was installed `<library_path>` = Location and name of Central repository flow
`https://<ooserver>:<port>/PAS/ services/http/execute/<flow_UUID>`	Synchronously executes a flow by universally unique ID (UUID) where `<ooserver>` = Central installation server `<port>` = HTTPS (HTTP over Secure Sockets Layer (SSL)) port, designated when Central was installed `<flow_UUID>` = UUID for the Central repository flow
`https://<ooserver>:<port>/PAS/ services/http/execute_async/ <library_path>`	Asynchronously executes a flow by name where `<ooserver>` = Central installation server `<port>` = HTTPS (HTTP over Secure Sockets Layer (SSL)) port, designated when Central was installed `<library_path>` = Location and name of Central repository flow
`https://<ooserver>:<port>/PAS/ services/http/execute_async/ <flow_UUID>`	Asynchronously executes a flow by universally unique ID (UUID) (returns immediately after the flow is launched) where `<ooserver>` = Central installation server `<port>` = HTTPS (HTTP over Secure Sockets Layer (SSL)) port, designated when Central was installed `<flow_UUID>` = UUID for the Central repository flow

▶ Synchronous flow execution means that Central does not return a result until the flow run is complete. In asynchronous flow execution, the flow result is returned immediately after the flow is launched.