



Operations Agent

Software Version: 12.04

For the Windows®, HP-UX, Linux, Solaris, and AIX operating systems

Installation Guide: Installing HPE Operations Agent Using HPE OO

Document Release Date: August 2017

Software Release Date: August 2017



Hewlett Packard
Enterprise

Legal Notices

Warranty

The only warranties for Hewlett Packard Enterprise 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. Hewlett Packard Enterprise 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 Hewlett Packard Enterprise 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

© 2012-2017 Hewlett Packard Enterprise Development LP

Trademark Notices

Adobe® is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of the Microsoft group of companies.

UNIX® is a registered trademark of The Open Group.

Acknowledgements

This product includes cryptographic software written by Eric Young (ey@cryptsoft.com).

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>).

This product includes software written by Tim Hudson (tjh@cryptsoft.com).

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

Documentation Updates

To check for recent updates or to verify that you are using the most recent edition of a document, go to: <https://softwaresupport.hpe.com/>.

This site requires that you register for an HPE Passport and to sign in. To register for an HPE Passport ID, click **Register** on the HPE Software Support site or click **Create an Account** on the HPE Passport login page.

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

Support

Visit the HPE Software Support site at: <https://softwaresupport.hpe.com/>.

Most of the support areas require that you register as an HPE Passport user and to sign in. Many also require a support contract. To register for an HPE Passport ID, click **Register** on the HPE Support site or click **Create an Account** on the HPE Passport login page.

To find more information about access levels, go to: <https://softwaresupport.hpe.com/web/softwaresupport/access-levels>.

HPE Software Solutions Now accesses the HPE Software Solution and Integration Portal website. This site enables you to explore HPE Product Solutions to meet your business needs, includes a full list of Integrations between HPE Products, as well as a listing of ITIL Processes. The URL for this website is <https://softwaresupport.hpe.com/km/KM01702731>.

Contents

| | |
|--|----|
| Introduction | 4 |
| Installing the Operations Agent Content Pack on OO Central | 4 |
| Deploying Operations Agent using OO Central | 5 |
| Running the DeployOperationsAgent Flow using CLI | 9 |
| OO System Configuration | 11 |
| System Account Configuration | 11 |
| External RAS (Remote Action Server) Configuration | 13 |
| Group Alias Configuration | 14 |
| Parallel Instances Configuration | 16 |
| Performance and Sizing of the Operations Agent OO Content Pack | 17 |
| Test Environment | 17 |
| Test Result | 18 |
| Send documentation feedback | 20 |

Introduction

Operations Orchestration (OO) can be used for the remote deployment of Operations Agent using the Operations Agent content pack.

This document provides the information about the Operations Agent content pack, how to install the content pack on OO, and how to deploy Operations Agent on remote nodes using OO.

About OO

OO is a solution for IT process automation and runbook automation. It is a system for creating and using actions in structured sequences called *flows*.

OO Central is the run time environment of OO. It is used for running flows, monitoring the various runs, and generating reports. It has a web-based UI and a set of APIs, which are accessed by the administrators, end users, and integrators.

Deploying Operations Agent using OO Central

OO Central can be used to deploy any one of the Operations Agent versions available in the Agent Installation Repository (AIR) on a single or multiple nodes on Windows and Linux operating systems. OO provides simplified user experience, ease of deployment and ease of troubleshooting in case of failures.

Note: Deploying Operations Agent using OO is supported only on Linux and Windows platforms.

Deploying Operations Agent using OO Central involves the following steps:

1. [Installing the Operations Agent content pack on OO Central.](#)
2. [Deploying Operations Agent using OO Central.](#)

Installing the Operations Agent Content Pack on OO Central

Operations Agent content pack is available on [ITOM Marketplace](#). It contains the following JAR file:

`oo-hpe-operations-agent-cp-1.0.0.jar`

You must download and install this content pack on OO Central in order to deploy Operations Agent using OO Central. To install Operations Agent content pack on OO Central, follow the steps:

Prerequisite

The Operations Agent content pack (**oo-hpe-operations-agent-cp**) along with the OO dependency - **Base 1.9.1** should be available on the OO system.

1. Open **OO Central** using any one of the browsers (Internet Explorer, Google Chrome or Mozilla Firefox).
2. Select **Content Management** from the left navigation pane.
3. Under the **Content Packs** tab, click **+** button to deploy new content packs. **Deploy New Content** dialog box opens.
4. Under the **Deploy New Content** dialog box, click **+** button to add files for the Operations Agent content pack.
5. Add the OO dependency - **Base 1.9.1** followed by the Operations Agent content pack (**oo-hpe-operations-agent-cp**). After the content pack is deployed, it is displayed under the **Content Packs** tab. The **Deploy Operations Agent** flow is available under the **Content Management > Flow Library > Library > Integrations > Hewlett Packard Enterprise > Operations Agent** directory.

Deploying Operations Agent using OO Central

You can use OO Central to deploy any one of the Operations Agent versions available in the Agent Installation Repository (AIR) on a single or multiple nodes on Windows and Linux operating systems. OO automates the remote installation process and facilitates Operations Agent deployment at a large scale in less time as compared to manual installation. Additionally, it provides success and failure logs for easy analysis.

Prerequisites

- The system running OO Central should be a Windows system and should have .NET Framework installed (version 4.5 or above).
- The OO Central services must be running through an **Administrator** account. This is configured using **services.msc**.
- System account for Linux and Windows nodes must be configured on OO Central along with the OO user credentials. For more information, see [OO System Configuration](#).
- For deploying Operations Agent on Linux nodes, **wget** must be available on the Linux nodes.

- For deploying Operations Agent in a remote network, external RAS (Remote Action Server) must be configured. For more information, see [External RAS Configuration](#).
- Group aliases must be defined. For more information, see [Group Alias Configuration](#).
- IP address or FQDN of the system on which Agent Installation Repository (AIR) is installed must be available.

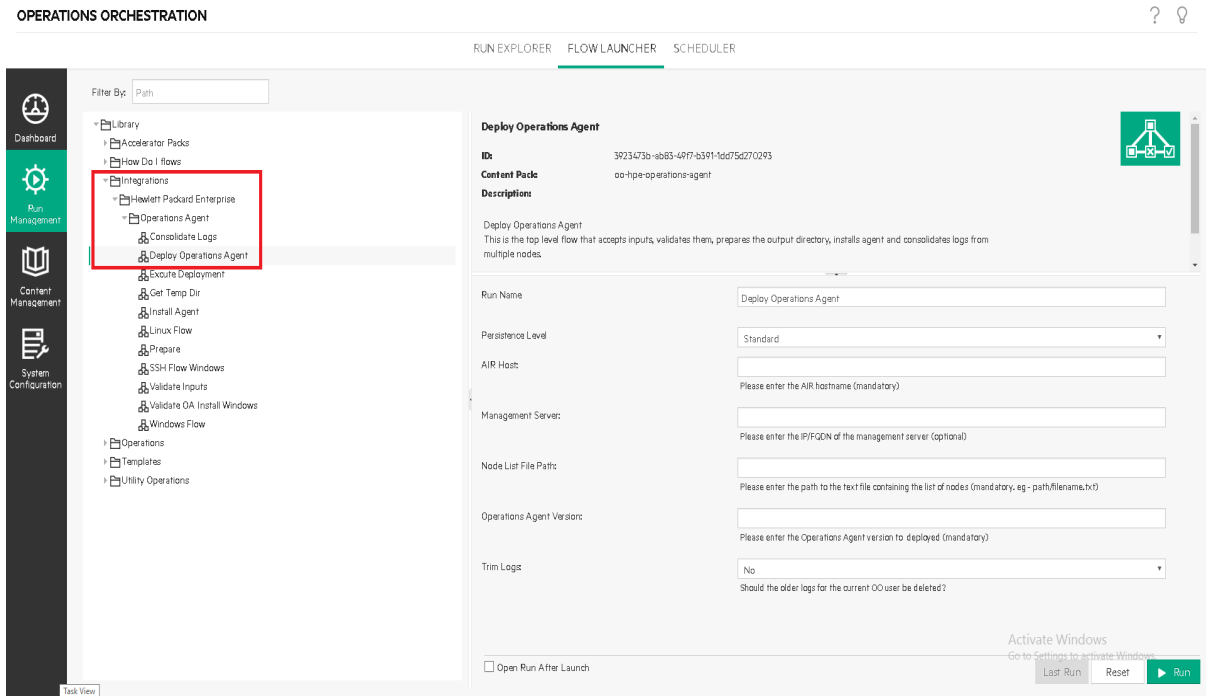
Note: Agent Installation Repository (AIR) can be created on a standalone Linux server or on the Operations Manager for Linux. For more information on creating AIR, see *Installing the HPE Operations Agent using Agent Installation Repository* in the *HPE Operations Agent Installation Guide*.

- A text file containing the list of node IP addresses or FQDNs of systems where Operations Agent is to be deployed must be available. The IP addresses or FQDNs should be separated by a new line character. Save the file on the system where OO server is available or in a shared location accessible by OO.

Note: It is recommended to save the text file in a shared location as the corresponding logs for the run post deployment are also saved in the same location.

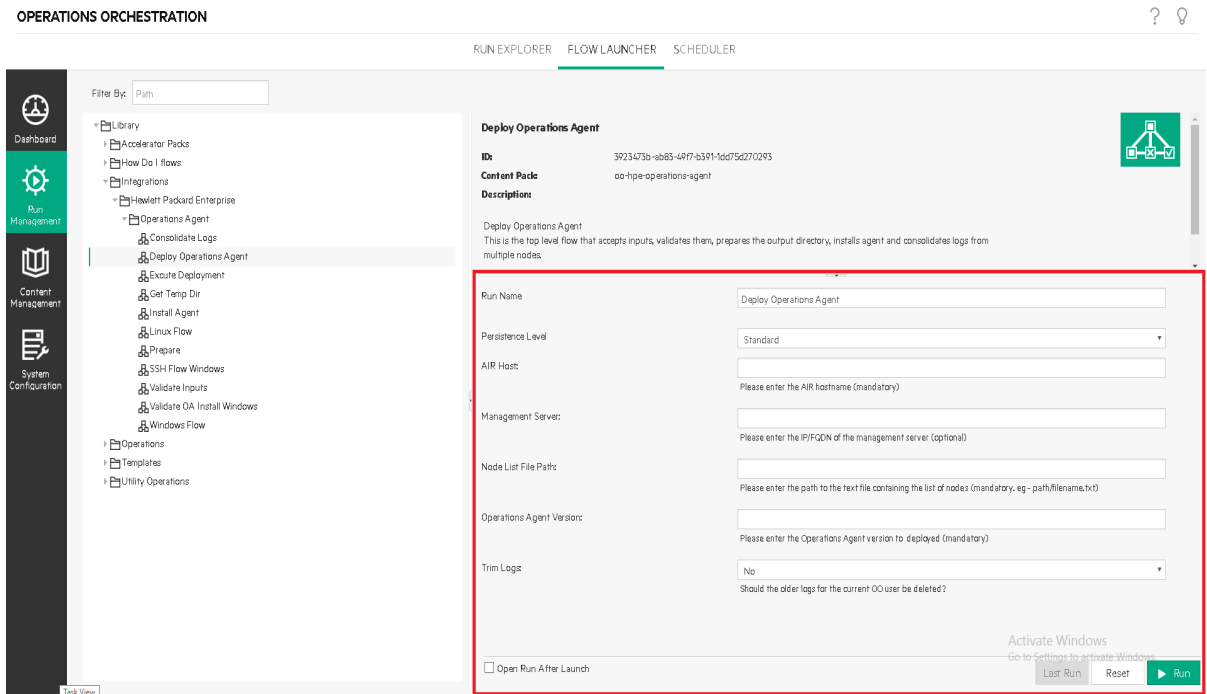
To deploy Operations Agent using OO Central, follow the steps:

1. Log on to **OO Central** and select **Run Management** from the left navigation pane.
2. Under the **Flow Launcher** tab, click on **Integrations > Hewlett Packard Enterprise > Operations Agent** and select the flow **Deploy Operations Agent**.



The **Deploy Operations Agent** flow launcher opens in the right pane.

3. Enter the necessary inputs in the respective fields.



The following inputs are required:

- Provide a **Run Name** and select **Persistence Level** as **Standard**.
- IP address or FQDN of the system on which Agent Installation Repository (AIR) is installed.
- IP address or FQDN of the management server (*optional*). If provided, the agent nodes will be aligned to the management server and the management server auto-grants certificate requests based on the IP range for successful communication.
- The path to the text file containing the list of node IP addresses or FQDNs of systems where Operations Agent is to be deployed.
- Version of the Operations Agent to be deployed. Any one of the Operations Agent versions available in the Agent Installation Repository should be provided.
- Option to delete older logs of current OO user. The default value is *No*, selecting *Yes* will delete the older logs created for previous flows run by the current OO user.

Click **Run** for the **Deploy Operations Agent** flow to run and complete.

4. Under the **Flow Launcher** tab, click **Run Explorer** to check the flow graph and flow status.

The screenshot displays the HPE Operations Orchestration (OO) interface. At the top, it shows 'OPERATIONS ORCHESTRATION' and navigation tabs for 'RUN EXPLORER', 'FLOW LAUNCHER', and 'SCHEDULER'. The main interface is divided into a sidebar on the left and a main content area on the right. The sidebar contains icons for 'Dashboard', 'Run Management', 'Content Management', and 'System Configuration'. The main content area shows the 'DeployOperationsAgent' flow, which is marked as 'Completed - Resolved' with a green checkmark. Below this, the 'Flow Graph' and 'Step Details' are visible. The flow graph shows a sequence of steps: 'ValidateInputs', 'Prepare', 'InstallAgent', and 'ConsolidateLogs', all of which are marked as 'success'. Below each step in the graph is an 'Error: failure' icon, indicating that the flow failed on these steps. The 'Step Details' view provides a description for each step: 'ValidateInputs' (Collect inputs from user...), 'Prepare' (Make preparations for the flow...), 'InstallAgent' (Log on to machine, download...), and 'ConsolidateLogs' (Consolidates the logs provided...). The overall status of the flow is 'Resolved success'.

The Operations Agent deployment status message is displayed once the flow is completed.

Refer the log files if Operations Agent deployment fails on any of the nodes.

Note: Log files for the flows are available under the following location:

`<path to text file>\<OO_Central_Username>\<Timestamp>`

In this instance, *<path to text file>* is the same location where the text file containing the list of node IP addresses or FQDNs of systems where Operations Agent is to be deployed is saved.

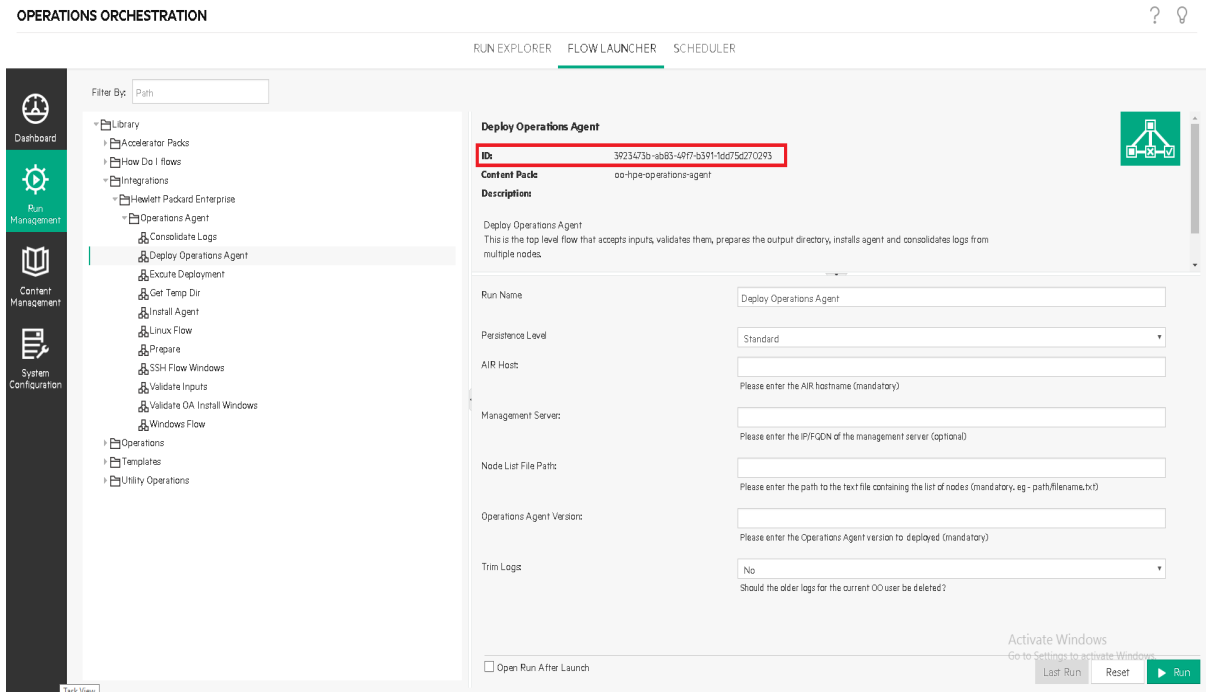
If installation fails in any of the given nodes, the list of nodes where the installation has failed will be available in the failedNodesList log file in the location mentioned above. You can copy this text file outside of current directory and use the text file to run the flow again to deploy Operations Agent on these nodes.

Running the DeployOperationsAgent Flow using CLI

Once the Operations Agent content pack is deployed on OO Central (see [Deploying the Operations Agent Content Pack to OO Central](#)), you can use Command-Line Interface (**Shell**) to run the **Deploy Operations Agent** flow and deploy any one of the Operations Agent versions available in the Agent Installation Repository on a single or multiple nodes on Windows and Linux operating systems.

To trigger the **Deploy Operations Agent** flow using CLI, follow the steps:

1. Log on to **OO Central** and select **Run Management** from the left navigation pane.
2. Under the **Flow Launcher** tab, click on **Integrations > Hewlett Packard Enterprise > Operations Agent** and select the **Deploy Operations Agent** flow. The **Deploy Operations Agent** flow launcher opens in the right pane.



Note the **Flow ID** for the **Deploy Operations Agent** flow.

3. Open command prompt (**Shell**) and connect to OO Central using the following command:

```
connect --url <OO_Central_url> --user <username> --password <password>
```

4. Run the flow using the following command using the **Flow ID** obtained from OO Central to run the flow:

```
trigger --uuid <flow_id> --inputs AIR\ Host=<AIR_Hostname>, Management\
Server=<management_server>, Node\ List\ File\ Path=\\<The path to the text
file containing the list of node IP addresses or FQDNs of systems where
Operations Agent is to be deployed>, Operations\ Agent\
Version=<OperationsAgent_Version to be deployed>, Trim\ Logs=<Yes/No - option
to delete older logs for current OO user>
```



```
oosh 10.60
oosh> connect --url <OO_Central_URL> --user <Username>
Password: *****
connected
oosh> trigger --uuid 3923473b-ab83-49f7-b391-1dd75d270293 --inputs AIR\ Host= <AIR_Hostname> ,
Management\ Server= <Management_Server> ,Node\ List\ File\ Path=\\ <Path to text file....
...containing the list of node IP addresses> ,Operations\ Agent\ Version=12.02,Trim\ Logs=N
Flow triggered.
  Execution ID           : 125401050
  Execution tracking URL : <OO_central_URL> /oo/rest/executions/125401050
oosh> track --id 125401050
Execution Info:
  Execution ID (executionId) : 125401050
  Execution name (executionName) : DeployOperationsAgent
  Status (status) : RUNNING
oosh>
```

You can use the Execution ID to track the flow.

Note: The **Flow ID** remains same for any content pack added in OO and the ID can be used to trigger the **Deploy Operations Agent** flow for any future deployment of Operations Agent.

Refer the log files if Operations Agent deployment fails on any of the nodes.

OO System Configuration

For running the Operations Agent content pack using OO Central for the remote deployment of Operations Agent on Windows and Linux nodes, the following system configurations must be set on OO Central:

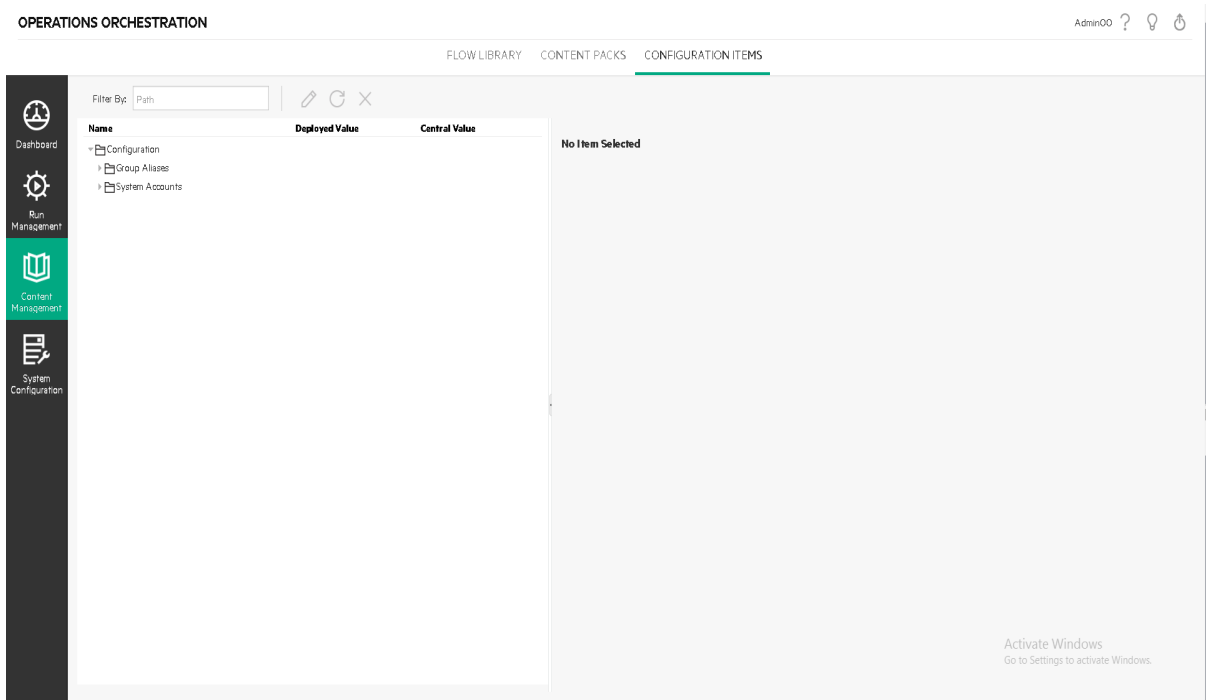
- [System account for Linux and Windows nodes must be configured for OO Central to access these nodes along with the OO user credentials.](#)
- [External RAS \(Remote Action Server\) must be configured if you want to deploy Operations Agent on external network. You can also configure external RAS for load balancing purpose.](#)
- [Group aliases must be set for remote network access and load balancing.](#)
- [Configure the number of parallel deployment lanes \(*optional*\).](#)

Note: Make sure that the Operations Agent content pack is deployed on OO Central before applying any of the above configurations. For more information, see [Deploying the Operations Agent Content Pack to OO Central](#).

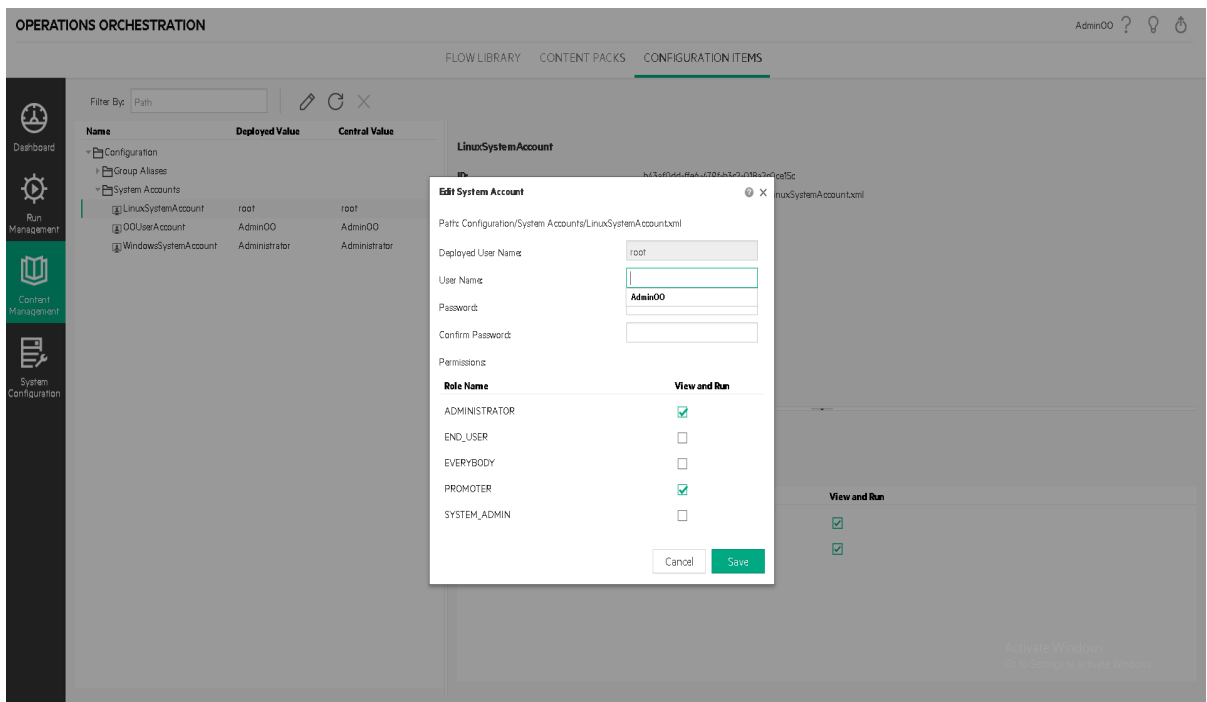
System Account Configuration

To deploy Operations Agent on Windows and Linux nodes, authentication credentials for the nodes must be configured for OO Central to access these nodes. Follow the steps:

1. Log on to **OO Central** and select **Content Management** from the left navigation pane.
2. Select **Configuration Items** tab.

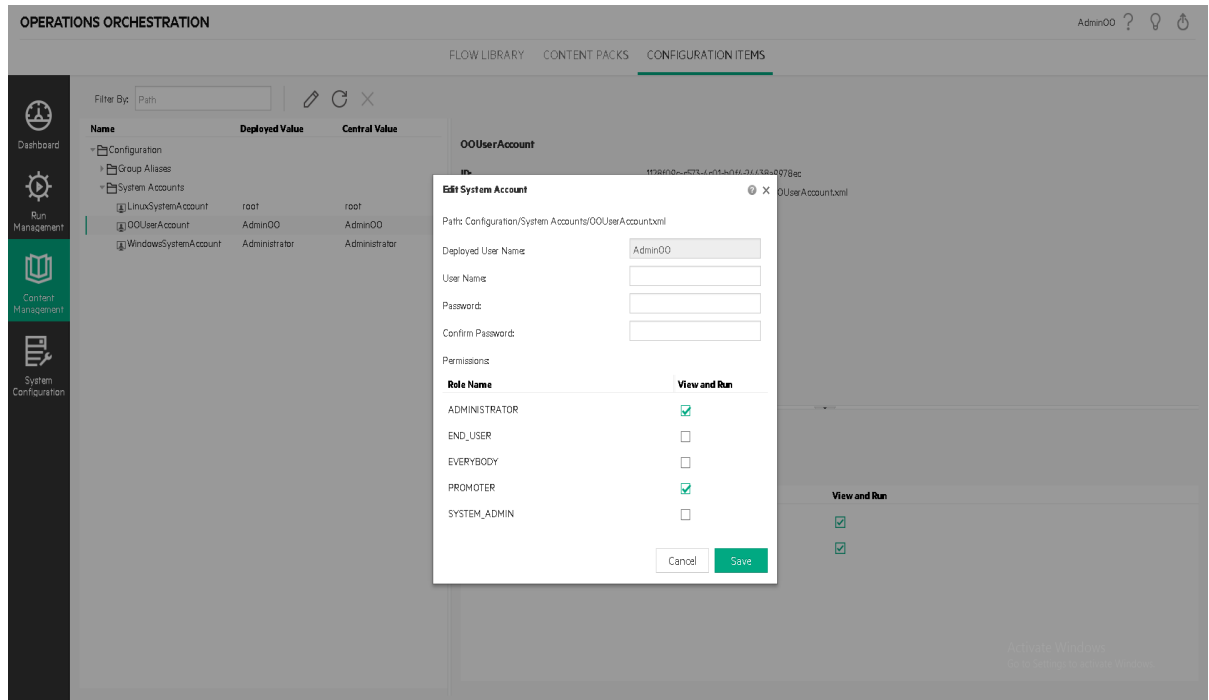


3. Click **System Accounts** to configure Linux and Windows authentication credentials.



Under the **System Accounts**, select **LinuxSystemAccount** and click the **Edit** icon on the top menu to configure and add the authentication credentials for Linux nodes. Similarly, configure and add the authentication credentials for Windows nodes.

4. Under the **System Accounts**, select **OOUserAccount** and click the **Edit** icon on the top menu to configure and add the authentication credentials for the logged in user.



External RAS (Remote Action Server) Configuration

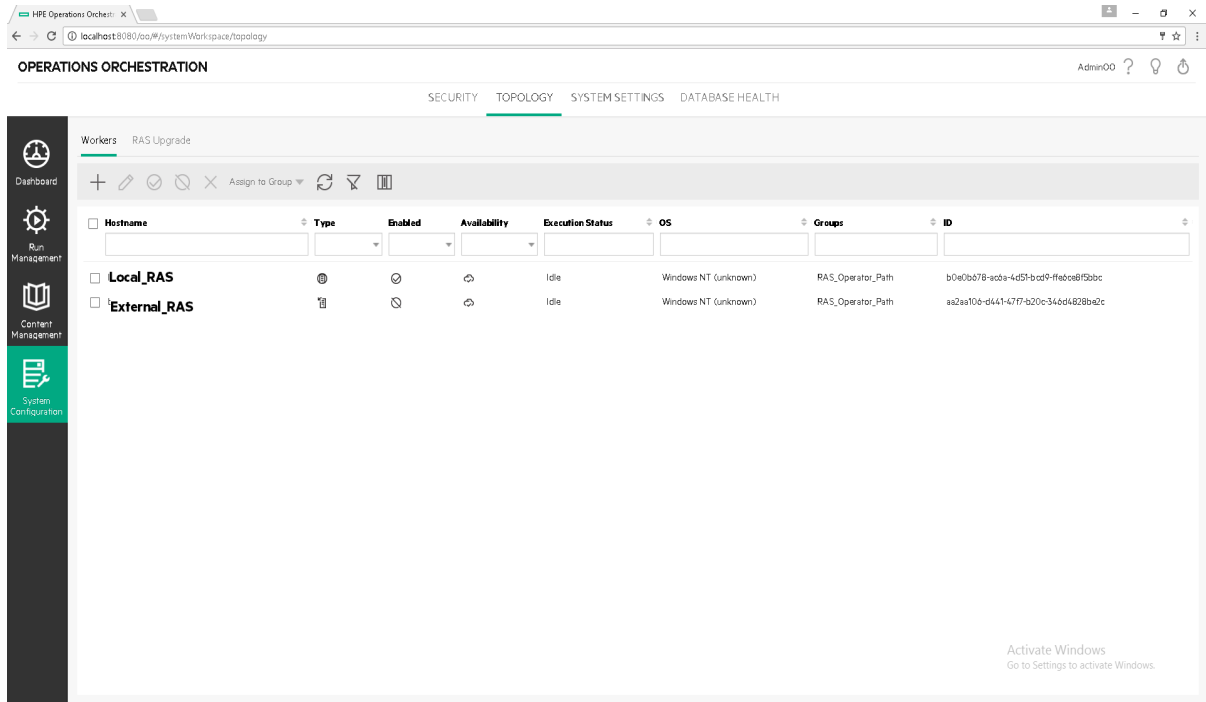
OO Central, by default has a local worker available on the system for accessing nodes in the local network. If you want to deploy Operations Agent in a remote network, then external RAS (Remote Action Server) must be configured. You can also configure external RAS for load balancing purpose.

RAS helps you connect a client in a remote network to a host on a local network. To use RAS, a RAS client program must be installed on the client system in the remote network and during installation the FQDN or IP Address of the host (i.e. **OO Central**) in the local network must be configured.

Once an external RAS is configured, it would appear in **OO Central**.

Note: External RAS must be configured on a Windows system.

To see the external RAS added, open **OO Central**, select **System Configuration** from the left navigation pane and click **Topology** to view the available Remote Action Servers. Hovering over the **Type** column helps you identify the local worker and the external RAS.

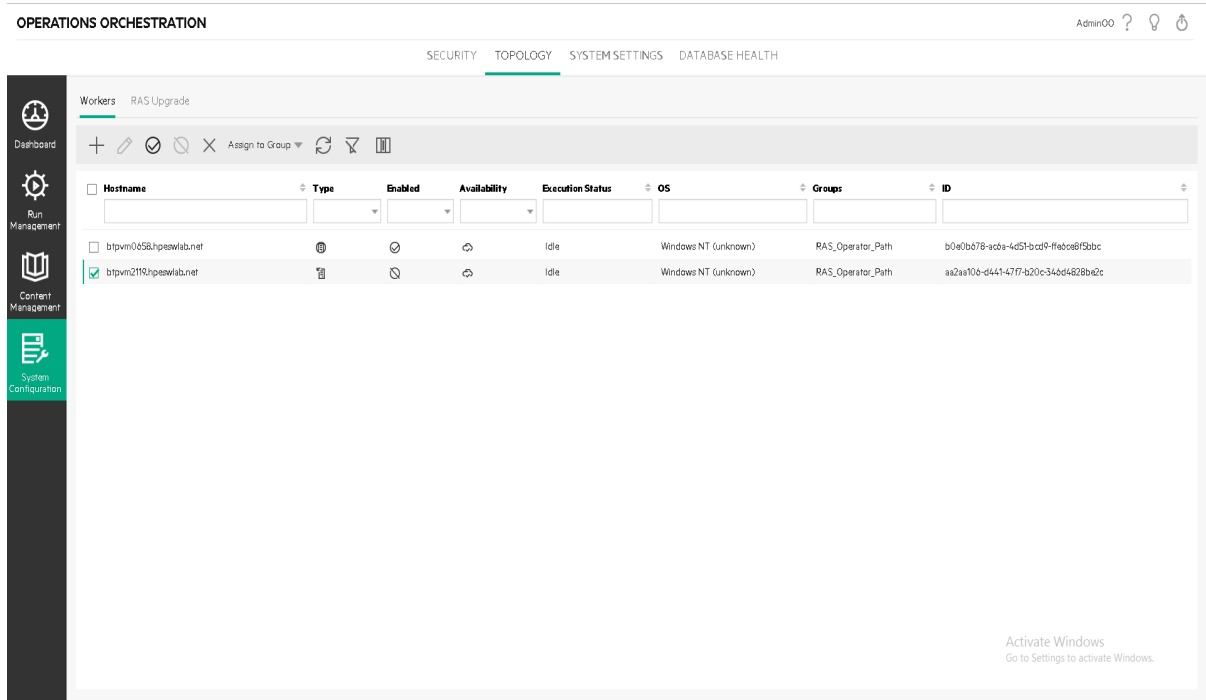


Select the external RAS added and click the **Check** icon on the top menu to **Enable** the external RAS. The local worker is enabled by default.

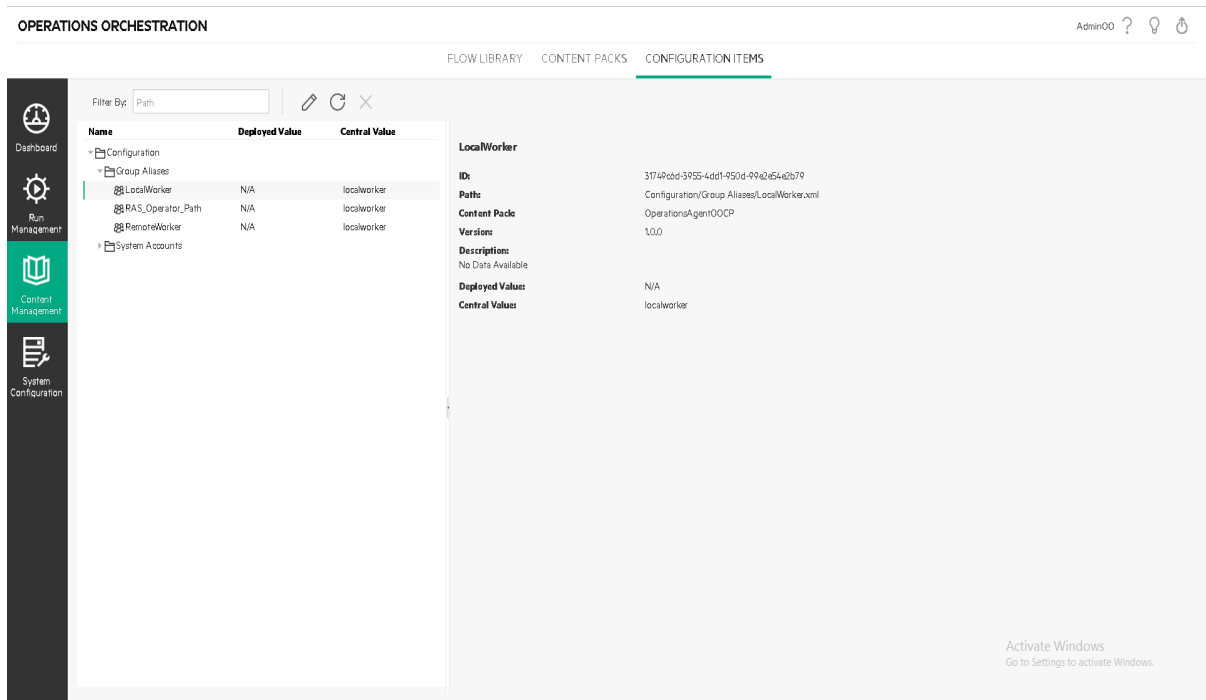
Group Alias Configuration

You can align the Remote Action Servers into different worker groups by assigning them to any existing **Group** or add them to a new **Group**. The group assignment is done to achieve remote network access and load balancing. If a user defined worker group is not assigned then the default worker group is assigned to each RAS.

To assign a RAS to a worker group: open **OO Central**, select **System Configuration** from the left navigation pane, click **Topology** tab, select the required RAS and click **Assign to Group** option on the top menu.

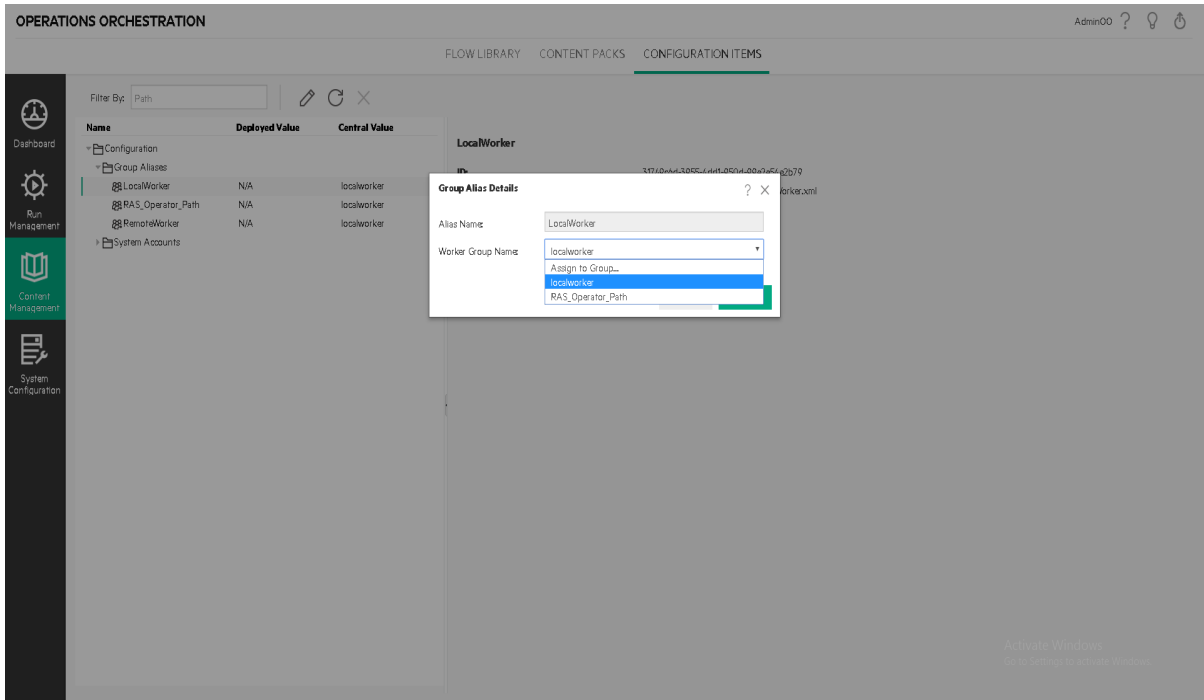


Once the worker groups are assigned, you will have to configure the **Group Aliases** to achieve remote network access and load balancing. To view the existing **Group Aliases**, open **OO Central**, select **Content Management** from the left navigation pane, select **Configuration Items** tab and click **Group Aliases**.



The **Group Aliases**: Local_Worker and RAS_Worker are available by default and the system aligns these **Group Aliases** to the default worker group RAS_Operator_Path. To achieve remote network access and load balancing these **Group Aliases** must be configured appropriately.

To configure the **Group Aliases**, select the group alias and click the **Edit** icon on the top menu and assign it any required worker group. These worker groups are the same groups that was created and assigned to individual RAS.



Depending on the worker group configured for each group alias, the corresponding RAS is used for Operations Agent deployment.

Parallel Instances Configuration

To control the number of parallel or multi-instance deployment lanes, you can configure the throttle value. By default, the throttle value is 50.

To configure the number of parallel deployment lanes, open **OO Central**, select **Content Management** from the left navigation pane, select **Configuration Items** tab and click **System Properties**.

OPERATIONS ORCHESTRATION

FLOW LIBRARY CONTENT PACKS CONFIGURATION ITEMS

Dashboard

Run Management

Content Management

System Configuration

Filter By: ✎ ↻ ✕

| Name | Deployed Value | Central Value |
|----------------------|----------------|---------------|
| Configuration | | |
| Group Aliases | | |
| System Accounts | | |
| LinuxSystemAccount | LinUser | |
| OOUserAccount | OOUser | |
| WindowsSystemAccount | WinUser | |
| System Properties | | |
| ThrottleValue | 50 | |

System Accounts

ID: No Data Available

Path: Configuration/System Accounts

Content Pack: No Data Available

Version: No Data Available

Description: No Data Available

Deployed Value:

Central Value:

Permissions

Show all roles

Role Name **View and Run**

Select **ThrottleValue** and click the **Edit** icon on the top menu to edit the default throttle value.

Note: It is recommended that the throttle value and the number of worker threads are equal for the **Deploy Operations Agent** flow to run seamlessly. For more information on configuring the number of worker threads, see the *HPE Operations Orchestration Tuning Guide*.

Performance and Sizing of the Operations Agent OO Content Pack

This section provides the test setup information, test result and resource utilization details for the Operations Agent OO content pack.

Note: The performance will vary based on the test environment and the test setup.

Test Environment

The tests are performed using the following test setup:

| Test setup configuration details | | | | | |
|----------------------------------|---|----------|----------------------|--------------------------|-----------------|
| OO Central | Architecture | Hardware | System Configuration | Operating System | CPU Clock Speed |
| OO 10.60 | x64 | VM | 2 CPU, 8GB RAM | Windows 2012 R2 Standard | 2.67 GHz |
| Number of nodes | 100 - 60 RHEL6.5 Linux and 40 Windows 2012/2008 | | | | |

Test Result

The test is performed for 3 different install scenarios on 100 nodes with 50 parallel deployment lanes (default throttle value). Refer the following table to analyze the performance of the Operations Agent OO content pack:

| Install Scenario | Time Taken in Minutes |
|--|-----------------------|
| Fresh installation on 100 nodes with external RAS as a load balancer and management server details | 30 |
| Upgrade from 11.14 to 12.02 on 100 nodes with management server details without external RAS | 43 |
| Fresh installation on 100 nodes without external RAS and management server details | 65 |

Resource Utilization

Observed minimum increase in resource utilization of OO Central resources with CPU utilization showing less than 1% increase and memory utilization showing less than 10 MB increase.

Conclusion

The test results provided are for 100 nodes with 50 parallel deployment lanes (default throttle value) and it can be scaled further. It is recommended to keep the number of nodes to a optimum number so that the analysis is easier in case there are deployment failures.

Note: By default, OO Central has 20 worker threads. If your flows have a large number of parallel or multi-instance lanes, or if you trigger a large number of flows simultaneously, we recommend increasing the number of worker threads in OO Central or RAS. For more information, see the *HPE Operations Orchestration Tuning Guide*.

Send documentation feedback

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

Feedback on Installation Guide: Installing HPE Operations Agent Using HPE OO (Operations Agent 12.04)

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to docfeedback@hpe.com.

We appreciate your feedback!