HP Operations Orchestration

Software Version: 10.20 Windows and Linux Operating Systems

Installation Guide

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Introduction

This document describes how to install and configure HP Operations Orchestration version 10.x using the Installation and Configuration wizard. It also includes instructions for silent installations.

This document is relevant for customers who are:

- Installing a new installation of HP OO, on a machine where it was not previously installed.
- Installing HP OO after having installed the HP OO Community Edition.
- Upgrading from HP OO 9.x. For more information about upgrading from HP OO 9.x, see Upgrading to HP OO 10.x from HP OO 9.x.

This document is not relevant for customers who are upgrading from an earlier version of HP OO 10.x. See *Upgrading to a New Version of HP OO 10.x*.

Note: If you are not sure which version of HP OO 10.x you currently have installed, you can check the version in the **VersionInfo.txt** file in the base folder of each component (Central/RAS/Studio).

Prerequisites and Installation Notes

- Before installing Central, Studio, or RAS, check with your system administrator that you have administrator permission on the system where you are installing HP OO. In addition, make sure that the database has the appropriate permissions set. See the *Release Notes* for details on exceptions and special cases.
- Before installing Studio, download and install Microsoft Visual C++ 2008 SP1 redistributable package (x86), from:

http://www.microsoft.com/en-us/download/details.aspx?id=29

Note: You need to download and install the version for the x86 platform, regardless of your Windows version (for example, if it is Windows x64).

- If you are installing Central with MySQL, you will need to provide the MySQL JDBC driver. This
 driver can be downloaded from the MySQL website at
 http://dev.mysql.com/downloads/connector/j/.
- The upgrade procedure does not modify the HP OO 9.x database and file system. HP OO versions 10.10 and later require a new schema during installation.

- In a clustered environment, you need to synchronize the computers' clock times. The clocks must be synchronized with each other, to the second. It is recommended to use NTP sync to regularly maintain an accurate system time between all nodes (Central and Rases).
- Before installing or upgrading the software, make sure to back up your system. Consult with your system administrator.
- If you want to install HP OO on a secured environment, see the HP OO Hardening Guide.
- **LWSSO**: If you choose to upgrade the LWSSO settings from HP OO 9.x, these LWSSO settings will be migrated, but LWSSO will be disabled in HP OO 10.x (even if it was previously enabled in HP OO 9.x).
- The Central Server requires two ports, so make sure that two ports are available.

Note: The default ports are 8080 and 8443, but you can use any two available ports.

• See the Concepts Guide for a detailed overview of deploying a RAS behind a firewall.

SQL Scripts

If, for security reasons, the HP OO database user lacks the ability to create objects such as tables, indexes, sequences, and so on, you can use SQL scripts from the ZIP file to manually create the database objects using an elevated privileges database connection.

Before using these scripts, you need to have the database or schema already created. The scripts to create the database or schema can be found in the "Manually Creating an HP OO Database" sections of the *HP OO Database Guide* document.

The SQL scripts are located at \docs\sql on the ZIP file. They include:

- mssql.sql
- mysql.sql
- oracle.sql
- postgres.sql

Database-specific Adaptations

This section describes several key database-specific adaptations and requirements. For detailed instructions, see the *HP OO Database Guide*.

• **MySQL**: If you are deploying HP OO using a MySQL database, you need to configure the MySQL server configuration file **my.ini** (Windows) or **my.cnf** (Linux) with the following options:

transaction-isolation = READ-COMMITTED
default-storage-engine = INNODB

character-set-server = utf8
max_allowed_packet = 250M
innodb_log_file_size = 256M
max_connections = 1000

• **Postgres**: If you are deploying HP OO using a Postgres database, you need to configure the Postgres server configuration file **postgresql.conf** with the following options:

```
default_transaction_isolation = 'read committed'
autovacuum = on
track_counts = on
max_connections = 1000
```

Oracle:

If you are deploying HP OO using an Oracle database, you need to configure the Oracle server PROCESSES and OPEN_CURSORS to guarantee up to 1000 concurrent connections for HP OO and up to 900 open cursors per session.

SQL Server

If you are deploying HP OO using an SQL Server database, you need to set the following options for the database:

ALLOW_SNAPSHOT_ISOLATION	ON
READ_COMMITTED_SNAPSHOT	ON
AUTO_CREATE_STATISTICS	ON
AUTO_SHRINK	OFF

Installing HP Operations Orchestration

This section describes how to install HP Operations Orchestration version 10.x. See "System Requirements" on page 47 to verify that your system meets the minimum system requirements.

Make sure that the person running the installation has Administrator privileges, in order to avoid UAC (user access control) errors. If you are not sure about your UAC settings, you can also right-click on the installer and choose to run it as an Administrator.

Note: Special characters, except the underscore (_), cannot be used for the database name or SID field. You can enter up to 30 characters for the database name or SID.

There are different ways that you can install HP OO:

- Using the Installation Wizard see "Installing HP OO Central Using the Installation Wizard (Windows)" on page 9 or "Installing HP OO Central Using the Installation Wizard (Linux)" on page 21
- Silently, via the command line see "Installing HP OO Silently" on page 39

Important! If you are connecting to a database with an existing schema, which Central already ran on, make sure that you use the same encryption key (**central/var/security/encryption_ repository**) as the previous Central. Otherwise, Central will not start, and will show an exception message in the **wrapper.log** file ("bad padding"). This is because there is no way to decrypt the already-encrypted data with the new encryption key. If this problem occurs, see "Backing Up and Recovering the Central Security Files" on page 42.

To prevent this problem from occurring, when you install Central, select the **Do not start Central server after installation** check box in the **Connectivity** step of the installation wizard, or use the corresponding property if you're installing silently. Then, perform the task described in "Backing Up and Recovering the Central Security Files" on page 42.

Installing HP 00 Central Using the Installation Wizard (Windows)

There are three components that can be installed: Central, Studio, and RAS (optional). This topic discusses how to install Central.

For instructions about installing a RAS, see "Installing an HP OO RAS Server Using the Installation Wizard" on page 32.

For instructions about installing Studio, see "Installing HP OO Studio Using the Installation Wizard (Windows)" on page 34.

To install Central on Windows:

1. Download the ZIP file from the HP SSO Portal and extract it into a local drive on your computer.

Note: To run the installer from the HP Operations Orchestration DVD, insert the DVD, and copy the installation file to a local drive on your computer.

- 2. To start the installer, double-click the installer-win64.exe installation file.
- After you start the installer, the installation package is extracted, and the HP Operations Orchestration Installation and Configuration Wizard automatically opens. Click Next.

12% Extracting	-	23
	Cancel	

- 4. In the License step, select I Agree, and then click Next.
- 5. In the Location step, select the location for the installation root directory, and then click Next.

If the directory does not exist, the directory is created automatically. You are prompted to confirm the creation of the new location.

Note: Valid characters for the installation path are English letters, digits, spaces, hyphens (-) and underscores (_).

The default path is C:\Program Files\Hewlett-Packard\HP Operations Orchestration.

HP Operations O	Prchestration Installation Wizard	Σ
Root Directory	/ Location	
In this step, select the	e installation root directory	
elcome	Installation root directory	
cense	Select the installation root directory	
ocation	Root directory C:\Program Files\Hewlett-Packard\HP Operations Orchestration	Browse
ptions		
	Disk space requirements	
onnectivity	Available disk space: 127.38 GB	
	Installation may require up to 4 GB.	
egister RAS		
ograde		
stallation Progress		
	< Bac	k Next > Cancel

6. In the **Options** step, select **Central**, and then click **Next**.

Note: You can install Central without setting up a RAS server. If you install a RAS Server, it is recommended that you install this on a separate server to Central. See "Installing an HP OO RAS Server Using the Installation Wizard" on page 32. See the *Architecture Guide* for more information.

HP Operations Or	rchestration Installation Wizard	2
Option Selection	on	
In this step, select the	e HP Operations Orchestration components	
lelcome	Options	
icense	Select components to install and configure	
ocation	Remote Action Server (RAS)	
ptions	V Central	
entral cluster	Studio	
onnectivity	✓ Documentation ✓ Java Runtime	
	C Java kontine	
egister RAS		
ograde		
inguage		
stallation Progress		
		< Back Next > Cancel

7. In the **Central Cluster** step, you can add a node to an existing Central cluster. Clustering provides high availability and scalability to enhance throughput.

To create a cluster, run the Installation wizard the first time to create the first Central. Then run it again on the other machine to create the next node and, during this second installation, make it point to same database schema.

For more information about clustering, see "Configuring High Availability" in the *HP OO Architecture Guide*.

	hestration Installation Wizard	
Central Cluster	Configuration and Installation	
In this step you can add	d a node to a Central cluster	
elcome	Central Cluster	
cense	Add a node to an existing cluster. HP Operations Orchestration 10 Central cluster is a	
ocation	configure an additional node to an existing cluster by importing the configuration fro	m an existing node.
ptions	 Add a node to an existing Central cluster Location of <existing-node-install-dir>/central/conf/database.properties</existing-node-install-dir> 	Browse
entral cluster		
nnectivity	Location of <existing-node-install-dir>/central/var/security/encryption.properties</existing-node-install-dir>	Browse
tabase connection	Location of <existing-node-install-dir>/central/var/security/encryption_repository</existing-node-install-dir>	Browse
egister RAS	Location of <existing-node-install-dir>/central/var/security/key.store (optional)</existing-node-install-dir>	Browse
ontent Packs	JDBC driver location	Browse
pgrade	Required if you are using a MySQL database, or are upgrading an HP 00 9 installatio	n that uses MySQL.
anguage		
ummary		
stallation Progress		
	ties is required	

- 8. In the **Connectivity** step, configure the Central Server ports and SSL:
 - a. Configure two available ports for the Central Server in the **HTTP** and **HTTPS** fields. Default values (8080 and 8443) appear for each port, but you can change these.

Note: Configuring the ports is mandatory. If two ports are not defined, or if the ports are occupied by other applications, you will not be able to complete the installation.

b. (Optional) If you want to disable the HTTP port, select the **Disable HTTP Port** check box.

You might want to do this for security reasons, so that the only communication channel is on SSL and encrypted.

c. (Optional) In the **Connectivity** step, you can import a secure SSL certificate. Select **Provide** a secure SSL certificate, and then click **Browse** to select the secure SSL certificate.

If you leave this check box cleared, HP OO uses the default self-signed certificate.

@	HP Operations Orchestration Installation Wizard	×
Central Server Co In this step, configure th	onnectivity he Central Server ports and SSL	Ŋ
Welcome License Location Options Central Cluster Connectivity Database Connection Register RAS Content Packs Upgrade Language Summary Installation Progress Finish	Connectivity Configure the Central Server port numbers and SSL properties HTTP B080 HTTP B080 Disable HTTP port (HTTPS 0H2) Provide a secure SSL certificate (when not provided, a self-signed certificate is used) Central SSL/TLS certificate (when not provided, a self-signed certificate is used) Central SSL/TLS certificate should be in PKCS12. Usually this is a file with a. pfx or .p12 extension. Consult your Certificate Authority for more details Central SSL/TLS Certificate password Confirm Password Confirm Password CA root certificate of the Central SSL/TLS certificate. The CA root certificate will be imported into the Central/RAS truststore. Browse The CA root certificate of the Central SSL/TLS certificate. The CA root certificate will be imported into the Central/RAS truststore. Do on start Central server after installation (Must be checked when you want to configure HP 00 to be compliant with FIPS 140-2.) Test ports availability	
🗼 Provide an SSL/TL	LS certificate <back next=""> Cancel</back>	

Note: Do not use a network path for the location of the certificates.

- d. Enter the Central SSL/TLS certificate password, and enter it again for confirmation.
- e. Click **Browse** to specify the location of the CA root certificate, which will be imported into the TrustStore for Central/RAS.

Browse	CA root certificate location (.crt or .cer file)	
e.	CA root certificate of the Central SSL/TLS certificate. The CA root certificate will be imported into the Central/F	

Note: Do not use a network path for the location of the certificates.

For more information about installing HP OO on a secured environment, see the HP OO Hardening Guide.

f. If you are configuring HP OO to be compliant with FIPS 140-2, select **Do not start Central** server after installation.

If you are installing a new Central in cluster mode and the installer version is older than the current Central, select the **Do not start Central server after installation** check box.

g. Click **Test ports availability**. If the ports are available, a **Success** check mark appears. If you encounter an error, adjust the ports accordingly.

- h. Click Next.
- 9. In the **Database Connection** step, configure and create the database schema.

Note: If you have user input in two languages apart from English (for example, German and Chinese) then MS SQL should not be used. You should use an alternative database such as Oracle, MySQL, or Postgres with the recommended Unicode configuration for HP OO.

()		HP Operations Orchestration Inst	tallation Wizard	×
	ection Configuration and create the database schema	1		(hp
Wetcome License Location Options Central Cluster Content Packs Upgrade Language Summary Installation Progress Finish	Database Type Oracle D	or, and enter the connection properties	✓	
🔺 The database co	onnection test must succeed		< Bai	k Next> Cancel

a. From the **Database Type** list, select the database vendor, and then enter the connection properties.

Note: When the **Connect to existing database/schema** option is selected, do not use administrative user accounts in the **Username** and **Password** fields, because this will install HP OO under the administrative account.

When the **Create the database/schema** option is used, provide a user with the relevant privileges in the **Admin username** and **Admin password** fields.

You can select from the following database types:

 Oracle: Do not use SYS, SYSTEM, or other administrative accounts credentials in the Username and Password fields.

- **Microsoft SQL Server**: Do not use **sa** or other administrative account credentials in the **Username** and **Password** fields.
- Oracle MySQL: Do not use the root credential in the Username and Password fields.
- **PostgreSQL**: Do not use the **postgres** credential in the **Username** and **Password** fields.

Note: PostgreSQL database names are case-sensitive.

- **Internal database**: This uses an H2 local database. This should not be used for production.
- Other database: (use to enable advanced features in supported databases). If you select Other database, you can only use a database type that is supported for use with HP OO. See "System Requirements" on page 47 for more information.

Note: The Other database option also supports any valid JDBC URL.

- b. After selecting the database type, select one of the following:
 - **Connect to existing database/schema**: Connect to an existing schema, user, or database. The installer verifies that the schema, user, or database exist.
 - Create the database/schema: Enables you to create a new database or schema. Information in the Database, Username and Password fields will be used in order to create the new schema, user, or database for HP OO.

Confirm the password by typing it again in the **Confirm Password** field.

Provide existing database user credentials in the **Admin username** and **Admin password** fields. This elevated-privileges user must be able to connect to the database and create the new schema, user, or database for HP OO.

c. Enter the hostname or IP address and other connection details.

Make sure to use the FQDN (Fully Qualified Domain Name).

If you want to use IPv6, put the IPv6 address in brackets, for example, [3fff::20]. Otherwise, errors will occur.

d. (For Oracle) Select either **SID** or **Service Name**, and enter the SID or service name of the database.

Note: If you are upgrading from a 9.x version that is installed on Oracle, you must enter

the SID of this database in the SID field, and not the database name.

e. Click **Test Connection**. If you are unable to connect to the database, you will not be able to proceed to the next steps in the wizard.

The installer checks for non-empty schemas/databases, and shows a warning message if the schema or database is not empty. If the installation fails during schema validation, the installation process is stopped.

Note: This test only verifies the connection between HP OO and the selected database, and does not verify the conditions required by the database, like the user's read/write permissions on the provided schema.

Note: For all the database vendors, if you select to create a new database, the created database uses **case-sensitive** collation as follows:

- MySQL: utf8_bin collation is used for the new database.
- Postgres: Case-sensitive by design. No need for specific settings. UTF-8 encoding is supported
- Oracle: Case-sensitive by default. No need for specific settings. UTF-8 encoding is supported.
- MS SQL: Use only the following database collations per your required language:
 - English: SQL_Latin1_General_CP1_CS_AS
 - Japanese: Japanese_Unicode_CS_AS
 - Simplified Chinese: Chinese_Simplified_Stroke_Order_100_CS_AS
 - German: SQL_Latin1_General_CP1_CS_AS
 - French: French_100_CS_AS
 - Spanish: SQL_Latin1_General_CP1_CS_AS

However, if you already have a database installed, HP OO creates the tables using the database specific collation. It is important to note that using other collations can cause characters to appear in gibberish in the user interface for localized installations. In addition, other collations are not officially supported in Microsoft SQL Server for localized installations.

If the installer is used in order to create a new SQL Server database, selecting your language in the language selection page sets the correct collation for the new database.

Using one of the above collations enables using the **varchar** datatype for textual columns instead of the **nvarchar** data type. Using the **varchar** data type is more efficient and reduces overall database size.

Selecting a specific language also means that an HP OO system that uses SQL Server is limited to the set of languages supported by that specific collation. For example, if the **SQL_Latin1_General_CP1_CS_AS** collation is used, English, German, and Spanish characters may be used, but Japanese characters may not. If **Japanese_Unicode_CS_AS** is used, French accent characters will not be presented properly. For the complete specification of each collation, see the Microsoft SQL Server documentation.

For more information about setting up the database schema, see the HP OO Database Guide.

10. If you are upgrading from HP OO version 9.x, you can set the upgrade settings in the **Upgrade** step.

If you select Upgrade from HP Operations Orchestration 9.x:

- a. From the **Upgrade source** list, select how to identify the 9.x installation.
- b. Enter the locations to the required files or paths, or the 9.x database properties, depending on the case.

This extracts and loads the system configuration information, such as users, LDAP, LWSSO, security data, system properties, and system accounts.

c. Click **Validate** to verify your 9.x version.

For more information about upgrading from HP OO 9.x, see *Upgrading to HP OO 10.x from* HP OO 9.x.

HP Operations Orch	nestration Installation Wizard	×
Upgrade from 9.	x	
In this step you can upg	rade settings from HP Operations Orchestration 9.x	
/elcome	HP Operations Orchestration 9.x Upgrade	
icense	Define the connection to the HP Operations Orchestration 9.x database	
ocation	Upgrade from HP Operations Orchestration 9.x	
ptions		
entral cluster	Upgrade source	
onnectivity	using 9.x database connection files Los Los Los Los Los Los Los Los Los Lo	
tabase connection		Browse
gister RAS		
ntent Packs	central-secured,properties	Browse
ograde	central.properties	Browse
-		
nguage	Validate	
mmary		
stallation Progress		
	<back next=""></back>	Cancel
	< Back Next>	Lancel

11. In the **Language** step, select a supported language for HP Operations Orchestration, in addition to English, and then click **Next**.

This language support will be used for:

- The MS SQL collation language, if relevant
- The **central-wrapper.conf** language for content. This language support may be required if, for example, you need to ping a server that is configured in Japanese.

Note: You can change the language support choice after installation, by editing the **central-wrapper.conf** file, located in the installation directory under **central/conf**.

HP Operations Or	chestration Installation Wizard	X
Language Selec	tion	
In this step, select a su	pported language for HP Operations Orchestration, in addition to English.	
Welcome	Language	
License	English only	
Location	© French	
)ptions	🔘 German	
entral cluster	⑦ Japanese	
onnectivity	© Simplified Chinese	
atabase connection	© Spanish	
egister RAS	© spansn	
ontent Packs		
pgrade anguage		
ummary		
stallation Progress		
	< Back Nex	t > Cancel
	< BdLK Nex	

12. The **Summary** page displays the installation and configuration settings that you selected and entered in the wizard. Check that the settings are correct. If you want to correct one of the items, click **Back**.

HP Operations On	chestration Installation Wizard	3
Summary	(h)	
Following is a summa	ry of the options entered in the wizard	
Welcome	Root Directory Location	Â
License	Root directory: C:\Program Files\Hewlett-Packard\HP Operations Orchestration	
Location Options	Option Selection Remote Action Server (RAS): Yes	
Central cluster	Central: Yes	
Connectivity	Central Cluster Configuration and Installation	
Database connection	Add a node to an existing Central cluster: No	
Register RAS		Ξ
Content Packs	Central Server Connectivity	
Upgrade	HTTPS: 8443	
Language	Provide a secure SSL Certificate (when not provided a self-signed certificate is used): No	
Summary	Database Connection Configuration	
Installation Progress	Database Type: Internal database (not for production usage)	
	Upgrade from 9.x	
	Upgrade from HP Operations Orchestration 9.x: No	
	Language Selection	
	English	Ŧ
	<back cancel<="" install="" th=""><th></th></back>	

13. Click **Install**. The installation begins, and the wizard displays a check mark next to each successfully installed item on the **Progress** page. When the installation is complete, click **Next**.

Note: If there is a problem with one of the installation or configured items, the installation attempts to continue with the rest of the items regardless of that error. Check the **installer.log** file, located in **C:\HP\oo** (or selected installation folder), to check for errors.

- 14. (Optional) In the **Finish** page, select **Open Welcome Page** to display the HP OO Welcome page in your default web browser, in the language that was selected on the **Language** page.
- 15. Click **Finish** to close the Installation and Configuration wizard.

Central is installed and menu shortcuts are created on your system. See "Starting HP OO" on page 41.

Installing HP OO Central Using the Installation Wizard (Linux)

There are three components that can be installed: Central, Studio, and RAS (optional). But note that Studio (the flow authoring tool) only works on Windows. So if you are installing HP OO on Linux, note that you will have to run the installer again on Windows, in order to install Studio.

For instructions about installing a RAS, see "Installing an HP OO RAS Server Using the Installation Wizard" on page 32.

For instructions about installing Studio, see "Installing HP OO Studio Using the Installation Wizard (Windows)" on page 34.

To install Central on Linux:

1. Download the ZIP file from the HP SSO Portal and extract it into a local drive on your computer.

To run the installer from the HP Operations Orchestration DVD, insert the DVD, and copy the installation file to a local drive on your computer.

Then, run this command from an X Window terminal:

bash installer-linux64.bin

- 2. To start the installer, double-click the installer-linux64.bin installation file.
- 3. After you start the installer, the installation package is extracted, and the **HP Operations Orchestration Installation and Configuration Wizard** automatically opens. Click **Next**.

🅼 12% Extracting		23
	Cancel	

- 4. In the License step, select I Agree, and then click Next.
- 5. In the Location step, select the location for the installation root directory, and then click Next.

If the directory does not exist, the directory is created automatically. You are prompted to confirm the creation of the new location.

Note:

Valid characters for the installation path are English letters, digits, spaces, hyphens (-) and

underscores (_).

The default path is /opt/hp/oo.

	hestration Installation Wizard
Root Directory L In this step, select the in	Location Installation root directory
Welcome License	Installation root directory Select the installation root directory
Location	Root directory /opt/hp/oo Browse
Options	
Central cluster Connectivity Database connection Register RAS Content Packs Upgrade Language Summary Instalation Progress Finish	Disk space requirements Available disk space: 94,14 GB Installation may require up to 4 GB.
	<back next=""> Cancel</back>

6. In the **Options** step, select **Central** and then click **Next**.

Note: You can install Central without setting up a RAS server. If you install a RAS Server, it is recommended that you install this on a separate server to Central. See "Installing an HP OO RAS Server Using the Installation Wizard" on page 32. See the *Architecture Guide* for more information.

7. In the **Central Cluster** step, you can add a node to an existing Central cluster. Clustering provides high availability and scalability to enhance throughput.

To create a cluster, run the Installation wizard the first time to create the first Central. Then run it again on the other machine to create the next node and, during this second installation, make it point to same database schema.

For more information about clustering, see "Configuring High Availability" in the *HP OO Architecture Guide*.

Central Cluster	Configuration and Installation		
In this step you can ad	d a node to a Central cluster		
elcome	Central Cluster		
ense	Add a node to an existing cluster. HP Operations Orchestration 10 Central cluster is a		d to
cation	configure an additional node to an existing cluster by importing the configuration fro	m an existing node.	
ptions	Add a node to an existing Central cluster	P	
entral cluster	Location of <existing-node-install-dir>/central/conf/database.properties</existing-node-install-dir>	Brows	
nnectivity	Location of <existing-node-install-dir>/central/var/security/encryption.properties</existing-node-install-dir>	Brows	
tabase connection	Location of <existing-node-install-dir>/central/var/security/encryption_repository</existing-node-install-dir>	Brows	e
gister RAS	Location of <existing-node-install-dir>/central/var/security/key.store (optional)</existing-node-install-dir>	Brows	e
ntent Packs	JDBC driver location	Brows	e
ograde	Required if you are using a MySQL database, or are upgrading an HP 00 9 installatio	n that uses MySQL.	
- Inguage			
mmary			
stallation Progress			
🔺 database.prope	rties is required	< Back Next > C	ancel

- 8. In the **Connectivity** step, configure the Central Server ports and SSL:
 - a. Configure two available ports for the Central Server in the **HTTP** and **HTTPS** fields. Default values (8080 and 8443) appear for each port, but you can change these.

Note: Configuring the ports is mandatory. If two ports are not defined, or if the ports are occupied by other applications, you will not be able to complete the installation.

b. (Optional) If you want to disable the HTTP port, select the **Disable HTTP Port** check box.

You might want to do this for security reasons, so that the only communication channel is on SSL and encrypted.

c. (Optional) You can import a secure SSL certificate. Select **Provide a secure SSL certificate**, and then click **Browse** to select the secure SSL certificate.

If you leave this check box cleared, HP OO uses the default self-signed certificate.

b	Н	P Operations Orchestration Installation Wizard	
Central Server Co In this step, configure th	onnectivity ne Central Server ports and SSL		(hp
Welcome License Location Options	Connectivity Configure the Central Server port n HTTP HTTPS	Imbers and SSL properties 8080 8443	
Central Cluster	Disable HTTP port (HTTPS only)		
Connectivity Database Connection Register RAS Content Packs Upgrade Language Summary Installation Progress Finish Provide an SSL/1	Central SSL/TLS certificate The SSL/TLS Certificate should be ir Usually this is a file with a .pfx or .pT Central SSL/TLS Certificate passwo Confirm Password CA root certificate location (.crt or .c	2 extension. Consult your Certificate Authority for more details d	Browse
	Do not start Centralserver after	installation (Must be checked when you want to configure HP 00 to be compliant with FIPS 1	

Note: Do not use a network path for the location of the certificates.

- d. Enter the Central SSL/TLS certificate password, and enter it again for confirmation.
- e. Click **Browse** to specify the location of the CA root certificate, which will be imported into the TrustStore for Central/RAS.

CA root certificate location (.crt or .cer file)	Browse
The CA root certificate of the Central SSL/	TLS certificate. The CA root certificate will be imported into the Central/RAS truststore.	

Note: Do not use a network path for the location of the certificates.

For more information about installing HP OO on a secured environment, see the HP OO Hardening Guide.

f. If you are configuring HP OO to be compliant with FIPS 140-2, select **Do not start Central** server after installation.

If you are installing a new Central in cluster mode and the installer version is older than the current Central, select the **Do not start Central server after installation** check box.

g. Click Test ports availability. If the ports are available, a Success check mark appears. If

you encounter an error, adjust the ports accordingly.

- h. Click **Next** to continue.
- 9. In the **Database Connection** step, configure and create the database schema.

Note: If you have user input in two languages apart from English (for example, German and Chinese) then MS SQL should not be used. You should use an alternative database such as Oracle, MySQL, or Postgres with the recommended Unicode configuration for HP OO.

D		HP Operations Orchestration Installati			
	nection Configuration				ПД
In this step, configur	e and create the database schem	3			
leicome	 Database Connection Prop 	erties			
icense	Select the database ven	lor, and enter the connection properties			
	Database Type Oracle D		v		
ocation		itabase/schema O Create the database/schema			
ptions	Connect to existing ut				
entral Cluster	Hostname or IP address				
onnectivity	Port	1521			
atabase	● SID	ORCL			
egister RAS	O Service Name	UNCE			
pgrade	Username				
anguage	Password				
stallation Progress	Test Connection				
	-				
A The determine	connection test must succeed			< Back Next >	Cancel

a. From the **Database Type** list, select the database vendor, and then enter the connection properties.

Note: When the **Connect to existing database/schema** option is selected, do not use administrative user accounts in the **Username** and **Password** fields, because this will install HP OO under the administrative account.

When the **Create the database/schema** option is used, provide a user with the relevant privileges in the **Admin username** and **Admin password** fields.

You can select from the following database types:

- Oracle: Do not use SYS, SYSTEM, or other administrative accounts credentials in the Username and Password fields.
- **Microsoft SQL Server**: Do not use **sa** or other administrative account credentials in the **Username** and **Password** fields.
- Oracle MySQL: Do not use the root credential in the Username and Password fields.
- **PostgreSQL**: Do not use the **postgres** credential in the **Username** and **Password** fields.

Note: PostgreSQL database names are case-sensitive.

- Internal database : This uses an H2 local database. This should not be used for production.
- Other database (use to enable advanced features in supported databases). If you select Other database, you can only use a database type that is supported for use with HP OO. See "System Requirements" on page 47 for more information.

Note: The Other database option also supports any valid JDBC URL.

- b. After selecting the database type, select one of the following:
 - **Connect to existing database/schema**: Connect to an existing schema, user, or database. The installer verifies that the schema, user, or database exist.
 - Create the database/schema: Enables you to create a new database or schema.
 Information in the Database, Username and Password fields will be used in order to create the new schema, user, or database for HP OO.

Confirm the password by typing it again in the **Confirm Password** field.

Provide existing database user credentials in the **Admin username** and **Admin password** fields. This elevated-privileges user must be able to connect to the database and create the new schema, user, or database for HP OO.

c. Enter the hostname or IP address and other connection details.

Make sure to use the FQDN (Fully Qualified Domain Name).

If you want to use IPv6, put the IPv6 address in brackets, for example, [3fff::20]. Otherwise, errors will occur.

d. (For Oracle) Select either SID or Service Name, and enter the SID or service name of the

database.

Note: If you are upgrading from a 9.x version that is installed on Oracle, you must enter the SID of this database in the **SID** field, and not the database name.

e. Click **Test Connection**. If you are unable to connect to the database, you will not be able to proceed to the next steps in the wizard.

The installer checks for non-empty schemas/databases, and shows a warning message if the schema or database is not empty. If the installation fails during schema validation, the installation process is stopped.

Note: This test only verifies the connection between HP OO and the selected database, and does not verify the conditions required by the database, like the user's read/write permissions on the provided schema.

Note: For all the database vendors, if you select to create a new database, the created database uses **case-sensitive** collation as follows:

- MySQL: utf8_bin collation is used for the new database.
- Postgres: Case-sensitive by design. No need for specific settings. UTF-8 encoding is supported
- Oracle: Case-sensitive by default. No need for specific settings. UTF-8 encoding is supported.
- MS SQL: Use only the following database collations per your required language:
 - English: SQL_Latin1_General_CP1_CS_AS
 - Japanese: Japanese_Unicode_CS_AS
 - Simplified Chinese: Chinese_Simplified_Stroke_Order_100_CS_AS
 - German: SQL_Latin1_General_CP1_CS_AS
 - French: French_100_CS_AS
 - Spanish: SQL_Latin1_General_CP1_CS_AS

However, if you already have a database installed, HP OO creates the tables using the database specific collation. It is important to note that using other collations can cause

characters to appear in gibberish in the user interface for localized installations. In addition, other collations are not officially supported in Microsoft SQL Server for localized installations.

If the installer is used in order to create a new SQL Server database, selecting your language in the language selection page sets the correct collation for the new database.

Using one of the above collations enables using the **varchar** datatype for textual columns instead of the **nvarchar** data type. Using the **varchar** data type is more efficient and reduces overall database size.

Selecting a specific language also means that an HP OO system that uses SQL Server is limited to the set of languages supported by that specific collation. For example, if the **SQL_Latin1_General_CP1_CS_AS** collation is used, English, German, and Spanish characters may be used, but Japanese characters may not. If **Japanese_Unicode_CS_AS** is used, French accent characters will not be presented properly. For the complete specification of each collation, see the Microsoft SQL Server documentation.

For more information about setting up the database schema, see the HP OO Database Guide.

10. If you are upgrading from HP OO version 9.x, you can set the upgrade settings in the **Upgrade** step.

If you select Upgrade from HP Operations Orchestration 9.x:

- a. From the **Upgrade source** list, select how to identify the 9.x installation.
- b. Enter the locations to the required files or paths, or the 9.x database properties, depending on the case.

This extracts and loads the system configuration information, such as users, LDAP, LWSSO, security data, system properties, system accounts.

c. Click **Validate** to verify your 9.x version.

For more information about upgrading from HP OO 9.x, see Upgrading to HP OO 10.x from HP OO 9.x.

HP Operations Orc	chestration Installation Wizard	23
Upgrade from 9	l.x	
In this step you can up	grade settings from HP Operations Orchestration 9.x	
Velcome	HP Operations Orchestration 9.x Upgrade	
icense	Define the connection to the HP Operations Orchestration 9.x database	
ocation	Vpgrade from HP Operations Orchestration 9.x	
ptions		
entral cluster	Upgrade source using 9.x database connection files	
onnectivity	using 9.x database connection files kad using 9.x installation directory on this machine	
atabase connection	JDBC driver location (required for MySQL only) manually configure 9.x database connection properties	Browse
legister RAS		
ontent Packs	central-secured.properties	Browse
pgrade	central.properties	Browse
anguage		
ummary	Validate	
istallation Progress		
istaliation Progress		
	< Back Next>	Cancel

11. In the **Language** step, select a supported language for HP Operations Orchestration, in addition to English, and then click **Next**.

This language support will be used for:

- The MS SQL collation language, if relevant
- The **central-wrapper.conf** language for content. This language support may be required if, for example, you need to ping a server that is configured in Japanese.

Note: You can change the language support choice after installation, by editing the **central-wrapper.conf** file, located in the installation directory under **central/conf**.

HP Operations Orc	hestration Installation Wizard	X
Language Selec	tion	
In this step, select a sup	oported language for HP Operations Orchestration, in addition to English.	
/elcome	Language	
icense	English only	
ocation	© French	
tions	🔘 German	
ntral cluster	© Japanese	
nnectivity	Simplified Chinese	
tabase connection		
gister RAS	Spanish	
ntent Packs		
grade		
nguage		
mmary		
stallation Progress		
	< Back	Next > Cancel

12. The **Summary** page displays the installation and configuration settings that you selected and entered in the wizard. Check that the settings are correct. If you want to correct one of the items, click **Back**.

HP Operations O	Orchestration Installation Wizard	Σ
Summary		
Following is a summa	ary of the options entered in the wizard	
lelcome	Root Directory Location	
icense	Root directory: Ct\Program Files\Hewlett-Packard\HP Operations Orchestration	
ocation		
Options	Option Selection	
Central cluster	Remote Action Server (RAS): Yes	
	Central: Yes	
Connectivity	Central Cluster Configuration and Installation	
Database connection	Add a node to an existing Central cluster: No	
Register RAS	Central Server Connectivity	
Content Packs	Central Server Connectivity HTTP: 8080	
Upgrade	HTTPS:8443	
Language	Provide a secure SSL Certificate (when not provided a self-signed certificate is used): No	
Summary		
Installation Progress	Database Connection Configuration	
	Database Type: Internal database (not for production usage)	
	Upgrade from 9.x	
	Upgrade from HP Operations Orchestration 9.x: No	
	Language Selection	
	Language Setection	
		Cancel
	< Back Install	Cancel

13. Click **Install**. The installation begins, and the wizard displays a check mark next to each successfully installed item on the **Progress** page. When the installation is complete, click **Next**.

Note: If there is a problem with one of the installation or configured items, the installation attempts to continue with the rest of the items regardless of that error. Check the **installer.log** file, located in **/HP/oo** (or selected installation folder), to check for errors.

- 14. (Optional) In the **Finish** page, select **Open Welcome Page** to display the HP OO Welcome page in your default web browser, in the language that was selected on the **Language** page.
- 15. Click **Finish** to close the Installation and Configuration wizard.

Central is installed and menu shortcuts are created on your system. See "Starting HP OO" on page 41.

Installing an HP OO RAS Server Using the Installation Wizard

- 1. Run the Installation Wizard for your operating system as described in "Installing HP OO Central Using the Installation Wizard (Windows)" on page 9 or "Installing HP OO Central Using the Installation Wizard (Linux)" on page 21.
- 2. In the Options step, select Remote Access Server (RAS), and then click Next.

HP Operations Orc	chestration Installation Wizard	
Option Selection	n 🍿	
In this step, select the F	HP Operations Orchestration components	
Welcome	Options	
License	Select components to install and configure	
Location	Remote Action Server (RAS)	
Options	Central	
Central cluster	Studio V Documentation	
Connectivity	☑ Java Runtime	
Database connection		
Register RAS		
Content Packs		
Upgrade		
Language		
Summary		
Installation Progress		
	< Back Next> Cancel	

3. In the **Register RAS** step, in the **Central URL** box, enter the properties and location of the Central.

Make sure to use the FQDN (Fully Qualified Domain Name) for the Central URL.

If you want to use IPv6, put the IPv6 address in brackets, for example, [3fff::20]. Otherwise, errors will occur.

Register RAS	
In this step you can	register the RAS with a Central server
Welcome	Central URL
License	
Location	Setup the Central URL (e.g. https://my.central.com:8443/00) Central URL
	Centratoric
Options	☑ Central user capable of registering a RAS (optional)
Central cluster	Username
Connectivity	Password
Database connection	
Register RAS	ITTP proxy definition for connecting to the Central (optional)
	Hostname
	Port
Language	Username
	Password
Installation Progress	
	Test connection
	Provide the CA root certificate of Central (when not provided, a self-signed certificate is used)
	CA root certificate location (.crt or .cer file) Browse
🔺 You must prov	vide the Central URL

- 4. (Optional) Select the **Central user capable of registering a RAS** check box and enter the user name and password of this user.
- 5. (Optional) Select the **HTTP proxy definition for connecting to the Central** and enter the HTTP proxy definition.
- 6. Click **Test Connection**.

Note: If you test the connection to a Central with a custom CA certificate without providing the certificate to the RAS, a java.Ing.RuntimeException error message will appear.

- If you are installing Central and a RAS at the same time, if you provided a certificate for Central, you must provide the root CA certificate for the RAS. This certificate will be imported to the RAS TrustStore:
 - a. Select the Provide the CA root certificate of Central check box.
 - b. Click **Browse** to select the relevant CA root certificate.
 - c. Click Test Connection.

If the default certificates were used in Central, you should leave this check box cleared, to automatically use the self-signed certificate.

Provide the CA root certificate of Central (when not provided, a self-sign	ned certificate is used)	
CA root certificate location (.crt or .cer file)		Browse

For more information about using SSL certificates, see the HP OO Hardening Guide.

- 8. If Central requires an X.509 certificate from the client, follow these steps:
 - a. Click the Provide an X.509 client certificate of the RAS check box. A UUID for the RAS is automatically generated.
 - b. Create the client certificate using this RAS UUID. The client certificate must be in PKCS format and must be with a .pfx or .p12 extension.
 - c. Click Browse to select the X.509 client certificate that you created.
 - d. Enter the password of the X.509 client certificate that you created.
 - e. Click Test Connection.

Provide an X.509 client certificate of the RAS (must be provided when Central requires an X.509 certificate from the client)			
Use the RAS UUID to generate an $\rm X.509$ client certificate with this principal	88a053ab-04aa-4938-a2ed-836cacabae37		
X.509 client certificate location (.p12 or .pfx file)	Browse		
X.509 client certificate password			

- 9. Click Next. A summary of the installation is displayed. Click Install.
- 10. Click **Finish** to complete the installation.

Installing HP 00 Studio Using the Installation Wizard (Windows)

This topic discusses how to install Studio on Windows via the Installation Wizard.

Note: Studio only works on Windows, so it cannot be installed on Linux.

For instructions about installing a RAS, see "Installing an HP OO RAS Server Using the Installation Wizard" on page 32.

For instructions about installing Central, see "Installing HP OO Central Using the Installation Wizard (Windows)" on page 9.

To install Studio:

1. Download the ZIP file from the HP SSO Portal and extract it into a local drive on your computer.

Note: To run the installer from the HP Operations Orchestration DVD, insert the DVD, and copy the installation file to a local drive on your computer.

- 2. To start the installer, double-click the **installer-win64.exe** installation file.
- 3. After you start the installer, the installation package is extracted, and the **HP Operations Orchestration Installation and Configuration Wizard** automatically appears. Click **Next**.

12% Extracting	-	23
	Cancel	

- 4. In the License step, select I Agree, and then click Next.
- 5. In the **Location** step, select the location for the installation root directory, and then click **Next**.

Note: The default path is C:\Program Files\Hewlett-Packard\HP Operations Orchestration. Valid characters for the installation path include English letters, digits, spaces, hyphens (-) and underscores (_).

If the directory does not exist, the directory will be created automatically. You are prompted to confirm the creation of the new location.

HP Operations O	Orchestration Installation Wizard	Σ
Root Directory	y Location	h
In this step, select th	he installation root directory	
letcome	Installation root directory	
icense	Select the installation root directory	
ocation	Root directory C:\Program Files\Hewlett-Packard\HP Operations Orchestration	Browse
ptions		
	Disk space requirements	
nnectivity	Available disk space: 127.38 GB	
tabase connection	Installation may require up to 4 GB.	
grade		
nguage		
tallation Progress		
	< Back Next >	Cancel

6. In the **Options** step, select Studio, and then click **Next**.

HP Operations Or	rchestration Installation Wizard	23
Option Selection	on	
In this step, select the	e HP Operations Orchestration components	
Welcome	Options	
License	Select components to install and configure	
Location	Remote Action Server (RAS)	
Options	Central	
Central cluster	Studio Tocumentation	
Connectivity	✓ Documentation ✓ Java Runtime	
Database connection		
Register RAS		
Content Packs		
Upgrade		
Installation Progress		
	< Back Next >	Cancel

7. In the Content Packs step, you can import an existing content pack. Browse to the location where

the content pack is located, and then click OK.

Note: The installation folder and DVD include the released content packs.

The available content packs located in the selected folder appear in the list. Select the content pack (or packs) that you want to import, and then click **Next**.

HP Operations Or	HP Operations Orchestration Installation Wizard		
Studio Content	t Packs		
Welcome	Content Packs Source Directory	C\Temploo-10.10-1100\content Browse	
License	Select Content Packs to deploy in Studio	Base (1.0.47)	
	Select content Packs to deploy in Studio	Base (1.0.47) Business Applications (1.0.38)	
Location		Cloud (1.0.37)	
Options		Cloud Orchestration (1.0.44)	
Central cluster		Databases (1.0.41)	
		HP Solutions (1.0.37)	
Connectivity		Infrastructure Orchestration (1.0.35) IT Operations (1.0.41)	
Database connection		Middleware (1.0.37)	
Register RAS		Operating Systems (1.0.36)	
		Utility Orchestration (1.0.35)	
Content Packs		Virtualization (1.0.36)	
Upgrade			
Language			
Summary			
Installation Progress			
Finish			
1 might			
	Find more content packs at <u>https://hpln.l</u>	hp.com/group/operations-orchestration-content-packs.	
		<back next=""> Cancel</back>	

Note: You can download additional and updated content packs on HPLN, using the link in the lower part of the wizard.

8. In the **Language** step, select a supported language for HP Operations Orchestration, in addition to English, and then click **Next**.

This language support will be used for the Studio UI.

Note: You can change the language support choice after installation, by editing the **Studio.properties** file, located in the installation directory under and **studio/conf**.

HP Operations Orc	hestration Installation Wizard	X
Language Selec	tion	
In this step, select a supported language for HP Operations Orchestration, in addition to English.		
elcome	Language	
cense	English only	
cation	© French	
otions	🔘 German	
ntral cluster	Ø Japanese	
nnectivity	Simplified Chinese	
tabase connection	© Spanish	
gister RAS ntent Packs	- share	
grade		
nguage		
mmary		
tallation Progress		
		Back Next > Cancel

- 9. The **Summary** page displays the installation and configuration settings that you selected and entered in the wizard. Check that the settings are correct. If you want to correct one of the items, click **Back**.
- 10. Click **Install**. The installation begins, and the wizard displays a check mark next to each successfully installed item on the **Progress** page. When the installation is complete, click **Next**.

Note: If there is a problem with one of the installation or configuration items, the installation attempts to continue with the rest of the items regardless of that error. Check the **installer.log** file, located in **C:\HP\oo** (or selected installation folder), to check for errors.

- 11. (Optional) In the **Finish** page, select **Launch Studio** to start Studio.
- 12. Click Finish to close the Installation and Configuration wizard.

Studio is now installed and menu shortcuts are created on your system.

Note: The minimum screen resolution for Studio is 1280x1024.

Installing HP 00 Silently

A silent installation is one that is started from the command line and completes without any input from the person who started it. There is no need to provide input through a wizard or dialog boxes. The silent installation receives its input from a text input file.

You can install and configure HP Operations Orchestration silently from a command line.

To install HP Operations Orchestration silently:

 Open the sample-silent.properties text file (located in the docs folder, under the HP OO installation folder and in the docs folder on the ZIP file), with the required installation and configuration settings.

For more details about these settings, see the descriptions in the **sample-silent.properties** text file.

- 2. Save a copy of the text file as silent.properties.
- 3. Remove the comment sign (#) from the properties that you need, and add the value for each of these properties.
- 4. From a command line, type the following:

installer-win64.exe -gm2 -s c:\\temp\my-silent.properties

To disable the extracting installation files progress bar, add to the command line -gm2 before -s.

Use the -n option if you don't want to start Central after the installation has completed.

Note: gm2 is not supported with Linux.

Note: The -s property accepts either a full or relative path depending on the operating system:

Windows: Relative to the location of the .exe file.

For example: dirA, is the current directory, and dirB, is located under dirA and contains the installer and the **silent.properties** file. Open a Command window in dirA and enter the following:

dirB\\installer.exe -s silent.properties

Important: Make sure you add two backslashes \\ and not one backslash \. The installation folder to which you download the installation file must not contain any spaces

in the name.

Linux: Relative to the location of the directory where the installer is launched.

Important Notes About Silent Installation

- Be careful not to put trailing spaces in your property values (especially when pasting). Otherwise, values that contain spaces at the end will not be read correctly and installation might fail.
- Oracle: Do not use SYS, SYSTEM, or other administrative account credentials in the db.username/db.password properties.
- PostgreSQL: Do not use postgres credentials in the db.username/db.password properties.

Note: PostgreSQL database names are case-sensitive.

- db.type=H2: This uses an H2 local database. This should not be used for production.
- db.type=other: Use to enable advanced features in supported databases. If you select **other**, you can only use a database type that is supported for use with HP OO. See the *System Requirements* for more information.
- Special characters, except the underscore (_), cannot be used for the database name or SID. In addition, you can enter up to 30 characters for the database name or SID.
- When you are upgrading from a remote 9.x Central that has localhost as the database in the **Central.properties file** using a silent installation, installation and upgrade do not complete successfully. This problem does not exist for wizard installations.
- All property values that contain a backslash ('\') in the **silent.properties** file need to be escaped (with a double-backslash instead of a single one).

Places where this might be needed:

- On Japanese environments, in all the paths given. In Japanese environments, the path separator is the Yen sign and it needs to be escaped. For example, C:¥¥folder
- For RAS installations with a LDAP user given in form of 'domain\user'. For example, domain\\user
- For a database user, if the database is set up with Windows system account authentication
- For any other user that contains a backslash in the name

Installing a Load Balancer

HP OO, it is possible to install any load balancing solution that you choose. This is a third party product, which is not part of HP OO.

For information about how to install your specific load balancer, see the documentation provided by your vendor.

For information about how to configure the load balancer, see "Configuring High Availability" in the *HP* OO Architecture Guide.

After you have configured the load balancer to your environment, check that your RASes point to the new load balancer URL or modify this accordingly. For more information on how to configure the RASes, see the *HP OO Architecture Guide*

Starting HP 00

Starting HP 00 on Windows

Starting Central

After Central is installed, the Central service on Windows is started automatically. Open a browser window, and enter the URL to the Central server that was set in the Installation and Configuration wizard.

For example:

http://<host>:8080/oo

https://<host>:8443/oo

Starting the Central service manually

If you need to start the Central service manually, the procedure is:

- 1. On the server that hosts HP OO, navigate to **Control Panel > Administrative Tools > Services**.
- 2. Start the HP Operations Orchestration Central service.

Starting Studio

From the Windows Start menu, select All Programs > HP Operations Orchestration > Studio.

Note: Make sure that the screen resolution is set to 1280x1024 or higher.

Starting the Studio wizards

Double-click the batch files, located under<installation folder>\studio\tools.

Starting RAS

After a RAS is installed, the Windows service is started automatically.

Starting HP 00 on Linux

Starting Central

After Central is installed, the Central service is started automatically.

In order to access the Central user interface from the Linux machine, you need an X server with a web browser installed. It can also be accessed from any machine that has access to the Linux server that you installed, using the Central URL.

Note: Make sure the Linux machine has the ports opened in the iptables.

Open a browser window, and enter the URL to the Central server that was set in the Installation and Configuration wizard.

For example:

http://<host>:8080/oo

https://<host>:8443/oo

Starting or stopping the Central service manually

To start or stop Central:

<Install-dir>/central/bin/central start

```
<Install-dir>/central/bin/central stop
```

Note: These scripts are located in the bin folder.

Starting RAS

To start or stop the RAS service:

<Install-dir>/ras/bin/ras start

```
<Install-dir>/ras/bin/ras stop
```

Backing Up and Recovering the Central Security Files

Some data on the database schema is encrypted and the keys for decryption are stored locally on the file system. If the file system becomes corrupted or deleted, the schema will be useless, because there will be no way to decrypt the data.

After installing HP OO, make sure to back up the **central\var\security** folder and the **central/conf/database.properties** file, so that it will be possible to recover from this scenario.

To recover:

- 1. Install a new Central with an existing schema. The installation will fail on the Start Central step.
- 2. Stop the Central service and verify that Central is not running.
- 3. Open the **central/var/security** folder.
- 4. Delete the credentials.store file, if it exists.
- 5. Override the **encryption_repository** and **encryption.properties** files with the backed up versions.
- 6. Override the central/conf/database.properties file with the backed up file.
- 7. Start the Central service.

Uninstalling HP Operations Orchestration

Before uninstalling HP OO, make sure to back up your version of HP OO.

Uninstalling HP 00 on Windows

- 1. In the HP OO installation directory, for example, C:\Program Files\Hewlett-Packard\HP Operations Orchestration, double-click uninstall.exe, and then click Next.
- 2. Select the HP OO components that you want to uninstall, and then click **Next**. When prompted whether to continue, click **Yes**.

Option Select)rchestration Uninstall Wizard	
n this step, select ti	e HP Operations Orchestration components	~//
lcome	Options	
tions	Select components to uninstall	
install Progress	Remote Action Server (RAS)	
	Central	
	V Studio	
		<pre><back next=""> Cancel</back></pre>

- 3. The Uninstall Progress screen displays the progress of the uninstall process, and displays the items that were deleted and removed. For example:
 - Central Service
 - Central directory
 - Studio directory
 - Uninstaller control panel programs

Note: The database and database user are not removed or dropped.

🇑 HP Operations (Drchestration Uninstall Wizard
Uninstall Prog	gress the selected components
Welcome	4 tasks out of 4 completed
Options Uninstall Progress	Central directory deleted successfully
	Studio directory deleted successfully
	Uninstaller control panel programs entry removed successfully
	< <u>B</u> ack <u>N</u> ext > <u>Finish</u>

4. Click Finish.

The selected components of HP Operations Orchestration are removed from your computer.

Note: Uninstalling a RAS/remote worker does not remove the entry from the database. You need to also remove the RAS from Central UI, by selecting the worker in the **Topology** > **Workers** tab and using the **Delete** button. For more information, see "Setting Up Topology – Workers" in the *HP* OO Central User Guide.

Uninstalling HP 00 on Linux

To uninstall HP Operations Orchestration in Linux, enter the following:

```
export DISPLAY=<ip address>
```

./uninstall

After the uninstall completes successfully, you can delete the installation directory.

Uninstalling HP 00 Silently

A silent uninstallation is one that is started from the command line and completes without any input from the person who started it. You can uninstall silently from either Windows or Linux.

To uninstall HP Operations Orchestration silently, type the following from a command line:

uninstall -s <components>

In the <components> placeholder, enter a comma-separated list of components to remove.

Possible components are: all, central, ras, and studio.

For example: uninstall -s central, ras

Note: When you uninstall a RAS silently, if Central authentication is enabled, the RAS is not removed from the Central topology. In Central, go to **System Configuration > Topology > Workers**, and remove the RAS from the topology manually.

System Requirements

This section describes the system requirements for HP OO 10.20.

Software Requirements

Software Requirements for Central and RAS

The Central application requires a dedicated database schema.

Component	Requirement
Supported operating	Microsoft Windows Server 2008 64 bit
systems	Microsoft Windows Server R2 2008 64 bit
	Microsoft Windows Server 2012 64 bit
	Microsoft Windows Server R2 2012 64 bit
	• RedHat Enterprise Linux 5.x 64 bit
	RedHat Enterprise Linux 6.x 64 bit
	Ubuntu 12.04.x LTS
Supported databases	Oracle 12c R1 (regular, non-CDB)
	Oracle 11g R2
	Oracle 11g R2 RAC
	Oracle MySQL 5.5.x
	• Oracle MySQL 5.6.x ¹
	PostgreSQL 9.1.x
	PostgreSQL 9.2.x
	PostgreSQL 9.3.x
	Microsoft SQL R2 Server 2008
	Microsoft SQL Server 2012

Supported browsers	Microsoft Internet Explorer 9.x, 10.x, 11.x (latest)
	Mozilla FireFox (latest + the two latest legacy versions)
	Google Chrome (latest + the two latest legacy versions)
	Recommended screen resolution: 1280x1024 or 1920x1080
.NET Framework	Microsoft .NET Framework 4.5 or later, full installation. This is also required for RAS installations.
Ports	Two ports must be available to configure for the Central Server (one for HTTP and one for HTTPS). The default values for these ports are 8080 and 8443, but you can specify different ports during installation.
	Note: It is also possible to change the ports after HP OO is installed. See "Changing or Closing the HTTP/HTTPS Ports" in the <i>HP OO</i> <i>Hardening Guide</i> .

Note: For MySQL 5.6.20 and 5.6.21, the requirements for the **innodb_log_file_size** have increased significantly.

Software Requirements for the Database Server

Operating system support for database servers is according to the recommendations of the database vendor.

Software Requirements for Studio

Component	Requirement
Supported operating	Microsoft Windows 8 64 bit
systems	Microsoft Windows 8.1 64 bit
	Microsoft Windows Server 2012 64 bit
	Microsoft Windows Server R2 2012 64 bit
	Microsoft Windows Server 2008 64 bit
	Microsoft Windows Server R2 2008 64 bit
	Microsoft Windows 7 64 bit
.NET Framework	Microsoft .NET Framework 4.5 or later, full installation.
	This is also required for debugging flows with .NET operations. If you don't have .NET 4.5, any flows or operations with .NET will be marked as invalid in Studio.
Service packs	Microsoft Visual C++ 2008 SP1 redistributable package (x86).
	You need to download and install the version for the x86 platform, regardless of your Windows version (for example, if it is Windows x64).
	http://www.microsoft.com/en-us/download/details.aspx?id=29

Note: The minimum screen resolution for Studio is 1280x1024.

Hardware Requirements

The hardware requirements described here are the minimal supported configuration.

Many customers may require more powerful hardware, depending on their load and usage of the system. In some cases, scaling out (adding nodes) is preferable to scaling up (stronger hardware).

Hardware Requirements for HP 00 Central and Database Servers

The minimum hard-drive space requirements differ depending on whether you install Central and the database on the same machine.

These requirements are for on-premise installations where the key components (central servers, RAS) are installed at the customer's site.

Component	Requirement per server (minimum)
CPU	3 Gigahertz (GHz) for single-processor systems or 2 GHz for multi- processor systems
	Database server:
	 According to the database vendor's recommendations and requirements, but no less than 2 CPU cores
	Central server:
	Minimum: 1 CPU core
	Recommended: 4 CPU cores
Memory (RAM)	Database server:
	As specified by the vendor, but no less than 4 Gigabyte (GB)
	Central server:
	Minimum: 2 GB
	Recommended: 4 GB

Hard-drive space	Database server:
	2 GB for HP OO installation and base content pack deployment
	Minimum of 48 GB for HP OO operations
	(minimum of 50 GB table space)
	Central server:
	• 2 GB

For off-premise installations, where the key components are installed on a cloud-based virtualized machine, the hardware requirements are:

- Central/RAS: For Cloud systems, an extra small machine
- Database: According to the database vendor's recommendations and requirements, but no less than a small machine.

Hardware Requirements for RAS Installations

Component	Requirement (minimum)
CPU	2 GHz for single- or multi-processor systems
	Minimum: 1 CPU core
	Recommended: 4 CPU cores
Memory (RAM)	1 GB
Hard-drive space	2 GB (this includes room for the flows and operations that are included in the installation)

Hardware Requirements for the Central Client

Web client machines for Central must meet the minimum hardware requirements for their web browser.

Hardware Requirements for HP 00 Studio Installed on its Own Machine

Machines on which you install Studio must meet the minimum hardware requirements for their web browser or the following, whichever is higher.

	Component	Requirement (minimum)	
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CPU	2 Gigahertz (GHz) for single- or multi-processor systems
	1 CPU core
Memory (RAM)	2 GB (this is the amount of memory that the Studio process requires)
Hard-drive space	4 GB (this includes room for the flows and operations that are included in the installation)

Virtual Systems

Installation of the HP OO components on guest systems hosted by the following hypervisors is supported, as long as the guest systems meet the requirements described in this *System Requirements* document:

- VMware ESX Server, version 3.x or later
- Microsoft Hyper-V (for all supported Windows versions)

Cloud Deployments

HP Operations Orchestration can be installed on cloud computer units. On HP Cloud Services, the server components (Central, RAS) require a small machine, and the database should follow the database vendor's recommendations and requirements, but no less than a small machine.

Appendix

Changing the Database Settings	
Using JRE From OpenJDK 7	

Changing the Database Settings

After installation, if you need to generate an encrypted password for the database, you can do this in the **<install_dir>/central/conf/database.properties** file.

For more information, see "Changing the Database Password" in the HP OO Administration Guide.

Using JRE From OpenJDK 7

If you want to use the JRE from the OpenJDK 7 project, instead of the standard JRE that was provided in your HP OO installation, you can do so using the following procedure.

Note: The OpenJDK you use must be for Java SE 7.

The upgrade to HP OO 10.10 replaces the installed JRE. Therefore, the procedure must be done after upgrading to 10.10.

- 1. Stop Central/RAS and close Studio.
- 2. Back up and delete the **java** directory under the main HO OO installation directory.
- 3. Locate the **jre** directory in your OpenJDK package. Copy it to the HP OO installation directory and rename it to **java**.
- 4. Restart Central/RAS.



