



Operations Bridge Analytics

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Installation Guide

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Chapter 1: About this Guide

Read this guide to understand the concepts required to install Operations Bridge Analytics most effectively.

Note: This manual includes examples that show script usage, command line usage, command line syntax, and file editing. If you copy and paste any examples from this manual, carefully review the results of your paste before running a command or saving a file. Be careful when copying code with the hyphen (-) character, as it is sometimes changed to a similar character and no longer recognized by tools as specifying an option.

Environment Variables

The installation and configuration instructions for the Operations Bridge Analytics software, including the Operations Bridge Analytics Server and the Operations Bridge Analytics Collector host, refer to the following environment variables and other useful directories . The environment variables are set automatically for the opsa user who can use all Operations Bridge Analytics functionality, and has access to data at the tenant level. See *Manage Users and Tenants* in the *Operations Bridge Analytics Help* for more information.

Table 1: Environment Variables

Variable Name	Path	Operations Bridge Analytics Server, Operations Bridge Analytics Collector host
OPSA_HOME	/opt/HP/opsa	Operations Bridge Analytics Server and Collector hosts
JAVA_HOME	/opt/HP/opsa/jdk	Operations Bridge Analytics Server and Collector hosts

Table 2: Other Useful Directories

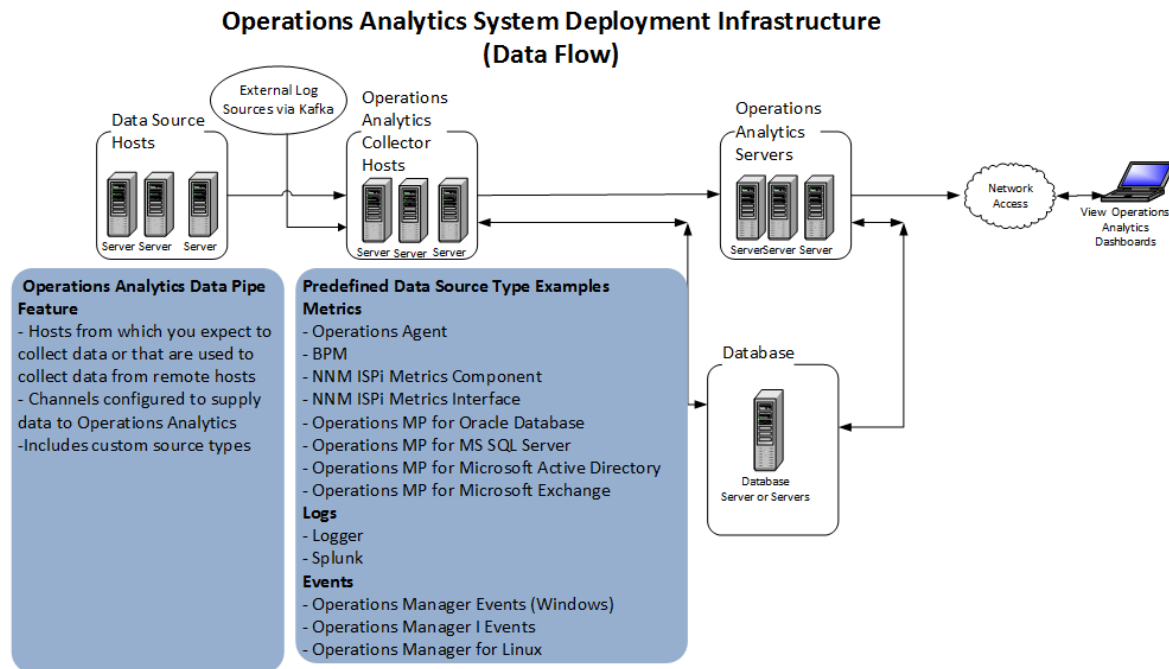
Folder Name	Path	Operations Bridge Analytics Server, Operations Bridge Analytics Collector Host
JBOSS Home Directory	/opt/HP/opsa/jboss	Operations Bridge Analytics Server
JDK Folder	/opt/HP/opsa/jdk	Operations Bridge Analytics Server and Collector hosts
scripts Folder	/opt/HP/opsa/scripts	Operations Bridge Analytics Server and Collector hosts
conf Folder	/opt/HP/opsa/conf	Operations Bridge Analytics Server and Collector hosts
data Folder	/opt/HP/opsa/data	Operations Bridge Analytics Server and Collector hosts
log Folder	/opt/HP/opsa/log	Operations Bridge Analytics Server and Collector hosts
lib Folder	/opt/HP/opsa/lib	Operations Bridge Analytics Server and Collector hosts
bin Folder	/opt/HP/opsa/bin	Operations Bridge Analytics Server and Collector hosts

Table 2: Other Useful Directories, continued

Folder Name	Path	Operations Bridge Analytics Server, Operations Bridge Analytics Collector Host
Vertica Database Installation Folder	/opt/vertica	Operations Bridge Analytics Server and Collector hosts have the Vertica client installed in this folder
Operations Agent	/opt/OV	Operations Bridge Analytics Server and Collector hosts

Deployment use cases

Review the information shown in the following diagram to begin understanding the data Source Types supported by Operations Bridge Analytics, how Operations Bridge Analytics components are configured together, and to understand what the data flow among Operations Bridge Analytics components looks like to better plan your Operations Bridge Analytics installation. After installation, add to the initial information being collected by adding more Data Source Types.



Chapter 2: Pre-installation tasks

The following section provides an overview of the Operations Bridge Analytics installation environment.

This section includes:

- ["Overview of OBA components" below](#)
- ["Collection Source Types" on the next page](#)
- ["Overview of installation workflow" on page 10](#)
- ["Operations Bridge Analytics Port Mapping" on page 12](#)

Meet the hardware and software requirements

See the *Operations Bridge Analytics Requirements and Sizing Guide* for the hardware and operating system requirements for Operations Bridge Analytics.

Overview of OBA components

The distributed version of Operations Bridge Analytics discussed in this manual is made up of the following main components:

- **Operations Bridge Analytics Server:**
 - Provides the business logic and presentation capabilities of Operations Bridge Analytics.
 - Deployed as a server installation.
 - Operations Bridge Analytics can have one or more Operations Bridge Analytics Servers, depending on the amount of users the system needs to support.
 - The server is JBoss-based.
- **Operations Bridge Analytics Collector Host:**
 - Connects to the different data Source Types and aggregates the data collected from them.
 - This data is pushed to the Operations Bridge Analytics Database.
 - Deployed as a server installation.
 - Operations Bridge Analytics can have one or more Operations Bridge Analytics Collector hosts,

depending on the data Source Types to which the system is connected.

- Your installed collectors form a Kafka cluster. If your cluster consists of more than one collector, the replication factor is set to two by default. This means that the cluster can handle the loss of one collector. However, the cluster cannot operate anymore if, for example, more than one of your collectors are down due to maintenance. If, in that case, the collectors cannot be recovered, you must take disaster recovery actions. For more information, see the *OBA User Guide* or *Online Help*.

- **Operations Bridge Analytics Database:**

- A Vertica database is used to support the big data analysis requirements of Operations Bridge Analytics.
- An existing Vertica database installation can be used. The Operations Bridge Analytics database (opsadb) needs to be created on it.
- A dedicated Vertica database can also be installed as part of Operations Bridge Analytics. In this case the Operations Bridge Analytics database (opsadb) will be created during the process.

Note: Although this document refers to the Vertica database name for Operations Bridge Analytics as opsadb, you can choose a different name when creating this database.

Collection Source Types

Data from the data Source Types is brought into Operations Bridge Analytics using the Operations Bridge Analytics Collector host.

These Source Types include:

- **BSM Portfolio metric collectors:** Operations Bridge Analytics supports data collection from several BSM sources. These include Operations Manager (OM), OMi (Operations Manager i), Network Node Manager (NNMi), NNM iSPI Performance for Metrics, SiteScope, Business Process Monitor (BPM), and RTSM.
- **Log Sources:** Operations Bridge Analytics supports the following log collectors Source Types:
 - **ArcSight Logger Server:**
 - This optional approach involves connecting Operations Bridge Analytics with an ArcSight Logger server to bring in log data.

- The server retrieves data from agents that are located on different machines in the IT environment. These agents include (but are not limited to) SmartConnectors and Flex Connectors, which provide access to different types of logs.
- **Splunk:** Integrating with this software application can also be used as a source of log files.
- **Custom Collections:** These collections can be leveraged to support data collection from additional Source Types. See the [OBA 3.0 White Paper for Kafka Log File Processing](#).

Overview of installation workflow

The information in this section gives you a high level overview of what will be done when setting up an Operations Bridge Analytics system.

System setup includes the following steps:

1. Installation:

- Install the Vertica Database (*optional* - you can connect to an existing Vertica instance).
- Install the Operations Bridge Analytics Server (*mandatory*).
- Install the Operations Bridge Analytics Collector host (*mandatory*).

2. Post-Install Configuration

- Connect the Operations Bridge Analytics Servers to the Vertica Database.
- Connect the Operations Bridge Analytics Collector host to the Vertica Database.
- Configure passwords for the default Operations Bridge Analytics users (opsatenantadmin, opsaadmin, and opsa); this is important for securing the system.

3. Configure Collection Sources:

You might configure one or more of the following collection sources following a successful installation. See *Using the Collections Manager to Manage Source Types* in the *Operations Bridge Analytics Help* for more information.

- Configure the connection to several BSM data Source Types to collect metrics. Note that collection configuration creates a link between the Operations Bridge Analytics Server and the Operations Bridge Analytics Collector host.
- Configure a Log Integration to collect and ingest logs. For details, see the Operations Bridge Analytics Help and the [OBA 3.0 White Paper for Kafka Log File Processing](#).

- Configure collections from additional data Source Types using the custom collection capabilities.

Plan your Deployment

While OBA3.01 is delivered as a patch, it should be installed on a fresh system.

Use the following checklist to prepare for installing and configuring Operations Bridge Analytics:

1. Ensure that the required **dialog** packages are installed on the hosts you plan to use for the Vertica Database you plan to use for Operations Bridge Analytics:

- a. You should see output from the following command:

```
rpm -qa | grep dialog
```

- If you run this command on a server running RH6.7, you should see a result similar to the following:

```
dialog-1.1-9.20080819.1.el6.x86_6
```

- If you run this command on a server running RH7.x, you should see a result similar to the following:

```
dialog-1.1-9.20080819.1.el6.x86_6
```

- b. If you do not see any result from the previous command, you do not have a **dialog** package installed. You must install it before continuing.

Depending on your configuration you might be able to install it using a command similar to the following:

```
yum install dialog
```

2. For the instructions in this manual, use the information in "[Available Downloads for Operations Bridge Analytics3.01](#)" on the next page to obtain the installation packages.

Note: All installation files must be owned by the root user.

- a. Download OPSA_00010.zip from [Software Support Online \(SSO\)](#). Extract the archive. The following table shows the content of the archive and the purpose. For a fresh installation, start with the installation of the Vertica database.

Available Downloads for Operations Bridge Analytics3.01

Download File Name	Purpose
HPE_OpsA_3.01_Analytics_Installation.zip	Operations Bridge Analytics Linux Installations
HPE_OpsA_3.01_Vertica_Installation.zip	Operations Bridge Analytics Vertica Installations

3. Review the prerequisites to install Operations Agent in [Operations Agent 12.01](#) and [Operations Smart Plug-ins for Infrastructure Installation Guide](#).

Operations Bridge Analytics Port Mapping

The well-known network ports described in the section need to be open in a secured environment for Operations Bridge Analytics to be able to function and collect data from the data Source Types you configured or plan to configure.

The Operations Bridge Analytics Server and Collector hosts, as well as data sources configured in the Data Source Manager, must be installed on the same subnet with full network access among them. Operations Bridge Analytics also uses a Vertica database for big data storage. You might install and deploy this component as part of your Operations Bridge Analytics deployment, or you might choose to connect to an existing instance of this component that currently exists in your environment. If you deploy this component as part of Operations Bridge Analytics it will typically reside on the same subnet with no network restrictions between OBA and Vertica. If you choose to leverage your existing component instance, you must enable communication using information from the table shown below.

The communication ports shown in "[Well-Known Port Mapping \(Sources External to Operations Bridge Analytics\)](#)" on the next page must be open on any firewall in the path between the Operations Bridge Analytics Server and Collector hosts and all of the data collectors, in the direction listed within the table. The Operations Bridge Analytics Server validates the communication to the data collectors before creating a collection. The Operations Bridge Analytics Collector host needs these open communication ports so it can collect data.

Note: In the tables shown in this section, the hosts shown in the **Open To** column listen on the port or ports shown in the **Port** column and the hosts shown in the **Open From** column initiate connections to the port or ports shown in the **Port** column.

Note: In the tables shown in this section, the listed connection type is TCP unless otherwise noted.

External traffic is the traffic coming into Operations Bridge Analytics Server and Collector hosts from a client that is not an Operations Bridge Analytics Server or an Operations Bridge Analytics Collector host. The communication ports shown in "[Well-Known Port Mapping \(Sources External to Operations Bridge Analytics\)](#)" below lists the ports used to transmit data between non-Operations Bridge Analytics hosts to an an Operations Bridge Analytics Server or an Operations Bridge Analytics Collector host.

Well-Known Port Mapping (Sources External to Operations Bridge Analytics)

Port	Open From	Open To	Comments
80, 1098, 1099, 2506, 2507, 29602, 21212	Operations Bridge Analytics Server and Collector hosts	BSM Data Processing Server	Operations Bridge Analytics collects BPM data from the BSM Data Processing Server and not directly from BPM.
137, 138, 139, 445	Operations Bridge Analytics Collector hosts	NNM iSPI Performance for Metrics and NNMi Custom Poller	Operations Bridge Analytics uses SMB protocol to mount a CSV data directory on the NNMi system to the Operations Bridge Analytics Collector host. Because of this mounted data directory, SMB ports must be open.
381-383	Operations Bridge Analytics Server and Collector hosts	Operations Agent (OM Performance Agent and Database SPI)"	
443 or 9000	ArcSight Connectors, Operations Bridge Analytics, Operations Bridge Analytics Server and Collector hosts	HPE ArcSight Logger	You can configure this port in HPE ArcSight Logger. By default, if installed as a privileged user, it is 443, otherwise, it is 9000. The OBA default installation uses port 443.
1433, 1521	Operations Bridge Analytics Server and Collector hosts	Database host used by OM or OMi	1433 if using MSSQL, 1521 if using Oracle. This port might have been changed by the OM or OMi database administrator.
514 UDP and 515 TCP	Managed System (the system initiating the syslog messages)	Operations Bridge Analytics	
4888	Operations Bridge Analytics	Operations Bridge Analytics Collector host	.

Well-Known Port Mapping (Sources External to Operations Bridge Analytics), continued

Port	Open From	Open To	Comments
4447, 9990	Operations Bridge Analytics Server		JBOSS server ports
5433	Operations Bridge Analytics Server and Collector hosts	Vertica	The default Vertica port is 5433. This default value can be changed by the Vertica administrator.
8080	Web browsers on client devices that access the Operations Bridge Analytics console	Operations Bridge Analytics Server	Web browsers connect to the 8080 port using HTTP (non-SSL) to the Operations Bridge Analytics Server to access the Operations Bridge Analytics console. (<a href="http://<Operations Bridge Analytics Server>:8080/opsa">http://<Operations Bridge Analytics Server>:8080/opsa)
8080	Operations Bridge Analytics Server and Collector hosts	SiteScope	OBA communicates with SiteScope. This port might have been configured differently by the SiteScope administrator. Note: Although the default port 8080 is shown here, your SiteScope application might be using some other port.
8089	Operations Bridge Analytics Server and Collector hosts	Splunk	Used if Splunk is used instead of Logger.
8443 (https) 21212 (http)	Operations Bridge Analytics Server and Collector hosts	RTSM Inventory on the BSM Data Processing Server	
9443	SiteScope server	Operations Bridge Analytics Server and Collector hosts	This port is the default port of a SiteScope integration instance and can be changed by the SiteScope administrator.

Internal traffic is the traffic between Operations Bridge Analytics Servers and the Operations Bridge Analytics Collector hosts. The communication ports shown in "[Well-Known Port Mapping \(Sources Internal to Operations Bridge Analytics\)](#)" on the next page lists the ports used to transmit data among

Operations Bridge Analytics Server and Collector hosts. It works better to disable any firewalls between the Operations Bridge Analytics Servers and Operations Bridge Analytics Collector hosts. Each port listed in this table should be opened in both directions (send from it and receive to it).

Note: It works better to disable any firewalls between the Operations Bridge Analytics Server and Collector hosts. However, if a firewall is enabled, open the ports shown in "[Well-Known Port Mapping \(Sources Internal to Operations Bridge Analytics\)](#)" below.

Well-Known Port Mapping (Sources Internal to Operations Bridge Analytics)

Port	Open From	Open To	Comments
381-383	Operations Bridge Analytics Server and Collector hosts	Operations Bridge Analytics Server and Collector hosts	Used by local OM performance agents.
2181	Operations Bridge Analytics Server and Collector hosts	Operations Bridge Analytics Server	Any data flow that uses Apache Zookeeper within Operations Bridge Analytics.
2888, 3888	Operations Bridge Analytics Server and Collector hosts	Operations Bridge Analytics Server	Zookeeper leader election and peer ports.
4242	Clients connection to Apache Storm (used internally by Operations Bridge Analytics)	Operations Bridge Analytics Server	Clients connecting to Apache Storm.
6627	Operations Bridge Analytics Server and Collector hosts	Operations Bridge Analytics Server	Apache Storm Nimbus thrift port.
6700-6703	Operations Bridge Analytics Server and Collector hosts	Operations Bridge Analytics Collector hosts	Apache Storm Nimbus worker ports.
9443	Operations Bridge Analytics Server and Collector hosts	Operations Bridge Analytics Collector hosts	Used by the Operations Bridge Analytics

Well-Known Port Mapping (Sources Internal to Operations Bridge Analytics), continued

Port	Open From	Open To	Comments
			Server to register Operations Bridge Analytics Collector hosts.

Installing Operations Bridge Analytics in Non-Default Locations

OBA uses specific file paths during installation. If you want to install Operations Bridge Analytics using different file paths to meet your company's needs, use the information shown in ["Default Installation Paths" below](#) to set up symbolic links before installing Operations Bridge Analytics.

Default Installation Paths

Server or Collector	Path to Folder (used during installation)	Purpose of Path
Server and Collector	/opt/HP or /opt/HP/opsa	This folder contains the Operations Bridge Analytics software application files.
Server and Collector	/opt/HPE	This folder contains the task server files for Operations Bridge Analytics.
Server and Collector	/opt/OV	This folder contains the Operations Agent application files. This application is delivered with Operations Bridge Analytics.
Server and Collector	/opt/perf	This folder contains the performance tools software application files.
Server and Collector	/opt/vertica	This folder contains the access tool for the Vertica database.

Default Installation Paths, continued

Server or Collector	Path to Folder (used during installation)	Purpose of Path
Server and Collector	/var/opt/OV	This folder contains Operations Agent data.
Server and Collector	/var/opt/perf	This folder contains data for the performance tools.
Collector	/opt/HP or /opt/HP/BSM	This folder contains the Operations Bridge Reporter (OBR) software application files. All Operations Bridge Analytics documentation refers to OBR as the HPE Embedded Collector.

Chapter 3: Installation Workflow

This chapter guides you through the process of installing and configuring Operations Bridge Analytics. Complete the main tasks shown below:

1. ["Obtain Licenses" below](#)
2. ["Install and Configure the Vertica software" below](#)
3. ["Install the Operations Bridge Analytics Server Software" on page 21](#)
4. ["Install and configure the OBA collector software" on page 22](#)

Obtain Licenses

After purchasing Operations Bridge Analytics, you will need to download two licenses, one each for Operations Bridge Analytics and Vertica, and apply these licenses later. To obtain your licenses, do the following:

1. Using your browser, navigate to the licensing link shown in the license email you received (<http://www.hpe.com/software/entitlements>).
2. Log on using **HPE Passport** credentials.
3. When prompted, enter your order numbers.
4. Follow the instructions to download and apply your Operations Bridge Analytics and Vertica licenses.

Proceed to the next step: ["Install and Configure the Vertica software" below](#)

Install and Configure the Vertica software

Vertica is the database in which Operations Bridge Analytics stores configurations and collected data.

Installing a New Vertica

To install and set up a new Vertica database, do the following (if you want to use an existing Vertica, see "[Use an Existing Vertica](#)" below):

1. Install Vertica on every node using the Vertica version 8.0.1 delivered with Operations Bridge Analytics. For the installation instructions and information about the prerequisites, see the [Vertica installation manual](#). The documentation includes information about the supported operating systems, known issues, the required kernel parameters, the file system type, multi-node clustering, setting and changing the default password, and so on.
2. Run the following commands on the first node of every cluster:

```
export CONFIG_LOCATION=/opt/vertica/opsa_data
export DATA_LOCATION=/opt/vertica/opsa_data
export DBADMIN_PWD=<password_dbadmin>
export instance_name=opsadb

mkdir -p $DATA_LOCATION $CONFIG_LOCATION /opt/vertica/log

chown -R dbadmin:verticadba /opt/vertica/log $DATA_LOCATION $CONFIG_LOCATION

/opt/vertica/sbin/install_vertica --license CE --accept-eula --dba-user-
password $DBADMIN_PWD ----hosts <node1>,<node2>,<node3>
```

3. On one of the nodes, create the OBA database as the dbadmin user:

```
export CONFIG_LOCATION=/opt/vertica/opsa_data
export DATA_LOCATION=/opt/vertica/opsa_data
export DBADMIN_PWD=<password_dbadmin>
export instance_name=opsadb

admin tools -t create_db -D $DATA_LOCATION -c $CONFIG_LOCATION -d $instance_name
-p $DBADMIN_PWD -s <node1>,<node2>,<node3> --policy=always
```

Replace <node1>, <node2>, and <node3> with the hostnames of the Vertica cluster nodes.

Use an Existing Vertica

If you want to use an existing Vertica installation, do the following:

Run the following command as the dbadmin user to create and start opsadb:

```
/opt/vertica/bin/adminTools -t create_db -d opsadb -p dbadmin ----hosts=<List of Vertica nodes delimited by comma>
```

You can now use your existing Vertica software. There is no need to install the Vertica application included with OBA. Continue with "[Completing Other Steps after Installing Vertica](#)" below.

Completing Other Steps after Installing Vertica

Stabilizing the Vertica Connection when a Firewall is Enabled

The connection between the Vertica server and the client can be prematurely terminated by a firewall timeout. Examples of these clients with regards to Operations Bridge Analytics involve any connections from either the Operations Bridge Analytics Server or the Operations Bridge Analytics Collector hosts. This could happen when a long-running query is in progress but no data is being passed back to the client, or when the Operations Bridge Analytics internal connection pool is in an idle state and the firewall timeout is less than the TCP KEEPALIVE setting on the database server.

Note: On some Linux distributions, the default KEEPALIVE setting is 2 hours or 7200 seconds.

One possible solution would be to change the KEEPALIVE setting to a value lower than the firewall timeout. The following command is only an example of how to use the commands, so substitute different values to meet your needs. In the following example, you would run this command on each Vertica node to set the KEEPALIVE setting to 10 minutes (600 seconds): `echo 600 > /proc/sys/net/ipv4/tcp_keepalive_time`

Considering this example, you might do the following on the Vertica server, the Operations Bridge Analytics Server, and the Operations Bridge Analytics Collector host to save these values in the case of these servers resetting. Remember that the values used in the following steps are only there as an example. You must substitute different values to meet your needs:

1. Edit the `/etc/sysctl.conf` file.
2. Append the following lines to the end of the file you are editing:

```
net.ipv4.tcp_keepalive_time = 300
net.ipv4.tcp_keepalive_intvl = 60
net.ipv4.tcp_keepalive_probes=20
```
3. Save your work.
4. Run the following command as the root user: `sysctl -p`

Database Load Balancing

Operations Bridge Analytics supports native resource load balancing to improve performance. To enable this native resource load balancing, run the following command as the Vertica dbadmin user: `/opt/vertica/bin/vsql -U dbadmin -c "SELECT SET_LOAD_BALANCE_POLICY ('ROUNDROBIN');"`

[Take me to the next step](#)

Install the Operations Bridge Analytics Server Software

You can install the Operations Bridge Analytics Server software on a supported server.

Note: This process installs the Operations Agent 12.01 on the Operations Bridge Analytics Server. This Operations Agent installation includes permanent licenses for the Operation Agent, Performance Agent (perfd), and Glance software applications. There must not be any version of the Operations Agent pre-installed on the system. If an agent version is already installed, remove it prior to Operations Bridge Analytics installation.

Install the OBA server software on a supported server

Complete the following steps to deploy Operations Bridge Analytics on a server (Operations Bridge Analytics Server).

Note: HPE recommends that you install OBA on a server that has a fresh operating system installed with no other software applications installed, such as Operations Agent. If you do install OBA on a VM or server having additional software installed, it is recommended that you create a snapshot of the VM or a backup of the server before proceeding.

1. Extract the `HPE_OpsA_3.01_Analytics_Installation.zip` file to a local directory. Navigate to that directory. See ["Plan your Deployment" on page 11](#) for more information.

Note: Do not install Operations Bridge Analytics from the `/tmp` directory.

2. As the root user, run `bash ./opsa_3.01_setup.bin` from the directory to which you extracted the product files.

Note: OBA uses specific file paths during installation. If you want to install Operations Bridge Analytics using different file paths to meet your company's needs, see "[Installing Operations Bridge Analytics in Non-Default Locations](#)" on page 16 for more information.

3. When prompted, specify that you are installing the Operations Bridge Analytics Server.
4. Follow the interactive prompts to complete the installation.

Installer Troubleshooting

The OBA Linux installer requires full access to the default temporary directory (the `/tmp` directory). If this directory is restricted in any way (for example because of security requirements) you should choose a different temporary directory with full access before running the installer.

Proceed to the next step: "[Install and configure the OBA collector software](#)" below

Install and configure the OBA collector software

You can install the Operations Bridge Analytics Collector software on a supported server.

Your installed collectors form a Kafka cluster. If your cluster consists of more than one collector, the replication factor is set to two by default. This means that the cluster can handle the loss of one collector. However, the cluster cannot operate anymore if, for example, more than one of your collectors are down due to maintenance. If, in that case, the collectors cannot be recovered, you must take disaster recovery actions. For more information, see the *OBA User Guide* or *Online Help*.

Note: This will install the Operations Agent 12.01 on the Operations Bridge Analytics Collector host. This Operations Agent installation includes permanent licenses for the Operation Agent, Performance Agent (Perfd), and Glance software applications. There must not be any version of the Operations Agent pre-installed on the system. If an agent version is installed already, remove it prior to Operations Bridge Analytics installation.

Install the collector software on a supported server

Complete the following steps for each Operations Bridge Analytics Collector host you plan to install.

Note: HPE recommends that you install OBA on a server that has a fresh operating system installed with no other software applications installed, such as Operations Agent. If you do install OBA on a VM or server having additional software installed, it is recommended that you create a snapshot of the VM or a backup of the server before proceeding.

1. Extract the `HPE_OpsA_3.01_Analytics_Installation.zip` to a local directory. Navigate to that directory. See ["Plan your Deployment" on page 11](#) for more information.
2. As the root user, run `bash ./opsa_3.01_setup.bin` from the directory to which you extracted the product files (completed in Task 1).

Note: Do not install Operations Bridge Analytics from the `/tmp` directory.

Note: OBA uses specific file paths during installation. If you want install Operations Bridge Analytics using different file paths to meet your company's needs, see ["Installing Operations Bridge Analytics in Non-Default Locations " on page 16](#) for more information.

3. When prompted, specify that you are installing the Operations Bridge Analytics Collector host.
4. Follow the interactive prompts to complete the installation.

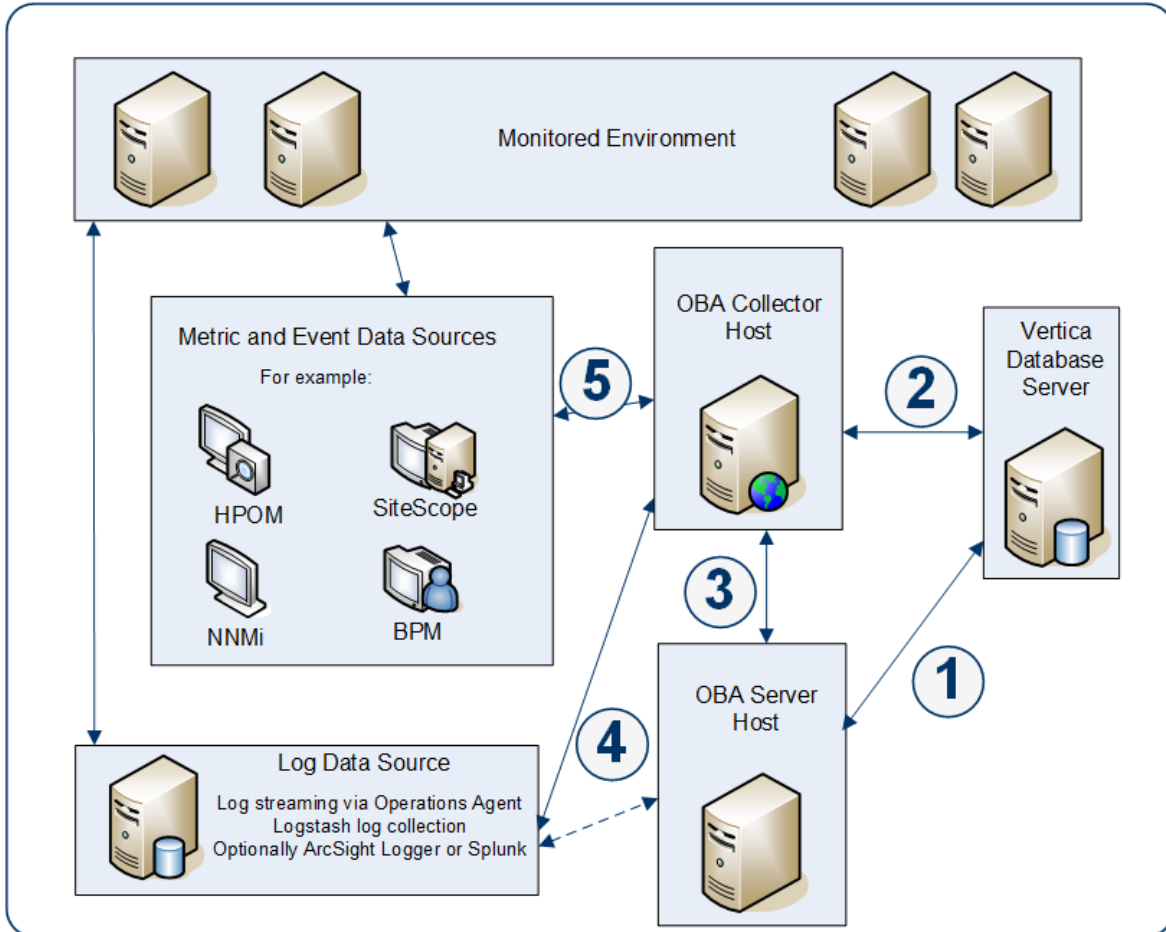
Post-installation tasks

After you install OBA 3.01, perform the following tasks:

- ["Post-installation tasks for OBA" on the next page](#)
- ["Post-installation steps for the OBA collector host" on page 32](#)
- ["Register the collector host" on page 34](#)
- ["Set up the licenses" on page 34](#)
- ["Access OBA for the first time" on page 35](#)
- ["Predefined User Groups" on page 35](#)

Post-installation tasks for OBA

After you complete the steps in this section, common communication with the distributed components of Operations Bridge Analytics needs to be established. The following diagram shows these connections and the order in which they are implemented.



1. This connection is established when running the `opsa-server-postinstall.sh` script on the Operations Bridge Analytics Server.
2. This connection is established when running the `opsa-collector-postinstall.sh` script on the Operations Bridge Analytics Collector Host.
3. This connection is established when registering the Operations Bridge Analytics Collector host using the following command: `opsa-collection-config.sh -register -collectorhost <collector hostname> -port <port>`

4. This connection is established after configuring log streaming via the Operations Agent or by following the steps in the [OBA Logstash White Paper](#) to use a data collecting software, like Logstash, to pass log data to the OBA Kafka topic for processing.
5. This connection is established after a collection is created using the Collections Manager in the user interface.

Completing the Post-Installation Steps for the Operations Bridge Analytics Server

To finish the post-installation configuration steps and configure the communication connections for Operations Bridge Analytics, complete the actions in this section.

There are four different approaches to running the `opsa-server-postinstall.sh` script:

- **Common Approach:** Use the more common approach discussed in "[Option 1: Have the post-installation script prepare the database](#)" on page 27 to prepare a database that does not currently contain Operations Bridge Analytics schemas and tables. To use this option, a `dbadmin` database user (superuser) must have been created that has access to the Vertica database. This was accomplished if you used **Approach 1: Wizard-Driven Installation of Vertica as a Single Node** to install Vertica in "[Install and Configure the Vertica software](#)" on page 18.
- **Manual Approach:** If you do not plan to use the information discussed in the **Common Approach**, and need the Vertica database administrator to manually prepare the database and schemas, use the approach discussed in "[Option 2: Manually prepare the database:](#)" on page 27. Using this approach, all of the database schemas would be created by the Vertica database administrator and not by the `opsa-server-postinstall.sh` script.
- **Adding more Operations Bridge Analytics Servers:** As your Operations Bridge Analytics environment expands, you might need to add more Operations Bridge Analytics Servers. To do this, you would use the `opsa-server-postinstall.sh` script with the `-scaleout` option as described in the *Adding additional Operations Bridge Analytics Servers* in the *Operations Bridge Analytics Help*.

Note: Operations Bridge Analytics supports a maximum of three Operations Bridge Analytics Servers. Run the `opsa-server-postinstall.sh` script on the first Operations Bridge Analytics Server without any options as shown in the **Common Approach**. Use the instructions located the *Adding additional Operations Bridge Analytics Servers* in the *Operations Bridge Analytics Help* to add more Operations Bridge Analytics Servers.

Complete the following post-installation configuration steps on the Operations Bridge Analytics Server.

Note: The `opsa-server-postinstall.sh` script creates tables in the database. After these tables are created, you cannot run the `opsa-server-postinstall.sh` script again.

If you run the `opsa-server-postinstall.sh` script using a database that already had schemas and tables created by a previous execution of this script, the `opsa-server-postinstall.sh` script does not complete. It shows you a message explaining how to run the `opsa-server-postinstall.sh` script to remedy an already configured Vertica database. This issue could occur if you attempted to run the `opsa-server-postinstall.sh` script more than once to create on the same Operations Bridge Analytics Server to create the Operations Bridge Analytics schemas and tables.

To run the `opsa-server-postinstall.sh` script more than once, you must drop all of the tables or you must drop the existing `opsadb` database and create a new one before running the `opsa-server-postinstall.sh` script again. The `opsa-server-postinstall.sh` script does not support connecting to an existing database schema. See the [Vertica Administrator's Guide](#) for more information.

Note: The Vertica Installation steps explained in "[Install and Configure the Vertica software](#)" on [page 18](#) does not create the Operations Bridge Analytics schemas and tables. It only creates the `opsadb` database.

Prework: Setting up the Vertica Database

Operations Bridge Analytics uses database schemas to organize the data for administration and by individual tenants. Operations Bridge Analytics requires the creation of a database user that has access to the Vertica database. If this database user is `dbadmin` (superuser), then the creation of the schemas and the setting of the `MaxClientSessions` configuration parameter (discussed below) happen without any further work. Operations Bridge Analytics does the schema creation and the `MaxClientSessions` configuration parameter setting).

Note: Although not mandatory, it is recommended that this created database user be a superuser. If you choose not to make this created database user a superuser, the Vertica database administrator must create database schemas before configuring Operations Bridge Analytics or any Operations Bridge Analytics tenants. See **Option 2** below for more information.

Before running the `opsa-server-postinstall.sh` script, do one of the following:

- **Option 1: Have the post-installation script prepare the database**

Verify that a `dbadmin` database user (superuser) exists that has access to the Vertica database.

This was accomplished if you used the instructions shown in **Approach 1: Wizard-Driven Installation of Vertica as a Single Node** located in ["Install and Configure the Vertica software" on page 18](#) to install Vertica. Continue with ["Running the Post-Installation Script" below](#).

- **Option 2: Manually prepare the database:**

If the Vertica database administrator does not want Operations Bridge Analytics to automatically create an Operations Bridge Analytics `dbadmin` database user (superuser), complete the following steps using the SQL statements to create a database user (`<newusername>`), password (`<password>`), and the two schemas (`opsa_admin` and `opsa_default`), specifying the user `<newusername>` as the owner of the schemas:

- a. `create user <newusername> identified by '<password>';`
- b. `create schema if not exists opsa_admin authorization <newusername>;`
- c. `create schema if not exists opsa_default authorization <newusername>;`
- d. `grant all on schema opsa_default to <newusername>;`
- e. `grant all on schema opsa_admin to <newusername>;`
- f. `grant usage on schema PUBLIC to <newusername>;`
- g. `select SET_CONFIG_PARAMETER('MaxClientSessions', 200);`

Note: If you use **Option 2**, you must run the `-skipSchemaCreation` option when running the `opsa-server-postinstall.sh` script in the next section.

Continue with ["Running the Post-Installation Script" below](#).

Running the Post-Installation Script

Complete the following post-installation configuration steps on the Operations Bridge Analytics Server:

1. Log on as an `opsa` user to the Operations Bridge Analytics Server (the default password is `opsa`).

Note: The first time you log on, you will need to change the default password.

2. Run only one of the following commands:

- **If using Option 1 from the previous section:** `$OPSA_HOME/bin/opsa-server-postinstall.sh` script (interactive mode).
- **If using Option 2 from the previous section:** `$OPSA_HOME/bin/opsa-server-postinstall.sh -skipSchemaCreation` script (interactive mode).

3. The `opsa-server-postinstall.sh` script prompts for the following information, and includes a default value surrounded by brackets. To accept the default value, click **Enter** for each prompt.

- Vertica database host name
- Vertica database port number
- Vertica database name
- Vertica database user name

Note: Use either `dbadmin` or the `<newusername>` you created earlier.

- Vertica database password

Note: The `opsa-server-postinstall.sh` script shows an error message if any of the following problems exist:

- Vertica is not installed on the specified host.
- Vertica is down.
- The port number you specified for Vertica is not open.
- You entered the wrong Vertica username or password.
- The default tenant name, `opsa_default`, does not exist.

Correct these problems and rerun the `opsa-server-postinstall.sh` script.

For Vertica administration issues, run the `/opt/vertica/bin/adminTools` command and view the cluster state. If the state is down, you might need to restart the database. See ["Install and Configure the Vertica software" on page 18](#) for more information.

4. The `opsa-server-postinstall.sh` script prompts you with the following message: Is the database created and running on host [yes/no]:

If the database is created and running, enter yes; If the database is not created and running, enter no to stop the post install configuration script.

Note: The `opsa-server-postinstall.sh` script assumes the `opsadb` database is available on the Vertica server and will not create the `opsadb` database on the Vertica server.

Note: If you already have the `opsadb` schemas and tables created on your `opsadb` database or are running the `opsa-server-postinstall.sh` script more than once, you must drop all of the tables or you must drop the existing `opsadb` database and create a new one before running the `opsa-server-postinstall.sh` script. The `opsa-server-postinstall.sh` script does not support connecting to an existing database schema. See the [Vertica Administrator's Guide](#) for more information.

Note: Although this document refers to the Vertica database name for Operations Bridge Analytics as `opsadb`, you can choose a different name when creating this database.

5. If this is the first time running the `opsa-server-postinstall.sh` script on this server, it prompts you to change the passwords for the `opsadmin`, `opsatenantadmin`, and `opsa` default application users. Follow the interactive instructions carefully to reset these passwords, and note the password values you set for later use.

Note: If you are running the `opsa-server-postinstall.sh` script to add additional servers, it does not require you to change these passwords.

Note: The passwords you set must contain at least 13 characters, both upper and lowercase characters, and a digit character.

Note: See "[Predefined User Groups](#)" on page 35 for more information about the predefined user groups, default user names, and passwords used by Operations Bridge Analytics.

Optional. Move the data store

By default, `opsadb` data is located in the `/home/dbadmin` directory. You can move the data directory to another location, if, for example, you do not have enough disk space in `/home/dbadmin`. To move the data to a new location, do the following:

1. **Check Vertica health.** On one Vertica node, run the following command as the dbadmin user in the vsq1 command line interface (CLI):

```
select current_epoch,ahm_epoch,last_good_epoch from system;
```

The ancient history mark (AHM) value should not be greater than the last good epoch (LGE) value. If the AHM is greater than the LGE, this may be related to a known Vertica issue. If the AHM is very much less than the current epoch, this may indicate a problem with a projection. Executing `select start_refresh();` may address this.

2. **Shut down OBA and back up the database.** On all OBA servers, run `opsa stop` to quiesce the database.

Back up the Vertica database as described in the Vertica documentation:

https://my.vertica.com/docs/8.0.x/HTML/index.htm#Authoring/AdministratorsGuide/BackupRestore/BackingUpAndRestoringTheDatabase.htm%3FTocPath%3DAdministrator's%2520Guide%7CBacking%2520Up%2520and%2520Restoring%2520the%2520Database%7C_____0

3. **Create a new file system location for data storage.** For each node in the Vertica cluster, create a new node specific directory under `/opt/vertica`. Run the following command as root on the Vertica node 0001 server:

```
mkdir -m 700 /opt/vertica/opsadb
```

```
chown dbadmin:verticadba /opt/vertica/opsadb su - dbadmin mkdir -p -m 700 /opt/vertica/opsadb/v_opsadb_node0001_data
```

Repeat the login and corresponding `mkdir` commands for node 0002 and node 0003.

4. **Allocate and move the data storage location.** On one Vertica node, run the following command as the dbadmin user in the vsq1 CLI:

- a. View the current storage locations:

```
select * from storage_locations;
```

- b. Create the new storage locations:

```
CREATE LOCATION '/opt/vertica/opsadb/v_opsadb_node0001_data' NODE 'v_opsadb_node0001' USAGE 'DATA,TEMP' LABEL 'LOC' ;
CREATE LOCATION '/opt/vertica/opsadb/v_opsadb_node0002_data' NODE 'v_opsadb_node0002' USAGE 'DATA,TEMP' LABEL 'LOC' ;
CREATE LOCATION '/opt/vertica/opsadb/v_opsadb_node0003_data' NODE 'v_opsadb_node0003' USAGE 'DATA,TEMP' LABEL 'LOC' ;
```

- c. Begin moving the data to the new locations:

```
select set_object_storage_policy('opsadb', 'LOC', 'true');
```

Note: This command may take a long time and will produce a lot of output. Errors of the following form can be ignored:

```
ERROR 2082: A Move Storages operation is already in progress on
projection opsa_default....
```

- d. Mark the old storage as no longer for data:

```
SELECT ALTER_LOCATION_USE ('/home/dbadmin/opsadb/v_opsadb_node0001_data' ,
'v_opsadb_node0001' , 'TEMP');
SELECT ALTER_LOCATION_USE ('/home/dbadmin/opsadb/v_opsadb_node0002_data' ,
'v_opsadb_node0002' , 'TEMP');
SELECT ALTER_LOCATION_USE ('/home/dbadmin/opsadb/v_opsadb_node0003_data' ,
'v_opsadb_node0003' , 'TEMP');
```

- e. Find the internal name for the dfs storage:

```
SELECT DISTINCT directory FROM dfs_storage;
```

- f. Remove the dfs storage:

```
SELECT DFS_DELETE('/<dfs storage name>',true);
```

The procedure is complete when the following command returns 0 rows:

```
SELECT DISTINCT directory FROM dfs_storage;
```

- g. Drop the old data locations:

```
select drop_location('/home/dbadmin/opsadb/v_opsadb_node0001_data', 'v_
opsadb_node0001');
select drop_location('/home/dbadmin/opsadb/v_opsadb_node0002_data', 'v_
opsadb_node0002');
select drop_location('/home/dbadmin/opsadb/v_opsadb_node0003_data', 'v_
opsadb_node0003');
```

- h. Confirm that the drop worked:

```
select * from storage_locations;
```

- i. In a root shell window on one of the Vertica nodes, verify that disk usage is as expected:

```
# du -sh /opt/vertica/opsadb/v_opsadb_node000*
# du -sh /home/dbadmin/opsadb/v_opsadb_node000*
```

- j. Verify that there are no leftover files in the old data locations:

```
# find /home/dbadmin/opsadb/v_opsadb_node*_data -type f -exec ls -l {} \;
```

5. **Restart OBA.** Execute `opsa start` on your OBA collector and server systems. After 15 minutes, verify with `opsa status` and confirm the UI behavior is as expected.

Proceed to the next step: ["Post-installation steps for the OBA collector host" below](#)

Post-installation steps for the OBA collector host

Complete the following post-installation configuration steps on each Operations Bridge Analytics Collector host.

1. Log on as a `opsa` user to the Operations Bridge Analytics Collector host (the default password is `opsa`).
2. Run the `$OPSA_HOME/bin/opsa-collector-postinstall.sh` script (interactive mode).
3. The `opsa-collector-postinstall.sh` script prompts for following Vertica database host details (where the `opsadb` database is created), and includes the default values shown in the following list. To accept the default value, click **Enter** for each prompt.

Note: Although this document refers to the Vertica database name for Operations Bridge Analytics as `opsadb`, you can choose a different name when creating this database.

- o Vertica database host name
- o Vertica database port number
- o Vertica database name
- o Vertica database user name
- o Vertica database password (`dbadmin`, unless you reset this password earlier)

Note: The `opsa-collector-postinstall.sh` script shows an error message if any of the following problems exist:

- Vertica is not installed on the specified host.
- Vertica is down.
- The port number you specified for Vertica is not open.
- You entered the wrong Vertica username or password.
- The default tenant name, `opsa_default`, does not exist.

Correct these problems and rerun the `opsa-collector-postinstall.sh` script.

For Vertica administration issues, run the `/opt/vertica/bin/adminTools` command and

view the cluster state. If the state is down, you might need to restart the database. See ["Install and Configure the Vertica software" on page 18](#) for more information.

Optional Step: The Operations Bridge Analytics Collector host uses a timeout and reconnect approach to connect to the Vertica database. To optimize operating system resources and reduce the operating system resources used for networking (improving operating system resource utilization), consider shortening the TCP timeout period by completing these steps:

Note: Using these steps to shorten the TCP timeout period does not only affect communication with Vertica. It also affects all TCP connections on the Operations Bridge Analytics Collector host on which you make this change.

1. As root user, append the following two lines to the end of the `/etc/sysctl.conf` file on the Operations Bridge Analytics Collector host:

Note: The following numbers only show how you would change the values within the `/etc/sysctl.conf` file. Substitute values that relate to the performance of the system you are using.

```
net.ipv4.tcp_fin_timeout = 30
net.ipv4.tcp_keepalive_time = 30
```

2. Save your work.
3. As root user, run the following command on the Operations Bridge Analytics Collector host to apply the changes you made:

```
sysctl -p
```

That completes the post-installation configuration steps for the Operations Bridge Analytics Collector host.

Note: Your next steps are to register this Operations Bridge Analytics Collector host with the Operations Bridge Analytics Server you installed, then begin configuring data Source Types to collect data.

You must register each Operations Bridge Analytics Collector host you plan to use with the Operations Bridge Analytics Server. See *Registering Operations Bridge Analytics Collector Hosts* in the *Operations Bridge Analytics Help* for more information.

Proceed to the next step: ["Register the collector host" on the next page](#)

Register the collector host

To register the Operations Bridge Analytics collector host, run the following command on the Operations Bridge Analytics Server:

```
opsa-collection-config.sh -register -username <opsa tenant user> -password <opsa tenant user password> -collectorhost <collector hostname> -port 9443
```

Proceed to the next step: ["Set up the licenses" below](#)

Set up the licenses

Operations Bridge Analytics licensing is based on the number of Operations Bridge Analytics nodes for which data is collected. An Operations Agent node is a real or virtual computer system, or a device (for example a printer, router, or bridge) within a network.

The following types of licenses can be applied to the Operations Bridge Analytics Server:

An **Instant On** license gets applied during the Operations Bridge Analytics Server installation. This *Instant On* license is valid for 60 days and has a capacity for 500 OA nodes.

A **Permanent** license is a license that you apply after your purchase Operations Bridge Analytics, and is based on the quantity of OA nodes.

When installing the Operations Bridge Analytics license, note the following:

- You can install a *Permanent* license even though an *Instant On* license is already installed.
- Installing a *Permanent* licenses disables the *Instant On* license.
- Operations Bridge Analytics license entitlements aggregate if you apply the same kind of license in addition to the existing licenses.

Note: For example, installing an Operations Bridge Analytics Permanent license for 100 OA nodes on top of an existing Operations Bridge Analytics Permanent license for 200 OA nodes, will aggregate the license capacity to 300 OA nodes.

- There is no license for the Operations Bridge Analytics Collector host.

To install the Operations Bridge Analytics license, do the following:

1. As an OBA user, run the following command from the Operations Bridge Analytics Server to install the Operations Bridge Analytics license:


```
$OPSA_HOME/bin/opsa-license-manager.sh -add <path to license file>
```

You should see a message that, among other information, includes the following:

```
Added license from file /opt/HP/opsa/license/Neutron_License.txt successfully
```

2. Run the following command to verify that the Operations Bridge Analytics license installed correctly:

```
$OPSA_HOME/bin/opsa-license-manager.sh -list
```

See the *opsa-license-manager.sh* reference page (or the Linux man page) for more information. To view Operations Bridge Analytics reference pages, select  > **Reference Pages** in the Operations Bridge Analytics console,

Proceed to the next step: "[Access OBA for the first time](#)" below

Access OBA for the first time

To log on to Operations Bridge Analytics do the following:

1. Access the following URL: **http://<IP Address or fully-qualified domain name of the Operations Bridge Analytics Server>:8080/opsa**
2. After the Operations Bridge Analytics log on screen appears, use the default user credentials to log on to Operations Bridge Analytics:

User Name: opsa


Password: Use the password for this user that you set during installation

Note: Click  to access the *Operations Bridge Analytics Help*.


Predefined User Groups

Operations Bridge Analytics provides the following predefined User Groups:


- **Super Admin:** During installation, the opsaadmin user gets created, and assigned to the Super Admin user group. **The default password for the opsaadmin user is opsaadmin.** The primary responsibility of users assigned to the Super Admin user group is to add, modify, and delete tenants

and users assigned to the Tenant Admin user group. See the *opsa-tenant-manager.sh* reference page (or the Linux man page) for information about creating and managing tenants. To view Operations Bridge Analytics reference pages, select  > **Reference Pages** in the Operations Bridge Analytics console.

Note: Make sure to change the default password after the installation.

- **Tenant Admin:** During installation, the *opsatenantadmin* user gets created, and assigned to the Tenant Admin user group. *opsatenantadmin* is the tenant admin for the default *opsa* tenant. **The default password for the *opsatenantadmin* user is *opsatenantadmin*.** Only a user assigned to the Super admin user group is permitted to create a user assigned to the Tenant Admin user group. The primary responsibility of the Tenant Admin user is to add, modify, and delete users for a specific tenant. See the *opsa-tenant-manager.sh* reference page (or the Linux man page) for information about creating and managing users for a tenant. To view Operations Bridge Analytics reference pages, select  > **Reference Pages** in the Operations Bridge Analytics console.

Note: Make sure to change the default password after the installation.

- **User:** During installation, the *opsa* user gets created, and assigned a normal user role. **The default password for the *opsa* user is *opsa*.** Only a user assigned to the Tenant admin user group is permitted to create a user having a normal user role. This role is for the normal user who can use the Operations Bridge Analytics console and has access to data for the tenant to which it is assigned. This user account must be unique across all tenants. See *Manage Users and Tenants* in the *Operations Bridge Analytics Help* for more information. To view Operations Bridge Analytics reference pages, select  > **Reference Pages** in the Operations Bridge Analytics console.

Note: Make sure to change the default password after the installation.

Chapter 4: Uninstall OBA

Choose your scenario:

- Completely uninstall OBA: ["Uninstall OBA" below](#)
- Rollback from OBA 3.01 to OBA 3.00: ["Roll Back from OBA 3.01 to 3.00" below](#)

Uninstall OBA

This chapter guides you through a high level list of things to do when you decide to uninstall Operations Bridge Analytics.

1. Remove all of the collections you configured. See *Using the Collections manager to Manage Source Types* in the *Operations Bridge Analytics help* for more information.
2. On each of the Operations Bridge Analytics Server and Collector hosts do the following:
 - a. Navigate to `/opt/HP/opsa/Uninstall/opsa`
 - b. Run `setup.bin`.

Note: The Operations Agent is uninstalled by default during the OBA uninstallation.

3. *Optional.* Remove all Operations Bridge Analytics data from the Vertica database.

Roll Back from OBA 3.01 to 3.00

If you updated your OBA 3.00 system to 3.01 and you would now like to roll back to version 3.00, do the following:

Note: All new collections created in OBA 3.01 are still valid after a rollback to OBA 3.00. However, HPE recommends starting and stopping the OA collection in the Source Type Manager interface for all tenants before running the rollback.

1. Shut down all OBA processes on collectors and servers using the following command:

```
$OPSA_HOME/bin/opsa stop
```

2. Starting with the collectors and then continuing to the servers, do the following on every node:
 - a. Change to the installation directory containing the OBA **3.00** installer.
 - b. Copy the `uninstall_update_oba0300_to_oba0301.sh` script from the 3.01 install directory to the 3.00 install directory and start the script as the root user.

Note: You must use the old installation binaries from your original 3.00 installation.

3. When the script has finished, start all servers and collectors again by using the following command:

```
$OPSA_HOME/bin/opsa start
```

The rollback is finished when the script has completed.

Chapter 5: Maintenance Tasks

Use the information in this section to complete any necessary maintenance tasks.

Installing Operating System Patches and Upgrades

Operations Bridge Analytics customers are responsible for installing operating system patches and upgrades as required by their company policy.

Note: HPE recommends that you clean up the `/boot` partition before completing any Kernel upgrades. See the Operating System documentation for the server upon which you are installing Operations Bridge Analytics.

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 (Operations Bridge Analytics 3.01)

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 ovdoc-asm@hpe.com.

We appreciate your feedback!