Operations Bridge Analytics

Software Version: 3.02

Installation Guide

Hewlett Packard Enterprise

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Contents

Chapter 1: About this Guide

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

For information about the system requirements, download the Support Matrices for Operations Center products. Open SUMA.htm and select Operations Bridge Analytics.

> **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 sometimes changes to a similar character and is no longer recognized by tools as specifying an option.

Environment Variables

The installation and configuration instructions for the OBA software, including the OBA Server host and the OBA 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	OBA Server host, OBA Collector host
OPSA_HOME	/opt/HP/opsa	OBA Server
JAVA_HOME	/opt/HP/opsa/jdk	OBA Server

Table 2: Other Useful Directories

Folder Name	Path	OBA Server host, OBA Collector Host
JBOSS Home	/opt/HP/opsa/jboss	OBA Server host
JDK	/opt/HP/opsa/jdk	OBA Server
scripts	/opt/HP/opsa/scripts	OBA Server
conf	/opt/HP/opsa/conf	OBA Server
data	/opt/HP/opsa/data	OBA Server
log	/opt/HP/opsa/log	OBA Server
lib	/opt/HP/opsa/lib	OBA Server
bin	/opt/HP/opsa/bin	OBA Server
Vertica Database Installation	/opt/vertica	OBA Server have the Vertica client installed in this folder
Operations Agent	/opt/OV	OBA Server

Sizing

This section provides information on sizing requirements for your OBA deployment.

Hardware Sizing

Use the sizing information in this section for Operations Bridge Analytics VMware installations as well as physical server installations.

The OBA installation adds an `opsa` user to the operating system environment, which is used by OBA processes. In general, the maximum number of processes and maximum number of open files for the `opsa` userid must be set to high values. During installation, the following settings are added to the `/etc/security/limits.conf` file:

```
opsa soft nproc unlimited

opsa hard nproc unlimited

root soft nproc unlimited

root hard nproc unlimited

* soft nofile 65536

* hard nofile 65536
```

OBA Server

Refer to the table below for the number of OBA Servers recommended.

Number of concurrent browser users of the GUI	OBA application servers
up to 5	1 Server (4 CPU minimum, 12 GB Memory minimum 16 GB recommended, 60 GB Disk)
more than 5	add 1 Server as specified above for every 5 additional concurrent users

OBA Collector

Refer to the table below for the number of OBA collector hosts recommended.

The guidelines shown in the following table for OBA Collector disk size are suitable for most cases. In some extreme circumstances, there might be a need to shorten the retention policy for data files in the collector's archive folder. If the combined data volume for a collector exceeds 250 GB per day, add OBA Collectors.

Number of monitored hosts	OBA collectors	Vertica cluster nodes
up to 500	1 Collector (8 CPU, 24 GB Memory minimum 32 GB recommended, 40 GB Disk minimum)	1 node (8 CPU, 32 GB Memory, 1 TB Disk)
up to 5000	3 Collectors (8 CPU, 24 GB Memory minimum 32 GB recommended, 40 GB Disk minimum each)	3 node cluster (each 16 CPU, 64 GB Memory, 10 TB Disk)
more than 5000	Add 1 Collector for every additional 5000 nodes	3 or more node cluster (each 32 CPU, 256 GB Memory, 10 TB Disk)

In addition to the above disk space requirements, you must have 10 GB of disk space in the `/tmp` directory for installation on all servers.

Add 1 Vertica node for each additional 1 TB of daily data. Add 1 OBA server for every additional 5 concurrent users. For integrating OBA with Splunk or ArcSight Logger, if the daily volume of log messages is expected to be larger than 125 GB per day, add an OBA Collector host for each additional 125 GB per day volume. In all cases, monitor the load and capacity of OBA hosts and expand the count to prevent any loss.

Certain collection types, like custom metric collections, SiteScope, and NNM/NPS collections may require substantially more disk space. If you know that you will be processing a large amount of metric data, plan the size of your disks on each collector to hold one month's worth of processed files. Log and event data is not stored on the collector for as long, and typically does not add substantially to disk space consumption on the collectors. Collectors may not be loaded with more than 250 GB of incoming data per day from all sources. Therefore, if you expect or measure more than 250 GB of data per day on a collector, add more collectors accordingly.

Deploy additional ArcSight Logger systems for every 125 GB of expected data volume per day. Refer to your ArcSight product documentation for more information.

Vertica

The amount of storage for Vertica depends on your licensing and the amount of total stored data. OBA defaults to a 3-months retention period.

For small OBA deployments, single node Vertica installations are supported. For larger OBA installations, HPE recommends at least a three node cluster Vertica installation to ensure k-safety. For more information, see the Vertica documentation.

See the Vertica Hardware Planning Guide for detailed information on planning your Vertica deployment. For information on the Vertica installation, see the Vertica Install Guide.

Summary

The following tables summarize the minimum hardware requirements for an OBA deployment. OBA collectors, servers, and Vertica must be installed on different hosts, thus the smallest implementation requires 3 servers. These are only rough guidelines, because the amount of data volume per host is highly variable, depending on the number and types of integrations you implement. It is best to plan for growth, and to monitor your systems over time as you add more integrations to ensure they are running well, adding more OBA collectors or servers if needed over time.

Filesystem recommendations

For Vertica node requirements, see the Vertica documentation.

For OBA collectors and servers, check to make sure you have at least 30 GB of free disk space under the /opt/HP directory prior to installation, which will be used for product files. This is in addition to the space consumed by the installation files themselves. In general, OBA installations add less than 1 GB to the /usr, /lib, /opt/OV, /var/opt, and /var/tmp directories.

High Availability

There is no product-specific mechanism for High Availability (HA) nor Disaster Recovery (DR) of Operations Bridge Analytics components. To implement DR for HPE Operations Bridge Analytics Server and HPE Operations Bridge Analytics Collector, you must rely on mechanisms available in your underlying IT architecture such as VMware High Availability, server clustering, or other application-agnostic technologies. You should implement these DR methods for both Operations Bridge Analytics Collector and Operations Analytics Server, as a failure of one host can affect the product as a whole. Multiple Operations Bridge Analytics Servers can be load balanced and accessed through virtual IP addresses to optimize performance. For your Database supporting Operations Bridge Analytics, Vertica offers a K-Safety configuration for fault tolerance, and offers recovery and replication options for HA and DR.

See the Vertica documentation for more information.

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 OBA Server, 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)" below must be open on any firewall in the path between the OBA Server and all of the data collectors, in the direction listed within the table. The OBA Server host validates the communication to the data collectors before creating a collection. The OBA 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 OBA Server from a client that is not an OBA Server host or an OBA 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 OBA Server host or an OBA Collector host.

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

Port	Open From	Open To	Comments
80, 1098, 1099, 2506, 2507,	OBA Server	BSM Data Processing Server	Operations Bridge Analytics collects BPM data from the BSM Data Processing Server and not directly from BPM.

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

Port	Open From	Open To	Comments
29602, 21212			
137, 138, 139, 445	OBA 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 OBA Collector host. Because of this mounted data directory, SMB ports must be open.
381-383	OBA Server	Operations Agent (OM Performance Agent and Database SPI)"	
443 or 9000	ArcSight Connectors, Operations Bridge Analytics, OBA Server	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	OBA Server	Database host used by OM or OMi	1443 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	ArcSight Logger	OBA Collector host	
4447, 9990	OBA Server host		JBOSS server ports
5433	OBA Server	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 OBA console	OBA Server host	Web browsers connect to the 8080 port using HTTP (non-SSL) to the OBA Server host to access the OBA console.

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

Port	Open From	Open To	Comments
			(**http://<*Operations Bridge Analytics Server*> :8080/opsa**)
8080	OBA Server	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	OBA Server	Splunk	Used if Splunk is used instead of OBA for HPE OneView Appliance.
8443 (https) 21212 (http)	OBA Server	RTSM Inventory on the BSM Data Processing Server	
9443	SiteScope server	OBA Server	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 OBA Server hosts and the OBA Collector hosts. The communication ports shown in "Well-Known Port Mapping (Sources Internal to Operations Bridge Analytics)" below lists the ports used to transmit data among OBA Server. It works better to disable any firewalls between the OBA Server hosts 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 OBA Server. 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	OBA Server	OBA Server	Used by local

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

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

Deployment use cases

Review the information shown in the following diagram to begin understanding the data Source Types supported by OBA, how OBA components are configured together, and to understand what the data

flow among OBA components looks like to better plan your OBA installation. After installation, add to the initial information being collected by adding more Data Source Types.
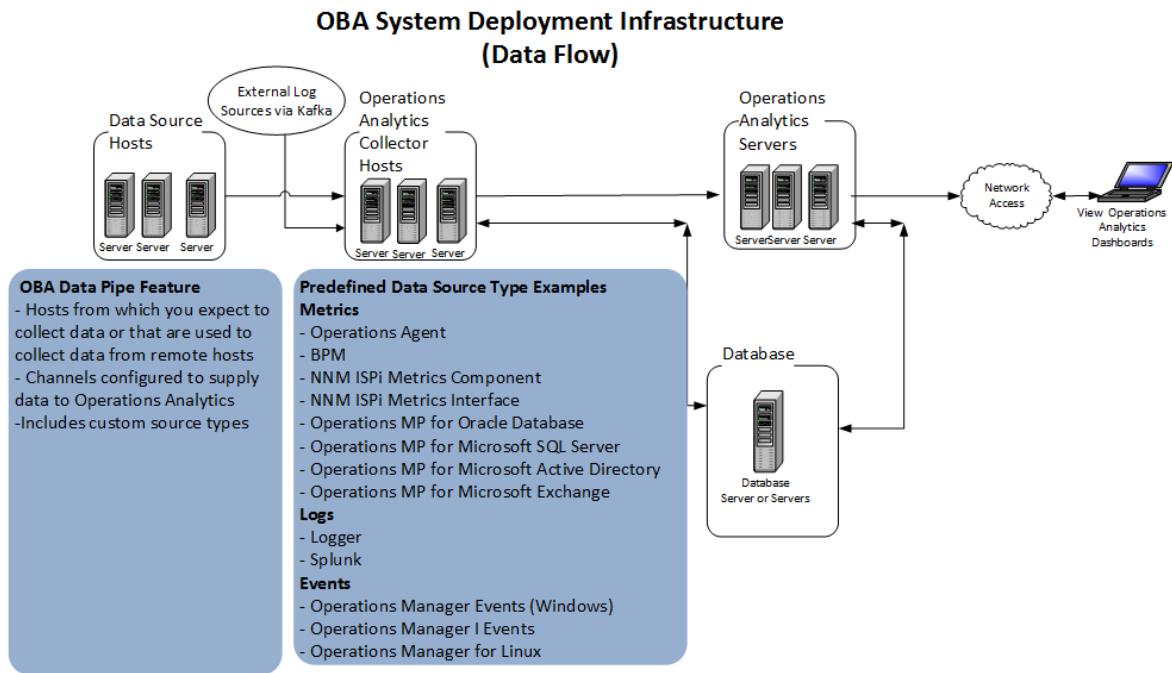
Chapter 2: Pre-installation tasks

The following section provides an overview of the OBA installation environment.

This section includes:

- "Overview of OBA components" below

- "Collection Source Types" on the next page

- "Overview of installation workflow" on page 17

Meet the hardware and software requirements

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

Overview of OBA components

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

- **OBA Server host**:

    ○ Provides the business logic and presentation capabilities of Operations Bridge Analytics.

    ○ Deployed as a server installation.

    ○ OBA can have one or more OBA Server hosts, depending on the amount of users the system needs to support.

    ○ The server is JBoss-based.

- **OBA Collector Host**:

    ○ Connects to the different data Source Types and aggregates the data collected from them.

    ○ This data is pushed to the OBA Database.

    ○ Deployed as a server installation.

    ○ OBA can have one or more OBA Collector hosts, depending on the data Source Types to which the system is connected.

    ○ Your installed collectors form a Kafka cluster for the purposes of log ingestion. If you have more

than one OBA collector, then the Kafka replication factor is set to two by default. This means that the cluster can handle the loss of one collector and continue harvesting Logstash log file streams. However, metric collections from such sources as Operations Agents, SiteScope, NPS, BPM, and custom collections are assigned to specific OBA collectors and do not form a cluster to ensure availability, so those collections will not continue if their assigned collector is down. If an OBA collector goes down that had metric collections assigned to it and it cannot be recovered, you must delete those collections from the server and re-create them on another collector. Likewise, Kafka clustering 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 additional disaster recovery actions specific to Kafka. For more information, see the *OBA User Guide* or *Online Help*.

- **OBA Database**:

  - A Vertica database is used to support the big data analysis requirements of OBA.

  - An existing Vertica database installation can be used. The OBA database (opsadb) needs to be created on it.

  - A dedicated Vertica database can also be installed as part of OBA. In this case the OBA database (opsadb) will be created during the process.

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

Collection Source Types

Data from the data Source Types is brought into OBA using the OBA Collector host.

These Source Types include:

- **Software Portfolio metric collectors**: OBA supports data collection from several ITOM and ADM sources.

- **Log Sources**: OBA supports the following log collectors Source Types:

  - **Log streaming**: You can use configure policies in OMi to use the Operations Agent to collect and stream logs directly to OBA, without using any third-party systems.

  - **ArcSight Logger Server:**

    - This optional approach involves connecting OBA 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. For more information, see the OBA Logstash White Paper.

Overview of installation workflow

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

System setup includes the following steps:

1. **Installation**:

    - Install the Vertica Database (*optional* - you can connect to an existing Vertica instance).

    - Install the OBA Server host (*mandatory*).

    - Install the OBA Collector host (*mandatory*).

2. **Post-Install Configuration**

    - Connect the OBA Server hosts to the Vertica Database.

    - Connect the OBA Collector host to the Vertica Database.

    - Configure passwords for the default OBA 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.

    - Configure the connection to several BSM data Source Types to collect metrics. Note that collection configuration creates a link between the OBA Server host and the OBA Collector host.

    - Configure a Log Integration to collect and ingest logs.

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

Plan your Deployment

While OBA 3.02 is delivered as a patch, it can be installed on a clean system or on top of an existing OBA 3.01 deployment. To update from OBA version 3.01 to version 3.02, see "Upgrade Vertica" on page 36 and "Update from OBA 3.01 to 3.02" on page 37.

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

1. For the instructions in this manual, use the information in "Available Downloads for Operations Bridge Analytics 3.02" below to obtain the installation packages.

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

    a. Download `OPSA_00011.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. For an update, start with the update of the Vertica database, described in "Upgrade Vertica" on page 36.

        Available Downloads for Operations Bridge Analytics 3.02

Download File Name	Purpose
HPE_OpsA_3.02_Analytics_Installation.zip	Operations Bridge Analytics Linux Installations
HPE_OpsA_3.02_Vertica_Installation.zip	Operations Bridge Analytics Vertica Installations

2. Review the prerequisites to install Operations Agent in Operations Agent 12.01 and Operations Smart Plug-ins for Infrastructure Installation Guide.

    Note that the Operations Agent requires Perl to be installed on your system.

Installing Operations Bridge Analytics in Non-Default Locations

OBA uses specific file paths during installation. If you want to install OBA using different file paths to meet your company's needs, use the information shown in "Default Installation Paths" on the next page to set up symbolic links before installing OBA.

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 OBA software application files.
Server and Collector	/opt/HPE	This folder contains the task server files for OBA.
Server and Collector	/opt/OV	This folder contains the Operations Agent application files. This application is delivered with OBA.
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.
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 OBA 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 OBA Server Software" on page 23

4. "Install the OBA collector software" on page 24

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. You will apply the licenses during installation as described in the following sections.

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. While it is possible to use an existing Vertica installation for OBA setup, it must be the same version as the Vertica installation package delivered with the OBA media.

Install a New Vertica

To install and set up a new Vertica database for OBA on a single node (for small installations) or on three nodes (for medium or large installations), do the following. If you want to use an existing Vertica, see "Use an Existing Vertica " on page 23

1. Review the Recommendations for Sizing Vertica Nodes and Clusters and Supported Operating Systems and File System Requirements for Vertica Server. Vertica recommends having at least 8 GB of memory per CPU and at least 40 MB disk throughput per second per CPU on your target nodes. The latest sub-versions of RedHat are not supported by Vertica 8.1.1, ext4 files systems are recommended, and the file system that you use for the database must not be under LVM drive mapping.

   Additionally, if you are considering virtualization for a small environment, see Vertica in a Virtualized Environment. Performance test tools like vioperf become available on the system after the rpm install.

2. If your target node(s) meet the requirements described above, see the Vertica Installation Guide and complete all tasks under Before You Install Vertica to ensure that each node in your intended Vertica cluster meets all the prerequisites. If these prerequisites are not met, the installation is likely to fail. 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.

3. On one node in the cluster you want to create, log in as root and extract the contents of the `HPE_OpsA_3.02_Vertica_Installation.zip` file to a temporary location. Then use rpm to install the Vertica package, as follows:

   ```
   unzip HPE_OpsA_3.02_Vertica_Installation.zip
   rpm -Uvh Vertica_Installation/vertica-<version>.RHEL6.rpm
   rpm -Uvh Vertica_Installation/vertica-R-lang-<version>.RHEL6.rpm
   ```

4. Verify that your node meets the performance benchmarks required by Vertica by executing the Validation Scripts, for example:

   ```
   /opt/vertica/bin/vcpuperf
   /opt/vertica/bin/vioperf --duration=60s /opt/vertica
   ```

   For multi-node Vertica, test network speeds to the other two intended nodes:

   ```
   /opt/vertica/bin/vnetperf --condense --datarate 1024 \
   -hosts <VerticaNode2>,<VerticaNode3>
   ```

5. If the benchmark results are acceptable, run the Vertica installation script, replacing the host list with your intended cluster node host names. If you are setting up a small environment of only a single node, specify the host you are on as the single `--hosts` parameter. See the install_vertica Options for information about other parameters you may want to change. It is important to specify the intended data directory where the bulk of the database will be stored, which in this example is directed under `/opt/vertica`:

    ```
    /opt/vertica/sbin/install_vertica
    --hosts <VerticaNode1>,<VerticaNode2>,<VerticaNode3> \
    --rpm Vertica_Installation/vertica-<version>.RHEL6.rpm
    --data-dir /opt/vertica
    ```

    As this script runs, you must enter the root passwords for the nodes and set a password for the dbadmin user. The script also checks that you have implemented prerequisites from the Vertica documentation. If the above command fails due to warnings about the environment, despite having implemented all of the prerequisites, then you can override the warnings by adding the `--failure-threshold FAIL` option to the command.

6. After performing the above steps, Vertica should be running on all the nodes in your cluster. On one node, run `su - dbadmin` or log in as the dbadmin user. Then execute the `/opt/vertica/bin/admintools` program. The program prompts you to enter a license file. Enter your license key obtained from the fulfillment center. If you have not yet obtained your license, you can click **OK** to enable the community license, and then select **Accept** for the EULA and exit the program.

7. Run the following command as the dbadmin user to create and start the opsadb database. See the Vertica documentation for more information about available options.

    ```
    admintools -t create_db -d opsadb -p dbadmin \
    --hosts=<VerticaNode1>,<VerticaNode2>,<VerticaNode3> --policy=always
    ```

8. To ensure that the database is regularly cleaned out and that logs are only kept for a week, run the following command:

    ```
    adminTools -t logrotate -d opsadb -r daily -k7
    ```

9. To verify that the Vertica settings are as you expected, run the following commands:

    ```
    vsql -U dbadmin -w dbadmin -c 'select display_license();'
    vsql -U dbadmin -w dbadmin -c 'select get_compliance_status();'
    vsql -U dbadmin -w dbadmin -c 'select * from storage_locations;'
    vsql -U dbadmin -w dbadmin -c 'select current_fault_tolerance from system;'
    ```

Take me to the next step

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`:

```
admintools -t create_db -d opsadb -p dbadmin \
--hosts=<VerticaNode1>,<VerticaNode2>,<VerticaNode3> --policy=always
```

You can now use your existing Vertica software. There is no need to install the Vertica application included with OBA.

Take me to the next step

Install the OBA Server Software

You can install the OBA Server software on a supported server. If you plan to update from an existing OBA 3.01 version to 3.02, skip this task and proceed to "Update from OBA 3.01 to 3.02" on page 37.

> **Note:** This process installs the Operations Agent 12.01 on the OBA Server host. The 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 the OBA installation.

Install the OBA server software on a supported server

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

> **Note:** HPE recommends that you install OBA on a server that has a fresh operating system installed with no other software applications installed. 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_3.02_Analytics_Installation.zip` file to a local directory. Navigate to that directory. See "Plan your Deployment" on page 18 for more information.

2. As the root user, run `bash ./opsa_3.02_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 18 for more information.

3. When prompted, specify that you are installing the OBA Server host.

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).

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Install the OBA collector software

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

> **Note:** This will install the Operations Agent 12.01 on the OBA 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 OBA 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_3.02_Analytics_Installation.zip` to a local directory. Navigate to that
   directory. See "Plan your Deployment" on page 18 for more information.

2. As the root user, run `bash ./opsa_3.02_setup.bin` from the directory to which you extracted the
   product files (completed in Task 1).

   > **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 18 for more information.

3. When prompted, specify that you are installing the OBA Collector host.

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).

Chapter 4: Post-installation workflow

After you install OBA 3.02, 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 33

- "Set up the licenses" on page 33

- "Access OBA for the first time" on page 34

- "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.
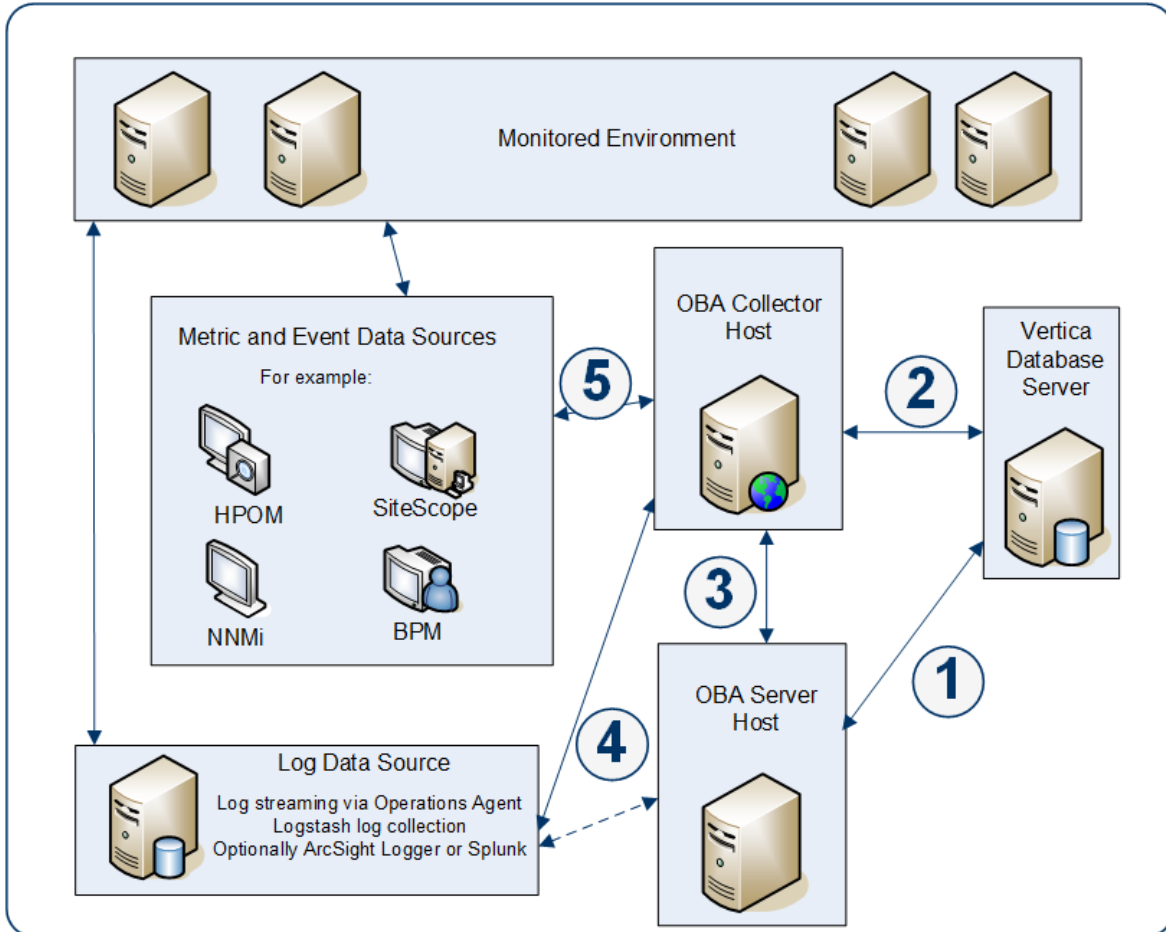
1. This connection is established when running the `opsa-server-postinstall.sh` script on the Operations Bridge Analytics Server.

2. This connection is established when running the `opsa-collector-postinstall.sh` script on the OBA Collector Host.

3. This connection is established when registering the OBA Collector host using the following command on the OBA server: `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. To use the agent method, you can configure policies in OMi to collect data and forward it to OBA. This enables central configuration of log collection and normalization of the incoming data. To do so, configure a structured log file policy to collect data and a data forwarding policy to forward the data to OMi.

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 the next page 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.

- **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 the next page. 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 OBA Server hosts**: As your Operations Bridge Analytics environment expands, you might need to add more OBA Server hosts. 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 OBA Server hosts. Run the `opsa-server-postinstall.sh` script on the first OBA Server host 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 OBA Server hosts.

Complete the following post-installation configuration steps on the OBA Server host.

> **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 OBA Server host 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.

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).

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 "Install and Configure the Vertica software" on page 20 to install Vertica. Continue with "Running the Post-Installation Script" on the next page.

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

  If the Vertica database administrator does not want Operations Bridge Analytics to automatically create an Operations Bridge Analyticsdbadmin 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

Complete the following post-installation configuration steps on the OBA Server host:

1. Log on as an opsa user to the OBA Server host (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 20 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.

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 opsaadmin, 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.

Take me to the next step

Post-installation steps for the OBA collector host

Complete the following post-installation configuration steps on each OBA Collector host.

1. Log on as a opsa user to the OBA 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.

   ○ Vertica database host name

   ○ Vertica database port number

   ○ Vertica database name

   ○ Vertica database user name

   ○ 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 20 for more information.

Take me to the next step

Register the collector host

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

$OPSA_HOME/bin/opsa-collection-config.sh -register -username *<opsa tenant user>* -password *<opsa tenant user password>* \-collectorhost *<collector hostname>* -port 9443

Take me to the next step

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 OBA Server host:

An **Instant On** license gets applied during the OBA Server host 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 OBA Collector host.

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

1. As an OBA user, run the following command from the OBA Server host 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 includes the following:
   `Added license from file /opt/HP/opsa/license/Example_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 OBA console,

Take me to the next step

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 OBA 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 OBA 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 OBA 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 OBA console.

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

Chapter 5: Upgrade workflow

To upgrade from OBA version 3.01 to OBA version 3.02, first upgrade your Vertica version to 8.1.1 and then perform the OBA update workflow. Upgrade from OBA 2.3x to 3.0x is not supported.

1. "Upgrade Vertica" below
2. "Update from OBA 3.01 to 3.02" on the next page

Upgrade Vertica

In order to use Operations Bridge Analytics 3.02, you must upgrade Vertica to version 8.1.1 before updating OBA. Do the following:

1. Locate the Vertica upgrade RPM's in the `HPE_OpsA_3.02_Vertica_Installation.zip`.

2. Upgrade to Vertica 8.1.1. For more information, see the Vertica documentation.

3. After all Vertica nodes have been upgraded and restarted, run the following vsql commands before starting your OBA system:

```
CREATE OR REPLACE TRANSFORM FUNCTION v_txtindex.OpsaMessageTokenizer AS
LANGUAGE 'C++' NAME 'logWordITokenizerFactory' LIBRARY v_txtindex.logSearchLib
NOT FENCED;

SELECT v_txtindex.SET_SESSION_PARAMETER('tokenizer_id',CAST(proc_oid AS
VARCHAR)) FROM vs_procedures where procedure_name = 'OpsaMessageTokenizer';

GRANT EXECUTE ON TRANSFORM FUNCTION v_txtindex.OpsaMessageTokenizer(LONG
VARCHAR ) TO PUBLIC;

SELECT v_txtindex.SET_TOKENIZER_PARAMETER('minlength','1' );

SELECT v_txtindex.SET_TOKENIZER_PARAMETER('used','true' );

SELECT start_refresh();

UPDATE opsa_admin.data_tables_extend SET rentention_period = 28 WHERE table_
name LIKE 'qrtz%';
```

4. To ensure that the database is regularly cleaned out and that logs are only kept for a week, run the

following command:

```
adminTools -t logrotate -d opsadb -r daily -k7
```

5. You can now proceed to update OBA to version 3.02. For details, see "Update from OBA 3.01 to 3.02" below.

Update from OBA 3.01 to 3.02

To update from an existing OBA 3.01 installation to OBA 3.02, do the following:

1. Make sure you have updated your Vertica to version 8.1.1 as described in "Upgrade Vertica" on the previous page.

2. Download the package containing OBA 3.02.

   The following table shows the content of the archive and the purpose.

   When updating from 3.01 to 3.02, you must also upgrade your Vertica database from version 8.0.1 to 8.1.1. For instructions see "Upgrade Vertica" on the previous page.

   Available Downloads for Operations Bridge Analytics 3.02

Download File Name	Purpose
HPE_OpsA_3.02_Analytics_Installation.zip	Operations Bridge Analytics Linux Installations
HPE_OpsA_3.02_Vertica_Installation.zip	Operations Bridge Analytics Vertica Installations

3. Extract the `HPE_OpsA_3.02_Analytics_Installation.zip` file to a local directory.

4. As the root user, shut down all OBA processes on collectors and servers using the following command:

   `$OPSA_HOME/bin/opsa stop`

   Verify that the processes were successfully stopped by using the following command:

   `$OPSA_HOME/bin/opsa status`

5. 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 3.02 installer.

   b. Start the `./update_oba0301_to_oba0302.sh` script as the root user.

6. Start all **servers** and **collectors** again by using the following command:

   `$OPSA_HOME/bin/opsa start`

7. Once all servers and collectors are running, the update is done.

Chapter 6: Uninstall OBA

Choose your scenario:

- Completely uninstall OBA: "Uninstall OBA" below

- Rollback from OBA 3.02 to OBA 3.01: "Roll Back from OBA 3.02 to 3.01" below

Uninstall OBA

This chapter guides you through a high level list of things to do when you decide to uninstall Operations Bridge Analytics. If you want to roll back from OBA 3.01 to a previous installation of 3.00, follow the steps in "Roll Back from OBA 3.02 to 3.01" below.

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 OBA Server 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 3.02 to 3.01

If you updated your OBA 3.01 system to 3.02 and you would now like to roll back to version 3.01, do the following:

> **Note:** All new collections created in OBA 3.02 are still valid after a rollback to OBA 3.01. 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 3.01 installer bits.

   b. Copy the `downgrade_oba0302_to_oba0301.sh` script from the 3.02 install directory to the 3.01 install directory and start the script as the root user.

   > **Note:** You must use the old installation binaries from your original 3.01 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.

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 3.02)

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!