



**Hewlett Packard**  
Enterprise

# HPE Operations Analytics

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## HPE Operations Analytics Configuration Guide

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# Part 1: Introduction

This guide contains information about how to configure HPE Operations Analytics including the following major topics:

- Configuring Collections
- Hardening
- Maintenance

**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.

# Chapter 1: Introduction

## For Information about Operations Analytics

To obtain a complete set of information about Operations Analytics, use this guide along with other Operations Analytics documentation. The table below shows all Operations Analytics documents to date.

### Documentation for Operations Analytics

What do you want to do?	Where to find more information
<b>Installing and Upgrading</b>	
I want to find the hardware and operating system requirements for Operations Analytics	<a href="#">HPE Operations Analytics System Requirements and Sizing Guide</a>
I want to install Operations Analytics	<a href="#">HPE Operations Analytics Installation Guide</a>
I want to upgrade Operations Analytics 2.20 to Operations Analytics 2.31	<a href="#">HPE Operations Analytics Upgrade Guide (version 2.20 to version 2.31)</a>
I want to upgrade Operations Analytics 2.30 to Operations Analytics 2.31	<a href="#">HPE Operations Analytics Upgrade Guide (version 2.30 to version 2.31)</a>
<b>Using Operations Analytics</b>	
I want to read a list of the new features and review any last minute issues for Operations Analytics	<a href="#">HPE Operations Analytics Release Notes</a>
I want to obtain help about the Operations Analytics console	See the <i>Operations Analytics Help</i> . You can view the <i>Operations Analytics Help</i> by selecting  from the Operations Analytics console
<b>Configuring Operations Analytics</b>	
I want to configure and maintain Operations Analytics	<a href="#">HPE Operations Analytics Configuration Guide</a>
I want to use the Operations Analytics console's Configuration Manager instead of the configuration scripts to configure my Operations Analytics collections.	See the <i>Configuring Collections</i> topic in the <i>Operations Analytics Help</i> . You can view the <i>Operations Analytics Help</i> by selecting  from the Operations Analytics console
I want to configure Alerts in Operations Analytics.	See the <i>Alerts</i> topic in the <i>Operations Analytics Help</i> . You can view the <i>Operations Analytics Help</i> by selecting  from the Operations Analytics console
<b>Using Operations Analytics Integrations</b>	
I want to open a view from HPE BSM to Operations Analytics	<a href="#">HPE Operations Analytics - BSM Integration Guide</a>

## Documentation for Operations Analytics, continued

What do you want to do?	Where to find more information
I want to view a list of software products integrated with Operations Analytics	See the list of integrations for Operations Analytics and other HPE products at <a href="#">Software Solutions Now</a>

## Environment Variables used in this Document

This document refers to the following environment variables and other useful directories when explaining installation and configuration instructions for the Operations Analytics Software, including the Operations Analytics Server and the Operations Analytics Collector host. The environment variables are set automatically for the opsa user who can use all Operations Analytics functionality and has access to data at the tenant level. See "[Configuring Collections - Workflow](#)" on page 17 for more information.

**Table 1: Environment Variables**

Variable Name	Path	Operations Analytics Server or Operations Analytics Collector Host
OPSA_HOME	/opt/HP/opsa	Operations Analytics Server and Collector hosts
JAVA_HOME	/opt/HP/opsa/jdk	Operations Analytics Server and Collector hosts

**Table 2: Other Useful Directories**

Folder Name	Path	Operations Analytics Server or Operations Analytics Collector Host
JBOSS Home Directory	/opt/HP/opsa/jboss	Operations Analytics Server
JDK Folder	/opt/HP/opsa/jdk	Operations Analytics Server and Collector hosts
scripts Folder	/opt/HP/opsa/scripts	Operations Analytics Server and Collector hosts
conf Folder	/opt/HP/opsa/conf	Operations Analytics Server and Collector hosts
data Folder	/opt/HP/opsa/data	Operations Analytics Server and Collector hosts
log Folder	/opt/HP/opsa/log	Operations Analytics Server and Collector hosts
lib Folder	/opt/HP/opsa/lib	Operations Analytics Server and Collector hosts
bin Folder	/opt/HP/opsa/bin	Operations Analytics Server and Collector hosts
Vertica Database Installation Folder	/opt/vertica	Operations Analytics Server and Collector hosts have the Vertica client installed in this folder

## System Requirements

See the [Operations Analytics System Requirements and Sizing Guide](#) for the hardware and operating system requirements for Operations Analytics.

Any command examples shown in this document as being run by an opsa user can also be run by a root user.

`$OPSA_HOME` is set to `/opt/HP/opsa` in the Operations Analytics Server.

## Terminology Used in this Document

**Analytic Query Language (AQL):** The more advanced offering of two query languages supported by Operations Analytics. Use AQL when the Phrased Query Language (PQL) syntax is not specific enough to return the data you need. When using AQL, it is helpful if you have programming or scripting skills as well as some knowledge of databases. See *About Analytics Query Language (AQL) Functions* in the *Operations Analytics Help* for more information.

**Collection:** A collection defines the data to be collected and corresponds to a database table in which the Operations Analytics Collector host stores the data. Collections can be separated by tenant and collection information cannot be shared among tenants

**Custom Collections** The list of collections supported by the Operations Analytics Server that do not have predefined templates.

**Operations Analytics Collector host:** This virtual appliance or server is the server used to manage the data collections.

**Data Sources:** Operations Analytics collects metrics, topology, event, and log file data from a diverse set of possible data sources.

**HPE Service Health Analyzer (SHA):** HPE Service Health Analyzer analyzes abnormal service behavior and alerts IT managers of service degradation before an issue affects their business.

**Link Tags:** Special tags used to relate collection information. Create the same link tag for each collection you want to link together.

**Meta Model:** A way to describe the data to collect for analysis; it includes the construction and development of the frames, rules, constraints, models and theories applicable and useful for modeling a predefined class of problems.

**Metrics:** Structured data that is typically collected from HPE's existing management products, other data files or from other 3rd party management software. A metric is a measurement of one attribute at specific point in time for a specified sub-entity or resource (such as CPU utilization). A metric is based on the most recent user-initiated search query.

**Outlier or Outliers:** Data that is outside of the normal range based on the data collected to date.

**predefined Collection Templates:** The list of predefined collection templates that reside on the Operations Analytics Server for the collections Operations Analytics supports by default.

**Phrased Query Language (PQL):** The less advanced offering of two query languages supported by Operations Analytics. Use PQL in the early stages of troubleshooting a problem. With this approach, type a word or phrase that begins to describe the type of problem you want to resolve and then select from the list of suggestions provided by Operations Analytics. See *About the Phrased Query Language* in the *Operations Analytics Help* for more information.

**Raw Logs:** These are log messages as they appear from the log management application with which Operations Analytics is integrated. These log files must be configured using the log file management software supported by Operations Analytics. See the [Operations Analytics System Requirements and Sizing Guide](#) for more information.

**Operations Analytics Server:** This virtual appliance or server is the Operations Analytics Server.

**Structured Logs:** Structured logs are fragments of log file data read by Operations Analytics from HPE ArcSight Logger. This log information is stored (as collections) in Operations Analytics. These collections exist so that users can perform analytics on the log file contents. For example, users might want to query for all outliers by host name and application for a particular time range.

**Tenant:** Operations Analytics gathers metrics, topology, event, and log file data from a diverse set of possible data sources. Tenants enable you to separate information from these data sources into groups, such as collections, user accounts, and user groups. Collections can be separated by tenant and collection information cannot be shared among tenants. See ["Creating Tenants " on page 17](#) for more information.

**Virtual Appliance:** A virtual appliance, also referred to as **appliance** in this document, is a self contained system that is made by combining a software application, such as Operations Analytics software, with just enough operating system for it to run optimally on industry standard hardware or a virtual machine, such as VMWare.

## Data Sources used in Operations Analytics

In today's complex data center environments, the source of a problem is not always easy to detect using traditional management and troubleshooting tools that look only for predetermined solutions to known potential problems. For example, many management and troubleshooting tools are designed to provide analytics for a specific problem context, such as root cause isolation, outlier detection, and service level agreement violation. They provide these services by using a specific data set and analytics technique.

With Operations Analytics you generate insights from the IT data in your environment that you, the Operations Analytics administrator, chooses to collect in your network. And because identifying the most useful analytics to derive from the data generally depends on the problem context, the user community provides each data request.

As the Operations Analytics administrator, you configure collections from a diverse set of possible sources. For example, if you have HPE Network Node Manager (NNMi) or HPE Operations Manager (HPOM), you can configure collections to gather NNMi topology or HPOM events occurring within your network.

See [Table 2: Predefined Data Collection Sources by Collection Type](#) and [Table 3: Custom Data Collection Sources by Collection Type](#) for the list of supported data sources.

**Note:** Operations Analytics requires that you use a configuration template to configure each collection. See [Table 2: Predefined Data Collection Sources by Collection Type](#) to determine the data sources that have predefined configuration templates. You create Custom Collections for any supported data source that does not have a configuration template provided by Operations Analytics.

Operations Analytics provides predefined collection templates for the data sources shown in the following table:

**Table 2: Predefined Data Collection Sources by Collection Type**

Predefined Data Collection Sources	Metrics Collection Type	Events Collection Type	Topology Collection Type	Inventory Collection Type
HPE BSM RTSM (Configuration Item Inventory)	no	no	no	yes

**Table 2: Predefined Data Collection Sources by Collection Type, continued**

Predefined Data Collection Sources	Metrics Collection Type	Events Collection Type	Topology Collection Type	Inventory Collection Type
HPE Business Process Monitor (BPM)	yes	no	no	no
HPE NNMi Custom Poller	yes	no	no	no
HPE Network Node Manager iSPI Performance for Metrics Component Health	yes	no	no	no
HPE Network Node Manager iSPI Performance for Metrics Interface Health	yes	no	no	no
HPE Operations Agent	yes	no	no	no
HPE Operations Smart Plug-in for Oracle	yes	no	no	no
HPE OMi (Operations Manager i) Events	no	yes	no	no
HPE Operations Manager (OM) Events	no	yes	no	no

Operations Analytics supports, but does not provide predefined collection templates for the data sources shown in the following table:

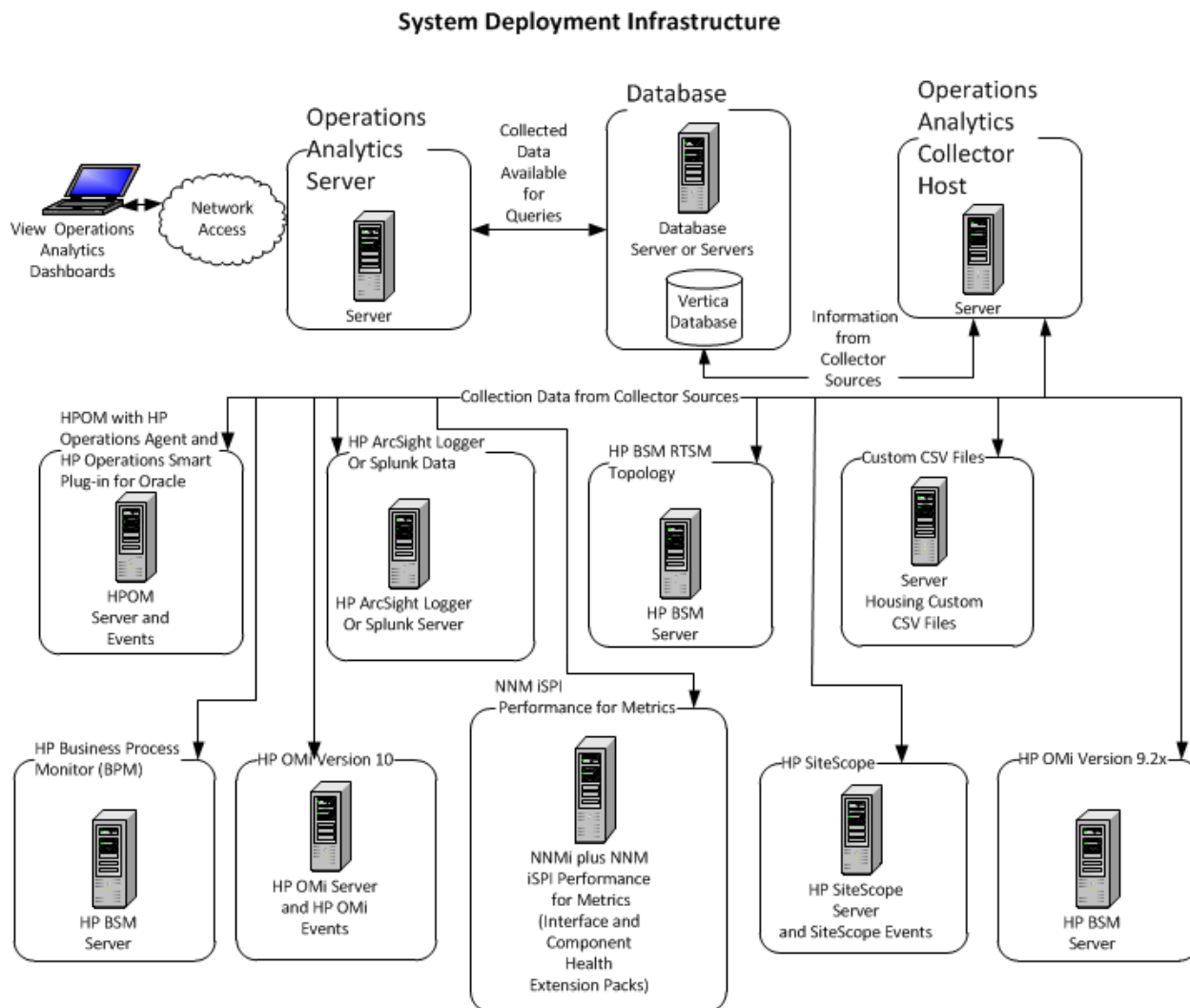
**Table 3: Custom Data Collection Sources by Collection Type**

Custom Collection Data Source	Topology Collection Type	Metrics Collection Type	Structured Logs Collection Type	Undefined Collection Type
HPE SiteScope	no	yes	no	no
Structured Logs	no	no	yes	no
Custom CSV Files	no	no	no	yes

**Note:** Operations Analytics provides scripts to automatically generate templates for the HPE SiteScope and Custom CSV collections.

# System Architecture

Review the information shown in the following diagram to begin understanding the data sources used by Operations Analytics and how they are configured together to better plan your Operations Analytics installation.



## Part 2: Configuring Collections

Operations Analytics depends on other products and solutions as data sources. Some examples are BSM products such as BPM, SiteScope, NNMi, OMi, and Operations Agent. To configure Operations Analytics to connect to and process data from these data sources can take anywhere from a few minutes to a few hours, depending on the data sources. In a general sense, you should be able to deploy Operations Analytics and get started with two or three data sources in less than two days, resulting in having data being collected from these data sources into Operations Analytics for analysis.

A collection defines the data to be collected and corresponds to a database table in which the Operations Analytics Collector host stores the data. To populate the Operations Analytics database with useful information you must configure collections.



# Chapter 2: Configuring Collections - Workflow

## To set up a collection:

1. Create a tenant for each collection you plan to define. For details, see ["Creating Tenants " below](#).
2. Register each Operations Analytics Collector host. For details, see ["Registering Each Operations Analytics Collector Host" on page 19](#).
3. Configure the collection using one of the following methods (in order of preference)
  - Using the user interface - ["Using the Collections Manager to Configure Collections" on page 21](#).
  - Using the command line for a predefined collection type - ["Configuring Collections using Predefined Templates " on page 106](#)
  - Using the command line for a custom collection type - ["Configuring Collections for Custom Data Sources " on page 159](#).
  - Using the detailed method - ["Appendixes" on page 191](#).

For best results, configure your collections in the following order (from less complex to more complex collection configurations):

1. HPOM Events Collection
2. OMi Events Collection
3. HPE Operations Agent Collection
4. HPE Operations MP Collections
5. HPE Operations Smart Plug-in for Oracle Collection
6. HPE Business Process Monitor Collection
7. NNMi Custom Poller Collection
8. NNM iSPi Performance for Metrics Component Health Collection
9. NNM iSPi Performance for Metrics Interface Health Collection
10. HPE BSM RTSM NNMi Configuration Item Collection
11. ArcSight Logger Collection
12. Custom Collection
13. Custom SiteScope Collection
14. Structured Log Collection

## Creating Tenants

Operations Analytics gathers metrics, topology, event, and log file data from a diverse set of possible data sources. Tenants enable you to separate information from these data sources into groups, such as collections, user accounts, and user groups.

For each collection you define for the data sources supported by Operations Analytics, you must define a corresponding Tenant Admin or use the default Tenant, `opsa_default`, and the associated Tenant Admin user, `opsatenantadmin`, if you choose to not use a tenant model to separate information.

## Important Tenant Information

A collection is automatically associated with a tenant depending on the Tenant Admin user that the Operations Analytics administrator provides as input when running the `$OPSA_HOME/bin/opsa-collection-config.sh` script.

Before creating collections using the **Collections Manager** or the `$OPSA_HOME/bin/opsa-collection-config.sh` script, **you must decide on one of the following options** before proceeding with any collection configuration:

- Use the default Tenant, `opsa_default`, its corresponding default tenant username (`opsatenantadmin`), and the password for this user that you selected during installation. If you choose this option, skip directly to ["Registering Each Operations Analytics Collector Host" on the next page](#).
- Decide on which existing tenant to use.
- Create a new tenant and its corresponding Tenant Admin.

**Note:** Any user that is associated with a new tenant created by a member of the Super Admin user group cannot see collected information (in any dashboard) from any of the existing predefined collections (for any of the existing tenants, including the `opsa_default` tenant). After a member of the Super Admin user group creates a new tenant, the tenant admin user associated with that tenant needs to create collections for this new tenant.

When using the `$OPSA_HOME/bin/opsa-collection-config.sh` script, some examples in this document use a predefined Tenant Admin user, `opsatenantadmin`, for the predefined `opsa_default` tenant. When defining collections, replace the `opsatenantadmin` shown in the example with the Tenant Admin user for the collection you are creating.

**Note:** You can configure a collector to collect data from a data source for only one tenant. So a single collector cannot be used to collect data from a single data source for multiple tenants.

**Note:** There might be tenant limitations when configuring collections for products that support multiple tenants. Each collector you configure for a collection supports a single tenant, so the data source from which it is collecting must also be for a single tenant.

Operations Analytics provides the following predefined User Groups:

- **Super Admin:** During installation, the `opsaadmin` user gets created, and assigned to the Super Admin user group. You set the password for this user during installation. 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 *Managing Users and Tenants* in the *Operation Analytics Help* for information about managing users and tenants. See the `opsa-tenant-manager.sh` reference page (or the Linux `manpage`) for information about creating and managing tenants.
- **Tenant Admin:** During installation, the `opsatenantadmin` user gets created, and assigned to the Tenant Admin user group. You set the password for this user during installation. 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 *Managing Users and Tenants* in the *Operation Analytics Help* for information about managing users and tenants. See the `opsa-tenant-manager.sh` reference page (or the Linux `manpage`) for information about creating and managing users for a tenant.

- **User:** During installation, the `opsa` user gets created, and assigned a normal user role. You set the password for this user during installation. 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 Analytics console and has access to data for the user group to which it is assigned. This user account must be unique across all tenants. See *Manage Users* in the *Operations Analytics Help* for more information.

If you plan to use a tenant model, you can create additional tenants from the Operations Analytics console or by using the `$OPSA_HOME/bin/opsa-tenant-manager.sh` script. See *Add a Tenant* in the *Operations Analytics Help* for more information about creating a tenant using the Operations Analytics console. To create a tenant and a Tenant admin user for a collection by using the `opsa-tenant-manager.sh` script, do the following:

1. Run the `$OPSA_HOME/bin/opsa-tenant-manager.sh` command from the Operations Analytics Server as a user assigned to the Super Admin User Group. See *Managing Users and Tenants* in the *Operation Analytics Help* for information about managing users and tenants. See the `opsa-tenant-manager.sh` reference page (or the Linux manpage) for information about managing tenants.
2. Enter **Add a new tenant** and follow the interactive commands to add the new tenant.
3. Run the `$OPSA_HOME/bin/opsa-tenant-manager.sh` command as a user assigned to the Super Admin User Group.
4. Enter **Add a new user** and follow the interactive commands to add a user assigned to the Tenant Admin user group for the newly created tenant.

See the `opsa-tenant-manager.sh` reference page (or the Linux manpage) or *Manage Users* in the *Operations Analytics Help* for information about managing users.

If you do not create a Tenant Admin user while adding a new tenant (as shown above in steps 3 and 4), add the Tenant Admin user for the new tenant later using the `$OPSA_HOME/bin/opsa-user-manager.sh` script. Do the following:

1. Run the `$OPSA_HOME/bin/opsa-user-manager.sh` command.
2. Enter **Add a new user** option.
3. Enter the Super Admin username and password.
4. Enter the Tenant Name for which you must add the Tenant Admin user.
5. Enter the new Tenant Admin user name.
6. Enter the new password for the new Tenant Admin user name.
7. Confirm the password.

The newly added Tenant Admin user is now available to add, modify, and delete users for its specified tenant. See the `opsa-user-manager.sh` reference page (or the Linux manpage) for more information.

## Registering Each Operations Analytics Collector Host

You must register each Operations Analytics Collector host you plan to use with the Operations Analytics Server. If you plan to use a tenant model (tenants other than the `opsa_default` default tenant), you must use the `-tenant` option with the `opsa-collection-config.sh` command. See the `opsa-collection-config.sh` reference page (or the Linux manpage) for more information.

**Note:** Before completing the steps in this section, it is recommended that you an entry to the `/etc/hosts` file for the Operations Analytics Collector host you plan to register .

## Automatically Creating Alert Collections

All of the alerts generated by Operations Analytics are stored as collections. This collected information is used to display dashboards for these alerts generated over time. Unlike all of the other collections, there is no manual configuration or registration required for the Alerts Collections, as a new Alerts Collection gets created with each newly created Operations Analytics tenant.

See *Alerts* in the *Operations Analytics Help* for more details about the Alerts feature.

An Alerts Collection gets created each time an Operations Analytics Collector is registered to an Operations Analytics Server. When adding Operations Analytics Servers, as described in ["Adding More Operations Analytics Servers" on page 64](#), you must run the following command from the newly added Operations Analytics Servers to create the alerts collection:

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -collectorhost <collector IP address> -  
source opsa -domain collection -group alerts -username <tenant admin user> -password  
<tenant admin password>
```

## Checking the Registration Status of a Operations Analytics Collector Host

To check the registration status of your Operations Analytics Collector host, do the following:

1. Run the following command: `$OPSA_HOME/bin/opsa-collection-config.sh -list -collectorhosts -allversions -username opsatenantadmin`
2. Review the list of registered Operations Analytics Collector hosts. If the Operations Analytics Collector host you plan to register is not on the list, you must register it using the instructions in this section.

## Registering an Operations Analytics Collector host

To register an Operations Analytics Collector host with a Operations Analytics Server, do the following:

1. Run the following command on the Operations Analytics Collector host to make sure the `opsa-collector` process is running:

```
$OPSA_HOME/bin/opsa-collector status
```

Look for a message stating the `opsa-collector` process is running. If the message states that the `opsa-collector` process is stopped, restart the process using the following command: `$OPSA_HOME/bin/opsa-collector start`

2. Run the following command from the Operations Analytics Server:

```
$OPSA_HOME/bin/opsa-collection-config.sh -register -collectorhost <fully-  
qualified domain name of the collector host> -port 9443 -username  
opsatenantadmin
```

**Note:** If you have the Operations Analytics Collector host configured to use SSL for data communications, use the `-ssl` option in this command. If you have changed the HTTP user name or password on the Operations Analytics Collector host, use the `-coluser` and `-colpass` option in this command. You must also use the fully-qualified domain name of the Operations Analytics Collector host when using this command. See the *opsa-collection-config.sh* reference page (or the Linux manpage) for more information.

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** The default port to which Operations Analytics listens is 9443. You can modify this port in cases of port conflicts. See ["Configuring the HTTP and HTTPS Port for the Operations Analytics Collector Host" on page 37](#) for more information.

If the script communicates successfully with the Operations Analytics Collector host, it registers it in the Operations Analytics Server database and displays a success message.

## Using the Collections Manager to Configure Collections

The recommended method of configuring collections is by using the **Collections Manager** from the Operations Analytics console. See *Configuring Collections* in the *Operations Analytics Help* for more information about the **Collections Manager**.

**Note:** You might not be able to configure all collections by using the **Collections Manager** (see the following examples):

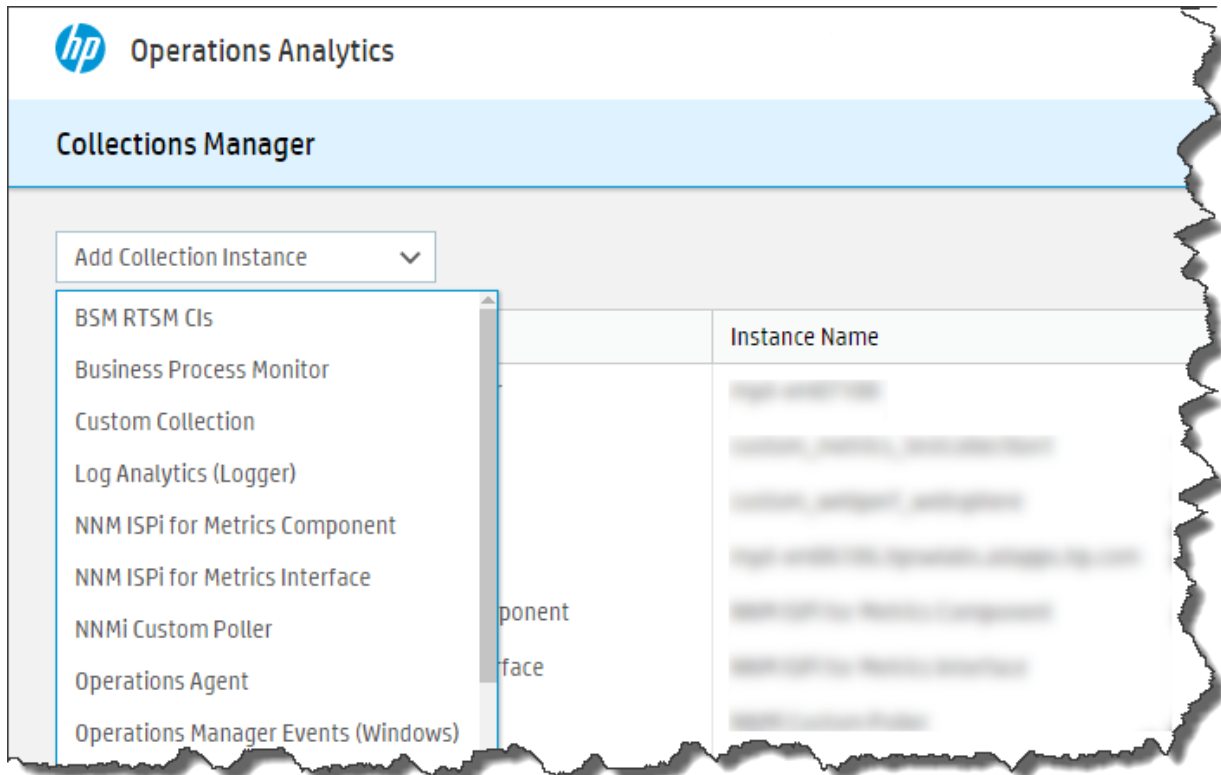
- To create collections using tenants other than the default tenant, `opsa_default`, for the NNM ISPI Performance for Metrics Component Health, NNM ISPI Performance for Metrics Interface Health, BPM, or SiteScope collections, do not use the **Collections Manager**. Instead, use the collection configuration instructions in this manual.
- You cannot use the **Collections Manager** to configure a Structured Log collection.
- You cannot use the **Collections Manager** to configure custom monitors in a SiteScope collection.

If the **Collections Manager** does not provide you with all of the options you need for a specific collection, then use the more manual collection configuration instructions (using use the `opsa-collection-setup.sh` script ) shown in "[Configuring Collections using Predefined Templates](#) " on page 106 or "[Configuring Collections for Custom Data Sources](#) " on page 159.

**Note:** You must register a collection using the instructions shown in "[Registering Each Operations Analytics Collector Host](#)" on page 19 before using the **Collections Manager**.

**Note:** You must decide on the approach you want to take regarding tenants before creating your collections. See the instructions shown in "[Creating Tenants](#) " on page 17 before using the **Collections Manager**.

See an example of the **Collections Manager** shown below:



See *Configuring Collections* in the *Operations Analytics Help* for information about accessing the **Collections Manager**.

The **Collections Manager** supports all Operations Analytics collections.

The **Collections Manager** provides you with an **Unregister** button if you no longer want to analyze data for a collection. See *Collections Manager* in the *Operations Analytics Help* for more information.

## Communicating Collection Names and Meta Data Information to your Users

One way for operators to view the tags and property groups available to them is to View the **OpsA Meta Info** dashboard, which displays all of the active collections and the tags being used. The information in this dashboard provides operators with a lot of the information they need for more effective queries. See *Dashboards Provided by Operations Analytics* in the *Operations Analytics Help* for more information.

The following example uses the `$OPSA_HOME/bin/opsa-tenant-manager.sh` script. This example uses a predefined Super Admin user (`opsadmin`) and the password for this user that you set during installation. You can also use the Operations Analytics console to manage users and tenants. See *Manage Users* in the *Operations Analytics Help* for more information.

To create a list of the collections and tags your users will be interested in, you can also do the following:

1. To list all of the tenants configured for an Operations Analytics Server, run the `$OPSA_HOME/bin/opsa-tenant-manager.sh -list -loginUser opsadmin -loginPassword <password>` command from the Operations Analytics Server. Make a list of the tenants shown in the

command output for your users. See the *opsa-tenant-manager.sh* reference page (or the Linux manpage) for more information.

2. To list all of the published collectors and collections for a tenant, run the `$OPSA_HOME/bin/opsa-collection-config.sh -list -collectorhosts -username opsatenantadmin` command from the Operations Analytics Server. Make a list of the published collectors and collections shown in the command output for your users. See the *opsa-collection-config.sh* reference page (or the Linux manpage) for more information.
3. Use the `$OPSA_HOME/bin/opsa-tag-manager.sh` script from the Operations Analytics Server to view and identify the tags in which your users are interested. Experiment with the options available with the `opsa-tag-manager.sh` script to identify the tags you must communicate to your users. See the *opsa-tag-manager* reference page (or the Linux manpage) for more information. Make a list of these tags.
4. Combine the information from these steps and distribute this information to your Operations Analytics users.

# Part 3: Hardening

There are several security methods you can configure for user access, authentication, and protecting data using tenants for Operations Analytics.



# Chapter 3: SSL for Operations Analytics Servers

## Configuring SSL for the Operations Analytics Server

One-way SSL provides secure communication between the client and the Operations Analytics Server. During an SSL session creation, the server sends a digital certificate (self-signed or CA signed) containing information about the server. This information, such as domain, organization, and location, helps the client verify the server's identity. SSL is disabled by default.

It is recommended that customers enable SSL communication for those environments where security is a concern. If customers are using a self-signed certificate, do one of the following:

- Export the public key of the Operations Analytics Collector host server certificate.
- Export the public root CA certificate if you are using CA signed server certificate.

Import the exported certificate into the trust store on the Operations Analytics Server using the `$OPSA_HOME/bin/opsa-server-manager.sh` script. See ["Configuring SSL for the Operations Analytics Collector Host" on page 30](#) for more information about configuring SSL for the Operations Analytics Collector host.

Use the information in this section to manage SSL on the Operations Analytics Server.

## Configuring SSL with a Certificate Authority (CA) Signed Certificate for the Operations Analytics Server

Complete the following steps to enable SSL communication to the Operations Analytics Server using a CA signed certificate:

1. Before enabling SSL to the Operations Analytics Server, complete this step on the Operations Analytics Server to create a user in JBoss **Management Realm**.

**Note:** If you are configuring the Operations Analytics Collector host, do the following instead of completing this step:

- a. Run `/opt/HP/opsa/bin/opsa-collector-manager.sh`
- b. Choose SSL (Option 1)

Do the following:

- a. Run the `$OPSA_HOME/jboss/bin/add-user.sh` script.
- b. For the first question, answer **"a" - Management User (mgmt-users.properties)**, then follow the instructions.

**Note:** You will need to provide the JBoss management realm credentials when enabling SSL later in these instructions.

2. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script on the Operations Analytics Server,

and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage), for more information.

**Note:** Configuration begins on the Operations Analytics Server side.

3. Select the **Configure SSL** option.
4. Select option 1 to generate a selfsign key pair.
5. Select option 2 to generate a certificate request for a signed CA certificate:
  - a. Choose the *opsa\_server* alias.
  - b. Save the certificate to */tmp/opsa\_server\_crf.src*.
6. After creating the request file, open this file in a text editor and do the following to copy the content into the CA form:
  - a. Browse to **<https://<your CA Request Server>/certsrv/>**
  - b. Select **Request a certificate > Advanced certificate request > Submit a certificate request by using a base-64-encoded CMC or PKCS #10 file, or submit a renewal request by using a base-64-encoded PKCS #7 file**
  - c. Paste the content of the *opsa\_server\_crf.src* file into the CA form .
  - d. Paste the resulting information into the **Saved Request** form.
  - e. Download the certificate chain on based 64 encoded format (p7b extension).
  - f. Copy this file to the Operations Analytics server in the */tmp* folder.
  - g. Go back to the first screen.
7. Select option 3 to import the CA signed certificate into the Operations Analytics keystore.

**Note:** The path to the signed *opsa\_server/collection* certificate file is */tmp/certnew.p7b*.

8. Complete the following steps to import the trusted certificate into the Operations Analytics truststore:
  - a. Download the CA root certificate from **<https://<your CA Request Server>/certsrv/>**.
  - b. Select **Download a CA certificate, certificate chain, or CRL**
  - c. Select the **Base 64** radio button.
  - d. Select **Download CA certificate**
  - e. Copy this file to the Operations Analytics server in the */tmp* folder.
  - f. Go back to the first screen.
9. Select option 4 to import the trusted certificate to the Operations Analytics truststore.

**Note:** Enter the exact path to the downloaded CA certificate (.cer) file.

10. Select option 8 to enable SSL. You will need to enter the JBoss **Management Realm** user and password you created in the first step. The *opsa-server-manager.sh* script prompts you for the certificate alias to be used for SSL communication. Enter one of the aliases from the listed aliases.
11. Select the **Go back to main menu** option; then select **Option 6** to restart the Operations Analytics Server:

**Note:** Your configuration changes will not occur unless the server is restarted.

**Note:** Repeat all of the above steps for the Operations Analytics Collector.

12. If the Operations Analytics is already configured with collections (the collector is already registered), run the following command to unregister the collector from the server:

```
/opt/HP/opsa/bin/opsa-collection-config.sh -unregister -collectorhost <collector IP address> -port 9443 -username <tenant admin username> -password <password for tenant admin username>
```

**Note:** There is a need to unregister all of the collections. For example, to remove SiteScope Apache there is a need to run the following command: `opsa-collection-config.sh -unregister -collectorhost <IP address of Collector> -source SiteScope -domain Apache -group metrics -username opsatenantadmin`

**Note:** If the Operations Analytics Collector host is not registered to the Operations Analytics Server, complete step 14 to do that registration.

13. If the Operations Analytics is already configured with collections, run the following command to check that the collector was unregistered successfully:

```
/opt/HP/opsa/bin/opsa-collection-config.sh -list -allversions -collectorhosts -port 9443 -username <tenant admin username> -password <password for tenant admin username>
```

**Note:** Use a version of the following command to verify that the entire collection is unregistered.:  
`/opt/HP/opsa/bin/opsa-collection-config.sh -list -allversions -collectorhosts -port <port number> -username <user> -password <password>`

14. Run the following command to register the collector with the SSL command:

```
/opt/HP/opsa/bin/opsa-collection-config.sh -register -collectorhost <collector IP address> -port 9443 -username <tenant admin username> -password <password for tenant admin username> -ssl
```

15. Operations Analytics users can access the Operations Analytics console using HTTP or HTTPS.

**Note:** For example, use `https://<Operations Analytics ServerIP Address>/opsa`

**Note:** If a user attempts to use HTTP when HTTPS is configured, the user will automatically be redirected using HTTPS.

## Configuring SSL with a Self-Signed Certificate for the Operations Analytics Server

Complete the following steps to enable SSL communication to the Operations Analytics Server using a self-signed certificate:

1. Before enabling SSL to the Operations Analytics Server, complete this step to create a user in JBoss **Management Realm**. Do the following:
  - a. Run the `$OPSA_HOME/jboss/bin/add-user.sh` script.
  - b. For the first question, answer **"a" - Management User (mgmt-users.properties)**, then follow the instructions.

**Note:** You will need to provide the JBoss management realm credentials when enabling SSL later in these instructions.

2. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage), for more information.
3. Select the **Configure SSL** option.
4. Select the **Generate self-signed certificate for OPSA server** option to generate a self-signed certificate and add the certificate to the Operations Analytics server keystore.

**Note:** The `opsa-server-manager.sh` script stores the self-signed certificate in the keystore file with the `opsa_server` alias name.

**Note:** Set the self-signed certificate attributes, such as `common name`, `country`, and `validity` by editing the `/opt/HP/opsa/conf/ssl/cert/opsa-self-signed-cert.template` file.

5. Optional: Select the **Import trusted certificate to OPSA server truststore** option to import trusted certificates (if any). For example, you can add HPE ArcSight Logger's server certificate to the OPSA truststore file.
6. Select the **Enable/Disable SSL** option to enable SSL. You will need to enter the JBoss **Management Realm** user and password you created in the first step. The `opsa-server-manager.sh` script prompts you for the certificate alias to be used for SSL communication. Enter one of the aliases from the listed aliases.
7. Select the **Enable/Disable SSL** option to enable SSL. The `opsa-server-manager.sh` script prompts you for the certificate alias to be used for SSL communication. Enter `opsa_server`.

**Note:** `opsa_server` is one of the aliases shown by the script.

8. Select the **Go back to main menu** option; then select the **Restart OPSA server** option to restart the Operations Analytics Server.

**Note:** Your configuration changes will not occur unless the server is restarted.

9. Operations Analytics users can access the Operations Analytics console using HTTP or HTTPS.

**Note:** If a user attempts to use HTTP when HTTPS is configured, the user will automatically be redirected using HTTPS.

## Editing the SSL Configuration for the Operations Analytics Server

To change the certificate alias used for SSL communication, do the following:

1. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.
3. Select the **Change key alias to be used for SSL communication** option.
4. The `$OPSA_HOME/bin/opsa-server-manager.sh` script prompts you for the alias name, and lists the existing set of aliases from the OPSA keystore. Enter the desired alias name from the list.
5. Select the **Go back to main menu** option, then select the **Restart OPSA server** option to restart the

Operations Analytics Server.

**Note:** Your configuration changes will not occur unless the server is restarted.

## Disabling the SSL Configuration for the Operations Analytics Server

To disable the SSL communication, do the following:

1. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script from the Operations Analytics Server, and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.
3. Select the **Enable/Disable SSL** option.
4. The `$OPSA_HOME/bin/opsa-server-manager.sh` script prompts you for a confirmation. Enter `yes` to disable the SSL communication.
5. Select the **Go back to main menu** option, then select the **Restart OPSA server** option to restart the Operations Analytics Server.

## Managing the Operations Analytics Keystore and Truststore for the Operations Analytics Server

To modify the Operations Analytics keystore and truststore password, do the following:

1. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage) for more information.
2. Select the **Configure SSL** option.
3. Select the **Modify OPSA keystore/truststore password** option.
4. The `$OPSA_HOME/bin/opsa-server-manager.sh` script prompts you for the new password for the keystore and truststore. Enter the new passwords.
5. Select the **Go back to main menu** option, then select the **Restart OPSA server** option to restart the Operations Analytics Server.

To delete a certificate from the Operations Analytics keystore and truststore, do the following:

1. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage) for more information.
2. Select the **Configure SSL** option.
3. Select the **Delete certificate from OPSA server keystore** or **Delete certificate from OPSA server truststore** option.
4. The `$OPSA_HOME/bin/opsa-server-manager.sh` script prompts you for the alias name, listing the existing set of aliases from the OPSA keystore/truststore. Enter the alias name to be deleted from the list.
5. Select the **Go back to main menu** option, then select the **Restart OPSA server** option to restart the Operations Analytics Server.

**Note:** The certificate delete will fail if the certificate is in use.

To export a certificate from the Operations Analytics keystore, do the following:

1. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage) for more information.
2. Select the **Configure SSL** option.
3. Select the **Export certificate from OPSA server keystore** option.
4. The `$OPSA_HOME/bin/opsa-server-manager.sh` script prompts you for the alias name, listing the existing set of aliases from the Operations Analytics keystore. Enter the alias name to be deleted from the list.
5. The `$OPSA_HOME/bin/opsa-server-manager.sh` script prompts you for the file path to which the certificate should be exported. Enter the path to export the certificate.

To change an Operations Analytics keystore file, do the following:

**Note:** The keystore password and the truststore password must be identical.

1. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage) for more information.
2. Select the **Configure SSL** option.
3. Select the **Change OPSA keystore file** option.
4. The `$OPSA_HOME/bin/opsa-server-manager.sh` script prompts you with a set of prerequisites actions to take before proceeding. Enter yes after you complete these prerequisites.
5. Enter the absolute path of the keystore file.

To change an Operations Analytics truststore file, do the following:

**Note:** The keystore password and the truststore password must be identical.

1. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage) for more information.
2. Select the **Configure SSL** option.
3. Select the **Change OPSA truststore file** option.
4. The `$OPSA_HOME/bin/opsa-server-manager.sh` script prompts you with a set of prerequisites actions to take before proceeding. Enter yes after you complete these prerequisites.
5. Enter the absolute path of the truststore file.

## Configuring SSL for the Operations Analytics Collector Host

One-way SSL provides secure communication between the client and the Operations Analytics Server. During an SSL session creation, the server sends a digital certificate (self-signed or CA signed) containing information about the server. This information, such as domain, organization, and location, helps the client verify the server's identity. SSL is disabled by default.

It is recommended that customers enable SSL communication for those environments where security is a concern.

1. If customers are using a self-signed certificate, do one of the following:
  - Export the public key of the Operations Analytics Collector host certificate.
  - Export the public root CA certificate if you are using CA signed server certificate.
2. Import the exported certificate into the trust store on the Operations Analytics Server using the `$OPSA_HOME/bin/opsa-server-manager.sh` script. See "[Configuring SSL for the Operations Analytics Collector Host](#)" on the previous page for more information about configuring SSL for the Operations Analytics Collector host.

Use the information in this section to set up SSL and other communication changes on the Operations Analytics Collector host before registering the Operations Analytics Collector host with the Operations Analytics Server. See "[Registering Each Operations Analytics Collector Host](#)" on page 19 for more information.

Use the information in this section to manage SSL on the Operations Analytics Collector host.

## Configuring SSL with a Certificate Authority (CA) Signed Certificate for the Operations Analytics Collector Host

SSL provides secure communication between the client and the Operations Analytics Collector host. During an SSL session creation, the server sends a digital certificate (self-signed or CA signed) containing information about the server. This information, such as domain, organization, and location, helps the client verify the server's identity. SSL is disabled by default.

Complete the following steps to enable SSL communication to the Operations Analytics Collector host using a CA signed certificate:

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script on the Operations Analytics Collector host. See the `opsa-collector-manager.sh` reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.
3. Select option 1 to generate a selfsign key pair.
4. Select option 2 to generate a certificate request for a signed CA certificate:
  - a. Choose the `opsa_server` alias.
  - b. Save the certificate to `/tmp/opsa_server_crf.src`.
5. After creating the request file, open this file in a text editor and do the following to copy the content into the CA form:
  - a. Browse to **https://<your CA Request Server>/certsrv/**
  - b. Select **Request a certificate > Advanced certificate request > Submit a certificate request by using a base-64-encoded CMC or PKCS #10 file, or submit a renewal request by using a base-64-encoded PKCS #7 file**
  - c. Paste the resulting information into the **Saved Request** form.
  - d. Download the certificate chain on based 64 encoded format (p7b extension).
  - e. Copy this file to the `opsa_server/collection` folder.
  - f. Go back to the first screen.

6. Select option 3 to import the CA signed certificate into the Operations Analytics keystore.

**Note:** The path to the signed opsa\_server/collection certificate file is /tmp/certnew.p7b.

7. Complete the following steps to import the trusted certificate into the Operations Analytics truststore:
  - a. Download the CA root certificate from <https://<your CA Request Server>/certsrv/>.
  - b. Select **Download a CA certificate, certificate chain, or CRL**
  - c. Select the **Base 64** radio button.
  - d. Select **Download CA certificate**
  - e. Copy the <file>.cer file to opsa\_server/collection. (What is the exact path to the folder?)
  - f. Go back to the first screen.

8. Select option 4.

**Note:** Enter the path to the downloaded CA certificate (.cer) file. (What is the exact path to this file?)

9. Select option 8 to enable SSL. You will need to enter the JBoss **Management Realm** user and password you created in the first step. The opsa-server-manager.sh script prompts you for the certificate alias to be used for SSL communication. Enter one of the aliases from the listed aliases.
10. Select the **Go back to main menu** option; then select option 6 to restart the Operations Analytics Server.

**Note:** Your configuration changes will not occur unless the server is restarted.

11. Run the following command to unregister the collector from the server:

```
/opt/HP/opsa/bin/opsa-collection-config.sh -unregister -collectorhost <collector IP address> -port 9443 -username <tenant admin username> -password <password for tenant admin username>
```

12. Run the following command to check that the collector was unregistered successfully:

```
/opt/HP/opsa/bin/opsa-collection-config.sh -list -allversions -collectorhosts -port 9443 -username <tenant admin username> -password <password for tenant admin username>
```

13. Run the following command to register the collector with the SSL command:

```
/opt/HP/opsa/bin/opsa-collection-config.sh -register -collectorhost <collector IP address> -port 9443 -username <tenant admin username> -password <password for tenant admin username> -ssl
```

14. **Optional Step:** Select the **Import trusted certificate to OPSA server truststore** option to import trusted certificates (if any). For example, you can add HPE ArcSight Logger's server certificate to the Operations Analytics truststore file.

**Note:** Although SSL does not need to be enabled for rawlog and structured log queries to work, this step is mandatory for rawlog and structured log queries to work properly. You must complete this certificate import on both the Operations Analytics Server (for the rawlog query) and the Operations Analytics Collector host (for the structured log query). Follow these steps:

- a. Log on to the Logger console, then click **System Admin**.
- b. Select the **SSL Server Certificate** option under **security** on the left side of the screen.
- c. Click the View Certificate button at the bottom of the screen.
- d. After the dialog box opens, copy the certificate text and save it to a file on both the Operations



- Analytics Collector host and on the Operations Analytics Server.
- e. Complete this step on both the Operations Analytics Collector host and on the Operations Analytics Server to import the certificate.

## Configuring SSL with a Self-Signed Certificate for the Operations Analytics Collector Host

Complete the following steps to enable SSL communication to the Operations Analytics Collector host using a self-signed certificate:

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script. See the *opsa-collector-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.
3. Select the **Generate self-signed certificate for OPSA server** option to generate a self-signed certificate and add the certificate to the Operations Analytics Collector host keystore.

**Note:** The `$OPSA_HOME/bin/opsa-collector-manager.sh` script stores the self-signed certificate in the keystore file with the `opsa_server` alias name.

**Note:** Set the self-signed certificate attributes, such as common name, country, and validity by editing the `/opt/HP/opsa/conf/ssl/cert/opsa_self_signed_cert.template` file.

4. **Optional Step:** Select the **Import trusted certificate to OPSA truststore** option to import trusted certificates (if any). For example, you can add HPE ArcSight Logger's server certificate to the OPSA truststore file.

**Note:** Although SSL does not need to be enabled for rawlog and structured log queries to work, this step is mandatory for rawlog and structured log queries to work properly. You must complete this certificate import on both the Operations Analytics Server (for the rawlog query) and the Operations Analytics Collector host (for the structured log query). Follow these steps:

- a. Log on to the Logger console, then click **System Admin**.
  - b. Select the **SSL Server Certificate** option under **security** on the left side of the screen.
  - c. Click the View Certificate button at the bottom of the screen.
  - d. After the dialog box opens, copy the certificate text and save it to a file on both the Operations Analytics Collector host and on the Operations Analytics Server.
  - e. Complete this step on both the Operations Analytics Collector host and on the Operations Analytics Server to import the certificate.
5. Select the **Enable/Disable SSL** option to enable SSL. The `opsa-collector-manager.sh` script prompts you for the certificate alias to be used for SSL communication. Enter `opsa_server`.

**Note:** `opsa_server` is one of the aliases shown by the script.

6. Select the **Go back to main menu** option; then select the **Restart OPSA Collector** option to restart the Operations Analytics Collector host.

**Note:** Your configuration changes will not occur unless the Operations Analytics Collector host is

restarted.

7. If you have already registered the Operations Analytics Collector host with the Operations Analytics Server, you will need to re-register this Operations Analytics Collector host for the new configuration changes to be used. Use the following command:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -register -collectorhost <fully-qualified domain name of the collector host> -port <port> -username opsatenantadmin [-ssl] -coluser <collector_username> (the default collector username is opsa) -colpass <collector web service password> (the default password is opsa)
```

See the *opsa-collection-config.sh* reference page (or the Linux manpage) for more information.

## Editing the SSL Configuration for the Operations Analytics Collector Host

To change the server certificate used for SSL communication, do the following:

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script. See the *opsa-collector-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.
3. Select the **Change key alias to be used for SSL communication** option.
4. The `$OPSA_HOME/bin/opsa-collector-manager.sh` script prompts you for the alias name, and lists the existing set of certificate aliases from the OPSA keystore. Enter the desired alias name from the list.
5. Select the **Go back to main menu** option, then select the **Restart OPSA Collector** option to restart the Operations Analytics Collector host.

**Note:** Your configuration changes will not occur unless the Operations Analytics Collector host is restarted.

6. If you have already registered the Operations Analytics Collector host with the Operations Analytics Server, you will need to re-register this Operations Analytics Collector host for the new configuration changes to be used. Use the following command:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -register -collectorhost <fully-qualified domain name of the collector host> -port <port> -username opsatenantadmin [-ssl] -coluser <collector_username> (the default collector username is opsa) -colpass <collector web service password> (the default password is opsa)
```

See the *opsa-collection-config.sh* reference page (or the Linux manpage) for more information.

## Disabling the SSL Configuration for the Operations Analytics Collector Host

To disable the SSL communication, do the following:

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script. See the *opsa-collector-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.

3. Select the **Enable/Disable SSL** option.
4. The `$OPSA_HOME/bin/opsa-collector-manager.sh` script prompts you for a confirmation. Enter `yes` to disable the SSL communication.
5. Select the **Go back to main menu** option, then select the **Restart OPSA Collector** option to restart the Operations Analytics Collector host.
6. If you have already registered the Operations Analytics Collector host with the Operations Analytics Server, you will need to re-register this Operations Analytics Collector host for the new configuration changes to be used. Use the following command:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -register -collectorhost <fully-qualified domain name of the collector host> -port <port> -username opsatenantadmin [-ssl] -coluser <collector_username> (the default collector username is opsa) -colpass <collector web service password> (the default password is opsa)
```

See the *opsa-collection-config.sh* reference page (or the Linux manpage) for more information.

## Managing the Keystore and Truststore for the Operations Analytics Collector Host

To modify the Operations Analytics keystore and truststore password, do the following:

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script. See the *opsa-collector-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.
3. Select the **Modify OPSA keystore/truststore password** option.
4. The `$OPSA_HOME/bin/opsa-collector-manager.sh` script prompts you for the new password for the keystore and truststore. Enter the new passwords.
5. Select the **Go back to main menu** option, then select the **Restart OPSA Collector** option to restart the Operations Analytics Collector host.
6. If you have already registered the Operations Analytics Collector host with the Operations Analytics Server, you will need to re-register this Operations Analytics Collector host for the new configuration changes to be used. Use the following command:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -register -collectorhost <fully-qualified domain name of the collector host> -port <port> -username opsatenantadmin [-ssl] -coluser <collector_username> (the default collector username is opsa) -colpass <collector web service password> (the default password is opsa)
```

See the *opsa-collection-config.sh* reference page (or the Linux manpage) for more information.

To delete a certificate from the OPSA keystore and truststore, do the following:

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script. See the *opsa-collector-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.
3. Select the **Delete certificate from OPSA keystore** or **Delete certificate from OPSA truststore** option.
4. The `$OPSA_HOME/bin/opsa-collector-manager.sh` script prompts you for the alias name, listing the existing set of aliases from the OPSA keystore/truststore. Enter the alias name to be deleted from the list.
5. Select the **Go back to main menu** option, then select the **Restart OPSA Collector** option to restart the

Operations Analytics Collector host.

6. If you have already registered the Operations Analytics Collector host with the Operations Analytics Server, you will need to re-register this Operations Analytics Collector host for the new configuration changes to be used. Use the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -register -collectorhost <fully-qualified domain name of the collector host> -port <port> -username opsatenantadmin [-ssl] -coluser <collector_username> (the default collector username is opsa) -colpass <collector web service password> (the default password is opsa)
```

See the *opsa-collection-config.sh* reference page (or the Linux manpage) for more information.

To export a certificate from the Operations Analytics keystore, do the following:

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script. See the *opsa-collector-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.
3. Select the **Export certificate from OPSA server keystore** option.
4. The `$OPSA_HOME/bin/opsa-collector-manager.sh` script prompts you for the alias name, listing the existing set of aliases from the OPSA keystore. Enter the alias name to be deleted from the list.
5. The `$OPSA_HOME/bin/opsa-collector-manager.sh` script prompts you for the file path to which the certificate should be exported. Enter the path to export the certificate.

To change an OPSA keystore file, do the following:

**Note:** The keystore password and the truststore password must be identical.

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-collector-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.
3. Select the **Change OPSA keystore file** option.
4. The `$OPSA_HOME/bin/opsa-collector-manager.sh` script prompts you with a set of prerequisites actions to take before proceeding. Enter yes after you complete these prerequisites.
5. Enter the absolute path of the keystore file.

To change an OPSA truststore file, do the following:

**Note:** The keystore password and the truststore password must be identical.

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-collector-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure SSL** option.
3. Select the **Change OPSA truststore file** option.
4. The `$OPSA_HOME/bin/opsa-collector-manager.sh` script prompts you with a set of prerequisites actions to take before proceeding. Enter yes after you complete these prerequisites.
5. Enter the absolute path of the truststore file.

# Chapter 4: HTTP and HTTPS

## Configuring the HTTP and HTTPS Port for the Operations Analytics Collector Host

The Operations Analytics Collector host comes with a pre-configured HTTP and HTTPS port of 9443. If you run into any port conflicts with this port, you might need to change it.

To change the HTTPS port to which the Operations Analytics Collector host listens, do the following:

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script. See the *opsa-collector-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure HTTP(S) port** option.
3. When prompted, change the port to a value greater than 1024.
4. Select the **Restart OPSA Collector** option.
5. After the HTTPS port is changed, you must register the Operations Analytics Collector host on the Operations Analytics Server using the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -register -collectorhost  
<collectorhost> -port <port> -username opsatenantadmin [-ssl] -coluser  
<collector_username> (the default collector username is opsa) -colpass  
<collector_web_service_password> (the default password is opsa)  
See the opsa-collection-config.sh reference page (or the Linux manpage) for more information.
```

After you complete this step, future communication to this Operations Analytics Collector host uses the new HTTPS port.

## Configuring the HTTP and HTTPS User Name and Password for the Operations Analytics Collector Host

The Operations Analytics Collector host comes with a pre-configured HTTPS user name, **opsa**, having an identical password, **opsa**. It is recommended that customers change the user name and password for those environments where security is a concern.

1. Run the `$OPSA_HOME/bin/opsa-collector-manager.sh` script. See the *opsa-collector-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure username/password** option.
3. When prompted, change the username and password values.

**Note:** The `opsa-collector-manager.sh` script prompts you for the user name and password, then prompts you for the password again and validates that the passwords you entered are identical.

4. Select the **Restart OPSA Collector** option.
5. After the HTTP and HTTPS port is changed, you must register the Operations Analytics Collector host on the Operations Analytics Server using the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -register -collectorhost
```

```
<collectorhost> -port <port> -username opsatenantadmin [-ssl] -coluser  
<collector_username> (the default collector username is opsa) -colpass  
<collector_web_service_password> (the default password is opsa)
```

See the *opsa-collection-config.sh* reference page (or the Linux manpage) for more information.

After you complete this step, future access to this Operations Analytics Collector host uses the new username and password values.

# Chapter 5: Single Sign On

## Configuring and Enabling Single Sign-on to Access Operations Analytics

These instructions show a practical example of configuring and enabling LWSSO between Operations Analytics and OMi. Use this practical example to help you configure LWSSO between Operations Analytics and other applications you plan to use.

Enabling Single Sign-on (LWSSO) in Operations Analytics permits users to launch the Operations Analytics console from an OMi event browser without needing to log on again. LWSSO is not enabled by default.

**Note:** For this example, the user accounts for the BSM server and the Operations Analytics Server must match for these instructions to work correctly. The user name is case sensitive, so the user name used in each application must be identical.

1. Before enabling LWSSO to the Operations Analytics Server, complete this step to create a user in JBoss **Management Realm**. Do the following:
  - a. Run the `$OPSA_HOME/jboss/bin/add-user.sh` script.
  - b. For the first question, answer **"a" - Management User (mgmt-users.properties)**, then follow the instructions.

**Note:** You will need to provide the JBoss management realm credentials when enabling LWSSO later in these instructions.

2. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the `opsa-server-manager.sh` reference page (or the Linux manpage), for more information.
3. Select the **Configure LWSSO** option.
4. Select the **Configure LWSSO parameters** option.
5. When prompted with **Enter the Token Creation Key (initString) [xxxxxxx]**, enter the `initString` key. For example, if you are configuring LWSSO for Operations Analytics and OMi, the value must match the `initString` configured in OMi.

**Note:** To view the `initString` configured in OMi, log on to BSM and navigate to **BSM > Admin > Platform > Users and Permissions > Authentication Management**. It is important to use the exact `initString` configured in OMi for this example. It is also important to use the exact `initString` with other applications you plan to use with Operations Analytics.

6. When prompted with **Enter the expiration period in minutes [60]**, enter the duration, in minutes, you want an LWSSO session to last before expiring.
7. When prompted with **Enter OPSA server domain**, enter the fully-qualified domain name of the Operations Analytics Server.
8. When prompted with **Enter trusted domains separated by comma**, the trusted domain names separated by a comma. Use the following form: `mytrusteddomain1.com,`

mytrusteddomain2.com

When finished, look for a **Configured LWSSO Successfully** message.

**Note:** You must include the domain for the BSM server, considering the OMi example being show in these steps. This is even more important if the domain is not in the same domain in which the Operations Analytics Server resides.

9. This step is important to complete if, considering the example being shown in these steps, the OMi domain is not in the same domain in which the Operations Analytics Server resides.

**Note:** If you already enabled LWSSO, and need to make LWSSO configuration changes, skip the instructions in this step.

If this step is similar to the LWSSO configuration for your environment, complete the following:

- a. Select the **Configure LWSSO** option.
  - b. From a browser, open the JMX console on the BSM server using the following syntax: `http://<FQDN of the BSM Server>:8080/jmx-console/HtmlAdaptor?action=inspectMBean&name=Topaz%3Aservice%3DLWSSO+Configuration`
  - c. Invoke the `addDNSDomainToTrustedHosts()` method and add the domain in which your Operations Analytics Server resides to the list.
10. After the `opsa-server-manager.sh` script finishes configuring LWSSO, it displays a **Configured LWSSO successfully** message, and gives you three options, one of which is to **Enable/Disable LWSSO**. Select the **Enable/Disable LWSSO** option to enable LWSSO. You will need to enter the JBoss **Management Realm** user and password you created in the first step. The `opsa-server-manager.sh` script prompts you for the certificate alias to be used for LWSSO communication. Enter one of the aliases from the listed aliases.
  11. Select the **Go back to main menu** option; then select the **Restart OPSA server** option to restart the Operations Analytics Server.

**Note:** Your configuration changes will not occur unless the server is restarted.

After completing the steps in this section, and configuring the correct URL on OMi, you can launch the Operations Analytics console from an OMi event browser without providing access credentials.

**Note:** If you already enabled LWSSO, and need to make LWSSO configuration changes, complete the above instructions, skipping step 8.

## Disabling Single Sign-on to Access Operations Analytics

To disable LWSSO, do the following:

1. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the `opsa-server-manager.sh` reference page (or the Linux manpage), for more information.
2. Select the **Configure LWSSO** option.
3. Select the option **Enable/Disable LWSSO** to disable LWSSO.



4. Select the **Go back to main menu** option; then select the **Restart OPSA server** option to restart the Operations Analytics Server.

**Note:** Your configuration changes will not occur unless the server is restarted.

# Chapter 6: Configure Two-Way SSL Authentication for Accessing HPE ArcSight Logger

Complete the following steps to configure two-way SSL authentication with ArcSight Logger:

1. Create an SSL truststore on the Operations Analytics Server with HPE ArcSight Logger's server certificate:
  - a. Copy the self-signed or CA certificate from HPE ArcSight Logger. You will find the self-signed certificate in the following location:  
`<Install_Dir>//userdata/platform/ssl.crt/server.crt`
  - b. Create a trust store on the Operations Analytics Server with ArcSight Logger's self-signed certificate using the following command:  
`keytool -import -alias logger -file <server_cert_path>/server.crt -storetype JKS -keystore /opt/HP/conf/opsa-truststore.jks`

**Note:** The keytool command prompts you for a password for the trust store. Provide a strong password and retain a copy of the password, as you will need it later. The keytool command also prompts you to trust the certificate. Type yes to trust the certificate

2. Create a self-signed certificate and a keystore using OpenSSL for the Operations Analytics Server:
  - a. Create a private key using the following command:  
`openssl genrsa -out /opt/HP/opsa/conf/opsa.key 1024`
  - b. Generate a certificate request using the following command:  
`openssl req -new -key /opt/HP/opsa/conf/opsa.key -out /opt/HP/opsa/conf/opsa.csr`
  - c. Create a self-signed certificate using the following command:  
`openssl x509 -req -days 365 -in /opt/HP/opsa/conf/opsa.csr -signkey /opt/HP/opsa/conf/opsa.key -out /opt/HP/opsa/conf/opsa.crt`
  - d. Export the self-signed certificate to PKCS#12 format using the following command:  
`openssl pkcs12 -export -out /opt/HP/opsa/conf/opsa.p12 -inkey /opt/HP/opsa/conf/opsa.key -in /opt/HP/opsa/conf/opsa.crt`

**Note:** Retain a copy of the export password.

- e. Use the following command to create a keystore and import the generated PKCS#12 format certificate:  
`keytool -importkeystore -srckeystore /opt/HP/opsa/conf/opsa.p12 -destkeystore /opt/HP/opsa/conf/opsa_keystore.jks -srcstoretype pkcs12 -deststoretype JKS -deststorepass <keystore_password> -srcstorepass <export_password_entered_in_above_step>`
3. Configure HPE ArcSight Logger to enable client authentication:
    - a. Copy the Operations Analytics Server's self-signed certificate from the following location:  
`$OPSA_HOME/conf/opsa.crt`  
to the following location on the HPE ArcSight Logger server:



# Chapter 7: PKI

## Configuring User Authentication using Public Key Infrastructure (PKI) to Access Operations Analytics

SSL Client Certificate authentication using PKI enables users to log on to the Operations Analytics console with a client-side X.509 certificate.

As part of user authentication, you can configure the Operations Analytics Server to check the certificate to make sure it has not been revoked. You can configure the revocation check to do one of the following:

- Validate the certificate using a Certificate Revocation List (CRL) .
- Validate the certificate using the Online Certificate Status Protocol (OCSP) to run a direct query to the PKI.

PKI authentication is disabled by default. To enable PKI authentication, do the following:

1. Before enabling SSL to the Operations Analytics Server, complete this step to create a user in JBoss **Management Realm**. do the following:
  - a. Run the `$OPSA_HOME/jboss/bin/add-user.sh` script.
  - b. For the first question, answer "**a**" - **Management User (mgmt-users.properties)**, then follow the instructions.

**Note:** You will need to provide the JBoss management realm credentials when enabling SSL later in these instructions.

2. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the `opsa-server-manager.sh` reference page (or the Linux manpage), for more information.
3. Select the **Configure PKI Authentication** option.
4. Use one of the following approaches:
  - **Self-signed Certificate:** Select the **Generate self-signed certificate for OPSA server** option to generate a self-signed certificate and add the certificate to the Operations Analytics Server keystore.
  - **CA Signed Certificate:** Select the **Import CA certificate to OPSA server keystore** option to import a CA signed certificate to the Operations Analytics Server keystore.
5. **Mandatory Step:** Select the **Import trusted certificate to OPSA server truststore** option to import the trusted root CA certificate that will be used for PKI authentication.

**Note:** The certificate should be in base 64, otherwise the import will not work.

6. Select the **Enable/Disable PKI authentication** option to enable PKI. You will need to enter the JBoss **Management Realm** user and password you created in the first step. The `opsa-server-manager.sh` script prompts you for the certificate alias to be used for SSL communication, enter one of the aliases from the list. For example, you might enter `opsa-server`.
7. When prompted with **Allow smart card logon only [yes/no]**, enter `yes` if only a smart log on is

permitted. Enter `no` if a smart log on is not mandatory.

8. When prompted to select the field to use for a user name, enter the option you want Operations Analytics to use.
9. When prompted for **Check for certificate revocation [yes/no]**, enter `yes` for Operations Analytics to check if the certificate provided by the client is revoked or not. Enter `no` to disable the revocation check. If you enter `yes`, the `opsa-server-manager.sh` script prompts you to select between the following revocation test methods:
  - **Option 1:** Validate the certificate using a Certificate Revocation List (CRL) .
  - **Option 2:** Validate the certificate using the Online Certificate Status Protocol (OCSP) to run a direct query to the PKI .

**Note:** If you select option 2 the `opsa-server-manager.sh` script prompts you to configure the OCSP responder URL. You can accept the default behavior and have Operations Analytics use the value of the `authorityInfoAccess` field of the client certificate to obtain the responder URL, or you can directly configure the OCSP responder URL.

10. When prompted with **Do you want to configure proxy host [yes/no]**, enter `yes` if you want to configure the proxy host to check for certificate revocation status. Enter `no` if you do not want to configure the proxy host to check for certificate revocation status (a local OCSP responder is available).

If you enter `yes`, the `opsa-server-manager.sh` script prompts you for the following information:

- proxy http proxy host
  - http port number
  - https proxy host
  - https port number
11. After successfully completing the registration, the `opsa-server-manager.sh` scrip shows an authentication enabled successfully message.
  12. Select the **Go back to main menu** option; then select the **Restart OPSA server** option to restart the Operations Analytics Server.

**Note:** Your configuration changes will not occur unless the server is restarted.

After completing the above steps, Operations Analytics users can access the Operations Analytics console using HTTP or HTTPS as follows:

See the `opsa-server-manager.sh` reference page (or the Linux manpage), for more information.

1. If an Operations Analytics user enters an HTTP URL, Operations Analytics automatically redirects the URL to HTTPS, and shows a **Login with digital certificate** button.
2. After clicking the **Login with digital certificate** button, Operations Analytics presents its digital certificate, and the browser verifies it against its truststore.
3. After verifying the Operations Analytics certificate, Operations Analytics prompts the user to select the client certificate. On selecting the client certificate, Operations Analytics verifies the client certificate and performs authentication.

**Note:** The client certificate must be installed and imported to the browser, otherwise the user is not prompted for the client certificate.

4. If the authentication is successful, the browser opens the Operations Analytics home page.

## Disabling User Authentication using Public (PKI) to Access Operations Analytics

To disable PKI authentication, do the following:

1. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure Client Authentication** option.
3. Select the **Enable/Disable client authentication** button.
4. The `$OPSA_HOME/bin/opsa-server-manager.sh` script prompts you for confirmation. Enter `yes` to disable PKI authentication.
5. The `$OPSA_HOME/bin/opsa-server-manager.sh` script disables PKI, then prompts, **Do you want to disable SSL as well [yes/no]**. Enter `yes` to disable SSL communication or `no` to keep the existing SSL configuration.
6. Select the **Go back to main menu** option; then select the **Restart OPSA server** option to restart the Operations Analytics Server.

**Note:** Your configuration changes will not occur unless the server is restarted.

After completing the above steps, Operations Analytics presents its users with a user name and password page to access the Operations Analytics console.

## Editing User Authentication using Public (PKI) to Access Operations Analytics

To modify PKI authentication, do the following:

1. Run the `$OPSA_HOME/bin/opsa-server-manager.sh` script, and log on with **super-admin** credentials. See the *opsa-server-manager.sh* reference page (or the Linux manpage), for more information.
2. Select the **Configure Client Authentication** option.
3. Select the **Edit client authentication settings** button.
4. The `$OPSA_HOME/bin/opsa-server-manager.sh` script prompts you for PKI configuration information, similar to the prompts shown in ["Configuring User Authentication using Public Key Infrastructure \(PKI\) to Access Operations Analytics"](#) on page 44
5. Select the **Go back to main menu** option; then select the **Restart OPSA server** option to restart the Operations Analytics Server.

**Note:** Your configuration changes will not occur unless the server is restarted.

# Chapter 8: Configuring SSL for Communication between Vertica and Operations Analytics

The information in this section explains how to manage SSL communications between Operations Analytics and the Vertica (Operations Analytics) database.

## Enabling SSL Communications between the Operations Analytics Server and Vertica

Complete the following steps from the server that contains the Vertica database to enable SSL communications between the Operations Analytics Server and the Vertica (Operations Analytics) database:

1. Complete only one of the following options:

- **Option 1: Self-signed certificate:**

- i. Run the following command to create the CA private key:

```
openssl genrsa -des3 -out rootkey.pem
```

- ii. Run the following command to create the CA public certificate. When prompted, fill in the correct information:

```
openssl req -new -x509 -key rootkey.pem -out root.crt
```

- iii. Run the following command to create the server private key:

```
openssl genrsa -out server.key
```

- iv. Run the following command to create the server certificate request. When prompted, fill in the correct information:

```
openssl req -new -out reqout.txt -key server.key
```

- **Option 2: Certificate Authority (CA) Signed Certificate:**

- i. Run the following command to create the server private key:

```
openssl genrsa -out server.key
```

- ii. Run the following command to create the server certificate request. When prompted, fill in the correct information:

```
openssl req -new -out reqout.txt -key server.key
```

- iii. Submit the server certificate request to a public Certificate Authority.

2. Run the following command to sign the certificate for the server that contains Vertica. This command uses the CA private key:

```
openssl x509 -req -in reqout.txt -days 3650 -sha1 -CAcreateserial -CA root.crt -CAkey rootkey.pem -out server.crt
```

**Note:** Following the completion of this step you have the server private key (the `server.key` file) and the signed server certificate (the `server.crt` file).

3. Run the following command to convert the signed certificate into a format understood by Java:

```
openssl x509 -in server.crt -out server.crt.der -outform der
```

Look for the `server.crt.der` file in the directory from which you ran the command shown in this step.

4. Move the newly created `server.crt.der` file to a directory on the Operations Analytics Server.
5. Although you run the other commands in this section from the server that contains the Vertica database, you must complete the following from the Operations Analytics Server to import the signed certificate from Vertica (the file generated from the previous step) into the Operations Analytics truststore:
  - a. Run the `opsa-server-manager.sh` script.
  - b. Log on to the Operations Analytics Server as the `opsadmin` user.
  - c. Choose **Option 2** to configure SSL.
  - d. Choose **Option 4** to import the trusted certificate into the OpsA truststore.
  - e. Enter the file name of the certificate you want to import; then press **Enter**.
  - f. Repeat the prior steps for additional certificate files you want to import.
  - g. Exit the `opsa-server-manager.sh` script.

**Note:** If you have not updated the default password of the truststore, it is `keystore_neutron_analytics_bigdata_opsa_2013`. Check with the Operations Analytics administrator to obtain the correct password.

See the `opsa-server-manager.sh` reference page (or the Linux manpage) for more information.

#### 6. Modifying Vertica Configuration:

Assuming the username for the database user is `dbadmin: As dbadmin`, run the commands in the following steps to modify the Vertica configuration.

**Note:** You can also complete these steps using the following Vertica tool:

```
/opt/vertica/bin/adminTools
```

- a. `cp server.crt /home/dbadmin/opsadb/v_opsadb_node0001_catalog`
  - b. `cp server.key /home/dbadmin/opsadb/v_opsadb_node0001_catalog`
  - c. `chmod 700 /home/dbadmin/opsadb/v_opsadb_node0001_catalog/server.crt`
  - d. `chmod 700 /home/dbadmin/opsadb/v_opsadb_node0001_catalog/server.key`
7. Assuming the username for the database user is `dbadmin: As dbadmin`, edit the following file:  
`/home/dbadmin/opsadb/v_opsadb_node0001_catalog/vertica.conf`

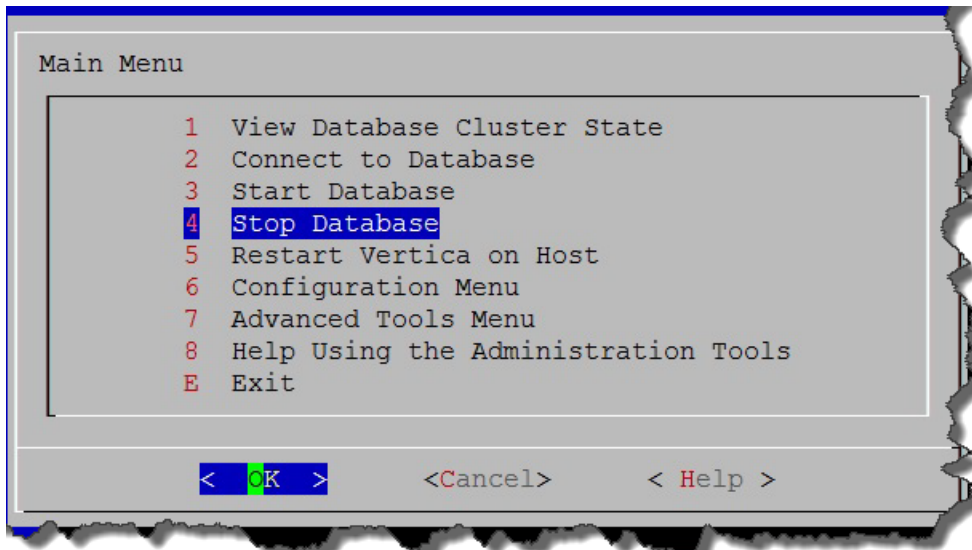
Add the following lines; then save your work:

```
EnableSSL=1
ClientAuthentication = local all password
ClientAuthentication = hostssl all 0.0.0.0/0 password
```

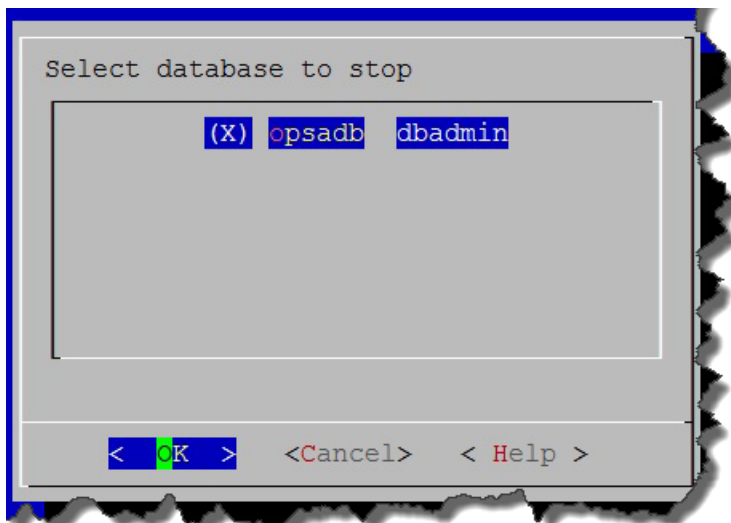
8. Complete the following steps to restart Vertica:
  - a. Assuming the username for the database user is `dbadmin: As dbadmin` run  
`/opt/vertica/bin/adminTools`.



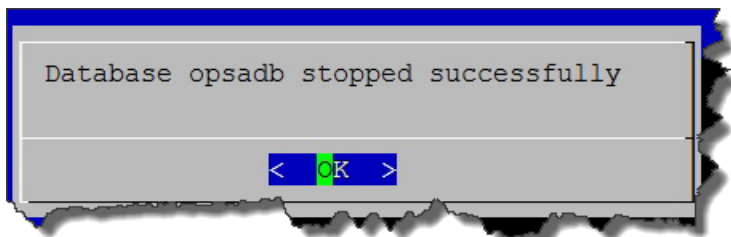
- b. Select **Stop Database**; then click **OK**.



- c. Select the database you want to stop (opsadb); then click **OK**.



- d. Look for the following message to make sure the database stopped; then click **OK** to go back to the main menu.

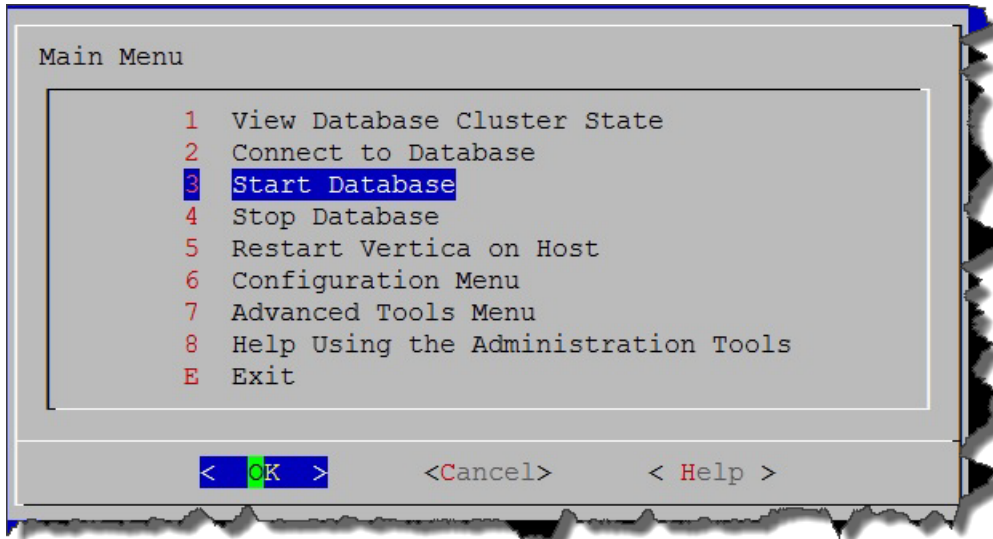


**Note:** If users are still connected to the database, the **Stop Database** command might not work, as Vertica prevents it from shutting down. To stop the database anyway, do the following:

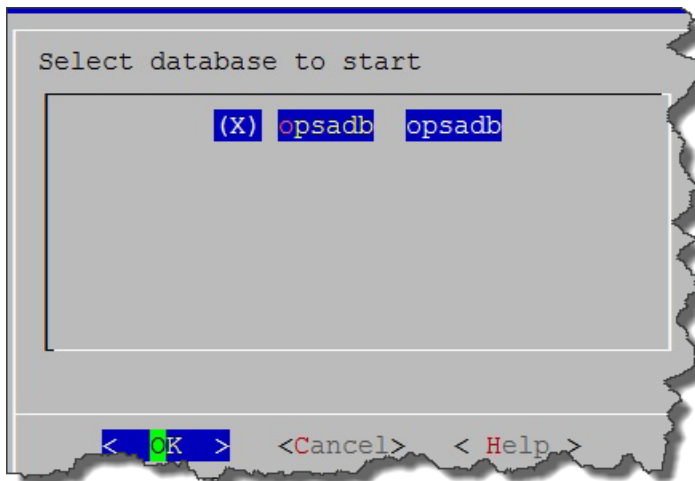
- i. Select the **Advanced Tools Menu**
- ii. Select **Stop Vertica on Host**
- iii. Select the host.

**Note:** After completing these steps you can start the database again.

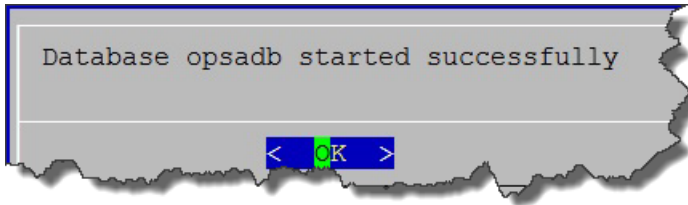
- e. Select **Start Database**; then click **OK**.



- f. Select the database you want to start (opsadb); then click **OK**.



- g. Look for the following message to make sure the database started successfully; then click **OK** to go back to the main menu.



- h. Exit the admin tool.

**Note:** If you set the file permissions incorrectly, it could result in the following error messages:  
Unsafe permissions on private key file "/home/dbadmin/opsadb/v\_opsadb\_node0001\_catalog/server.key"

Could not load server certificate file "/home/dbadmin/opsadb/v\_opsadb\_node0001\_catalog/server.crt": error:0200100D:system library:fopen:Permission denied

If you see error messages like this, see ["Modifying Vertica Configuration:" on page 48](#) to correct any file permissions issues and continue.

9. Complete the following steps on the Operations Analytics Server to enable SSL:

- a. Edit the `$OPSA_HOME/conf/opsa-config.properties` file.
- b. Search for the following string: `vertica.ssl.enabled=false`

**Note:** If the string in this step does not exist, add the string shown in the next step to the bottom of the text.

- c. Change the string as follows: `vertica.ssl.enabled=true`; then save your work.
- d. Edit the `$OPSA_HOME/jboss/standalone/configuration/standalone.xml` file. You should see text that resembles the following:

```
datasource jndi-name="java:jboss/datasources/VerticaDS" pool-
name="VerticaDS" enabled="true" use-java-context="true">
<connection-url>jdbc:vertica://fully-qualified domain name of Vertica
Server:5433/opsadb</connection-url>
<driver>vertica</driver>
<pool>
<min-pool-size>20</min-pool-size>
<max-pool-size>100</max-pool-size>
</pool>
<security>>
<security-domain>opsa-ds</security-domain>
</security>
<validation>
<validate-on-match>>false</validate-on-match>
<background-validation>>false</background-validation>
</validation>
<statement>
<share-prepared-statements>>false</share-prepared-statements>
```

```
</statement>
</datasource>
```

- e. Add the line shown in bold font; then save your work.

```
datasource jndi-name="java:jboss/datasources/VerticaDS" pool-
name="VerticaDS" enabled="true" use-java-context="true">
<connection-url>jdbc:vertica://fully-qualified domain name of Vertica
Server:5433/opsadb</connection-url>
<connection-property name="ssl">true</connection-property>
<driver>vertica</driver>
<pool>
<min-pool-size>20</min-pool-size>
<max-pool-size>100</max-pool-size>
</pool>
<security>>
<security-domain>opsa-ds</security-domain>
</security>
<validation>
<validate-on-match>>false</validate-on-match>
<background-validation>>false</background-validation>
</validation>
<statement>
<share-prepared-statements>>false</share-prepared-statements>
</statement>
</datasource>
```

10. Do the following to add the truststore location and password so that Jboss can find them and initialize the SSL handshake when communicating with Vertica.

- a. Edit the `$OPSA_HOME/jboss/standalone/configuration/standalone.xml` file.
- b. Locate the first bold phrase shown in following section in the `standalone.xml` file:

```
<system-properties>
<property name="org.apache.coyote.http11.Http11Protocol.MAX_HEADER_SIZE"
value="2097152"/>
<!--
```

**To enable JDBC over SSL, uncomment this block.**

```
<property name="javax.net.ssl.trustStorePassword" value="your_
truststore_password"/>
<property name="javax.net.ssl.trustStore"
value="/opt/HP/opsa/conf/ssl/opsa-truststore.jks"/>
->
</system-properties>
```

- c. Remove the bold `<!--, To enable JDBC over SSL, uncomment this block.,` and `->` strings shown in the previous step (doing so uncomments the lines), then add the correct truststore password to `your_truststore_password`. See the example shown below in bold font:

```
<system-properties>
<property name="org.apache.coyote.http11.Http11Protocol.MAX_HEADER_
SIZE" value="2097152"/>
<property name="javax.net.ssl.trustStorePassword" value="your_truststore_password"/>
<property name="javax.net.ssl.trustStore" value="/opt/HP/opsa/conf/ssl/opsa-
truststore.jks"/>
</system-properties>
```

**Note:** If you have not updated the default password of the truststore, it is `keystore_neutron_analytics_bigdata_opsa_2013`. Check with the Operations Analytics administrator to obtain the correct password.

d. Save your work.

11. You must restart Jboss any time you change the setting in the `opsa-config.properties` or `standalone.xml` files. Use the following command to restart the JBoss server: `$OPSA_HOME/bin/opsa-server restart`

**Note:** After running an `opsa-server restart` command, information logged in the `/opt/HP/opsa/log/opsa-server.log` file is removed. To view the files that retain this information across restarts, see the log files located in the `/opt/HP/opsa/jboss/standalone/log` directory. Look for log file names that begin with `server.log`.

## Disabling SSL Communications between the Operations Analytics Server and Vertica

Complete the following steps from the server that contains the Vertica database to disable SSL communications between the Operations Analytics Server and the Vertica (Operations Analytics) database:

1. Edit the following file:

```
/opt/vertica/opsa_data/opsadb/v_opsadb_node0001_catalog/vertica.conf
```

Search for text that resembles the following lines.

```
EnableSSL=1
```

```
ClientAuthentication = local all password
```

```
ClientAuthentication = hostssl all 0.0.0.0/0 password
```

Comment the lines with the **#** character (shown in bold font below); then save your work:

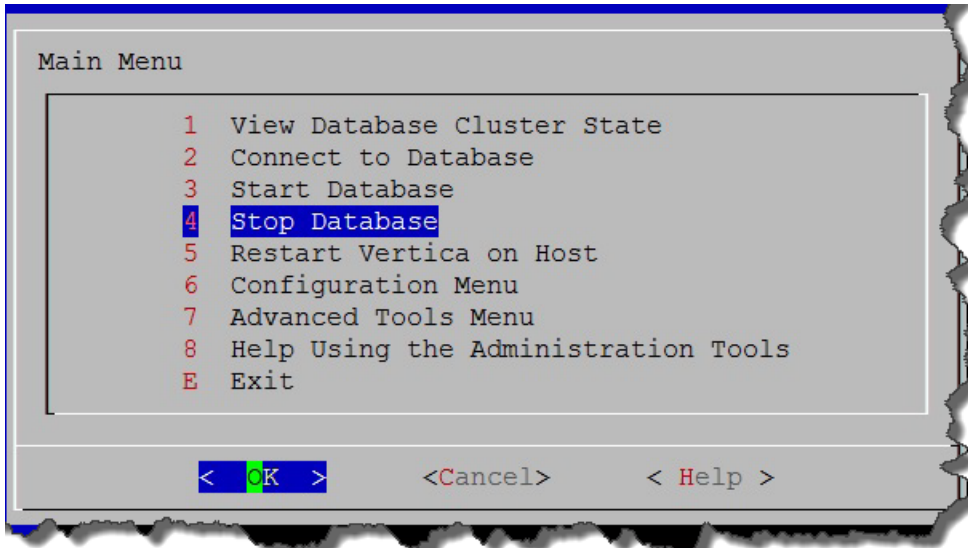
```
#EnableSSL=1
```

```
#ClientAuthentication = local all password
```

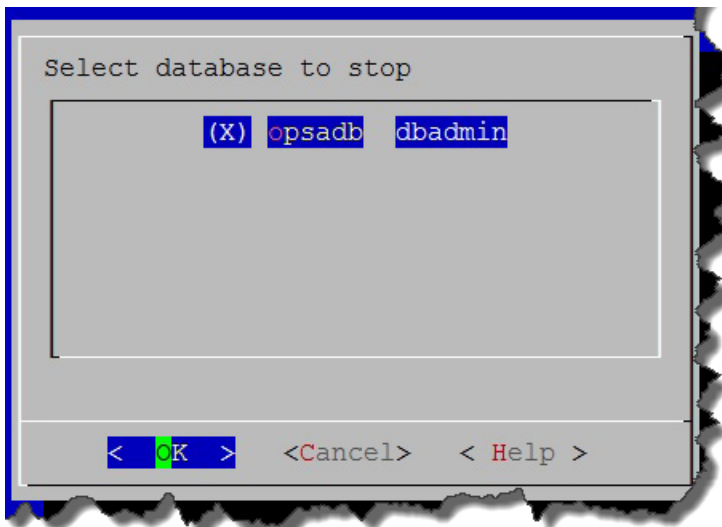
```
#ClientAuthentication = hostssl all 0.0.0.0/0 password
```

2. Complete the following steps to restart Vertica:

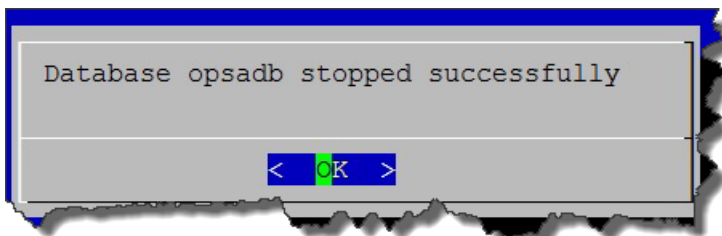
- a. Run `/opt/vertica/bin/adminTools`.
- b. Select **Stop Database**; then click **OK**.



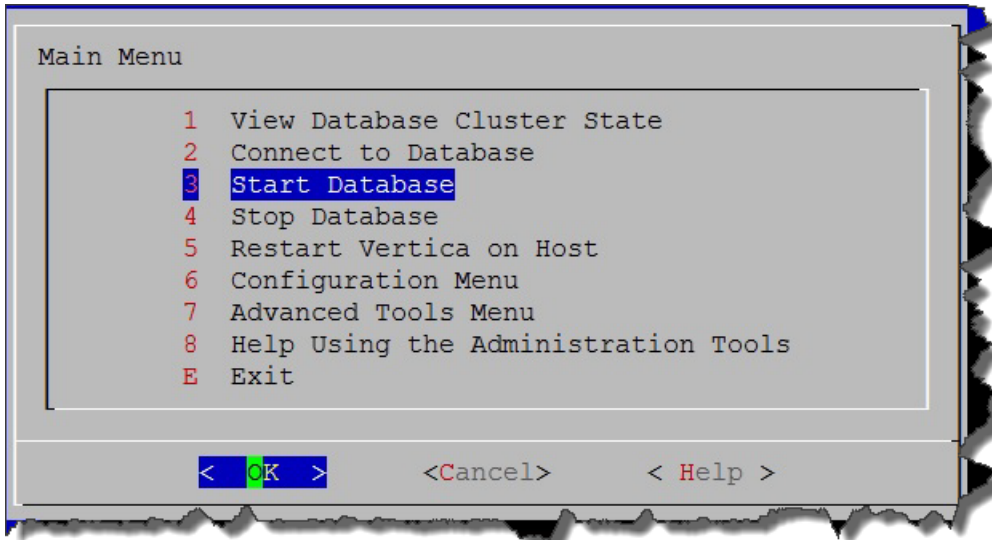
- c. Select the database you want to stop (opsadb); then click **OK**.



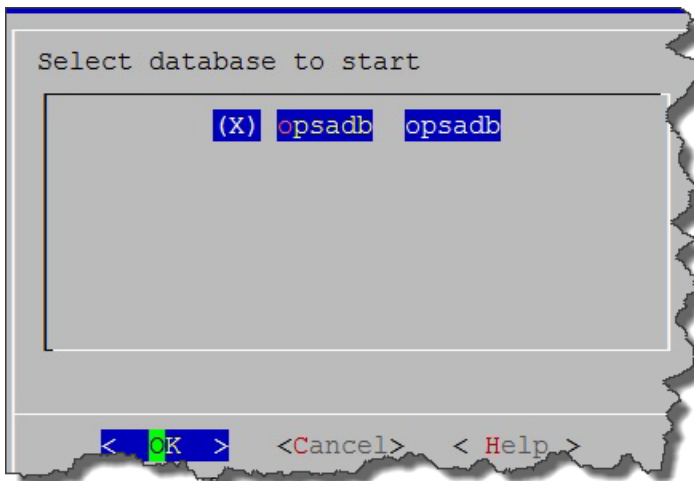
- d. Look for the following message to make sure the database stopped; then click **OK** to go back to the main menu.



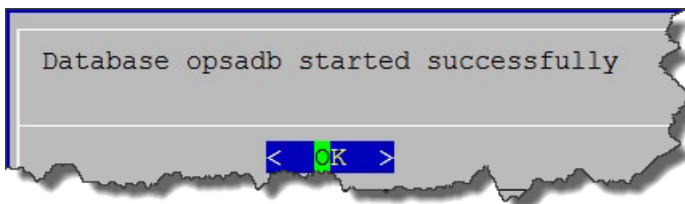
- e. Select **Start Database**; then click **OK**.



- f. Select the database you want to start (opsadb); then click **OK**.



- g. Look for the following message to make sure the database started successfully; then click **OK** to go back to the main menu.



- h. Exit the admin tool.

SSL communications between between the Operations Analytics Server and the Vertica (Operations Analytics) database is now disabled.

## Enabling SSL Communications between the Operations Analytics Collector Host and Vertica

Complete the following steps on the Operations Analytics Collector host to enable SSL between the Operations Analytics Collector host and the Vertica (Operations Analytics) database:

1. Complete steps 1-8 in ["Enabling SSL Communications between the Operations Analytics Server and Vertica" on page 47](#) to enable SSL on Vertica.
2. Edit the `$OPSA_HOME/conf/opsa-config.properties` file.
3. Search for the following string: `vertica.ssl.enabled=false`

**Note:** If the string in this step does not exist, add the string shown in the next step to the bottom of the text.

4. Change the string as follows: `vertica.ssl.enabled=true`; then save your work.
5. Run the following command for the changes to take effect: `$OPSA_HOME/bin/opsa-collector restart`

SSL communications between the Operations Analytics Collector host and the Vertica (Operations Analytics) database is now enabled.

## Disabling SSL Communications between the Operations Analytics Collector Host and Vertica

Complete the following steps on the Operations Analytics Collector host to disable SSL between the Operations Analytics Collector host and the Vertica (Operations Analytics) database:

1. Complete the steps shown in ["Disabling SSL Communications between the Operations Analytics Server and Vertica" on page 53](#) to disable SSL on Vertica.
2. Edit the `$OPSA_HOME/conf/opsa-config.properties` file.
3. Search for the following string: `vertica.ssl.enabled=true`

**Note:** If the string in this step does not exist, add the string shown in the next step to the bottom of the text.

4. Change the string as follows: `vertica.ssl.enabled=false`; then save your work.
5. Run the following command for the changes to take effect: `$OPSA_HOME/bin/opsa-collector restart`

SSL communications between the Operations Analytics Collector host and the Vertica (Operations Analytics) database is now disabled.



# Chapter 9: Configuring SSL for the SMTP Server Used for Operations Analytics Alerts

The information in this section explains how to manage SSL communications to your SMTP server.

1. Verify that Operations Analytics servers are already communicating using SSL.
2. Copy the SMTP's root server certificate to the Operations Analytics servers and give the file full permissions.
3. Do the following to import the SMTP's root server certificate into the Operations Analytics truststore:
  - a. Run the `opsa-server-manager.sh` script.
  - b. Log on to the Operations Analytics Server as the `opsadmin` user.
  - c. Choose **Option 2** to configure SSL.
  - d. Choose **Option 4** to import the trusted certificate into the OpsA truststore.
  - e. Enter the file name of the certificate you want to import; then press **Enter**.
  - f. Repeat the prior steps for additional certificate files you want to import.
  - g. Exit the `opsa-server-manager.sh` script.

# Chapter 10: Resetting User Passwords

By default, users are prompted to select new passwords every 182 days. The number of days between resets can be modified by an administrator.

To modify the password reset time:

1. Go to **opt/HP/opsa/conf/opsa-config.properties**
2. Modify the **password.expiration.period.days** property to the desired value.

# Chapter 11: Changing the Port Used by the Operations Analytics Console

There might be a need to change the port used by the Operations Analytics console to comply with local security policies. Do the following:

1. As the `opsa` user, edit the `$(JBOSS_HOME)/bin/standalone.xml` file.
2. Search for the **standard-sockets** stanza and change the **http** port, **https** port, or both to the ports you need to use as shown in the following example (the items to search for are in bold font):

```
<socket-binding-group name="standard-sockets" default-interface="public"
port-offset="${jboss.socket.binding.port-offset:0}">
<socket-binding name="management-native" interface="management"
port="${jboss.management.native.port:19999}"/>
<socket-binding name="management-http" interface="management"
port="${jboss.management.http.port:9990}"/>
<socket-binding name="management-https" interface="management"
port="${jboss.management.https.port:9991}"/>
<socket-binding name="ajp" port="8009"/>
<socket-binding name="http" port="8080"/>
<socket-binding name="https" port="8443"/>
<socket-binding name="remoting" port="4447"/>
<socket-binding name="txn-recovery-environment" port="4712"/>
<socket-binding name="txn-status-manager" port="4713"/>
<outbound-socket-binding name="mail-smtp">
<remote-destination host="localhost" port="25"/>
</outbound-socket-binding>
</socket-binding-group>
```

3. Save your work.
4. Run the `$(OPSA_HOME)/bin/opsa-server restart` command to restart the Operations Analytics Server.



# Chapter 12: Securing Data Among Tenants

If you have multiple tenants, we recommend using different Operations Analytics Collector hosts for each tenant. Doing so ensures data separation for each tenant. See ["Creating Tenants "](#) on [page 17](#) for more information.



# Part 4: System Maintenance

# Chapter 13: Maintaining Operations Analytics

The information in this section explains how to complete maintenance tasks to protect your investment in Operations Analytics.

## Adding More Operations Analytics Servers

As your Operations Analytics environment expands, you might need to add more Operations Analytics Servers. Operations Analytics supports a maximum of three Operations Analytics Servers. To add another Operations Analytics Server, do the following:

1. Install a new Operations Analytics Server as shown in the *Operations Analytics Installation Guide*.
2. Run the `$OPSA_HOME/bin/opsa-server-postinstall.sh -scaleout` command to add the new Operations Analytics Server. See the *opsa-server-postinstall.sh* reference page (or the Linux manpage) for more information.

**Note:** After the `opsa-server-postinstall.sh` command completes, the passwords for the `opsa`, `opsatenantadmin`, and `opsaadmin` users (on the added servers) match the passwords you set when you installed the original Operations Analytics Server.

3. Reboot all of the Operations Analytics Servers.
4. After all of the Operations Analytics Servers finish rebooting, you must reboot all of the Operations Analytics Collector hosts so they can identify the newly added Operations Analytics Server.

After completing the above steps, the newly added Operations Analytics Server should be ready to use.

## Checking Operations Analytics System Health

You can configure Operations Analytics to display the metrics, topology, event, and log information available for the following Operations Analytics servers and applications:

- Operations Analytics Collector host
- Operations Analytics Server
- Operations Analytics Database Servers
- HPE ArcSight Logger

## Configuring Operations Analytics Health

To configure Operations Analytics to monitor its own active components, do the following:

1. Make sure the following software is installed and configured:
  - a. Vertica: See *Task 2: Installing and Configuring the Vertica Software* in the *Operations Analytics Installation Guide*.
  - b. HPE ArcSight Logger: See *Task 3: Installing and Configuring HPE ArcSight Logger* in the *Operations Analytics Installation Guide*.
  - c. Operations Analytics Server: See *Task 4: Installing and Licensing the Operations Analytics Server*



using the *VMware vSphere Client* in the *Operations Analytics Installation Guide*.

- d. Operations Analytics Collector Host: See *Task 5: Installing and Configuring the Operations Analytics Collector Host using the VMware vSphere Client* in the *Operations Analytics Installation Guide*.
2. Edit the `/etc/yum.conf` file and add the proxy information for your network. You entry should look similar to the following:

```
# The proxy server - proxy server:port number
proxy=http://mycache.mydomain.com:3128
# The account details for yum connections
proxy_username=yum-user
proxy_password=qwerty
```

Save your work.
3. Install Operations Agent on the Vertica database server, the Operations Analytics Collector host, and the Operations Analytics Server using the information shown in the [Operations Agent and Infrastructure SPIs Installation Guide](#).
4. Configure the syslogs from the Vertica database server, the Operations Analytics Collector host, and the Operations Analytics Server to forward to the HPE ArcSight Logger server by appending ```*. *@@<logger_hostname>:515"` to the `/etc/rsyslog.conf` file.)
5. Run the following command to restart the `rsyslog` service:

```
service rsyslog restart
```

## Using the OpsA Health Dashboard

You can investigate the health of the Operations Analytics servers using the **OpsA Health** dashboard. See *Check the Health of Operations Analytics* in the *Operations Analytics Help* for more information.

### Some Additional Detailed Information

The **OpsA Health** dashboard contains predefined panels to help you assess the health of your Operations Analytics servers and integrations. The tops panels in the display show Operations Agent performance data from hosts that are in the Operations Analytics Service Topology definition. These panes will not be populated unless you installed the Operations Agent software on your Operations Analytics servers, have this software running, and have the Operations Agent Collection configured for those server in Operations Analytics. Nodes that are configured as part of the Operations Analytics Service Topology include your Operations Analytics Servers, Operations Analytics Collector hosts, Vertica database hosts, and HPE ArcSight Logger hosts. The **Host System Metrics Over Time** pane shows metrics such as `cpu` and peak disk utilization from Operations Agent data being collected on hosts in the Operations Analytics Service Topology. The **Service Topology** pane shows a pie-chart view of performance metrics from Operations Agent for the Operations Analytics Server and Collector hosts.

The **Row Count of Collected Metrics and Log** pane is useful for confirming that the collections are running as expected. As you configure additional Operations Analytics collections, the number of collections shown in this **Row Count of Collected Metrics and Log** pane increases. For usability, augment the color coding by selecting the **Show Values** checkbox on the right. Hover over the left side collection labels to bring up a screen tip showing the full name of each collection. Without any configuration applied, you will see the following entries: `"log_group_0_metrics"`, `"log_group_1_metrics"`, and `"log_group_2_metrics"`. These entries are automatically generated collections related to the log file tracking facility. An `"opsa_collection_alerts"` entry in the table tracks triggered alerts seen over time. More importantly, after you configure a Log Analytics collection, you will see an entry either called `"splunk_log_stream"` or `"arcsight_log_stream"`, showing the

volume (Row Counts values are equivalent to log message counts) over time. Likewise, if you configure Operations Agent collections, you will see "OA\_sysperf\_global" values coming in every 15 minutes, adding three rows for each Operations Agent node from which you collect data. Each additional collection adds more lines to this health display, although it may take up to 15 minutes after you configure a new collection for data to show up in this dashboard.

**Note:** A SiteScope collection may add up to 50 rows to this panel, which can make it more complicated to navigate. To make this easier, use the **Resize Pane > Increase Height** function in the upper right of the **Row Count of Collected Metrics and Log** pane to increase the pane height. Doing so reduces the number of pages you must navigate through using the page control on the lower right.

The next pane in the dashboard, **Configured Collections Dictionary**, shows a table of information that includes collection property information for each Operations Analytics Collector host.

The last pane, **Log Messages(100+)**, shows a subset of Operations Analytics log messages only after you configure Operations Analytics Log file self-monitoring processes using ArcSight Flex Connectors.

## Deleting a Tenant

To delete a tenant from Operations Analytics, you must delete the tenant, then remove files from the Operations Analytics Collector host being used by the tenant you delete.

1. Remove all of the collection registrations for a tenant before deleting the tenant. See "[Removing a Collection Registration for a Tenant](#)" on page 74 for more information.
2. There are two methods to use to delete a tenant from Operations Analytics. To delete a tenant from Operations Analytics, **use only one of the following methods:**

**Note:** There are additional steps you must complete to remove files from your configured collectors after deleting a tenant.

- **Method 1:** Run the `$OPSA_HOME/bin/opsa-tenant-manager.sh` command as a user assigned to the Super Admin User Group. `opsadmin` is a Super Admin user created during installation. You reset the password for this user during installation. Then follow the interactive commands to remove the tenant.
- **Method 2:** Run the `$OPSA_HOME/bin/opsa-tenant-manager.sh -delete -loginUser opsadmin -loginPassword opsadmin -tenant <tenant name>`

See the `opsa-tenant-manager.sh` reference page (or the Linux manpage) for information about creating and managing tenants.

3. To remove files from your configured collectors, do the following:
  - a. From each Operations Analytics Collector host that contains collectors for the tenant being removed, run only one of the following commands to remove the tenant collection configuration:
    - If the Operations Analytics Collector host is only collecting data for the tenant being removed:

```
rm -rf /opt/HP/opsa/conf/collection/config.files/<collector host>
```
    - If the Operations Analytics Collector host is collecting data for multiple tenants:

```
rm -rf /opt/HP/opsa/conf/collection/config.files/<collector host>/<tenant>
```
  - b. *Only complete this step if an Operations Analytics Collector host currently collects data for tenants*

*other than the one being deleted.* Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host. Use a Tenant Admin user for one of the other active tenants for which that this Operations Analytics Collector host is collecting.

```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of the collector host> -username <tenant admin user>
```

The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

- c. From the Operations Analytics Collector host, run the following commands to remove specific files from the Operations Analytics Collector host associated with the tenant being removed :
  - `rm -rf /opt/HP/opsa/data/load/<tenant name>`
  - `rm -rf /opt/HP/opsa/data/failed_to_load/<tenant name>`

## Exporting and Importing Operations Analytics Dashboards

An Operations Analytics dashboard is the graphical user interface for troubleshooting your IT operations problems. See *Dashboards and Query Panes* in the *Operations Analytics help* for more information.

After you create new dashboards or modify existing ones, you might want to export these dashboards to a file, then import them for use among tenants.

**Caution:** Do not edit the dashboard file (shown as `mydashboard.xml` file in the examples in this section) after you export it, then attempt to import the file. Manually editing an exported dashboard file is not supported.

**Note:** If you choose to add spaces to your dashboard names, such as using two or more words in your dashboard names, you must always use quotation marks when working with these dashboards.

## Exporting and Importing Dashboards Among Operations Analytics Tenants

Suppose you created a new dashboard, `dashboard1`, and want to export this dashboard and share it with another Operations Analytics tenant. You can use the instructions in this section to import these dashboards to another tenant.

To accomplish this, do the following:

1. From the Operations Analytics console, navigate to the **Dashboards** menu.
2. While viewing the dashboards, make a list of the dashboards that you want to export. For this example, you have `dashboard1` and `dashboard2` on your list.

**Note:** Dashboards can be **shared** with other users in your user community. See *Share a dashboard*

*with other users in your user community in the Operations Analytics help* for more information. The instructions in this section work for both shared and non-shared dashboards.

3. Run the following command to export dashboard1:

```
opsa-dashboard-manager.sh -u <the user that owns the dashboard> -e  
dashboard1 -f <mydashboardfile>
```

**Note:** To export more than one dashboard, use `-e dashboard1 dashboard2`.

**Note:** The `opsa-dashboard-manager.sh` script exports the dashboard to the current directory. For example, if you run the `opsa-dashboard-manager.sh` script from the `$OPSA_HOME/bin` directory, look for the exported dashboards in the `$OPSA_HOME/bin` directory.

**Note:** You can use variations of the `opsa-dashboard-manager.sh` to export specific dashboards or all dashboards. See the `opsa-dashboard-manager` reference page (or the Linux manpage) for more information.

**Note:** If you create dashboard names that include spaces, you must wrap those dashboard names in double quotation marks. For example, wrap any dashboard names that include white space as shown in the bold font: `opsa-dashboard-manager.sh -u opsa -p opsa -e "metrics dashboard" -f mydashboardfile`

4. To import your exported dashboard or dashboards to another Operations Analytics installation, run the following command from the Operations Analytics Server on which you want to import your dashboards:

```
opsa-dashboard-manager.sh -u <the user that will own the dashboard or  
dashboards> -i -f <mydashboardfile>
```

**Note:** The `opsa-dashboard-manager.sh` script prompts you for the password for the `opsatenantadmin` password, which you set during installation.

**Note:** Before you import dashboards, it is a good practice to create a backup copy of any dashboards you plan to import. See *Copy a dashboard* in the *Operations Analytics help* for more information.

5. To see the newly imported dashboards, you must run the following command from the Operations Analytics Server on which you imported the dashboards:

```
$OPSA_HOME/bin/opsa-server restart
```

**Note:** After running an `opsa-server restart` command, information logged in the `/opt/HP/opsa/log/opsa-server.log` file is removed. To view the files that retain this information across restarts, see the log files located in the `/opt/HP/opsa/jboss/standalone/log` directory. Look for log file names that begin with `server.log`.

See the `opsa-server` reference page (or the Linux manpage) for more information.

After you successfully import a dashboard, users associated with the tenant you used for the import should be able to see data using the imported dashboard.

## General Troubleshooting Tips

This section includes some general troubleshooting tips and techniques for resolving Operations Analytics issues.

**Question:** When I log on to an Operations Analytics Server or Operations Analytics Collector host as an opsa user, I receive an Account locked due to <n> failed logins message, yet I know the password I supplied is correct.

**Answer:** This message seems to indicate that I need to wait some period of time after the last failed attempt to try to log on again. However, for the this opsa user, this message means you are really supplying the wrong password. Obtain the correct password for the opsa user and try again. You will be able to log on immediately by using the correct password,

## Log Files in Operations Analytics

This information in this section discusses the purpose and location of log files used in Operations Analytics.

### Using and Maintaining Audit Log Files

The information in this section discusses the log files Operations Analytics provides for auditing events associated with account and application activity. This audit activity does not include any information that might be considered sensitive in nature. Operations Analytics logs information related to the following topics:

- REST (Representational state transfer) calls
- Log on requests
- User setting changes
- Administrator setting changes
- Users attempting to log on without Operations Analytics roles
- Users attempting to use unauthorized resources
- Users accessing administrative consoles
- Create, delete, or disable user accounts
- Lock or release user accounts
- Password resets

Audit logs for the Operations Analytics Server reside in the following location:

```
$OPSA_HOME/log/audit/opsa-server-audit.log
```

These audit logs are configured for read and write permissions for the opsa user, and cannot be edited by other users.

There are several logging levels supported by the Operations Analytics audit logs. The following list is in order from the least severity to the most severity.

- INFO
- LOW
- MEDIUM

- HIGH
- CRITICAL

To change the level of logging of the Operations Analytics Server, edit the following file and follow the instructions shown in the file: **Operations Analytics Server**:

`$OSPA_HOME/jboss/standalone/configuration/standalone.xml`

**Note:** Back up the `standalone.xml` file before doing any editing. Carefully edit this file, keeping the xml well-formed and valid.

For example, to turn off logging, do the following.

1. Edit the following file on the Operations Analytics Server:

`$OSPA_HOME/jboss/standalone/configuration/standalone.xml`

2. Look for xml content that resembles the following:

```
<subsystem xmlns="urn:jboss:domain:logging:1.2">
<periodic-rotating-file-handler name="AUDIT_FILE">
<level name="INFO"/>
  <formatter>
    <pattern-formatter pattern="%d{yyyy-MM-dd HH:mm:ss,SSS} %s%E%n"/>
  </formatter>
  <file relative-to="jboss.server.log.dir" path="../../../../audit/opsa-
server-audit.log"/>
<suffix value=".yyyy-MM-dd"/>
  <append value="true"/>
</periodic-rotating-file-handler>
  <logger category="com.hp.opsa.common.audit" use-parent-handlers="false">
<handlers>
<handler name="AUDIT_FILE"/>
  </handlers>
</logger>
</subsystem>
```

3. Change the **INFO** text to **OFF**; then save your changes.

4. Run the following command to apply your changes: `$OSPA_HOME/bin/opsa-server restart`

**Note:** After running an `opsa-server restart` command, information logged in the `/opt/HP/opsa/log/opsa-server.log` file is removed. To view the files that retain this information across restarts, see the log files located in the `/opt/HP/opsa/jboss/standalone/log` directory. Look for log file names that begin with `server.log`.

## Maintaining the Operations Analytics Database

Use the instructions in this section to maintain the Operations Analytics databases.

## Backing up and Restoring Data

To back up or restore data for the Operations Analytics Server and Collector hosts, see the referenced sections in the following documents:

- The *Configuration Backup and Restore* section of the *ArcSight Logger Administrator's Guide*
- The *Backing up and Restoring the Database* section of the *Vertica Administrator's Guide*

## Managing Vertica Data

By default, the Operations Analytics uses the Vertica Community Edition license, which is a non-expiring 1TB license. To avoid any disruptions in service, it is a good practice to monitor the size of the Operations Analytics database.

To check or verify the size of the Operations Analytics database, do the following:

1. Log on to the Vertica server as a root or dbadmin user.
2. Run the following command: `/opt/vertica/bin/vsql -U dbadmin -c 'select get_compliance_status();'`

**Note:** Only use the `-U dbadmin` option if you log on as a root user.

3. Review the compliance status. The message you see resembles the following example, which shows a 70 percent utilization percentage (70 percent of the 1TB that is available is currently in use):

```
-----
                                get_compliance_status
-----
-----
Raw Data Size: 0.00TB +/- 0.00TB
License Size : 1.00TB
Utilization  : 70%
Audit Time   : -12-31 17:00:00-07
Compliance Status : The database is in compliance with respect to raw data size.

No expiration date for a Perpetual license
(1 row)
```

If you have exceeded your licensed database size, do one or more of the following:

- **Shorten the data retention period:** See ["Setting Collection Retention Periods" on the next page](#) for more information.
- **Set a Purge Policy for the Vertica database:** See *Purging Deleted Data* in the *Vertica Administrator's Guide*.
- **Manually purge data from the Vertica database:** See *Purging Deleted Data* in the *Vertica Administrator's Guide*
- **Increase the Vertica license size:** See *Managing Licenses* in the *Vertica Administrator's Guide*

See *Monitoring Database Size for License Compliance* in the *Vertica Administrator's Guide* for more information.

**Note:** Over time you might find that Operations Analytics collection data approaches or exceeds the storage space you configured in Vertica. To remedy this storage space issue, use the procedure shown in [Moving Data Storage Locations](#) to create a new storage location for select collection (tables) and move its existing content to the new location that you create.

## Setting Collection Retention Periods

By default, Operations Analytics's distributed version includes a three month data retention period . After purchasing and applying a production license, you can modify the data retention period as follows:

You can set the amount of time that Operations Analytics retains the data it is collecting. You can set the retention period for a collection or for all of the collections belonging to a tenant or a data source.

To set the amount of time to retain the data for a collection, use the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -setretention <retention period in months> -source <source name> -domain <domain name> -group <group name> -username opstenantadmin
```

See the *opsa-collection-config.sh* reference page (or the Linux manpage), for more information.

The following shows several examples of setting collection retention periods:

- To set the retention period for a specific source, domain, and group, use the following command:  

```
/opt/HP/opsa/bin/opsa-collection-config.sh -setretention <retention period in months> -source <source> -domain <domain> -group <group> -username <username> [-force]
```
- To set the retention period for a specific source, use the following command:  

```
/opt/HP/opsa/bin/opsa-collection-config.sh -setretention <retention period in months> -source <source> -username <username> [-force]
```
- To set the overall retention period, use the following command: 

```
/opt/HP/opsa/bin/opsa-collection-config.sh -setretention <retention period in months> -username <username> [-force]
```

**Note:** When setting retention period for multiple collection policies, you can use the `-force` option to forcefully set the retention name and to avoid responding with `yes` for each collection.

After setting the retention period for specific collections belonging to a tenant, Operations Analytics removes any data record with a time stamp older than the listed retention period for those collections.

## Managing Data in Logger

Logger supports several storage groups, each of which can have a different retention policy. Retention policy is specified in terms of number of days that events are stored, or overall maximum size (in GB). See *Retention Policy* in the *ArcSight Logger Administrator's Guide* for more information.

For software Loggers, the storage volume is set to the maximum capacity specified in the license or the available disk space, whichever is smaller. See *Storage Volume* in the *ArcSight Logger Administrator's Guide* for more information.

To manage adherence to the Logger license, do the following from the ArcSight Console:

1. Click **System Admin**.
2. Click **License & Update**.
3. Review the license information. If you have exceeded your licensed database size, do one or more of the following:



- Increase the Logger licensed capacity. See *License and Update* in the *ArcSight Logger Administrator's Guide* for more information
- Add a storage group to Logger. See *Adding Storage Groups* in the *ArcSight Logger Administrator's Guide* for more information
- Regularly manage your Logger storage volume. See *Storage Volume* in the *ArcSight Logger Administrator's Guide* for more information

## Modifying Unit Scaling on Collected Data

Data can be displayed in different scales, for example 1000 bytes may be displayed as 1 kilobyte or 1000 bytes. This procedure shows you how to modify the way data is displayed in query panes.

1. Open the configuration file of the collection from which the data originates. The files are found in the **/opt/HP/opsa/conf/collection/server/config.templates** directory.

**Example:**

```
/opt/HP/opsa/conf/collection/server/config.templates/bpm/1.0/application/performance/bpm_
collection.xml
```

2. Locate the name of the metric you want to modify. In the example below, this is **Transaction\_Response\_Time**. Add a `scaling_unit` element using the following options:  
%,mbps,kbps,gbps,kb,mb,gb,hz,khz,mhz,ghz,bytes,BIT,PB,EB,W,V,A,secs,millisecs,ms,pages/sec,per second,switches/sec,bytes/sec,KB/sec,interrupts/sec,packets/sec,errors/sec,reads/sec,bps,per hour,per min  
then specify the factor that you want to multiply the incoming data by.

**Example:** This example takes incoming milliseconds and displays them as seconds.

```
<collection sourcegroup="performance" .....
<column name="Transaction_Response_Time" position="9" datatype="float" length="0"
key="no" value="" mapsto="" label="Transaction Response Time" columnname="" unit="ms"
scaling_unit="secs" factor="0.001" type="metric"/> </collection>
```

3. Run the create and publish commands on the collection.

**Example:**

```
opt/HP/opsa/bin/opsa-collection-config.sh -create -nodelist
/opt/HP/opsa/conf/collection/sample/bpm_nodelist -collectorhost 1.2.3.4 -source bpm -domain
application -group performance -username <admin username> -password <admin password>
/opt/HP/opsa/bin/opsa-collection-config.sh -publish -collectorhost 1.2.3.4 -username <admin
username>-password <admin password>
```

## Monitoring Operations Analytics Processes

Operations Analytics provides the `opsa` script to check status or control Operations Analytics services. See the `opsa` reference page (or the Linux manpage) for more information.

Operations Analytics depends on several different services to be active on the deployed Operations Analytics Server and Collector hosts. These services start automatically when booting up your Operations Analytics Server and Collector hosts (you do not need to specifically configure these services).

You can use the `opsa` script to do several things:

- Run the `$OPSA_HOME/bin/opsa status` command script to check the status of all of these services at once.
- When necessary, you can control all of the Operations Analytics-related services on any Operations Analytics Server and Collector hosts (for example, in preparation for installing a software patch):
  - Start Operations Analytics services: `$OPSA_HOME/bin/opsa start`
  - Stop Operations Analytics services: `$OPSA_HOME/bin/opsa stop`

**Note:** A network disruption can cause Operations Analytics services to stop functioning. If you suspect that the Operations Analytics Server and Collector hosts lost connectivity to the network, you might restart them using `$OPSA_HOME/bin/opsa restart` command.

As a less powerful alternative, Operations Analytics) also provides the `opsa-process-manager` script to stop and start processes on a single Operations Analytics Server or Operations Analytics Collector host. You can also use the `opsa-process-manager` script to monitor Operations Analytics processes. See the `opsa-process-manager` reference page (or the Linux manpage) for more information.

**Note:** A network disruption can cause this process management feature to stop functioning. If you suspect that the Operations Analytics Server and Collector hosts lost connectivity to the network, restart them as detailed in "[Restarting the Operations Analytics Server and Operations Analytics Collector Host](#)" on the next page after the network connectivity is restored.

## Removing a Collection Registration for a Tenant

If you no longer want to analyze data for a collection, you must remove the collection registration and the stored data for that collection.

**Note: Important:** Just unregistering a collection does not drop the tables from the Operations Analytics database. If you do not complete all of the steps below, then try to register the collection again using the original name, Operations Analytics will not create the database table. By completing all of the following steps, you will run the `opsa-collection-config.sh` script with the `-purgecollection` option. Doing so drops the database table and removes any references to the table.

To remove the collection registration and the stored data for that collection, do the following:

1. Run the following command to list all of the collectors for the tenant:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -collectorhosts -allversions -username opsatenantadmin
```

See the `opsa-collection-config.sh` reference page (or the Linux manpage), for more information.

2. Unregister the collections you no longer want to analyze for a tenant using the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -unregister -source <collection source> -domain <collection domain> -group <collection group> -collectorhost <collector host> -username opsatenantadmin
```

**Note:** The `unregister` option is the opposite of the `create` option. The `unregister` option removes a collection from being collected on an Operations Analytics Collector host where the `create` option was used to create that collection.

**Note:** The command in this step also removes any Custom Collection entries for the specified tenant.

3. Repeat the previous two steps until there are no collectors listed when running the command shown in step 1. If the command in step 1 lists no collectors, that means none of the original collectors for the tenant are collecting data for the collection you plan to remove.
4. After unregistering all of the collections you no longer want to analyze for a tenant ( from all the tenant's collectors), remove the collection from the database using the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -purgecollection -source <collection source> -domain <collection domain> -group <collection group> -collectorhost <collector host> -username <Tenant Admin User>
```

See the `opsa-collection-config.sh` reference page (or the Linux manpage), for more information.

**Note:** The command in this step also removes all Custom Collection data for the specified tenant from the Operations Analytics database.

**Note:** After unregistering a Custom Collection, the data remains intact. This means that you can register a Custom Collection that you removed and resume that Custom Collection.

5. View the dashboards associated with the collections you just purged. The data from these purged collections should no longer be present in their associated dashboards.

## Restarting the Operations Analytics Server and Operations Analytics Collector Host

**Restarting the Operations Analytics Server and the Operations Analytics Collector Host:** If you suspect that Vertica has stopped functioning (such as during a power outage, network outage, or other software disruption), you can restart the Operations Analytics services on the Operations Analytics Server and Collector hosts. The symptom you might see is that new data is no longer being collected with old data still available for viewing.

To restart the Operations Analytics Server and Collector hosts, do the following on each server: `$OPSA_HOME/bin/opsa restart`

See the `opsa` reference page (or the Linux manpage) for more information.

# Using Parametric Dashboards

Operations Analytics provides you with the ability to use dashboards as launching points for parametric dashboards. For example, assume you have an existing dashboard, called *MyDashboard*. From *MyDashboard*, assume you want to navigate to launch a parametric dashboard, called *MyParametricDashboard*.

**Note:** This section discusses using an existing dashboard to implement a navigation (drill) to a parametric dashboard. The use of parametric dashboards is only one form of drill. There is a PQL drill as well, and that drill is not covered in this section.

To configure this drill point, do the following:

1. Using the *MyDashboard* dashboard, click **Parameters** in the panel and scroll down. To determine the parameters you want to enter, do the following:
  - a. **Drill Destination:** Decide what name you want to use for the dashboard to which you want to drill (*MyParametricDashboard*).
  - b. **Drill Label Field, Drill Value Field, and the optional Drill Type Field:** Identify the parameter names for these panels. To obtain these values, do the following:
    - i. Navigate to the *MyParametricDashboard* dashboard.
    - ii. Click **Edit Pane Settings**.
    - iii. Scroll down; then click **Show Properties**.
    - iv. If necessary, enter a filter to limit the number of entries you want to review.
    - v. Write down the following values for the **Drill Label Field, Drill Value Field** and the optional **Drill Type Field**:
      - **Drill Label Field:** Use a combination of the `property_group_id` and `property_uid` (concatenated by an underscore (`_`)) for the value in this field).

**Note:** . In your AQL statement for the pane, if you use an alias for the property selector designated to be used in the **Drill Label Field**, append `aliased <alias>` to the value you enter in the **Drill Label Field**. For example, you would enter `property_group_uid_property_uid aliased <alias>` in the **Drill Label Field** parameter value. See the [AQL Developer Guide](#) for details about specifying aliases for selectors in AQL statements.

- **Drill Value Field:** Use a combination of the `property_group_id` and `property_uid` (concatenated by an underscore (`_`)) for the value in this field).

**Note:** . In your AQL statement for the pane, if you use an alias for the property selector designated to be used in the **Drill Value Field**, append `aliased <alias>` to the value you enter in the **Drill Value Field**. For example, you would enter `property_group_uid_property_uid aliased <alias>` in the **Drill Value Field** parameter value. See the [AQL Developer Guide](#) for details about specifying aliases for selectors in AQL statements.

- **Drill Type Field (optional):** Use a combination of the `property_group_id` and `property_uid` (concatenated by an underscore (`_`)) for the value in this field).

**Note:** . In your AQL statement for the pane, if you use an alias for the property selector designated to be used in the **Drill Type Field**, append *aliased <alias>* to the value you enter in the **Drill Type Field**. For example, you would enter `property_group_uid_property_uid aliased <alias>` in the **Drill Type Field** parameter value. See the [AQL Developer Guide](#) for details about specifying aliases for selectors in AQL statements.

- Open the *MyDashboard* dashboard, click **Parameters** in the pane, then scroll down. Note the highlighted fields shown below.

Query	Visualization	Parameters
Interval:	300	Seconds
Offset:	0	
Limit:	500	
N:	5	
Percentile:	10	Percentile
Outlier Upper Limit:	95	Percentile
Outlier Lower Limit:	1	Percentile
Time Offset:	0	Seconds
Start Time Offset:	0	Seconds
End Time Offset:	0	Seconds
TimeOut:	0	Seconds
<b>Drill Destination:</b>		
<b>Drill Label Field:</b>		
<b>Drill Value Field:</b>		
<b>Drill Type Field:</b>		

- Enter the values you identified for the **Drill Destination**, **Drill Label Field**, **Drill Value Field**, and **Drill Type Field**.
- Save** your work.
- Open the *MyParametricDashboard* dashboard for editing.
- In the AQL, use the following as an example to edit the AQL: Change *<the observed string or ID string>* to read as `param1`.

**Note:** The *<the observed string or ID string>* represents the parameter you are passing into the *MyParametricDashboard* dashboard. You are limited to passing one parameter.

**Note:** After you replace the ID string with `param1`, the dashboard is now a "template" dashboard. Any instantiation of this dashboard will not be editable.

After completing the above steps, you can drill to the *MyParametricDashboard* dashboard from a link within the *MyDashboard* dashboard.

Below is a simple example, using a dashboard you created, *MyAlertsDashboard*, and configuring it to drill to a parametric dashboard, *MyAlertsInstance*, that you created.

- Using the *MyAlertsDashboard* dashboard, click **Parameters** in the panel, and scroll down. Note the highlighted fields shown below.

Query	Visualization	Parameters	
	Interval:	300	Seconds
	Offset:	0	
	Limit:	500	
	N:	5	
	Percentile:	10	Percentile
	Outlier Upper Limit:	95	Percentile
	Outlier Lower Limit:	1	Percentile
	Time Offset:	0	Seconds
	Start Time Offset:	0	Seconds
	End Time Offset:	0	Seconds
	TimeOut:	0	Seconds
	Drill Destination:		
	Drill Label Field:		
	Drill Value Field:		
	Drill Type Field:		

To determine the parameters you want to enter, do the following:

- Drill Destination:** Decide what name you want to use for the dashboard to which you want to drill. For this example, you are using *MyAlertsInstance*.
- Drill Label Field, Drill Value Field, and Drill Type Field:** Identify the parameter names for these panels. To obtain these values, do the following:
  - Navigate to the dashboard to which you want to drill. For this example, you are using *MyAlertsInstance*.

- ii. Click **Edit Pane Settings**.
  - iii. Scroll down; then click **Show Properties**.
  - iv. If necessary, enter a filter to limit the number of entries you want to review. For this example you can enter `alerts` in the filter to limit the entries.
  - v. Write down the following values for the **Drill Label Field**, **Drill Value Field**, and **Drill Type Field**:
    - **Drill Label Field:** For this example, you want to use a time stamp for this field. Use a combination of the `property_group_id` and `property_uid` (concatenated by an underscore (`_`) for the value in this field). For this example, you decide to use `opsa_collection_alerts_timestamp` as a value for this field.
    - **Drill Value Field:** For this example, you want to use an identifier for the instance for this field. Use a combination of the `property_group_id` and `property_uid` (concatenated by an underscore (`_`) for the value in this field). For this example, you decide to use `opsa_collection_alerts_alert_instance_id` as a value for this field.
    - **Drill Type Field:** For this example, you want to use an identifier for the instance for this field. Use a combination of the `property_group_id` and `property_uid` (concatenated by an underscore (`_`) for the value in this field). For this example, you decide to use `opsa_collection_alerts_alert_instance_id` as a value for this field.
2. Open the *MyAlertsDashboard* dashboard, click **Parameters** in the pane, and scroll down.

- Enter the values you identified for the **Drill Destination** (*MyAlertsInstance* for this example), **Drill Label Field** (*opsa\_collection\_alerts\_timestamp* for this example), **Drill Value Field** (*opsa\_collection\_alerts\_alert\_instance\_id* for this example) and **Drill Type Field**. Note the highlighted fields shown below.

Query	Visualization	Parameters
Interval:	300	Seconds
Offset:	0	
Limit:	500	
N:	5	
Percentile:	10	Percentile
Outlier Upper Limit:	95	Percentile
Outlier Lower Limit:	1	Percentile
Time Offset:	0	Seconds
Start Time Offset:	0	Seconds
End Time Offset:	0	Seconds
TimeOut:	0	Seconds
<b>Drill Destination:</b>	<b>MyAlertsInstance</b>	
<b>Drill Label Field:</b>	<b>opsa_collection_alerts_tir</b>	
<b>Drill Value Field:</b>	<b>opsa_collection_alerts_al</b>	
<b>Drill Type Field:</b>	<b>opsa_collection_alerts_al</b>	

- Save** your work.
- Open the *MyAlertsInstance* dashboard for editing.
- In the AQL, use the following as an example to edit the AQL: Change *<the observed string or ID string>* to read as *param1*. For this example, change `{{(i.alert_instance_id ilike "902496")}}` to `{{(i.alert_instance_id ilike param1)}}`

**Note:** The *<the observed string or ID string>* represents the parameter you are passing into the *MyAlertsInstance* dashboard. You are limited to passing one parameter.

**Note:** After you replace the ID string with *param1*, the dashboard is now a "template" dashboard. Any instantiation of this dashboard will not be editable.

After completing the above steps, you can drill to the *MyAlertsInstance* dashboard from a link within the *MyAlertsDashboard* dashboard.



## Daylight Savings Time Codes

Use the following timezone attribute codes when setting a collection for Daylight Savings Time.

**Note:** See [http://en.wikipedia.org/wiki/List\\_of\\_tz\\_database\\_time\\_zones](http://en.wikipedia.org/wiki/List_of_tz_database_time_zones) for additional information about some of the time codes shown in the following table.

### Supported Daylight Savings Time Codes

Code	Code
ACT	Africa/Freetown
AET	Africa/Gaborone
AGT	Africa/Harare
ART	Africa/Johannesburg
AST	Africa/Juba
Africa/Abidjan	Africa/Kampala
Africa/Accra	Africa/Khartoum
Africa/Addis_Ababa	Africa/Kigali
Africa/Algiers	Africa/Kinshasa
Africa/Asmara	Africa/Lagos
Africa/Asmera	Africa/Libreville
Africa/Bamako	Africa/Lome
Africa/Bangui	Africa/Luanda
Africa/Banjul	Africa/Lubumbashi
Africa/Bissau	Africa/Lusaka
Africa/Blantyre	Africa/Malabo
Africa/Brazzaville	Africa/Maputo
Africa/Bujumbura	Africa/Maseru
Africa/Cairo	Africa/Mbabane
Africa/Casablanca	Africa/Mogadishu
Africa/Ceuta	Africa/Monrovia
Africa/Conakry	Africa/Nairobi

### Supported Daylight Savings Time Codes, continued

Code	Code
Africa/Dakar	Africa/Ndjamena
Africa/Dar_es_Salaam	Africa/Niamey
Africa/Djibouti	Africa/Nouakchott
Africa/Douala	Africa/Ouagadougou
Africa/El_Aaiun	Africa/Porto-Novo
Africa/Sao_Tome	America/Bahia
Africa/Timbuktu	America/Bahia_Banderas
Africa/Tripoli	America/Barbados
Africa/Tunis	America/Belem
Africa/Windhoek	America/Belize
America/Adak	America/Blanc-Sablon
America/Anchorage	America/Boa_Vista
America/Anguilla	America/Bogota
America/Antigua	America/Boise
America/Araguaina	America/Buenos_Aires
America/Argentina/Buenos_Aires	America/Cambridge_Bay
America/Argentina/Catamarca	America/Campo_Grande
America/Argentina/ComodRivadavia	America/Cancun
America/Argentina/Cordoba	America/Caracas
America/Argentina/Jujuy	America/Catamarca
America/Argentina/La_Rioja	America/Cayenne
America/Argentina/Mendoza	America/Cayman
America/Argentina/Rio_Gallegos	America/Chicago
America/Argentina/Salta	America/Chihuahua
America/Argentina/San_Juan	America/Coral_Harbour
America/Argentina/San_Luis	America/Cordoba
America/Argentina/Tucuman	America/Costa_Rica
America/Argentina/Ushuaia	America/Creston

### Supported Daylight Savings Time Codes, continued

Code	Code
America/Aruba	America/Cuiaba
America/Asuncion	America/Curacao
America/Atikokan	America/Danmarkshavn
America/Atka	America/Dawson
America/Dawson_Creek	America/Indiana/Vevay
America/Denver	America/Indiana/Vincennes
America/Detroit	America/Indiana/Winamac
America/Dominica	America/Indianapolis
America/Edmonton	America/Inuvik
America/Eirunepe	America/Iqaluit
America/El_Salvador	America/Jamaica
America/Ensenada	America/Jujuy
America/Fort_Wayne	America/Juneau
America/Fortaleza	America/Kentucky/Louisville
America/Glace_Bay	America/Kentucky/Monticello
America/Godthab	America/Knox_IN
America/Goose_Bay	America/Kralendijk
America/Grand_Turk	America/La_Paz
America/Grenada	America/Lima
America/Guadeloupe	America/Los_Angeles
America/Guatemala	America/Louisville
America/Guayaquil	America/Lower_Princes
America/Guyana	America/Maceio
America/Halifax	America/Managua
America/Havana	America/Manaus
America/Hermosillo	America/Marigot
America/Indiana/Indianapolis	America/Martinique
America/Indiana/Knox	America/Matamoros

### Supported Daylight Savings Time Codes, continued

Code	Code
America/Indiana/Marengo	America/Mazatlan
America/Indiana/Petersburg	America/Mendoza
America/Indiana/Tell_City	America/Menominee
America/Merida	America/Rainy_River
America/Metlakatla	America/Rankin_Inlet
America/Mexico_City	America/Recife
America/Miquelon	America/Regina
America/Moncton	America/Resolute
America/Monterrey	America/Rio_Branco
America/Montevideo	America/Rosario
America/Montreal	America/Santa_Isabel
America/Montserrat	America/Santarem
America/Nassau	America/Santiago
America/New_York	America/Santo_Domingo
America/Nipigon	America/Sao_Paulo
America/Nome	America/Scoresbysund
America/Noronha	America/Shiprock
America/North_Dakota/Beulah	America/Sitka
America/North_Dakota/Center	America/St_Barthelemy
America/North_Dakota/New_Salem	America/St_Johns
America/Ojinaga	America/St_Kitts
America/Panama	America/St_Lucia
America/Pangnirtung	America/St_Thomas
America/Paramaribo	America/St_Vincent
America/Phoenix	America/Swift_Current
America/Port-au-Prince	America/Tegucigalpa
America/Port_of_Spain	America/Thule
America/Porto_Acre	America/Thunder_Bay

### Supported Daylight Savings Time Codes, continued

Code	Code
America/Porto_Velho	America/Tijuana
America/Puerto_Rico	America/Toronto
America/Tortola	Asia/Baghdad
America/Vancouver	Asia/Bahrain
America/Virgin	Asia/Baku
America/Whitehorse	Asia/Bangkok
America/Winnipeg	Asia/Beirut
America/Yakutat	Asia/Bishkek
America/Yellowknife	Asia/Brunei
Antarctica/Casey	Asia/Calcutta
Antarctica/Davis	Asia/Choibalsan
Antarctica/DumontDUrville	Asia/Chongqing
Antarctica/Macquarie	Asia/Chungking
Antarctica/Mawson	Asia/Colombo
Antarctica/McMurdo	Asia/Dacca
Antarctica/Palmer	Asia/Damascus
Antarctica/Rothera	Asia/Dhaka
Antarctica/South_Pole	Asia/Dili
Antarctica/Syowa	Asia/Dubai
Antarctica/Vostok	Asia/Dushanbe
Arctic/Longyearbyen	Asia/Gaza
Asia/Aden	Asia/Harbin
Asia/Almaty	Asia/Hebron
Asia/Amman	Asia/Ho_Chi_Min
Asia/Anadyr	Asia/Hong_Kong
Asia/Aqtau	Asia/Hovd
Asia/Aqtobe	Asia/Irkutsk
Asia/Ashgabat	Asia/Istanbul

### Supported Daylight Savings Time Codes, continued

Code	Code
Asia/Ashkhabad	Asia/Jakarta
Asia/Jayapura	Asia/Qatar
Asia/Jerusalem	Asia/Qyzylorda
Asia/Kabul	Asia/Rangoon
Asia/Kamchatka	Asia/Riyadh
Asia/Karachi	Asia/Riyadh87
Asia/Kashgar	Asia/Riyadh88
Asia/Kathmandu	Asia/Riyadh89
Asia/Katmandu	Asia/Saigon
Asia/Kolkata	Asia/Sakhalin
Asia/Krasnoyarsk	Asia/Samarkand
Asia/Kuala_Lumpur	Asia/Seoul
Asia/Kuching	Asia/Shanghai
Asia/Kuwait	Asia/Singapore
Asia/Macao	Asia/Taipei
Asia/Macau	Asia/Tashkent
Asia/Magadan	Asia/Tbilisi
Asia/Makassar	Asia/Tehran
Asia/Manila	Asia/Tel_Aviv
Asia/Muscat	Asia/Thimbu
Asia/Nicosia	Asia/Thimphu
Asia/Novokuznetsk	Asia/Tokyo
Asia/Novosibirsk	Asia/Ujung_Pandang
Asia/Omsk	Asia/Ulaanbaatar
Asia/Oral	Asia/Ulan_Bator
Asia/Phnom_Penh	Asia/Urumqi
Asia/Pontianak	Asia/Vientiane
Asia/Pyongyang	Asia/Vladivostok

### Supported Daylight Savings Time Codes, continued

Code	Code
Asia/Yakutsk	Australia/Melbourne
Asia/Yekaterinburg	Australia/NSW
Asia/Yerevan	Australia/North
Atlantic/Azores	Australia/Perth
Atlantic/Bermuda	Australia/Queensland
Atlantic/Canary	Australia/South
Atlantic/Cape_Verde	Australia/Sydney
Atlantic/Faeroe	Australia/Tasmania
Atlantic/Faroe	Australia/Victoria
Atlantic/Jan_Mayen	Australia/West
Atlantic/Madeira	Australia/Yancowinna
Atlantic/Reykjavik	BET
Atlantic/South_Georgia	BST
Atlantic/St_Helena	Brazil/Acre
Atlantic/Stanley	Brazil/DeNoronha
Australia/ACT	Brazil/East
Australia/Adelaide	Brazil/West
Australia/Brisbane	CAT
Australia/Broken_Hill	CET
Australia/Canberra	CNT
Australia/Currie	CST
Australia/Darwin	CST6CDT
Australia/Eucla	CTT
Australia/Hobart	Canada/Atlantic
Australia/LHI	Canada/Central
Australia/Lindeman	Canada/East-Saskatchewan
Australia/Lord_Howe	Canada/Eastern
Canada/Mountain	Europe/Berlin

### Supported Daylight Savings Time Codes, continued

Code	Code
Canada/Newfoundland	Europe/Bratislava
Canada/Pacific	Europe/Brussels
Canada/Saskatchewan	Europe/Bucharest
Canada/Yukon	Europe/Budapest
Chile/Continental	Europe/Chisinau
Chile/EasterIsland	Europe/Copenhagen
Cuba	Europe/Dublin
EAT	Europe/Gibraltar
ECT	Europe/Guernsey
EET	Europe/Helsinki
EST	Europe/Isle_of_Man
EST5EDT	Europe/Istanbul
Egypt	Europe/Jersey
Eire	Europe/Kaliningrad
Etc/GMT	Europe/Kiev
Etc/GMT0	Europe/Lisbon
Etc/Greenwich	Europe/Ljubljana
Etc/UCT	Europe/London
Etc/UTC	Europe/Luxembourg
Etc/Universal	Europe/Madrid
Etc/Zulu	Europe/Malta
Europe/Amsterdam	Europe/Mariehamn
Europe/Andorra	Europe/Minsk
Europe/Athens	Europe/Monaco
Europe/Belfast	Europe/Moscow
Europe/Belgrade	Europe/Nicosia
Europe/Oslo	GB-Eire
Europe/Paris	GM



### Supported Daylight Savings Time Codes, continued

Code	Code
Europe/Podgorica	GMT0
Europe/Prague	Greenwich
Europe/Riga	HST
Europe/Rome	Hongkong
Europe/Samara	IET
Europe/San_Marino	IST
Europe/Sarajevo	Iceland
Europe/Simferopol	Indian/Antananarivo
Europe/Skopje	Indian/Chagos
Europe/Sofia	Indian/Christmas
Europe/Stockholm	Indian/Cocos
Europe/Tallinn	Indian/Comoro
Europe/Tirane	Indian/Kerguelen
Europe/Tiraspol	Indian/Mahe
Europe/Uzhgorod	Indian/Maldives
Europe/Vaduz	Indian/Mauritius
Europe/Vatican	Indian/Mayotte
Europe/Vienna	Indian/Reunion
Europe/Vilnius	Iran
Europe/Volgograd	Israel
Europe/Warsaw	JST
Europe/Zagreb	Jamaica
Europe/Zaporozhye	Japan
Europe/Zurich	Kwajalein
GB	Libya
MET	Pacific/Enderbury
MIT	Pacific/Fakaofu
MST	Pacific/Fiji

### Supported Daylight Savings Time Codes, continued

Code	Code
MST7MDT	Pacific/Funafuti
Mexico/BajaNorte	Pacific/Galapagos
Mexico/BajaSur	Pacific/Gambier
Mexico/General	Pacific/Guadalcanal
Mideast/Riyadh87	Pacific/Guam
Mideast/Riyadh88	Pacific/Honolulu
Mideast/Riyadh89	Pacific/Johnston
NET	Pacific/Kiritimati
NST	Pacific/Kosrae
NZ	Pacific/Kwajalein
NZ-CHAT	Pacific/Majuro
Navajo	Pacific/Marquesas
PLT	Pacific/Midway
PNT	Pacific/Nauru
PRC	Pacific/Niue
PRT	Pacific/Norfolk
PST	Pacific/Noumea
PST8PDT	Pacific/Pago_Pago
Pacific/Apia	Pacific/Palau
Pacific/Auckland	Pacific/Pitcairn
Pacific/Chatham	Pacific/Pohnpei
Pacific/Chuuk	Pacific/Ponape
Pacific/Easter	Pacific/Port_Moresby
Pacific/Efate	Pacific/Rarotonga
Pacific/Saipan	Turkey
Pacific/Samoa	UCT
Pacific/Tahiti	US/Alaska
Pacific/Tarawa	US/Aleutian

### Supported Daylight Savings Time Codes, continued

Code	Code
Pacific/Tongatapu	US/Arizona
Pacific/Truk	US/Central
Pacific/Wake	US/East-Indiana
Pacific/Wallis	US/Eastern
Pacific/Yap	US/Hawaii
Poland	US/Indiana-Starke
Portugal	US/Michigan
ROK	US/Mountain
SST	US/Pacific
Singapore	US/Pacific-New
SystemV/AST4	US/Samoa
SystemV/AST4ADT	UTC
SystemV/CST6	Universal
SystemV/CST6CDT	VST
SystemV/EST5	W-SU
SystemV/EST5EDT	WET
SystemV/HST10	Zulu
SystemV/MST7	
SystemV/MST7MDT	
SystemV/PST8	
SystemV/PST8PDT	
SystemV/YST9	
SystemV/YST9YDT	

# Chapter 14: Maintaining Operations Analytics Collections

The information in this section helps you manage the amount of stored data, check the status of your collections and explains some common troubleshooting tools and techniques for collections.

## Improving Log Analytics Collection Performance

To improve Log Analytics Collection performance, you can choose to configure dedicated Operations Analytics Collector hosts for the data streaming component (Apache Storm).

To do this, disable Apache Storm on the Operations Analytics Collector hosts that have existing Log Analytics Collections configured.

1. On each Operations Analytics Collector host that has Log Analytics Collections configured, do the following:
  - a. Edit the following file: `/opt/HP/opsa/conf/deployment/opsa-deployment.xml`
  - b. Locate a line that looks similar to the following: `<process id="storm-supervisor" active="true" runsOnAppliance="Processing">`
  - c. Change **true** to **false** on that line as shown in the following bold text: `<process id="storm-supervisor" active="false" runsOnAppliance="Processing">`
  - d. Save your work.
2. On each Operations Analytics Collector host that has Log Analytics Collections configured, do the following to load the configuration change you just made:
  - a. Run the following command: `/opt/HP/opsa/scripts/opsa-deployment-manager.sh`
  - b. Run the following command: `/opt/HP/opsa/scripts/opsa-deployment-loader.sh`
3. On the Operations Analytics Server, do the following to resubmit the Storm topology:
  - a. Run the following command: `/opt/HP/ops/scripts/opsa-storm-kill-topology.sh`
  - b. Run the following command: `/opt/HP/ops/scripts/opsa-storm-submit-topology.sh`

After completing the above steps, you should see performance improvement in the Log Analytics Collections in which you made these changes.

## Configuring Logger to Forward CEF Messages to Operations Analytics

Before configuring a Structured Log Collection, you might want to configure the **TCP Forwarding** feature, also known as TCP forwarding, which is explained in this section.

After you complete the configuration instructions in this section, the performance of the Operations Analytics Collector host significantly improves. You will also observe more real-time log messages in Operations Analytics.

**Note:** The TCP Forwarding feature does not support a secured connection between HPE ArcSight Logger (Logger) and the Operations Analytics Collector host.

**Note:** The configuration shown in this section changes the default way that Logger passes data to the Operations Analytics Collector host. By default the Operations Analytics Collector host pulls data from Logger (instead of Logger pushing it to the Operations Analytics Collector host).

If you want Logger to forward near real-time CEF messages to Operations Analytics, do the following:

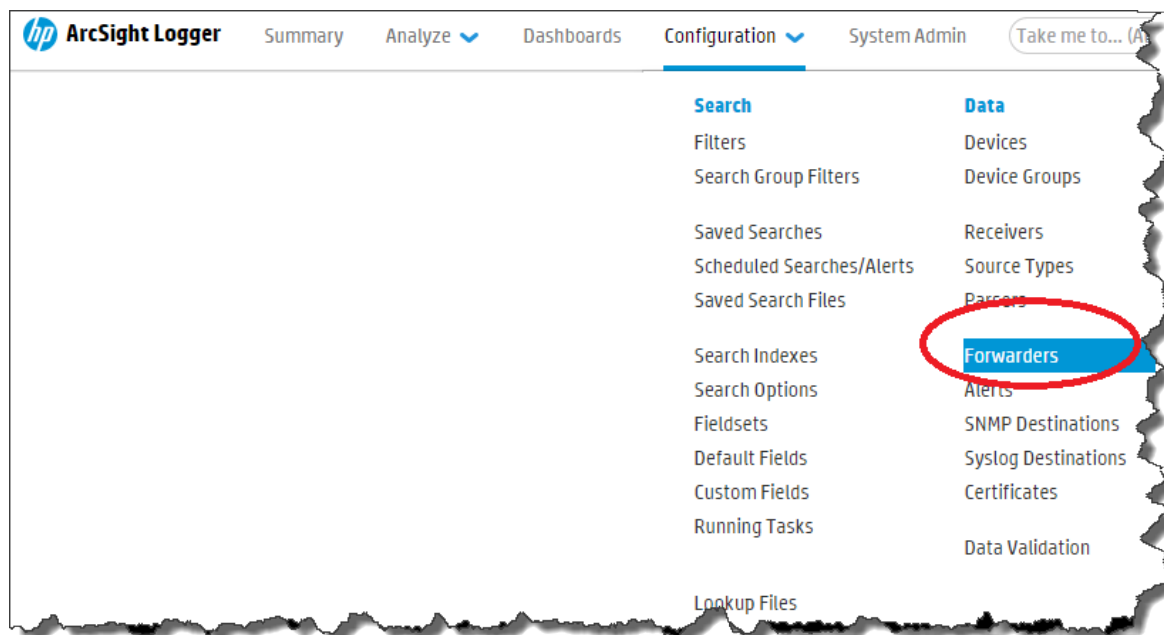
**Note:** If you complete the instructions in this section, you can configure Operations Analytics to receive messages from Logger:

If you complete the instructions in this section you will be able to use the `-passive` mode with the `opsa-collection-config.sh` script when publishing a structured log collection. The `-passive` mode is used to support Log Analytics and Structured Log collections shipped with Operations Analytics.

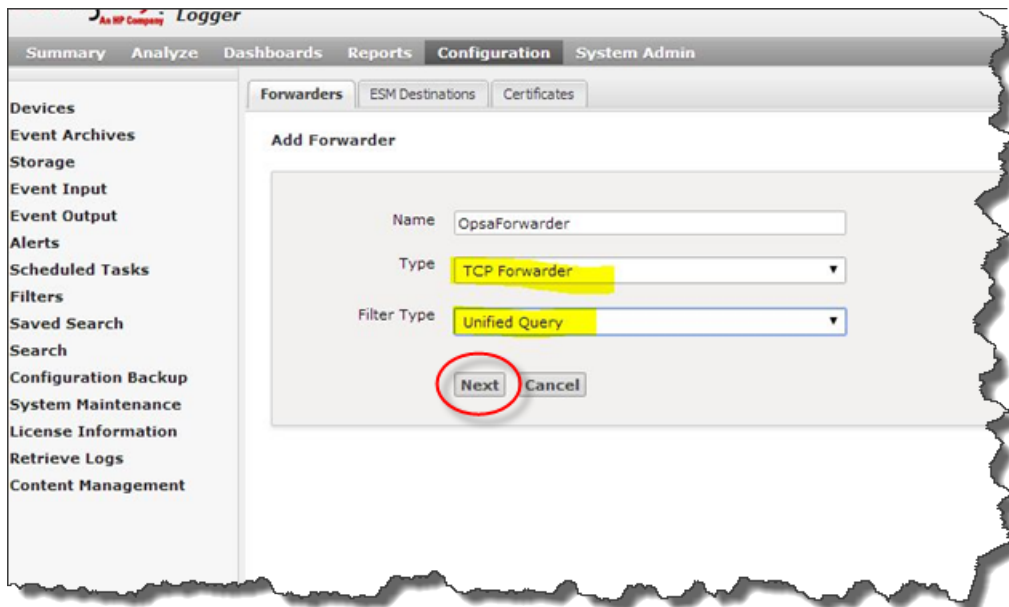
For example, after configuring this feature, you can use a command similar to the following when publishing your collection (notice the bold `-mode passive` option):

```
opsa-collection-config.sh -create -nodelist /tmp/arcsight_log_stream.properties -  
collectorhost <collector-host> -source arcsight -domain log -group stream -username  
opsatenantadmin -mode passive
```

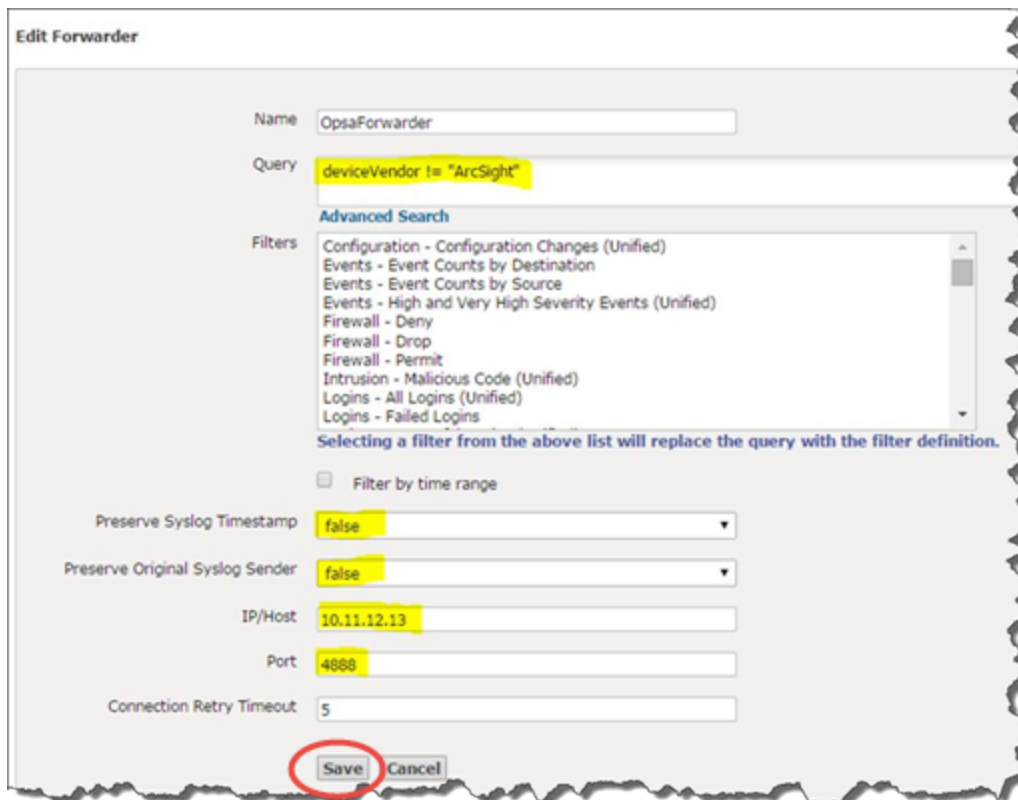
1. From Logger, navigate to **Configuration > Forwarders**.



2. Set the values following the example highlighted below; then click **Next**:



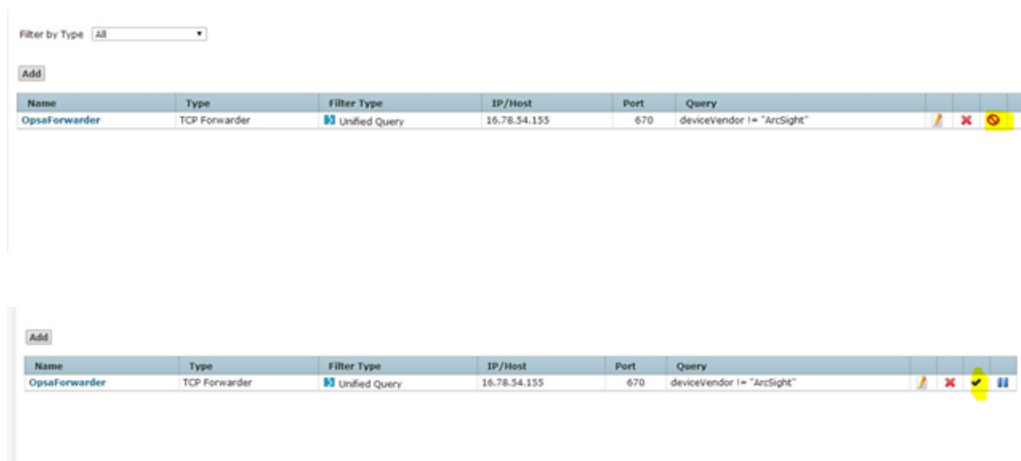
3. Enter the values following the example highlighted below; then click **Save**:



**Note:**

- The screen shown might be different from what you see depending on the version of Logger being used.
- Use 4888 for the value in the Port field.
- The query highlighted in the Query field above (`deviceVendor!="ArcSight"`) is for the Log Analytics Collection to obtain data from HPE ArcSight Logger. Make sure the query you enter in the Query field represents the collection you plan to configure.
- Change the highlighted IP address to the Operations Analytics Collector host for the collection you plan to configure. You must use the same value that is returned when you run the `opsa-collection-config.sh -list -collectorhosts -username opsatenantadmin` command.

4. Enable the new configuration by clicking the highlighted area as follows:



5. Now Logger should forward near real-time CEF messages to Operations Analytics.

**Note:** If you completed these instructions, you must use the `-mode passive` option with the `opsa-collection-config.sh` script when creating the associated structured log collection. For example, you might run the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -nodelist /tmp/mynodelist.properties -collectorhost <fully-qualified-domain-name of collector host> -source arcSight -domain <domain from template files> -group <domain from template files> -username opsatenantadmin -mode passive
```

See the `opsa-collection-config.sh` reference page (or the Linux manpage) for more information.

## Increasing JVM Memory to Improve Collection Performance

Operations Analytics Collector hosts use more memory resource if they contain large numbers of collections or if the collections they contain are configured to frequently collect data. In Operations Analytics Collector hosts in either of these configurations, you might need to increase its JVM memory allocation.

To adjust the JVM memory allocation for an Operations Analytics Collector host, do the following:

1. As a root user, edit the `/opt/HP/opsa/conf/opsa-collector-env` file.
2. Change the `Xmx` value to 4096 or 8196, depending on how much resource your Operations Analytics Collector host is using.
3. Save your work.
4. As a root user, run the following command from the Operations Analytics Collector host:

```
$OPSA_HOME/bin/opsa-collector restart
```

Now the changes you made to the JVM memory allocation on the Operations Analytics Collector host are in place.

## Managing Collected Data File Usage with Existing Delete Policies

Operations Analytics Collector hosts store collected data on their file systems. Each Operations Analytics Collector host periodically runs a process controlled by **delete policies** to reduce the amount of stored data. You can adjust the parameters associated with these delete policies to better manage the data retained by each Operations Analytics Collector host.

To configure the parameters associated with these delete policies, do the following from each Operations Analytics Collector host you want to control:

1. Edit the `/opt/HP/opsa/conf/opsa-collector.properties` file.
2. Using the helpful comments that reside in the `opsa-collector.properties` file, remove the `#` characters and set the desired parameters in the following lines:

```
#com.hp.opsa.collector.file.garbage.schedule.interval_min = 15  
#com.hp.opsa.collector.file.garbage.diskfreepct.start = 30  
#com.hp.opsa.collector.file.garbage.diskfreepct.stop = 50  
#com.hp.opsa.collector.file.garbage.max.daysold = 5  
#com.hp.opsa.collector.file.garbage.enabled = true
```

3. Save your work.
4. Run the following command from the Operations Analytics Collector host:

```
$OPSA_HOME/bin/opsa-collector restart
```

Now the collected data on the Operations Analytics Collector hosts on which you made these changes are being managed by the newly adjusted parameters for these delete policies.

Although you can adjust parameters for the existing delete policies, you cannot add new delete policies or modify the functionality of the existing delete policies. The remainder of this section explains the static behavior of the existing delete policies.



Each Operations Analytics Collector host contains the following delete policies.

- DELETE\_ALWAYS : Delete the files if it exists.
- DELETE\_LOW\_FREE : Delete the files if the free disk space is low.
- DELETE\_WHEN\_OLD: Delete the file if it is old.

Each Operations Analytics Collector host is configured as shown in "Delete Policies by Folder" below.

### Delete Policies by Folder

Folder	Delete Policy
/opt/HP/opsa/data/archive	DELETE_WHEN_OLD & DELETE_LOW_FREE
/opt/HP/opsa/data/failed_to_load	DELETE_LOW_FREE
/opt/HP/opsa/data/load	DELETE_WHEN_OLD
/opt/HP/BSM/PMDB/extract	DELETE_ALWAYS

## Troubleshooting Operations Analytics Collections

This section includes some troubleshooting tips and techniques for resolving Operations Analytics collection issues.

### Checking a Collector's Status

To check a collector's status, do the following:

- Run the following command from an Operations Analytics Server to list the collections deployed to that Operations Analytics Collector host:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -collectorhost <collector hostname> -username opsatenantadmin
```
- Run the following commands from an Operations Analytics Collector host to check the status of collector sources and processes:
  - `$OPSA_HOME/bin/opsa-collector status`
  - `$OPSA_HOME/bin/opsa-loader status`
- Run the following command from an Operations Analytics Server to check the status of the collector sources and processes configured on a Operations Analytics Collector host:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -status -collectorhost <collector hostname> -username opsatenantadmin
```

### Remedying Unresponsive Logger Collections

The information in this section helps you remedy concerns you have with slow or unresponsive Logger collections.

If Operations Analytics reports an error code 503 when receiving log data, you should suspect a slowly responding Logger. You might be able to remedy this issue by increasing several retry values. Do the following:

1. Edit the `/opt/HP/opsa/conf/opsa-config.properties` file on the Operations Analytics Collector host.
2. Increase the retry values for the following parameters:  
`logger.retry.sleep.secs`  
`logger.numretries_login`  
`logger.numretries_startsearch`  
`logger.numretries_getbatch`
3. Save your work.
4. Run the following command from the Operations Analytics Collector host to implement these property changes: `$OPSA_HOME/bin/opsa-collector restart`
5. Edit the `/opt/HP/opsa/conf/opsa-config.properties` file on the Operations Analytics Server.
6. Increase the retry values for the following parameters:  
`logger.retry.sleep.secs`  
`logger.numretries_login`  
`logger.numretries_startsearch`  
`logger.numretries_getbatch`
7. Save your work.
8. Run the following command from the Operations Analytics Server to implement these property changes: `$OPSA_HOME/bin/opsa-server restart`

## Troubleshooting Configurations from the Operations Analytics Server

To troubleshoot collector and collection configuration, do the following from the Operations Analytics Server:

- If you completed the instructions to set up Operations Analytics System Health in [Checking Operations Analytics System Health](#) you can check the **OpsA Health** dashboard and look for **ERROR** and **WARN** severity log messages.
- Look in the `/opt/HP/opsa/log/collection_config.log` file for any errors and warnings.
- If you want to adjust the logging level, edit the `/opt/HP/opsa/bin/log4j.properties` file and set the following properties. Then reconfigure the collection and view the results.
  - `log4j.logger.com.hp.opsa.collection.config=DEBUG,coll_cfg`
  - `log4j.logger.com.hp.opsa.collector=DEBUG,coll_cfg`

## Troubleshooting the Absence of Collection Data

The information in this sections helps you troubleshoot collections that have been published to an Operations Analytics Collector host, but are not collecting data. This troubleshooting takes place on the Operations Analytics Collector host.

After configuring a collection, open the **OpsA Health** Dashboard and check **MOVING\_TOTAL (collector\_ rows)** to see if it contains a row for each newly configured collection. If any of your newly configured collections are not present, you might need to restart the collector using the following command: `$OPSA_HOME/bin/opsa-collector start`

- Always run the following commands to check that the collector and data loader are functioning correctly.
  - `$OPSA_HOME/bin/opsa-collector status`
  - `$OPSA_HOME/bin/opsa-loader status`
- Look for any error messages in the `/opt/HP/opsa/log/opsa-collector.log` and `/opt/HP/opsa/log/loader.log` files.
- If you want to adjust the logging levels, edit the `/opt/HP/opsa/conf/opsa-collector-log.properties` file and set the following properties:
  - `log4j.logger.com.hp.opsa.collector = DEBUG`
  - `log4j.logger.com.hp.opsa.collector.common = DEBUG`
  - `log4j.logger.com.hp.opsa.collector.agent = DEBUG`
  - `log4j.logger.com.hp.opsa.collector.server = DEBUG`
- If your collection problem is with the following collections, look in the associated log files shown for the collection:
  - HPE Operations Agent or HPE Operations Smart Plug-in for Oracle Collections  
`/opt/HP/BSM/PMDB/log/collections.log`  
`/opt/HP/BSM/PMDB/log/hpacollector.log`
  - HPE Operations Manager or HPE Operations Manager i (HPOM or OMi) Collections  
`/opt/HP/BSM/PMDB/log/collections.log`  
`/opt/HP/BSM/PMDB/log/dbcollector.log`
  - Any of associated HPE BSM RTSM Collections  
`/opt/HP/BSM/PMDB/log/collections.log`  
`/opt/HP/BSM/PMDB/log/topologycollector.log`
- Custom SiteScope Collection: If your collection problem is with the Custom SiteScope Collection, do the following:
  - Check the `%SITESCOPE_HOME%/log/error.log` and `%SITESCOPE_HOME%/log/data_integration.log` files on the SiteScope server for any error messages about not being able to push SiteScope data to an Operations Analytics Collector host.
  - Check the Operations Analytics Collector host data integration to make it is configured correctly on the SiteScope server. See ["Configuring a Custom SiteScope Collection \(Detailed Method\)"](#) on page 250 for more information.
- Structured Log Collection: If your collection problem involves no structured log data being collected, check to make sure the configured query is correct. The easiest way to do this is to use the query in the ArcSight Logger console to see that the query works.
- For the following collections, look in the specific processed folder to check that the collector is collecting data for that collection:
  - HPE Operations Agent Collection: `/opt/HP/opsa/data/pa_processed/<tenant>`
  - HPE Operations Smart Plug-in for Oracle Collection: `/opt/HP/opsa/data/ora_pa_`

`processed/<tenant>`

- NNMi Custom Poller Collection: `/opt/HP/opsa/data/nnm_processed/<tenant>`

**Note:** The NNMi Custom Poller collector needs to have read/write access to the NNMi CSV files to move them to the processed directory. If the collector cannot move them, the NNMi Custom Poller CSV files will be reprocessed the next time the collector starts up. See ["Configuring an NNMi Custom Poller Collection" on page 142](#) for more information.

- NNM ISPi Performance for Metrics Interface Health  
Collection: `/opt/HP/opsa/data/netinterface_processed/<tenant>`

**Note:** The NNM ISPi Performance for Metrics Interface Health collector needs to have read/write access to the NNM ISPi Performance for Metrics Interface Health CSV files to move them to the processed directory. If the collector cannot move them, the NNM ISPi Performance for Metrics Interface Health CSV files will be reprocessed the next time the collector starts up. See ["Configuring an NNM ISPi Performance for Metrics Interface Health Collection \(Detailed Method\)" on page 207](#) for more information.

- NNM ISPi Performance for Metrics Component Health  
Collection: `/opt/HP/opsa/data/netcomponent_processed/<tenant>`

**Note:** The NNM ISPi Performance for Metrics Component Health collector needs to have read/write access to the NNM ISPi Performance for Metrics Component Health CSV files to move them to the processed directory. If the collector cannot move them, the NNM ISPi Performance for Metrics Component Health CSV files will be reprocessed the next time the collector starts up. See ["Configuring an NNM ISPi Performance for Metrics Component Health Collection \(Detailed Method\)" on page 203](#) for more information.

- HPE Operations Manager (HPOM ) Collections: `/opt/HP/opsa/data/om_events_processed/<tenant>`

- HPE Operations Manager i (OMi) Collections: `/opt/HP/opsa/data/omi_events_processed/<tenant>`

- Custom SiteScope Collection:  
`/opt/HP/opsa/data/sis_processed/<tenant>`  
Look for collected Customer SiteScope Collection data in `/opt/HP/opsa/data/SIS_GDI_API_DATA/<tenant>`.

- Custom Collection: `<custom source parent directory>_processed/<tenant>`

**Note:** The Custom CSV collector needs to have read/write access to the Custom CSV files to move them to the processed directory. If the collector cannot move them, the Custom CSV files will be reprocessed the next time the collector starts up. See ["Configuring a Custom Collection" on page 166](#) for more information.

- To check if data is being loaded into the Operations Analytics database, a user can look at the files in the `/opt/HP/opsa/data/load/<tenant>` directory. Files with a `.working` extension are files to which the collector is actively writing. Working files should never be older than 10 minutes. So any files with a `.csv` extension are ready to be loaded into the Operations Analytics database. If the system is

functioning correctly, there should not be any \*.csv files older than 10 minutes as well.

- If you do not find any files with a .csv extension in the /opt/HP/opsa/data/load/<tenant> directory, do the following:
  - i. Check for any CSV files that were successfully loaded into the Operations Analytics database by looking in the /opt/HP/opsa/data/archive/<tenant> directory.
  - ii. If you do not see files for the collection in question, check to see if the data loader has rejected the load files by looking in the /opt/HP/opsa/data/failed\_to\_load directory.

## Troubleshooting Collections Manager Error Messages

The information in this section helps you troubleshoot messages you might receive when configuring collections when using the Collections Manager.

**Question:** When configuring a Custom Collection, I receive an error message that the data contains multiple time formats and an invalid CSV file. What should I do?

**Answer:** The file or files you provide in the /opt/HP/opsa/data/<directory name> folder must contain one timestamp format in the Timestamp format column. If your data contains multiple timestamp formats, you must correct that problem before configuring a custom collection.

**Note:** Operations Analytics only supports timezones with whole hour offsets.

**Question:** When configuring a Custom Collection, I receive an error message that Operations Analytics failed to parse the data with the selected data format. What should I do?

**Answer:** The file or files you provide in the /opt/HP/opsa/data/<directory name> folder must use the following guidelines when creating the CSV file:

- Custom collections support the UTF-8 character set.
- Files for use by a custom collection should contain a header and at least three rows of data.
- Operations Analytics does not support CSV file headers that contain the following special characters: \ (backslash), " (double quote), , (comma), < (less than), and > (greater than). Several other special characters are also supported, but not recommended. Examples of these are %, &, and @.
- The data source must collect CSV data based on time. There has to be a time and date column for each row in the CSV file. Both the time and date must be in that same column.

**Note:** If this is not true, you must merge these columns before creating the collection.

- A minimum of one column needs to be designated as a key column. You can designate no more than three columns as key columns.
- The data source must provide Comma-separated values (CSV) data. CSV data is the only method that Operations Analytics provides to collect data (instead of those predefined or custom collection methods described in "[Configuring Collections - Workflow](#)" on page 17).
- The data source cannot exceed 200 data columns by default. If you must increase the number of columns, see the instructions explaining how to adjust the maxcolumns.collection parameter towards the end of this section.

**Note:** If you try to create a Custom collection containing more than 1549 data columns, the collection creation will fail. That value is a Vertica limitation when creating a table.

- See [Vertica Documentation](#) to understand any Vertica system limitations you might encounter.

**Note:** To navigate to the Vertica System Limits section for Vertica 7.1x, do the following:

- a. Click **Documentation**.
- b. Click **HPE Vertica 7.1x**.
- c. Click **Complete Documentation:HTML**.
- d. Click **SQL Reference Manual**.
- e. Click **System Limits**.

- Data from the CSV data source must be accessible to the Operations Analytics Collector host.
- The CSV file can be local or remote to the collector and is assumed to be available in the source directory at regular intervals.
- Column names should not contain any spaces.
- /n is considered an end of line.
- The CSV file can contain empty or blank lines, as they are ignored. However, the file contents must end with /n.
- When quoting characters, use standard rules for CSV files. For example, if a string contains a comma, you must add quotation marks around the comma.

**Note:** Do not use line breaks within quoted fields, as doing so is an exception to this rule.

- Decimal representations have a dependency on Vertica. We are current using en\_US@collation=binary (LEN\_KBINARY).
- The CSV file will be used to create a table in Vertica. Vertica objects include tables, views, and columns. Your CSV file must use the following naming conventions:
  - A column name must be from 1 to 128 characters long.
  - A column name must be unique, and not match any other column names.
  - A column name must begin with a letter (A through Z), diacritic marks, or non-Latin characters (200-377 octal).
  - Column Names are not case sensitive. For example, CUSTOMER and Customer represent the same names. However, if you enclose a column name in quotation marks, it is case sensitive.

**Note:** Object names are converted to lowercase when they are stored in the Vertica database.

- A column name must not match another Vertica object that has the same type,
- A name cannot match a Vertica reserved word such as WHERE, VIEW, Table, ID, User, or Query.
- A name cannot match the another Vertica object that has the same type.
- The CSV file format has to be uniform for a single collection. For example, if you create a collection with 10 columns, the subsequent files that are provided for import within Operations Analytics must have same format, including column names and data types.

**Question:** When configuring a Custom Collection, I receive an error message that the data has more columns than the maximum configured limit. What should I do?

**Answer:** Do the following:

1. As the `opsa` user, edit the `/opt/HP/opsa/conf/collection/framework.properties` file.
2. Change the `maxcolumns.collection` parameter to a value that supports the number of columns you include in your data.
3. Save your work.
4. From the Operations Analytics console, use the Configuration Manager to configure the collection.

**Note:** Increasing the `maxcolumns.collection` parameter results in Operations Analytics reduced browser performance. Use practical numbers when increasing this value.

**Question:** When creating a Custom Collection (JDBC), I received an error message similar to the following: `Unsupported frontend protocol <version>: server supports <Lower version> to <upper version>`. What should I do?

**Answer:** The JDBC library you provided is incompatible with the database (Vertica, MSSQL, or Oracle). You must provide a JDBC library that is supported and works with your database version. Review the database documentation to determine which JDBC libraries work with the database version you are using.

**Question:** When configuring a Custom Collection (JDBC), I created an SQL statement that used a column name that included the name of a disallowed command (`update`). For example, suppose I created the following SQL statement:  
`select update , insert , delete , creat e, into , drop , truncate , grant , revoke from myd_vm06628_evt.dbo.shimi2`

When I tried to create the collection, I received an error message similar to the following:  
This operation failed due to an incorrect entry in SQL Statement field. The UPDATE SQL command is not a read-only command. Only read-only SQL commands are permitted.  
What should I do?

**Answer:** Change the SQL statement to read as follows:  
`select [update] , [insert] , [delete] , [create] , [into] , [drop] , [truncate] , [grant] , [revoke] from myd_vm06628_evt.dbo.shimi2`  
When you create the collection now using the SQL statement in this new form, you will be able to successfully create the collection.

**Question:** When configuring a Custom Collection (JDBC) that collects CLOB objects (character large objects) in MSSQL, I receive an error message that Operations Analytics failed to parse the data. Verify the data and try again. I need to configure similar collections for Vertica and Oracle. What should I do?

**Answer:** You cannot set up this collection using CLOB objects in either an MSSQL, Vertica, or Oracle collection. There is no workaround for this limitation. You must exclude any columns containing CLOB or binary data from your select statement.

**Question:** When configuring a Custom Collection (JDBC) for MSSQL that collects the timestamp data type for the SQL Timestamp Column, I receive an error message about converting a timestamp. What should I do?

**Answer:** When configuring a Custom Collection (JDBC) for MSSQL collection, the collection only supports the datetime data type for the SQL Timestamp Column. It does not support the timestamp data type.

**Question:** After configuring a Custom Collection for a File, JDBC, TCP, or UDP channel, I expected to receive approximately 1000 data records for this collection during the first hour. I only received 800 data records and I am concerned. What should I do?

**Answer:** Check that your data source is providing the data you expect according to the data format chosen during collection configuration as shown in the **Preview** step. Any deviations from the original data format you

chosed causes data parsing errors and dropped data. If the data source is providing the expected data, then contact HPE Software Support for more assistance.

**Question:** When configuring a Custom Collection (JDBC) for MSSQL collection, the collection does not include data inserted in to the database table with a timestamp value that is out-of-order in the SQL timestamp column. What should I do?

**Answer:** The JDBC channel uses the SQL Timestamp column to track the position in the table where it read the last row during the last collection interval. This SQL timestamp column must be a linearly increasing timestamp column. Since the JDBC channel remembers the last row's SQL timestamp column value, the JDBC channel will not read any rows inserted in to the table with an older timestamp than the last cursor (tracked position). To summarize, the records inserted in to the table must have a linearly increasing timestamp value in the SQL timestamp column.

**Question:** I used the `opsa-collection-config.sh` script to create and publish an initial version of a Custom Collection. After Trying to use the Collections Manager to publish an edit I made to this Custom Collection, the page cleared and the edit shows a continuous Loading Data... message. What should I do?

**Answer:** Click **Back** to exit the continuous Loading Data... message. Rename the `/opt/hp/opsa/conf/collection/server/config.templates/custom/1.0/<domain>/<group>/<oldname>.xml` file located on the Operations Analytics Collector host to `custom_collection.xml`. Continue with your plans to edit this collection.



# Part 5: Configuring Collections Using the Command Line Script

This section discusses how to configure collections using tools such as the `opsa-collection-config.sh` script that originated with Operations Analytics 2.0. Since the Operations Analytics 2.0 release, other configuration tools such as the Collections Manager and the `opsa-collection-setup.sh` script were developed that made collection configuration easier. If you must use these older tools, see the instructions in this section.

# Chapter 15: Configuring Collections using Predefined Templates

Operations Analytics supports several predefined collection templates. See ["System Architecture" on page 15](#) for a list of predefined collection templates.

To configure Operations Analytics to collect data from the supported data sources you plan to use, you must configure collections using a list of predefined collection templates that reside on the Operations Analytics Server. These predefined collection templates are defined in advance so that administrators only have to configure Operations Analytics Collector hosts to collect data using those predefined collection templates.

You can use the `$OPSA_HOME/bin/opsa-collection-setup.sh` script to assist you when configuring collections that use predefined templates. See the `opsa-collection-setup.sh` reference page (or the Linux manpage) for more information.

**Note:** If you want to set up your collections manually or make changes to existing collections, use the collection configuration information in this document. Only use the `$OPSA_HOME/bin/opsa-collection-setup.sh` script to assist you when first setting up a collection.

## Important Tenant Information

A collection is automatically associated with a tenant depending on the Tenant Admin user that the Operations Analytics administrator provides as input when running the `$OPSA_HOME/bin/opsa-collection-config.sh` script.

Before creating collections using the **Collections Manager** or the `$OPSA_HOME/bin/opsa-collection-config.sh` script, **you must decide on one of the following options** before proceeding with any collection configuration:

- Use the default Tenant, `opsa_default`, its corresponding default tenant username (`opsatenantadmin`), and the password for this user that you selected during installation. If you choose this option, skip directly to ["Registering Each Operations Analytics Collector Host" on page 19](#).
- Decide on which existing tenant to use.
- Create a new tenant and its corresponding Tenant Admin.

**Note:** Any user that is associated with a new tenant created by a member of the Super Admin user group cannot see collected information (in any dashboard) from any of the existing predefined collections (for any of the existing tenants, including the `opsa_default` tenant). After a member of the Super Admin user group creates a new tenant, the tenant admin user associated with that tenant needs to create collections for this new tenant.

When using the `$OPSA_HOME/bin/opsa-collection-config.sh` script, some examples in this document use a predefined Tenant Admin user, `opsatenantadmin`, for the predefined `opsa_default` tenant. When defining collections, replace the `opsatenantadmin` shown in the example with the Tenant Admin user for the collection you are creating.

## Configuration Steps

Complete the following configuration steps for the predefined data collection templates that reside on the Operations Analytics Server:

- "Configuring an HPE Operations Smart Plug-in for Oracle Collection" below
- "Configuring an HPE Operations Agent Collection" on page 109
- "Configuring an NNM ISPi Performance for Metrics Component Health Collection" on page 113
- "Configuring an NNM ISPi Performance for Metrics Interface Health Collection" on page 117
- "Configuring an HPE Operations Manager i (OMi) Events Collection" on page 120
- "Configuring an HPE Operations Manager (HPOM) Events Collection" on page 124
- "Configuring an HPE BSM RTSM Configuration Item (CI) Collection" on page 127
- "Configuring an HPE Business Process Monitor Collection" on page 133
- "Configuring ArcSight Logger Out of the Box Smart Connector Collections" on page 139
- "Configuring an NNMi Custom Poller Collection" on page 142

## Configuring an HPE Operations Smart Plug-in for Oracle Collection

**Note:** If you do not want to configure this collection by using the **Collections Manager** located in the Operations Analytics console, you can configure this collection using the steps in this section.

After you complete the steps in this section, the HPE Operations Smart Plug-in for Oracle Collection collects metrics every 15 minutes, with 5 minute data granularity.

**Note:** An Operations Analytics Collector host can reliably collect data from approximately 5,000 nodes being monitored by the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle.

Gather the following information to prepare for configuring the HPE Operations Smart Plug-in for Oracle Collection.

### Information to Collect Before Running the `opsa-collection-setup.sh` Script

Input Requested by <code>opsa-collection-setup.sh</code> Script	Value
<code>&lt;oanode1.somedomain.com&gt;</code> <code>&lt;oanode2.somedomain.com&gt;</code> <code>&lt;oanode_more.somedomain.com&gt;</code>	List the fully-qualified domain names of all servers that have the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle installed.

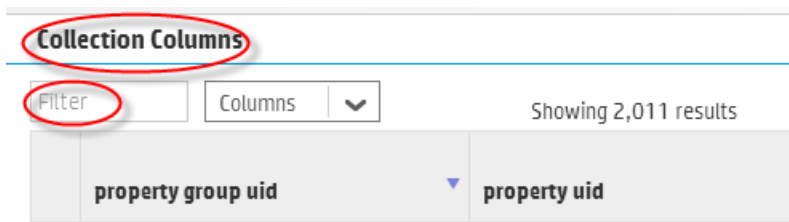
Follow the instructions in this section to configure an HPE Operations Smart Plug-in for Oracle Collection for Operations Analytics.

1. Run the interactive `opsa-collection-setup.sh` script.
2. When prompted, enter the tenant admin user name and password.
3. Select the main collector host. In most cases, select 1.

4. Enter `1` to begin configuring a HPE Operations Smart Plug-in for Oracle Collection.
5. Enter the fully-qualified domain names or IP addresses of the servers that have the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle installed.
6. Enter `f` or `finish` after you finish entering all of your information.
7. Enter `execute 1` to deploy this collection to the collector host and save this configuration.
8. To check for success, enter `list` and check that the HPE Operations Smart Plug-in for Oracle sources were added to the collector host.
9. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `oa`, a domain of `oraperf`, and a group of `graph` when creating the collection. The resulting property group uid would be `oa_oraperf_graph`.

- a. Type the property group uid (`oa_oraperf_graph`) for this collection in the **Collection ColumnsFilter**:

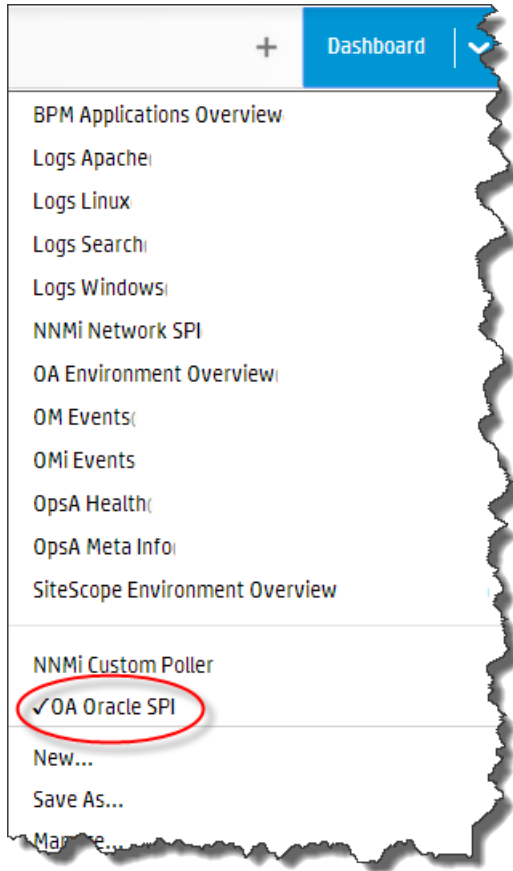


- b. After typing property group uid (`oa_oraperf_graph`) for this collection in the **Collection ColumnsFilter**, you should see some information similar to the following for this collection:

property group uid	property uid	is key	type
oa_oraperf_graph	database_process_status	false	attribute
oa_oraperf_graph	num_users_default_system_tablespace	false	metric
oa_oraperf_graph	num_foreign_objects_system	false	metric
oa_oraperf_graph	num_tablespaces_low_free_space	false	metric
oa_oraperf_graph	num_tablespace_not_online	false	metric
oa_oraperf_graph	num_tablespaces_high_block_read_ratio	false	metric

10. Create dashboards and query panes for the data you are now collecting. Follow the instructions shown in the *Dashboards and Query Panes* section of the *Operations Analytics Help* for information about creating dashboards and query panes.

11. For this example, assume you created the **OA Oracle SPI** dashboard. From the Operations Analytics console, open the **OA Oracle SPI** dashboard to view some of the collected information for this collection



12. Create AQL functions for the data you are now collecting. See the instructions shown in the *Define Analytic Query Language (AQL) Functions* section of the *Operations Analytics Help* for information about creating AQL functions. For example, using the property group information shown in the **OpsA Meta Info** dashboard, you might create AQL functions similar to the example shown below.
13. If you want to add tags to an HPE Operations Smart Plug-in for Oracle Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

## Configuring an HPE Operations Agent Collection

**Note:** If you do not want to configure this collection by using the **Collections Manager** located in the Operations Analytics console, you can configure this collection using the steps in this section.

The HPE Operations Agent Collection collects global system information on the host that is running the HPE Operations Agent. After you complete the steps in this section, the HPE Operations Agent Collection collects raw metrics every 15 minutes, with 5 minute data granularity.

**Note:** An Operations Analytics Collector host can reliably collect data from approximately 5,000 nodes being monitored by the HPE Operations Agent.

Gather the following information to prepare for configuring the HPE Operations Agent Collection.

### Information to Collect Before Running the `opsa-collection-setup.sh` Script

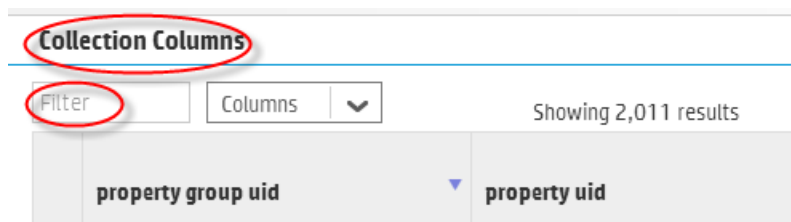
Input Requested by <code>opsa-collection-setup.sh</code> Script	Value
<code>oanode1.somedomain.com</code>	List the fully-qualified domain names of all servers that have the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle installed.
<code>oanode2.somedomain.com</code>	List the fully-qualified domain names of all servers that have the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle installed.
<code>oanode_more.somedomain.com</code>	Add more servers that have the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle installed.

Follow the instructions in this section to configure an HPE Operations Agent Collection for Operations Analytics.

1. Run the interactive `opsa-collection-setup.sh` script.
2. When prompted, enter the tenant admin user name and password.
3. Enter `2` to begin configuring an Operations Agent Collection.
4. Follow the prompts to enter the requested information.
5. Enter `f` or `finish` after you finish entering all of your information.
6. Enter `execute 2` to deploy this collection to the collector host.
7. To check for success, enter `list` and check that the HPE Operations Agent sources were added to the collector host.
8. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `oa`, a domain of `sysperf`, and a group of `global` when creating the collection. The resulting property group uid would be `oa_sysperf_global`.

- a. Type the property group uid (`oa_sysperf_global`) for this collection in the **Collection ColumnsFilter:**

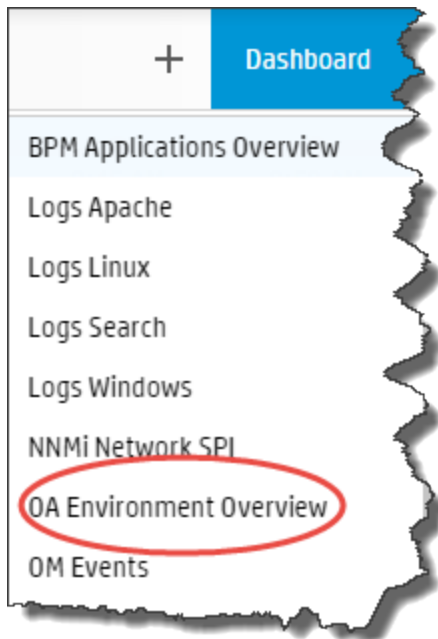


- b. After typing property group uid (oa\_sysperf\_global) for this collection in the **Collection Columns Filter**, you should see information for this collection.

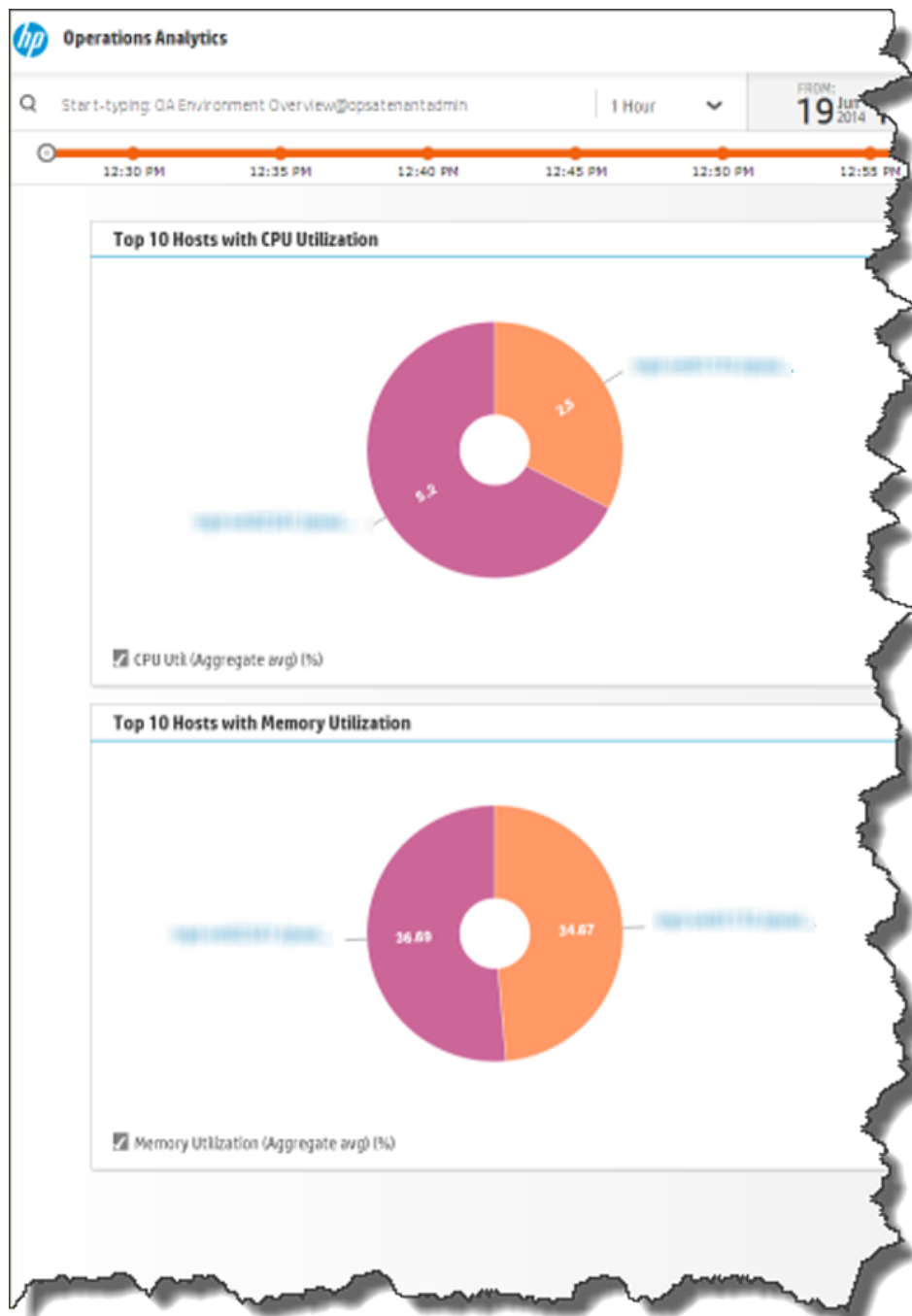
The screenshot shows a table titled "Collection Columns" with a search filter set to "oa\_sysperf\_glo" and a dropdown menu set to "Columns". It displays "Showing 37 results of 2,041". The table has five columns: "property group uid", "property uid", "is key", and "type". The first six rows of data have their "property group uid" values circled in red.

property group uid	property uid	is key	type
oa_sysperf_global	active_processes	false	metric
oa_sysperf_global	alive_processes	false	metric
oa_sysperf_global	cpu_clock_speed	false	attribute
oa_sysperf_global	cpu_idle_time	false	metric
oa_sysperf_global	cpu_sys_mode_pct	false	metric
oa_sysperf_global	cpu_busy_time	false	metric

- 9. From the Operations Analytics console, open the **OA Environment Overview** dashboard to view some of the collected information for this collection:



The following is a small sample of HPE Operations Agent Collection data provided by the **OA Environment Overview** dashboard.



10. If you want to add tags to an HPE Operations Agent Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections"](#) on page 160 and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.



# Configuring an NNM iSPI Performance for Metrics Component Health Collection

**Note:** If you do not want to configure this collection by using the **Collections Manager** located in the Operations Analytics console, you can configure this collection using the steps in this section.

After you complete the steps in this section, the NNM iSPI Performance for Metrics Component Health Collection reads data from the CSV files within 60 seconds of the file being placed in the source directory.

1. The `opsa` user on the Operations Analytics Collector host must have read and write access to the component health metric files in the Operations Analytics Collector host to move them to the processed directory. The default process directory is `/opt/HP/opsa/data/netcomponent_processed`.

For example, to configure read and write access to the component health metric files to the Operations Analytics Collector host when the files are located on a Windows server, do the following:

- a. On a Windows server, navigate to **Computer Management > System Tools > Shares > Shared Folders**.
  - b. Right-click beneath shares and open the new share wizard.
  - c. Create shares for the directories in which the `.csv` files are stored.
  - d. From the Operations Analytics Collector host, add the correct entries to the `/etc/fstab` file. Use the following entries as a model, replacing the IP addresses shown with the IP addresses for the NNM iSPI management server:

```
//10.17.18.19/final /opt/HP/opsa/data/nnm cifs
username=administrator,password=password,uid=opsa,rw 0 0
//10.15.14.13/componentfinal /opt/HP/opsa/data/netcomponent cifs
username=admin,password=passwd,uid=opsa,rw 0 0
//10.15.14.13/interfacefinal /opt/HP/opsa/data/netinterface cifs
username=admin,password=passwd,uid=opsa,rw 0 0
```
  - e. Use the `mount -a` command to get the directories mounted.
2. For the Operations Analytics Collector host to access raw metric information from the NNM iSPI Performance for Metric's component health extension pack, you must export these metrics to CSV files. Run the following command on the NNM iSPI Performance for Metric server to export these metrics to CSV files in the `/csvexports` directory:

- **Windows (Raw Information):**

```
<Install_Dir>\NNMPerformanceSPI\bin\configureCsvExport.ovpl -p
Component_Health -a "Raw,<Target-Dir>"
```
- **UNIX: (Raw Information):** `/opt/OV/NNMPerformanceSPI/bin/configureCsvExport.ovpl -p Component_Health -a "Raw,<Target-Dir>"`

**Note:** You must make the exported component health metrics available on the Operations Analytics Collector host in the `/opt/HP/opsa/data/netcomponent` directory.

**Note:** If you have multiple tenants and you plan to configure NNM iSPI collections for them, do not use the Collections Manager in the Operations Analytics console. Instead, follow the steps listed below

and create a separate source directory for each tenant.

If you want to use a different directory than `/opt/HP/opsa/data/netcomponent`, do the following:

a. Edit the following collection template:

```
/opt/HP/opsa/conf/collection/server/config.templates/nnmispi/1.0/netcomponent/component/nnmispi_netcomponent_component_collection.xml.
```

b. Specify a different directory for the `sourcedir` attribute.

**Note:** The `opsa` user on the Operations Analytics Collector host must have read and write access to the component health metric files in the Operations Analytics Collector host to move them to the processed directory. The default process directory is `/opt/HP/opsa/data/netcomponent_processed`.

For example, to configure read and write access to the component health metric files to the Operations Analytics Collector host when the files are located on a Windows server, do the following:

- a. On a Windows server, navigate to **Computer Management > System Tools > Shares > Shared Folders**.
- b. Right-click beneath shares and open the new share wizard.
- c. Create shares for the directories in which the `.csv` files are stored.
- d. From the Operations Analytics Collector host, add the correct entries to the `/etc/fstab` file. Use the following entries as a model, replacing the IP addresses shown with the IP addresses for the NNMi management server:

```
//10.17.18.19/final /opt/HP/opsa/data/nnm cifs
username=administrator,password=password,uid=opsa,rw 0 0
//10.15.14.13/componentfinal /opt/HP/opsa/data/netcomponent cifs
username=admin,password=passwd,uid=opsa,rw 0 0
//10.15.14.13/interfacefinal /opt/HP/opsa/data/netinterface cifs
username=admin,password=passwd,uid=opsa,rw 0 0
```

- e. Use the `mount -a` command to get the directories mounted.

Using another example, to configure read and write access to the NNMi files to the Operations Analytics Collector host when the files are located on a Linux server, do the following:

- a. Make sure the `/var/opt/OV/shared/nnm/databases/custompoller/export/final` directory is enabled for export on the NNMi server.
- b. Run the following command from the Operations Analytics Collector host to make the files exported from NNMi available on the Operations Analytics Collector host :

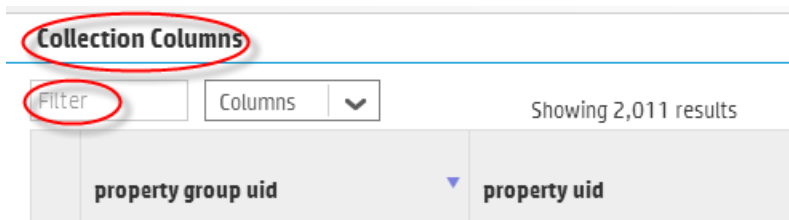
```
mount <IP address of NNMi
Server>:/var/opt/OV/shared/nnm/databases/custompoller/export/final
/opt/HP/opsa/data/nnm
```

3. Run the interactive `opsa-collection-setup.sh` script.
4. When prompted, enter the tenant admin user name and password.
5. Enter `3` to begin configuring an NNMi Performance SPI Interface and Component Collection.
6. Follow the prompts to enter the requested information.
7. Enter `f` or `finish` after you finish entering all of your information.
8. Enter `execute 3` to deploy this collection to the collector host.

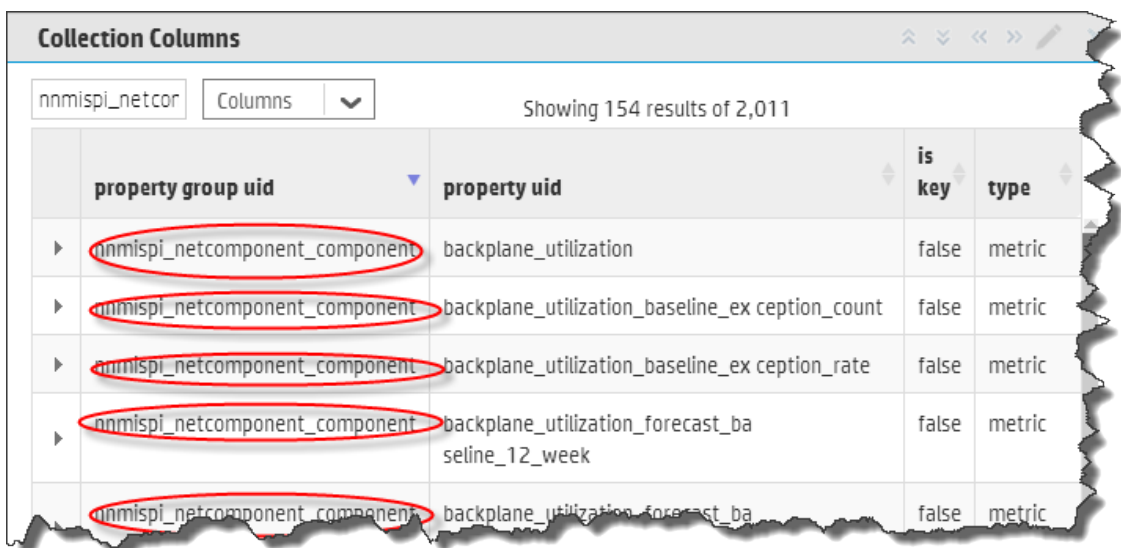
9. To check for success, enter `list` and check that the NNM ISPI Performance for Metrics Component Health Collection sources were added to the collector host.
10. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `nnmispi`, a domain of `netcomponent`, and a group of `component` when creating the collection. The resulting property group uid would be `nnmispi_netcomponent_component`.

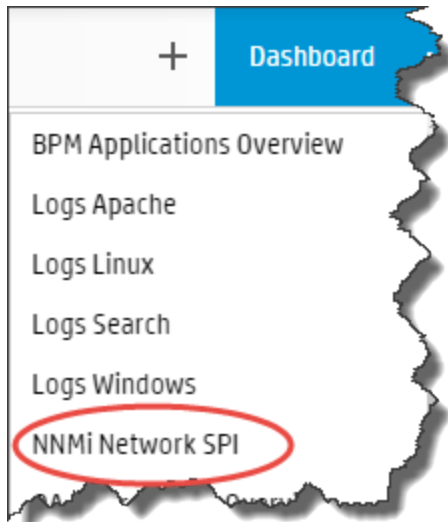
- a. Type the property group uid (`nnmispi_netcomponent_component`) for this collection in the **Collection Columns Filter**:



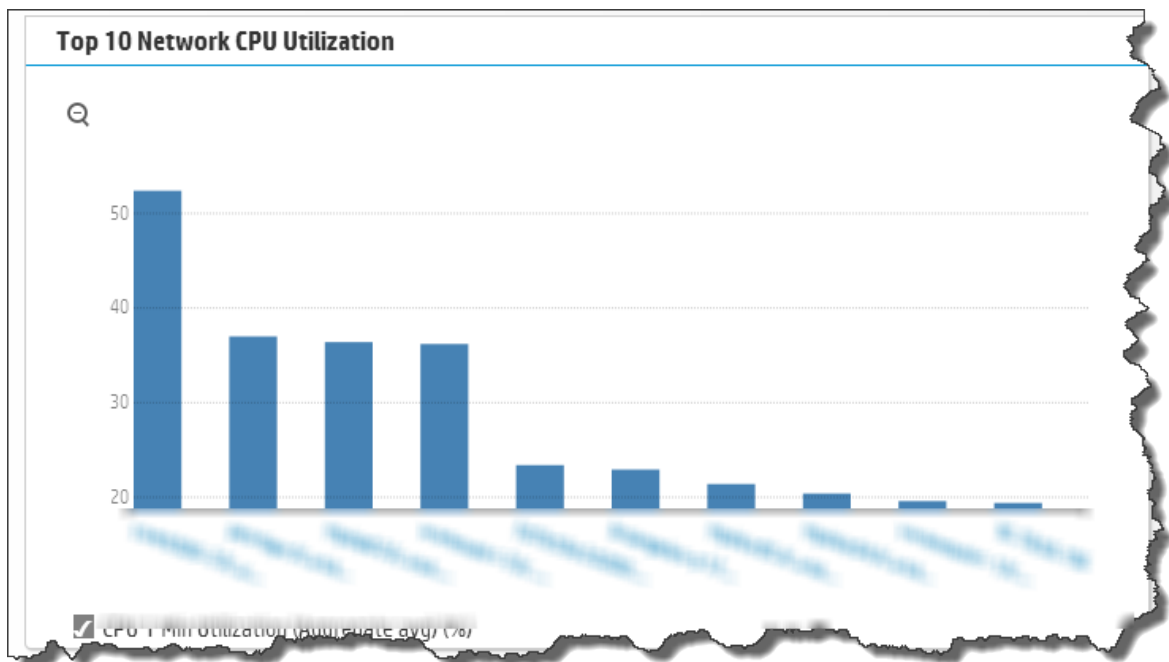
- b. After typing property group uid (`nnmispi_netcomponent_component`) for this collection in the **Collection Columns Filter**, you should see information for this collection.



- From the Operations Analytics console, open the **NNMi Network SPI** dashboard to view some of the collected information for this collection:



The following is a small example of NNM ISPI Performance for Metrics Component Health Collection data provided by the **NNMi Network SPI** dashboard.



- If you want to add tags to an NNM ISPI Performance for Metrics Component Health Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

# Configuring an NNM iSPI Performance for Metrics Interface Health Collection

**Note:** If you do not want to configure this collection by using the **Collections Manager** located in the Operations Analytics console, you can configure this collection using the steps in this section.

After you complete the steps in this section, the NNM iSPI Performance for Metrics Interface Health Collection reads data from the CSV files within 60 seconds of the file being placed in the source directory.

1. For the Operations Analytics Collector host to access live metric information from the NNM iSPI Performance for Metric's interface health extension pack, you must export these metrics to CSV files. Run the following command on the NNM iSPI Performance for Metric server to export these metrics to CSV files in the `/csvexports` directory:

**Note:** If you have multiple tenants and you plan to configure NNMi collections for them, do not use the Collections Manager in the Operations Analytics console. Instead, follow the steps listed below and create a separate source directory for each tenant.

- *Windows (Raw Information):*

```
<Install_Dir>\NNMPerformanceSPI\bin\configureCsvExport.ovpl -p  
Interface_Health -a "Raw,<Target_Directory">
```

- *UNIX (Raw Information):*

```
/opt/OV/NNMPerformanceSPI/bin/configureCsvExport.ovpl -p Interface_  
Health -a "Raw,<Target_Directory">
```

**Note:** You must make the exported interface health metrics available on the Operations Analytics Collector host in the `/opt/HP/opsa/data/netinterface` directory.

If you want to use a different directory than `/opt/HP/opsa/data/netinterface`, do the following:

- a. Edit the following collection template:

```
/opt/HP/opsa/conf/collection/server/config.templates/nnmispi/1.0/net  
interface/interface/nnmispi_netinterface_interface_collection.xml.
```

- b. Specify a different directory for the `sourcedir` attribute.

**Note:** The `opsa` user on the Operations Analytics Collector host must have read and write access to the interface health metric files in the Operations Analytics Collector host to move them to the processed directory. The default process directory is `/opt/HP/opsa/data/netinterface_processed`.

For example, to configure read and write access to the interface health metric files to the Operations Analytics Collector host when the files are located on a Windows server, do the following:

- a. On a Windows server, navigate to **Computer Management > System Tools > Shares > Shared Folders**.
- b. Right-click beneath shares and open the new share wizard.
- c. Create shares for the directories in which the `.csv` files are stored.

d. From the Operations Analytics Collector host, add the correct entries to the `/etc/fstab` file.

Use the following entries as a model:

```
//10.17.18.19/final /opt/HP/opsa/data/nm cifs
username=administrator,password=password,uid=opsa,rw 0 0
//10.15.14.13/componentfinal /opt/HP/opsa/data/netcomponent cifs
username=admin,password=passwd,uid=opsa,rw 0 0
//10.15.14.13/interfacefinal /opt/HP/opsa/data/netinterface cifs
username=admin,password=passwd,uid=opsa,rw 0 0
```

e. Use the `mount -a` command to get the directories mounted.

Using another example, to configure read and write access to the NNMi files to the Operations Analytics Collector host when the files are located on a Linux server, do the following:

a. Make sure the `/var/opt/OV/shared/nm/databases/custompoller/export/final` directory is enabled for export on the NNMi server.

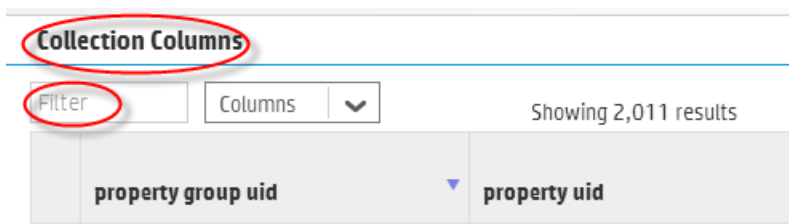
b. Run the following command from the Operations Analytics Collector host to make the files exported from NNMi available on the Operations Analytics Collector host :

```
mount <IP address of NNMi
Server>:/var/opt/OV/shared/nm/databases/custompoller/export/final
/opt/HP/opsa/data/nm
```

2. Run the interactive `opsa-collection-setup.sh` script.
3. When prompted, enter the tenant admin user name and password.
4. Enter 3 to begin configuring an NNMi Performance SPI Interface and Component Collection.
5. Follow the prompts to enter the requested information.
6. Enter `f` or `finish` after you finish entering all of your information.
7. Enter `execute 3` to deploy this collection to the collector host.
8. To check for success, enter `list` and check that the NNM ISPi Performance for Metrics Interface Health Collection sources were added to the collector host.
9. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `nnmispi`, a domain of `netinterface`, and a group of `interface` when creating the collection. The resulting property group uid would be `nnmispi_netinterface_interface`.

a. Type the property group uid (`nnmispi_netinterface_interface`) for this collection in the **Collection ColumnsFilter**:



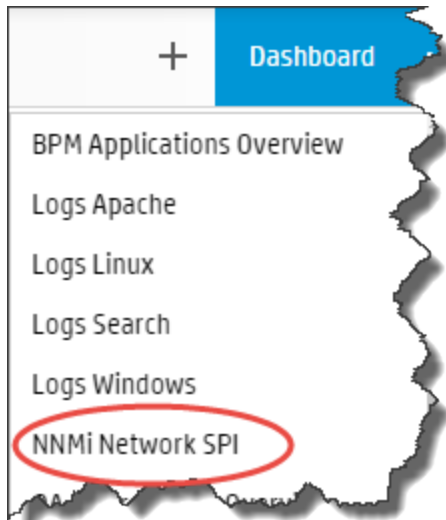
- b. After typing property group uid (nnmispi\_netinterface\_interface) for this collection in the **Collection ColumnsFilter**, you should see information in the resulting table:

**Collection Columns**

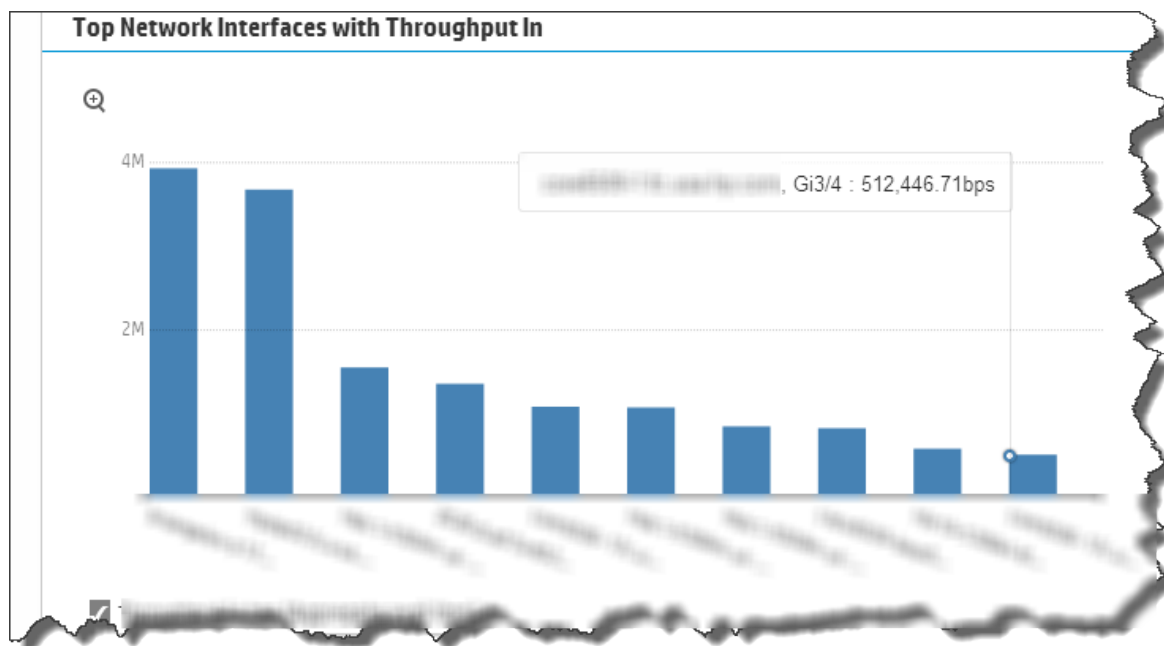
nnmispi\_netint... Columns ▾ Showing 184 results of 1,125

	property group uid ▲	property uid	is key ▲	type ▲
▶	nnmispi_netinterface_interface	ackfailurecount	false	metric
▶	nnmispi_netinterface_interface	availability_threshold_exception_count	false	metric
▶	nnmispi_netinterface_interface	availability_threshold_exception_rate	false	metric
▶	nnmispi_netinterface_interface	broadcast_packets	false	metric
▶	nnmispi_netinterface_interface	broadcast_packets_in	false	metric
▶	nnmispi_netinterface_interface	broadcast_packets_out	false	metric

10. From the Operations Analytics console, open the **NNMi Network SPI** dashboard to view some of the collected information for this collection:



The following is a small example of NNM ISPI Performance for Metrics Interface Health Collection data provided by the **NNMi Network SPI** dashboard.



11. If you want to add tags to an NNM ISPI Performance for Metrics Interface Health Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

## Configuring an HPE Operations Manager i (OMi) Events Collection

**Note:** If you do not want to configure this collection by using the **Collections Manager** located in the Operations Analytics console, you can configure this collection using the steps in this section.

After you complete the steps in this section, the HPE OMi Events Collection collects events every 15 minutes, and collects all OMi events that occurred since the last poll.

**Note:** To support this collection using Oracle RAC, do the following:

1. Copy the `tnsnames.ora` file from the Oracle server to the following locations:  
Operations Analytics Server: `/opt/HP/opsa/conf/collection/tnsnames.ora`  
Operations Analytics Collector: `/opt/HP/BSM/PMDB/config/tnsnames.ora`
2. Rename the `tnsnames.ora` files:  
Operations Analytics Server: `/opt/HP/opsa/conf/collection/bsm-tnsnames.ora`  
Operations Analytics Collector: `/opt/HP/BSM/PMDB/config/bsm-tnsnames.ora`

**Note:** The OMi collection is also able to accept events from HPE Service Health Analyzer (SHA), a



component of Business Service Management (BSM). If you have installed SHA on a BSM server and have configured the OMi collection, the OMi collection automatically accepts SHA events. You can then use the collected SHA event data to anticipate and predict IT problems. The following is a short description of SHA: HPE Service Health Analyzer analyzes abnormal service behavior and alerts IT managers of service degradation before an issue affects their business.

**Note:** An Operations Analytics Collector host can only collect data for a single HPOM or OMi event source. If you configure more than one HPOM or OMi event source for an Operations Analytics Collector host, it collects the events from only one of the event sources at every collection interval. It cannot be determined from which event source data collection occurs for a given collection interval. To remedy this, configure a separate Operations Analytics Collector host for each HPOM or OMi event source.

## Setting the OMi Version for this Collection

To support this collection for OMi version 10.x instead of OMi version 9.2x, do the following:

1. Edit the `/opt/HP/opsa/conf/collection/framework.properties` file
2. Change the value of  
`omi.defaultversion=1.0`  
to  
`omi.defaultversion=1.1`
3. Save your work.

## Configuring the HPE OMi Events Collection (Automated Method)

Gather the following information to prepare for configuring the HPE OMi Events Collection.

### Information to Collect Before Running the `opsa-collection-setup.sh` Script

Input Requested by <code>opsa-collection-setup.sh</code> Script	Value
OMi Database Host Name	The fully-qualified domain name or IP address for the server housing the OMi event database.
OMi Database Port Number	The port number to use to connect to the OMi database server.  <b>Note:</b> The default port is 1433, which is suitable for accessing most MS SQL Server installations. Oracle typically uses port 1521. PostgreSQL typically uses ports 5432 or 5433.
OMi User Name (database user name)	The name of a database user that has READ access to the OMi/Event Management schema in BSM. Check with your BSM Administrator or the database administration staff for the proper credentials.

### Information to Collect Before Running the `opsa-collection-setup.sh` Script, continued

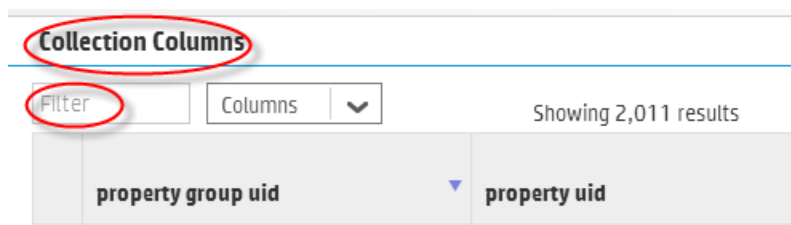
Input Requested by <code>opsa-collection-setup.sh</code> Script	Value
OMi Password (password for database user)	The password for the OMi user name shown above. This is a database password, not a system password.
Database Type	PostgreSQL, ORACLE, or MSSQL. <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <b>Note:</b> This value must be configured as the Database type in the <b>Edit Operations Manager i Events</b> screen in OMi.                 </div>
OMi Database Instance name	The instance name of the OMi database. If you are using Oracle RAC, use the service name in this field.
OMi Database Name	The OMi database schema.

Follow the instructions in this section to configure an HPE Operations Manager Events Collection for Operations Analytics.

1. Run the interactive `opsa-collection-setup.sh` script.
2. When prompted, enter the tenant admin user name and password.
3. Enter `4` to begin configuring an HPE OMi Events Collection.
4. Follow the prompts to enter the requested information.
5. Enter `f` or `finish` after you finish entering all of your information.
6. To check for success, enter `list` and check that the OMi Source was added to the collector host.
7. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `omi`, a domain of `events`, and a group of `omievents` when creating the collection. The resulting property group uid would be `omi_events_omievents`.

- a. Type the property group uid (`omi_events_omevents`) for this collection in the **Collection Columns Filter**:



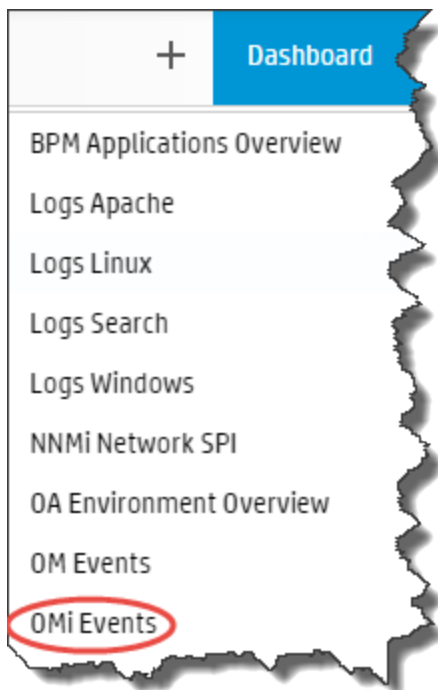
- b. After typing property group uid (omi\_events\_omevents) for this collection in the **Collection Columns Filter**, you should see information for this collection.

**Collection Columns**

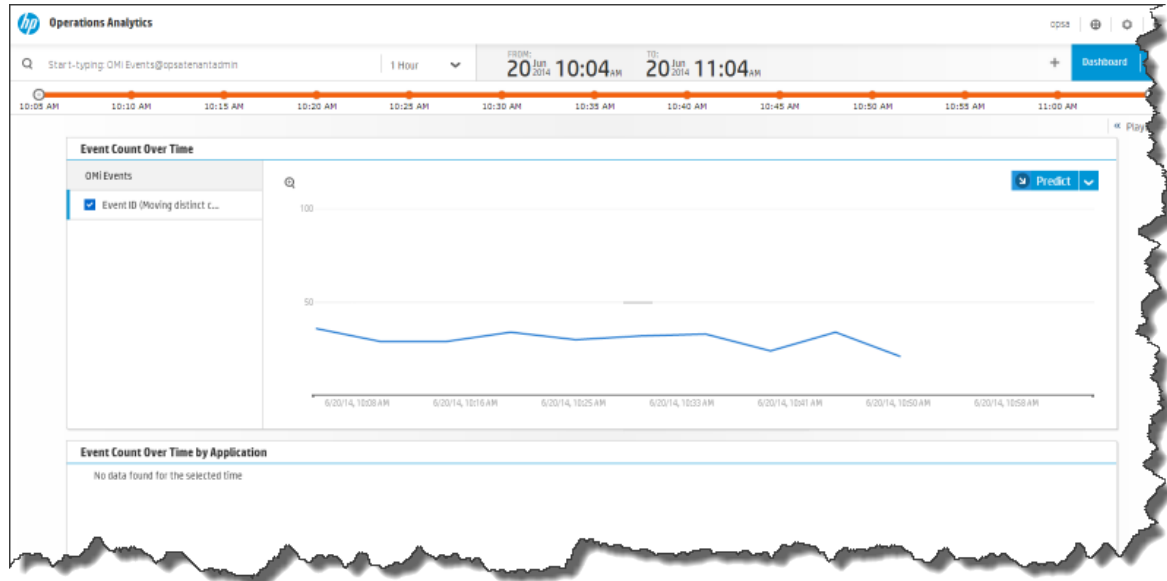
om\_events\_om Columns ▾ Showing 17 results of 1,125

	property group uid ▾	property uid	is key	type
▶	omi_events_omevents	application	false	attribute
▶	omi_events_omevents	autoacknowledge	false	attribute
▶	omi_events_omevents	autostate	false	attribute
▶	omi_events_omevents	eventid	false	attribute
▶	omi_events_omevents	eventobject	false	attribute
▶	omi_events_omevents	eventtext	false	attribute

8. From the Operations Analytics console, open the **OMi Events** dashboard to view some of the collected information for this collection:



The following is a small example of HPE Operations Manager Events Collection data provided by the **OMi Events** dashboard.



9. If you want to add tags to an HPE Operations Manager Events Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

## Configuring an HPE Operations Manager (HPOM) Events Collection

**Note:** If you do not want to configure this collection by using the **Collections Manager** located in the Operations Analytics console, you can configure this collection using the steps in this section.

After you complete the steps in this section, the HPE Operations Manager Events Collection collects events every 15 minutes, and collects all OM events that occurred since the last poll.

**Note:** To support this collection using Oracle RAC, do the following:

1. Copy the `tnsnames.ora` file from the Oracle server to the following locations:  
Operations Analytics Server: `/opt/HP/opsa/conf/collection/tnsnames.ora`  
Operations Analytics Collector: `/opt/HP/BSM/PMDB/config/tnsnames.ora`
2. Rename the `tnsnames.ora` files:  
Operations Analytics Server: `/opt/HP/opsa/conf/collection/bsm-tnsnames.ora`  
Operations Analytics Collector: `/opt/HP/BSM/PMDB/config/bsm-tnsnames.ora`

For special circumstances related to how Microsoft SQL Server is set up in the HPOM environment, see ["Configuring HPE Operations Manager \(HPOM\) \(Creating a Database User Account on an HPOM Database Server\)" on page 150](#)

Gather the information shown in the following table to prepare for configuring the HPE HPOM Events Collection using Operations Manager for Windows:

### Information to Gather when using OMW

Field	Value
HPOM Server Name	The fully-qualified domain name of the HPOM server.
HPOM Server Port	1433: The port used to connect to the HPOM server.
User Name for the HPOM Server (database user name)	The user name to use for connecting to the HPOM server. The user name to use for connecting to the HPOM database. See <a href="#">"Configuring HPE Operations Manager (HPOM) (Creating a Database User Account on an HPOM Database Server)"</a> on page 150 for instructions about creating this user. This is a database user, not a system or HPOM application user.
Database Instance Name	OVOPS
Data Source Type	OM
Database Type	MSSQL
Database Name	openview

Gather the information shown in the following table to prepare for configuring the HPE HPOM Events Collection using HPE Operations Manager for UNIX and Linux:

### Information to Gather when using HPE Operations Manager for UNIX and Linux

Field	Value
HPOM Server Name	The fully-qualified domain name of the HPOM server.
HPOM Server Port	1521: The port used to connect to the HPOM server.
omudbserver.username	opc_op: The user name to use for connecting to the HPOM server.
User Name for the HPOM Server (database user name)	The user name to use for connecting to the HPOM server. The user name to use for connecting to the HPOM database. See <a href="#">"Configuring HPE Operations Manager (HPOM) (Creating a Database User Account on an HPOM Database Server)"</a> on page 150 for instructions about creating this user. This is a database user, not a system or HPOM application user.
Database Instance Name	openview If you are using Oracle RAC, use the service name in this field.
Data Source Type	OM
Database Type	ORACLE

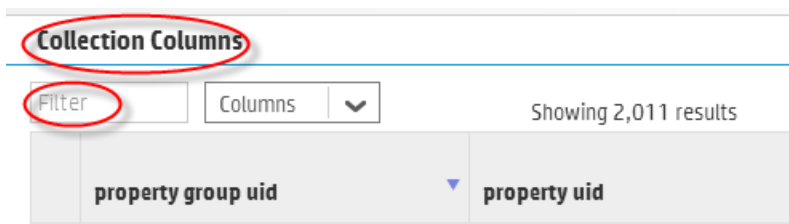
Follow the instructions in this section to configure an HPE Operations Manager Events Collection for Operations Analytics.

1. Run the interactive `opsa-collection-setup.sh` script.
2. When prompted, enter the tenant admin user name and password.

3. Do one of the following:
  - Enter 5 to begin configuring an HPE Operations Manager (Linux, HP-UX, or Solaris) Events Collection.
  - Enter 6 to begin configuring an HPE Operations Manager (Windows) Events Collection.
4. Follow the prompts to enter the requested information.
5. Enter `f` or `finish` after you finish entering all of your information.
6. To check for success, enter `list` and check that the OM source was added to the collector host.
7. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `om`, a domain of `events`, and a group of `omevents` when creating the collection. The resulting property group uid would be `om_events_omevents`.

- a. Type the property group uid (`om_events_omevents`) for this collection in the **Collection Columns Filter**:



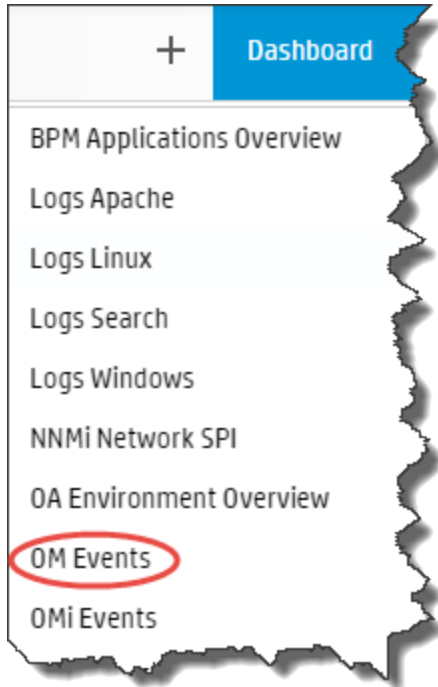
- b. After typing property group uid (`om_events_omevents`) for this collection in the **Collection Columns Filter**, you should see information for this collection.

**Collection Columns**

om\_events\_om Columns ▾ Showing 17 results of 1,125

	property group uid ▾	property uid ▾	is key ▾	type ▾
▶	om_events_omevents	application	false	attribute
▶	om_events_omevents	autoacknowledge	false	attribute
▶	om_events_omevents	autostate	false	attribute
▶	om_events_omevents	eventid	false	attribute
▶	om_events_omevents	eventobject	false	attribute
▶	om_events_omevents	eventtext	false	attribute

- From the Operations Analytics console, open the **OM Events** dashboard to view some of the collected information for this collection:



- If you want to add tags to an OM Events Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

## Configuring an HPE BSM RTSM Configuration Item (CI) Collection

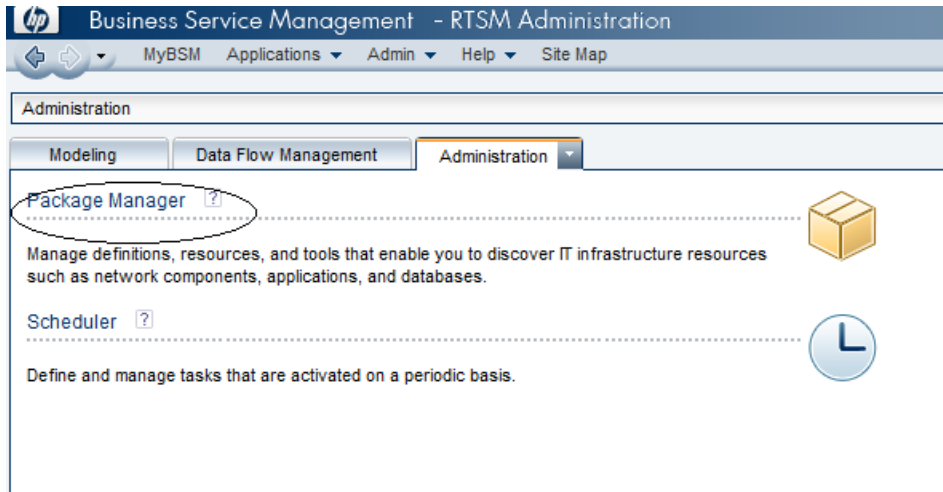
**Note:** If you do not want to configure this collection by using the **Collections Manager** located in the Operations Analytics console, you can configure this collection using the steps in this section.

After you complete the steps in this section, the HPE BSM RTSM CI Collection collects data every 6 hours.

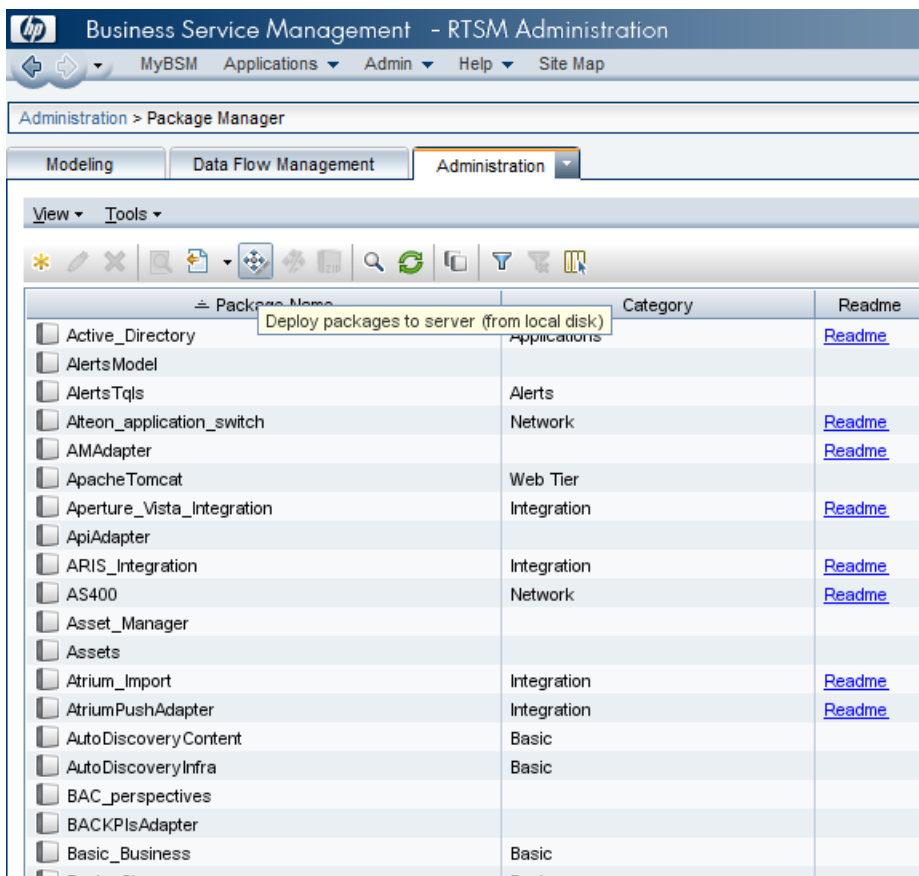
### Configuration Steps

- Before configuring any of the HP BSM RTSM collections, you must deploy Operations Analytics views on the BSM Server. Do the following:
  - Copy the `$OPSA_HOME/conf/collection/rtsm_views/OPSA_Views.zip` file to the local server from where the BSM UI is launched.
  - Access the **Package Manager** module through the BSM UI:

**Note:** The screen shots in this section show OMi version 9.x. OMi version 10.x will look different.

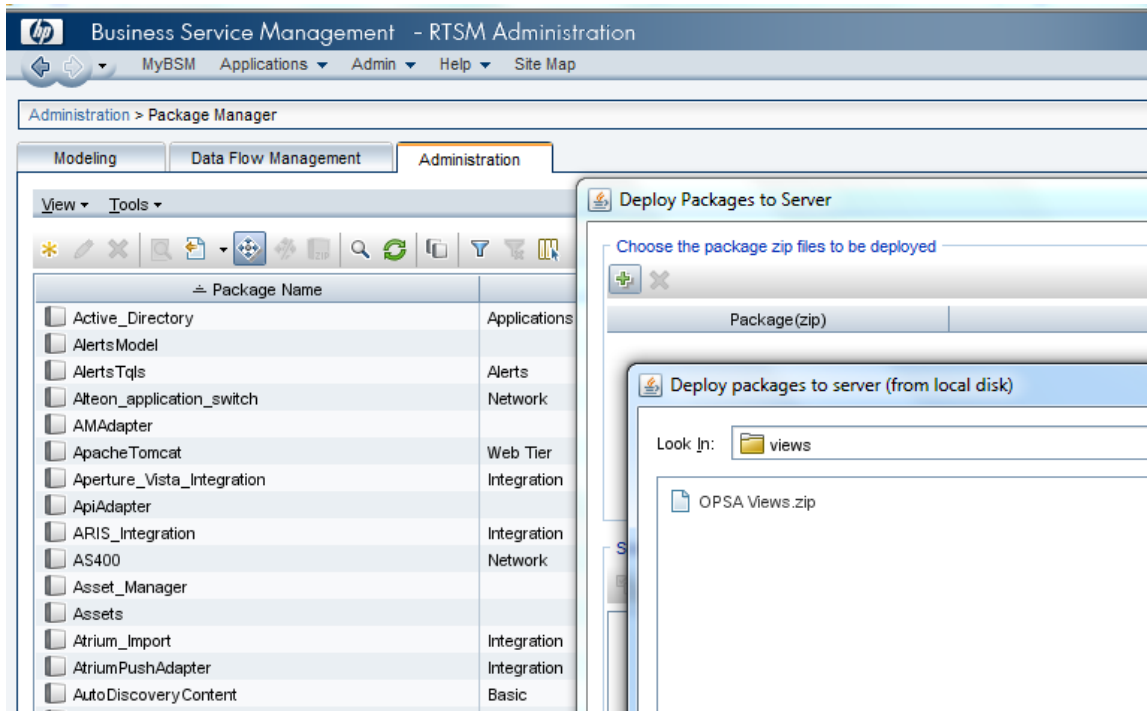


c. Select the **Deploy packages to server (from local disk)** option.

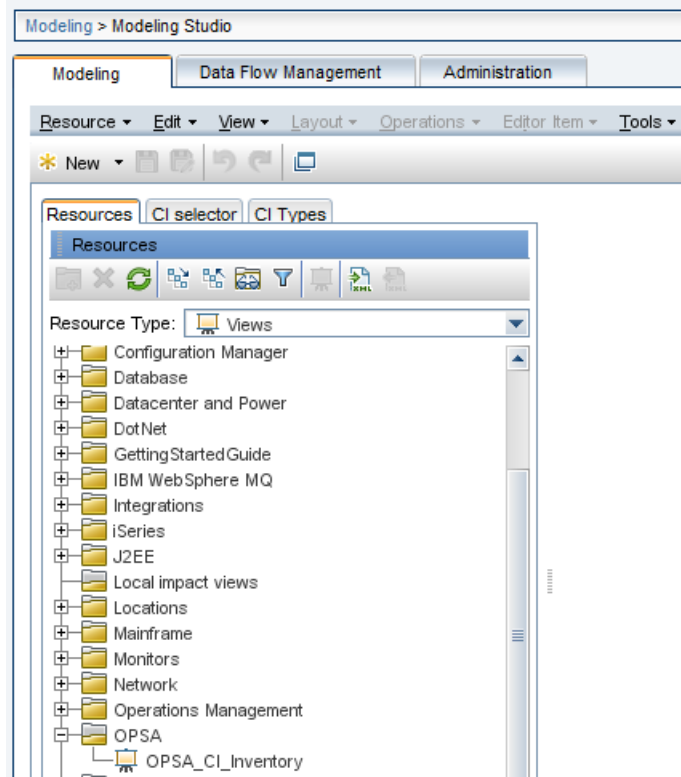




- d. Select the **OPSA\_Views.zip** file from the local disk as shown in the following screen shot:



- e. Once deployed, the views should be visible in the Modeling studio as shown in the following screen shot:



- 2. Do one of the following:

- If you are using OMi 9.x for this collection, complete the instructions in "[Setting the Correct BSM User Name Permissions for OMi 9.x](#)" on the next page.
- If you are using OMi 10.x for this collection, complete the instructions in "[Setting the Correct Roles for OMi 10.x](#)" on page 132.

3. Gathering Information:

Gather the following information to prepare for configuring the HPE BSM RTSM CI Collection.

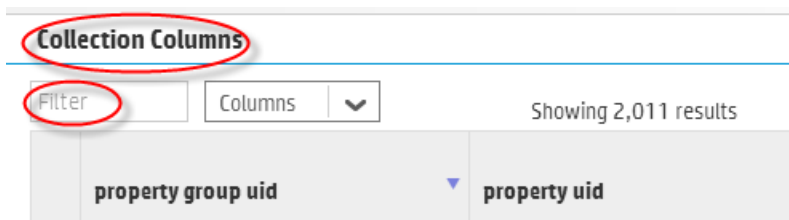
**Information to Collect Before Running the `opsa-collection-setup.sh` Script**

Field	Value
<code>rtmsserver.hostdnsname</code>	The fully-qualified domain name of the RTSM DPS server.
<code>rtmsserver.port</code>	21212: The port used to connect to the RTSM DPS server.
<code>rtmsserver.username</code>	admin: The user name to use for connecting to the RTSM DPS server.
<code>rtmsserver.datasource_type</code>	rtsm

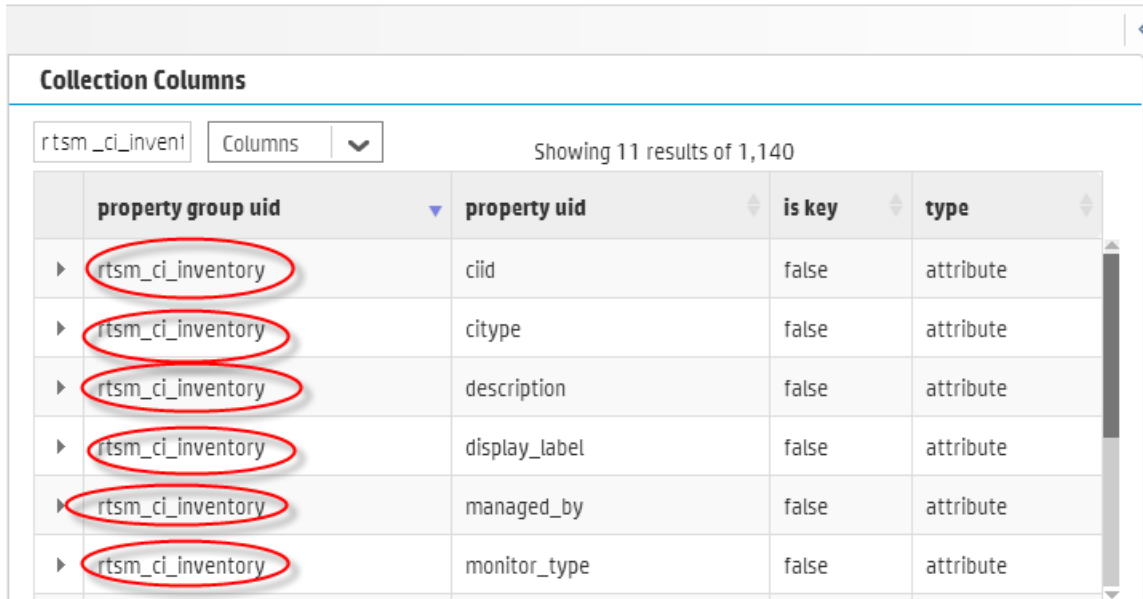
4. Run the interactive `opsa-collection-setup.sh` script.
5. When prompted, enter the tenant admin user name and password.
6. Enter 7 to begin configuring an HPE BSM RTSM CI Collection.
7. Follow the prompts to enter the requested information.
8. Enter `f` or `finish` after you finish entering all of your information.
9. Enter `execute 4` to deploy this collection to the collector host.
10. To check for success, enter `list` and check that the HPE BSM RTSM CI Source was added to the collector host.
11. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `rtsm`, a domain of `ci`, and a group of `inventory` when creating the collection. The resulting property group uid would be `rtsm_ci_inventory`.

- a. Type the property group uid (`rtsm_ci_inventory`) for this collection in the **Collection ColumnsFilter**:



- b. After typing the property group uid (`rtsm_ci_inventory`) for this collection in the **Collection Columns Filter**, you should see information for this collection.



The screenshot shows the 'Collection Columns' interface. At the top, there is a search bar containing 'rtsm\_ci\_invent' and a dropdown menu set to 'Columns'. Below this, it says 'Showing 11 results of 1,140'. The table below has the following columns: 'property group uid', 'property uid', 'is key', and 'type'. The 'property group uid' column contains the value 'rtsm\_ci\_inventory' for all rows, which are circled in red in the image. The 'property uid' column contains values: 'ciid', 'citype', 'description', 'display\_label', 'managed\_by', and 'monitor\_type'. The 'is key' column contains 'false' for all rows. The 'type' column contains 'attribute' for all rows.

property group uid	property uid	is key	type
rtsm_ci_inventory	ciid	false	attribute
rtsm_ci_inventory	citype	false	attribute
rtsm_ci_inventory	description	false	attribute
rtsm_ci_inventory	display_label	false	attribute
rtsm_ci_inventory	managed_by	false	attribute
rtsm_ci_inventory	monitor_type	false	attribute

12. Create dashboards and query panes for the data you are now collecting. Follow the instructions shown in the *Dashboards and Query Panes* section of the *Operations Analytics Help* for information about creating dashboards and query panes.
13. Create AQL functions for the data you are now collecting. See the instructions shown in the *Define Analytic Query Language (AQL) Functions* section of the [AQL Developer Guide](#) for more information.
14. If you want to add tags to an HPE BSM RTSM CI Collection, use the `opsa-tag-manager.sh` command. See "[Creating, Applying, and Maintaining Tags for Custom Collections](#)" on page 160 and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

## Setting the Correct BSM User Name Permissions for OMi 9.x

When configuring either a BSM RTSM CI collection or a BPM Collection in Operations Analytics you must enter a BSM user name. This BSM user name is used for connecting to the RTSM DPS server, and must be configured for the correct roles.

**Note:** The user you plan to use for the BPM Collection must be part of the Integration Users Group and include the following OpenAPI required roles:

```
CmdbOpenApiQuery  
CmdbOpenApiClassModel  
CmdbOpenApiUpdate  
CmdbOpenApiImpact
```

These values could be named as shown below in newer versions:

```
RTSMOpenApiQuery  
RTSMOpenApiClassModel  
RTSMOpenApiUpdate  
RTSMOpenApiImpact
```

Before completing the remaining configuration steps in this section, do the following to test if the user has the required permissions:

1. Try to log on to BSM as your users using the following URL :  
`http://<BSM>:21212/axis2/services/UcmdbService`

**Note:** The log on is successful if you see a web page that shows the following message: Please enable REST support in WEB-INF/conf/axis2.xml and WEB-INF/web.xml.

If your credentials are not accepted you are prompted to enter your user name and password. If this happens, the user does not have the required permissions.

2. If the previous step fails, your user is missing some required permissions. Do not continue until you do the following:

**Note:** For these instructions to work correctly, you must have used the `createuser` method to create the user. For example, if you used the `createIntegrationUser` method, these instructions will not work correctly.

- a. Open the RTSM JMX console using the following URL:  
`http://<BSM>:21212/jmx-console/`
- b. Under the **UCMDB** heading, navigate to **UCMDB:service=Security Services**.
- c. Invoke `setRolesForUser` JMX and give the user either the Admin role or all of the OpenAPI roles:  
**Admin role:**  
Admin

**OpenAPI related roles:**

`CmdbOpenApiQuery`, `CmdbOpenApiClassModel`, `CmdbOpenApiUpdate`,  
`CmdbOpenApiImpact`

**Note:** To prevent making mistakes when entering the role names, retrieve the available roles by invoking `getAclController` JMX then copy and paste the role names.

3. Repeat step 1 to verify that you correctly made the permissions changes.

Now the BSM user you tested should have all of the required permissions. Continue configuring this collection at "[Gathering Information:](#)" on page 130.

## Setting the Correct Roles for OMi 10.x

After configuring a BSM RTSM CI collection in Operations Analytics you must create a role for Operations Analytics to use to retrieve CI information. Do the following:

1. Open OMi version 10.x.
2. Navigate to **Administration > Users > Users, Groups, and Roles**
3. Click **Manage Roles**
4. Click **New Role**; then enter a descriptive name in the **Name** field to create a new role.
5. Scroll down and click the **RTSM Permissions > Open RTSM Permissions Editor** button.
6. From the **Resources** tab, select **Views** in the left pane. Navigate to, then select **OPSA** in the middle pane and use the right arrow button to add it.
7. From the **Set Permissions** dialog, select only **View**, then click **Apply**.

8. From **General Actions** select **CI Related Actions / View Cis**, **Data Retrieval Actions / Run Query by Definition**, and **System Access Actions / Run Legacy API**, and add each of them using the right arrow button.
9. Click **Apply**
10. Click **Save Role**
11. Assign the role to a user account that you can use to configure the HPE BSM RTSM collection.

You just created a role for Operations Analytics to use to retrieve CI information. Continue configuring this collection at "[Gathering Information:](#)" on page 130.

## Configuring an HPE Business Process Monitor Collection

**Note:** If you do not want to configure this collection by using the **Collections Manager** located in the Operations Analytics console, you can configure this collection using the steps in this section.

After you complete the steps in this section, HPE Business Process Monitor (BPM) starts sending data to the BPM Collection. The BPM Collection collects metrics related to application transaction response times. The BPM Collection collects data as it arrives from BPM.

**Note:** You must set the `max heap size` to 3 GB or higher on the Operations Analytics Server when the following conditions are met:

- Operations Analytics monitors 100 or more BPM applications with 100 or more transactions per application.
- Operations Analytics users make five or more concurrent attempts to open the Operations Analytics default BPM dashboard.

To set the `max heap size`, do the following

1. Edit the `/opt/HP/opsa/jboss/bin/standalone.conf` file.
2. Make the change shown in bold font in the `JAVA_OPTS` section:

```
#
# Specify options to pass to the Java VM.
if [ "x$JAVA_OPTS" = "x" ]; then
JAVA_OPTS="-Xms64m -Xmx3072m -XX:MaxPermSize=256m -
Djava.net.preferIPv4Stack=true"
JAVA_OPTS="$JAVA_OPTS -Djboss.modules.system.pkgs=$JBOSS_MODULES_
SYSTEM_PKGS -Djava.awt.headless=true"
else
echo "JAVA_OPTS already set in environment; overriding default settings
with values: $JAVA_OPTS"
fi
```

3. Save your changes.
4. Run the following command to restart the Operations Analytics Collector host:  
`$OPSA_HOME/bin/opsa-server restart`

See the `opsa-server` reference page (or the Linux manpage) for more information.

**Note:** After running an `opsa-server restart` command, information logged in the `/opt/HP/opsa/log/opsa-server.log` file is removed. To view the files that retain this information across restarts, see the log files located in the `/opt/HP/opsa/jboss/standalone/log` directory. Look for log file names that begin with `server.log`.

**Note:** Connecting two or more Operations Analytics Collector hosts to the same BSM server host is not a supported configuration.

**Complete the following before proceeding:**

**Note:** For this example, the fully-qualified domain name of the BSM DPS server is `servername.location.domain.com`.

Add an entry for the BSM DPS server to the `/etc/hosts` file in the domain in which the Operations Analytics Collector host resides. For example, you would add a line for the BSM DPS server to the `/etc/hosts` file using the following format:

```
10.1.2.3 servername.location.domain.com servername.
```

**Note:** You must use the alias, `servername`, as the BSM DPS host name in the node list file.

## Setting the Correct BSM User Name Permissions for OMi 9.x

When configuring either a BSM RTSM CI collection or a BPM Collection in Operations Analytics you must enter a BSM user name. This BSM user name is used for connecting to the RTSM DPS server, and must be configured for the correct roles.

**Note:** The user you plan to use for the BPM Collection must be part of the Integration Users Group and include the following OpenAPI required roles:

```
CmdbOpenApiQuery  
CmdbOpenApiClassModel  
CmdbOpenApiUpdate  
CmdbOpenApiImpact
```

These values could be named as shown below in newer versions:

```
RTSMOpenApiQuery  
RTSMOpenApiClassModel  
RTSMOpenApiUpdate  
RTSMOpenApiImpact
```

Before completing the remaining configuration steps in this section, do the following to test if the user has the required permissions:

1. Try to log on to BSM as your users using the following URL :  
`http://<BSM>:21212/axis2/services/UcmdbService`

**Note:** The log on is successful if you see a web page that shows the following message: Please enable REST support in `WEB-INF/conf/axis2.xml` and `WEB-INF/web.xml`.

If your credentials are not accepted you are prompted to enter your user name and password. If this happens, the user does not have the required permissions.

2. If the previous step fails, your user is missing some required permissions. Do not continue until you do the following:

**Note:** For these instructions to work correctly, you must have used the `createuser` method to create the user. For example, if you used the `createIntegrationUser` method, these instructions will not work correctly.

- a. Open the RTSM JMX console using the following URL:  
`http://<BSM>:21212/jmx-console/`
- b. Under the **UCMDB** heading, navigate to **UCMDB:service=Security Services**.
- c. Invoke `setRolesForUser` JMX and give the user either the Admin role or all of the OpenAPI roles:

**Admin role:**

`Admin`

**OpenAPI related roles:**

`CmdbOpenApiQuery`, `CmdbOpenApiClassModel`, `CmdbOpenApiUpdate`,  
`CmdbOpenApiImpact`

**Note:** To prevent making mistakes when entering the role names, retrieve the available roles by invoking `getAclController` JMX then copy and paste the role names.

3. Repeat step 1 to verify that you correctly made the permissions changes.

Now the BSM user you tested should have all of the required permissions.

## Configuration Steps (Automated Method)

To configure a BPM collection, do the following:

### Information to Collect and Actions to Take Before Running the `opsa-collection-setup.sh` Script

Input Requested by <code>opsa-collection-setup.sh</code> Script	Value or Action
Obtain the credentials for accessing the BPM connection:	<ul style="list-style-type: none"> <li>• The active BSM DPS Server (DPS Hostname)</li> <li>• The RTSM Server Port (21212)</li> <li>• The user name (the RTSM Admin user)</li> </ul> <p><b>Note:</b> Admin is the role as it appears in the RTSM console. It is important to use the right role for the integration to work correctly.</p> <p><b>Note:</b> The Operations Analytics integration with BPM can connect to a BSM DPS Server configured for failover. However, if the BSM DPS Server fails, Operations Analytics does not automatically reconnect to the failover DPS server. Operations Analytics will no longer collect BPM data until the active BSM DPS Server is back online.</p>
BSM RTSM Server HostName	The fully-qualified domain name of the BSM RTSM server.
BSM DPS Server	Add an entry for the BSM DPS server to the <code>/etc/hosts</code> file in the domain in which the Operations Analytics Collector host resides. For example, you would add a line for the BSM DPS server to the <code>/etc/hosts</code> file using the following format: <code>10.1.2.3 servername.location.domain.com servername</code>
Server Username	The username for the BSM RTSM server.
Server Password	The password for the BSM RTSM server username.
Server Port number.	The well-known port number for communicating with the BSM RTSM server.

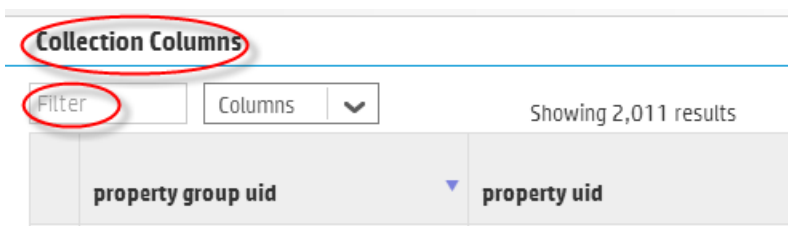
Follow the instructions in this section to configure a BPM Collection for Operations Analytics.



1. Run the interactive `opsa-collection-setup.sh` script.
2. When prompted, enter the tenant admin user name and password.
3. Enter `8` to begin configuring a BPM Collection.
4. Follow the prompts to enter the requested information.
5. Enter `f` or `finish` after you finish entering all of your information.
6. After you see a message similar to the following: `Successfully authenticated connection configuration for BPM`, enter `execute 8` to deploy this collection to the collector host.
7. To check for success, enter `list` and check that the BPM Source was added to the collector host.
8. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `bpm`, a domain of `application`, and a group of `performance` when creating the collection. The resulting property group uid would be `bpm_application_performance`.

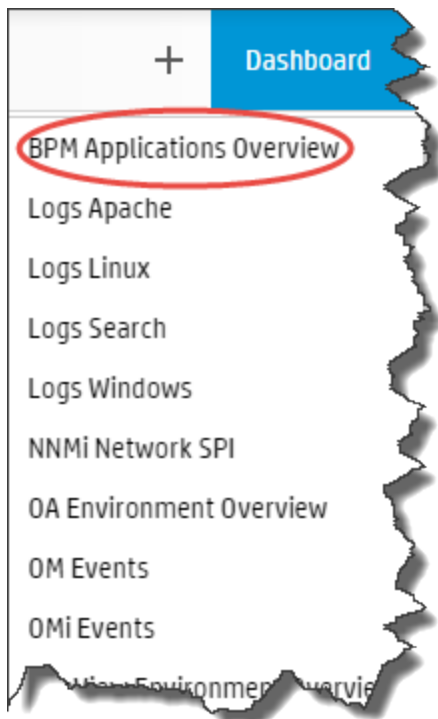
- a. Type the property group uid (`bpm_application_performance`) for this collection in the **Collection ColumnsFilter**:



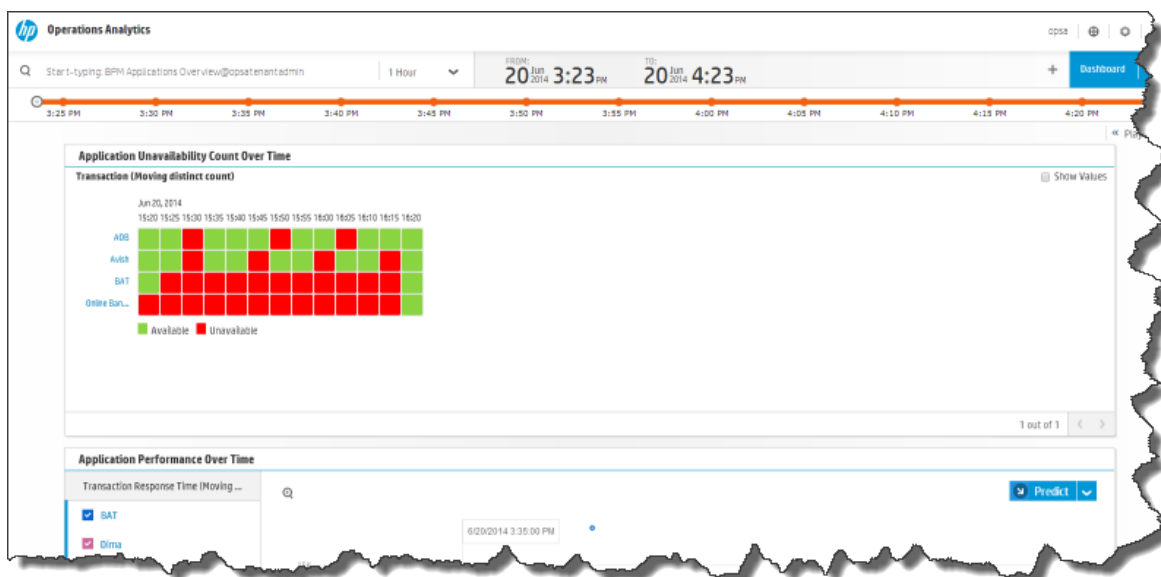
- b. After typing property group uid (`bpm_application_performance`) for this collection in the **Collection ColumnsFilter**, you should see information for this collection.

Collection Columns				
bpm_applicatio		Columns	Showing 14 results of 2,041	
property group uid	property uid	is key	type	
bpm_application_performance	application	true	attribute	
bpm_application_performance	application_id	false	attribute	
bpm_application_performance	location	true	attribute	
bpm_application_performance	location_id	false	attribute	
bpm_application_performance	status	false	metric	
bpm_application_performance	transaction	true	attribute	

- From the Operations Analytics console, open the **BPM Applications Overview** dashboard to view some of the collected information for this collection:



The following is a small example of BPM Collection data provided by the **BPM Applications Overview** dashboard.



- If you want to add tags to an HPE Business Process Monitor Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

# Configuring ArcSight Logger Out of the Box Smart Connector Collections

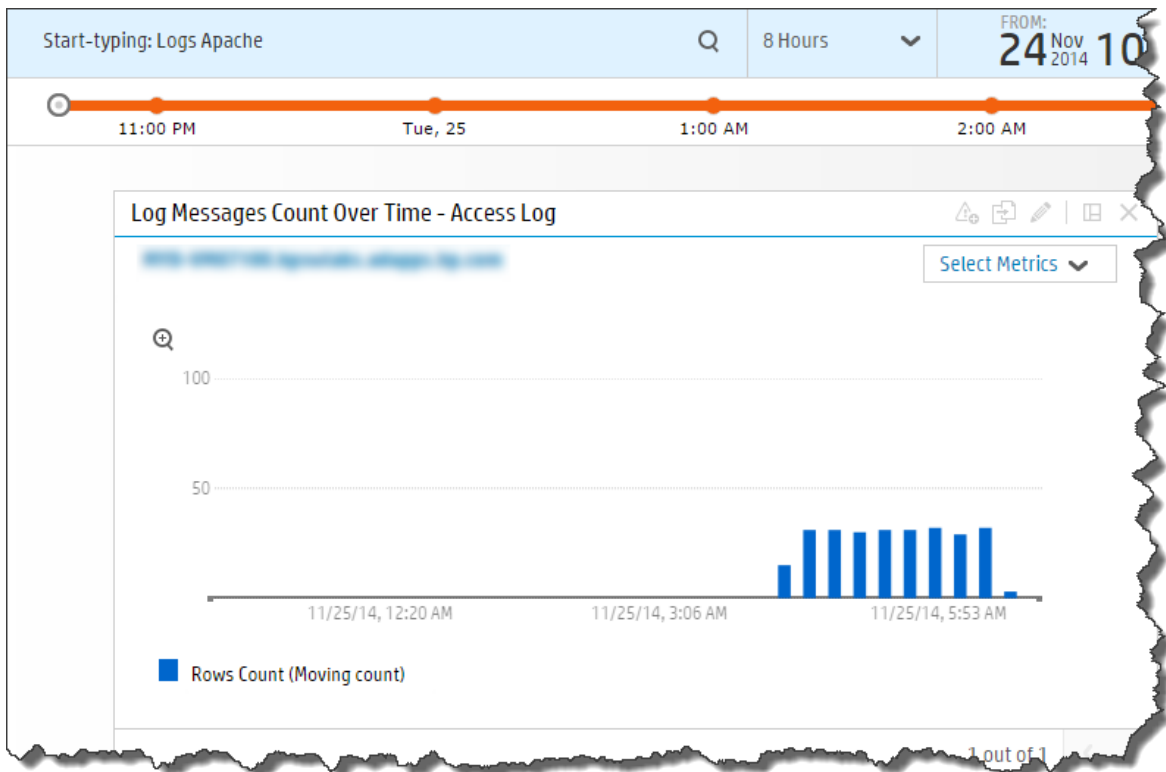
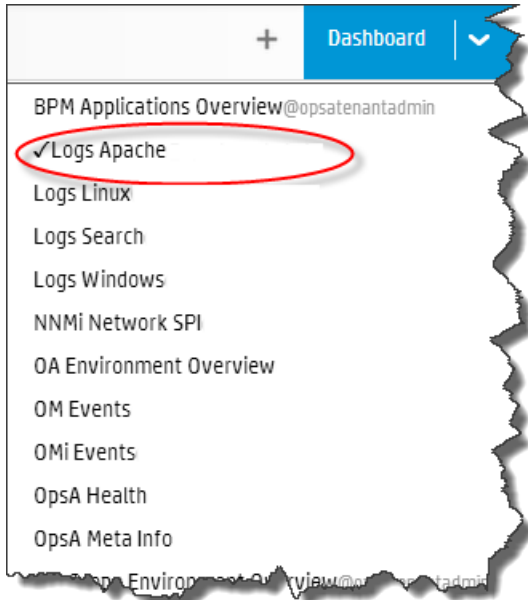
The following steps are required to configure and publish the out of the box SmartConnector Collections. For more information about these connectors, see *Out of the Box Log Content* in the *Operations Analytics Installation Guide*.

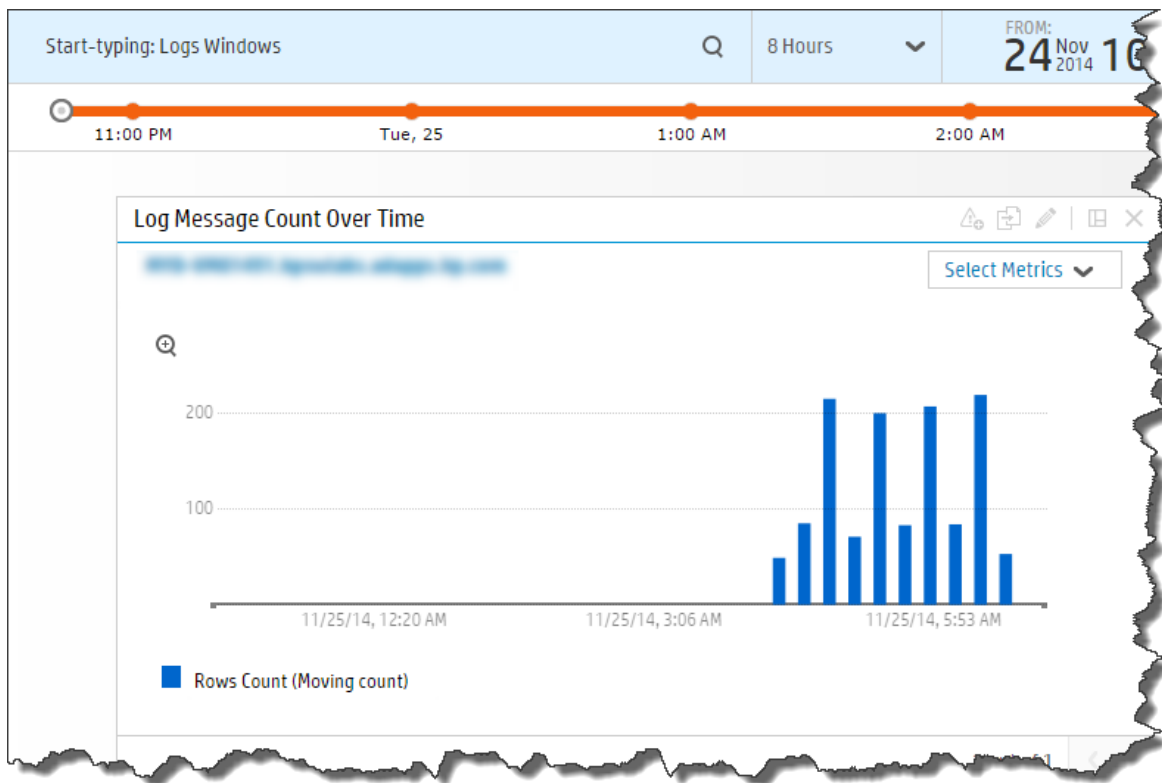
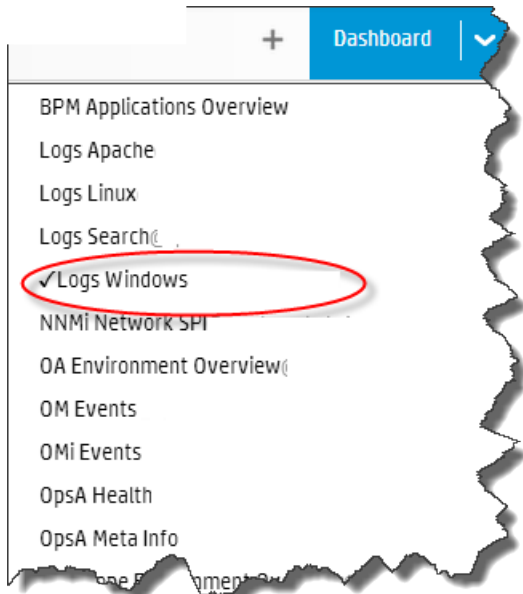
**Note:** From a resource perspective, there is a limit to the number of Logger sessions supported by Operations Analytics Software. HPE strongly recommends that, when you configure Logger collections, you assign those Logger collections to one common Operations Analytics collector. Doing so reduces the number of Logger sessions.

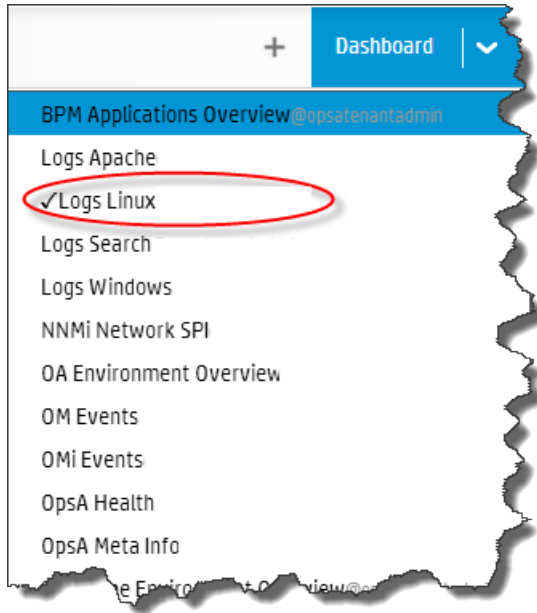
1. Log on to the Operations Analytics Server as an `opsa` user.
2. Run the interactive `opsa-collection-setup.sh` script.
3. When prompted, enter the tenant admin user name and password.
4. Enter `9` to begin configuring an ArcSight Logger Collection Configuration.
5. Enter the index number for the SmartConnector you want to configure:
  - 1: Apache Access
  - 2: Apache Error
  - 3: Linux Syslog
  - 4: Windows Event
6. Enter `f` or `finish` after you finish entering all of your information.
7. Enter `execute 9` to deploy this collection to the collector host.
8. To check for success, enter `list` and check that the sources you requested were added to the collector host.
9. Exit the `opsa-collection-setup.sh` script.
10. To test that the process ran correctly wait five minutes, open the following log file on the Operations Analytics Collector server, and confirm that it does not contain any errors:

```
$OPSA_HOME/log/opsa-collector.log
```

- From the Operations Analytics console, open the following dashboards to view some of the collected information for these collections:







## Configuring an NNMi Custom Poller Collection

**Note:** If you do not want to configure this collection by using the **Collections Manager** located in the Operations Analytics console, you can configure this collection using the steps in this section.

After you complete the steps in this section, the NNMi Custom Poller Collection reads data from the CSV files within 60 seconds of the file being placed in the source directory. You can use an NNMi Custom Poller Collection to collect numeric metrics from any NNMi Custom Poller MIB expression.

The NNMi Custom Poller collection template is generic, as it stores a MIB instance and a MIB value. This MIB value is defined as a `float` data type. Since Custom Poller can poll any type of MIB value, you must only send Custom Poller CSV files that contain numeric MIB values to this collection.

If you must create an Operations Analytics collection that matches what is being collected, you must create a custom CSV collection template. For example, you might have a Custom Poller Collection for network interface errors. To use this Custom Poller Collection, create a Custom CSV Collection, adding the appropriate tags and labels to identify the data for that collection. See ["Configuring a Custom Collection" on page 166](#) for more information.

1. To enable NNMi to export Custom Poller collections, do the following:
  - a. Using the NNMi console, enable NNMi to export custom poller collections to make the metrics from your collections available for Operations Analytics. Configuring NNMi to export custom poller collections enables NNMi to export metrics, such as CSV files, into the following directory:
    - **Windows:**

```
<Install_Dir>\ProgramData\HP\HP BTO  
Software\shared\nnm\databases\custompoller\export\final
```
    - **UNIX:**

```
/var/opt/OV/shared/nnm/databases/custompoller/export/final
```

See the *HPE Network Node Manager i Deployment Reference*, the *HPE NNMi Help*, or the *HPE Network Node Manager i Software Step-by-Step Guide to Custom Poller White Paper* for more information.

- b. The default configuration for the custom poller collection template is for Operations Analytics to read all of the files having file names that match the `*.csv*` or `*.gz*` pattern. If you need the collector to read a different set of files, the Operations Analytics administrator must edit the appropriate custom poller collector template file and specify a different file pattern. To change the pattern, edit the custom poller collection template and make the value changes you must make to the `filepattern= tag`.

**Note:** If you have multiple tenants and you plan to configure NNMi collections for them, do not use the Collections Manager in the Operations Analytics console. Instead, follow the steps listed below and create a separate source directory for each tenant.

**Note:** You must make the files exported from the `/var/opt/OV/shared/nnm/databases/custompoller/export/final` directory on NNMi available on the Operations Analytics Collector host in the `/opt/HP/opsa/data/nnm` directory.

If you want to use a different directory than `/opt/HP/opsa/data/nnm`, do the following:

- a. Edit the following collection template:  
`/opt/HP/opsa/conf/collection/server/config.templates/nnm/1.0/netperf/mib/nnm_netperf_mib_collection.xml`.
- b. Specify a different directory for the `sourcedir` attribute.

**Note:** The `opsa` user on the Operations Analytics Collector host must have read and write access to the NNMi files on the Operations Analytics Collector host to move them to the processed directory. The default process directory is `/opt/HP/opsa/data/nnm_processed`.

For example, to configure read and write access to the NNMi files to the Operations Analytics Collector host when the files are located on a Windows server, do the following:

- a. On a Windows server, navigate to **Computer Management > System Tools > Shares > Shared Folders**.
- b. Right-click beneath shares and open the new share wizard.
- c. Create shares for the directories in which the `.csv` files are stored.
- d. From the Operations Analytics Collector host, add the correct entries to the `/etc/fstab` file. Use the following entries as a model:  

```
//10.17.18.19/final /opt/HP/opsa/data/nnm cifs
username=administrator,password=password,uid=opsa,rw 0 0
//10.15.14.13/componentfinal /opt/HP/opsa/data/netcomponent cifs
username=admin,password=passwd,uid=opsa,rw 0 0
//10.15.14.13/interfacefinal /opt/HP/opsa/data/netinterface cifs
username=admin,password=passwd,uid=opsa,rw 0 0
```
- e. Use the `mount -a` command to get the directories mounted.

Using another example, to configure read and write access to the NNMi files to the Operations Analytics Collector host when the files are located on a Linux server, do the following:

- a. Make sure the `/var/opt/OV/shared/nnm/databases/custompoller/export/final` directory is enabled for export on the NNMI server.
- b. Run the following command from the Operations Analytics Collector host to make the files exported from NNMI available on the Operations Analytics Collector host :  

```
mount <IP address of NNMI
Server>://var/opt/OV/shared/nnm/databases/custompoller/export/final
/opt/HP/opsa/data/nnm
```

2. Run the following command from the Operations Analytics Server to create the collector configuration:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -collectorhost <fully-qualified domain name of the collector host> -source nnm -domain netperf -group mib -username opsatenantadmin
```

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** The `opsa-collection-config.sh` script uses the values of `source`, `domain`, and `group` to select the right predefined collection template to create the desired collection configuration.

3. Run the following command from the Operations Analytics Server to validate the collection configuration you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -allversions -collectorhosts -username opsatenantadmin
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its version, domain, and group.

4. Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host:

```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of the collector host> -username opsatenantadmin
```

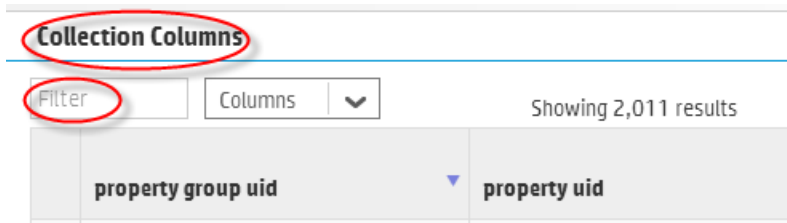
The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful and that a table was successfully created.

5. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

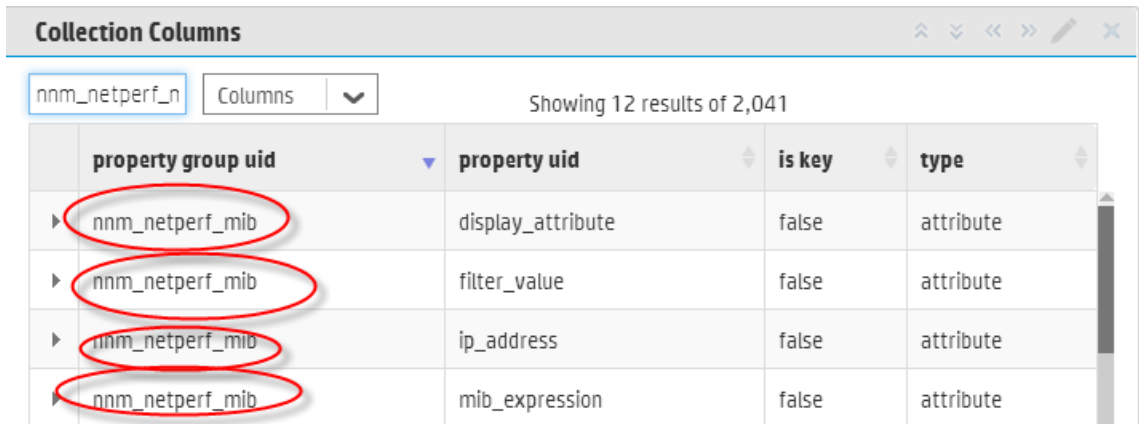
**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this example, you would have used a name of `nnm`, a domain of `netperf`, and a group of `mib` when creating the collection. The resulting property group uid would be `nnm_netperf_mib`.

- a. Type the property group uid (`nnm_netperf_mib`) for this collection in the **Collection ColumnsFilter**:



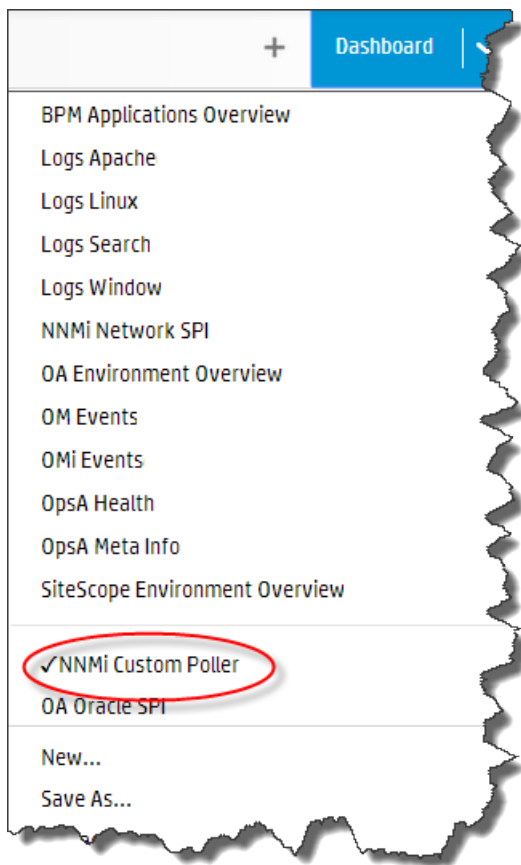


- b. After typing property group uid (nnm\_netperf\_mib) for this collection in the **Collection Columns Filter**, you should see information for this collection.



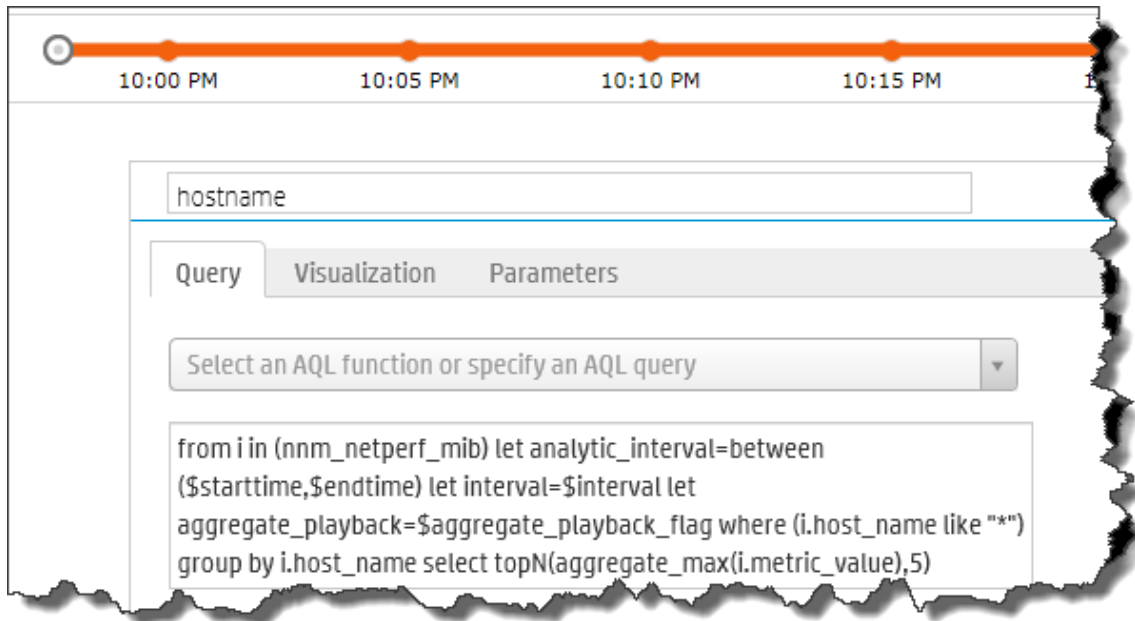
- 6. Create dashboards and query panes for the data you are now collecting. Follow the instructions shown in the *Dashboards and Query Panes* section of the *Operations Analytics Help* for information about creating dashboards and query panes.

7. For this example, assume you created the **NNMi Custom Poller** dashboard. From the Operations Analytics console, open the **NNMi Custom Poller** dashboard to view some of the collected information for this collection:



8. Create AQL functions for the data you are now collecting. See the instructions shown in the *Define Analytic Query Language (AQL) Functions* section of the *Operations Analytics Help* for information about creating AQL functions. For example, using the property group information shown in the **OpsA Meta Info** dashboard, you might create AQL functions similar to the examples shown below.

For the following hostname AQL function:

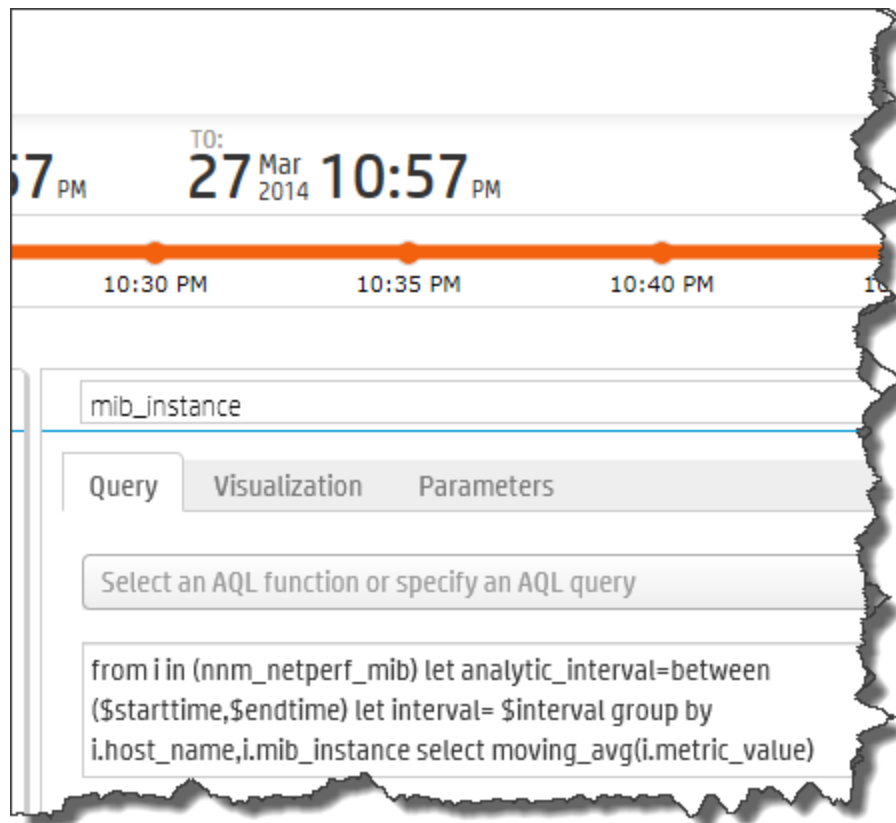


You might see the following result:

The screenshot shows the results of the AQL query. At the top, there is a time range selector with markers for 10:00 PM, 10:05 PM, 10:10 PM, 10:15 PM, and 10:20 PM. Below this is a search bar containing the text 'hostname'. There is a 'Columns' dropdown menu and a 'Showing 2 results' indicator. The results are displayed in a table with the following columns: Rank, Name, and Numeric Metric Value (Aggregate max).

Rank	Name	Numeric Metric Value (Aggregate max)
2	[Redacted]	12
1	[Redacted]	21

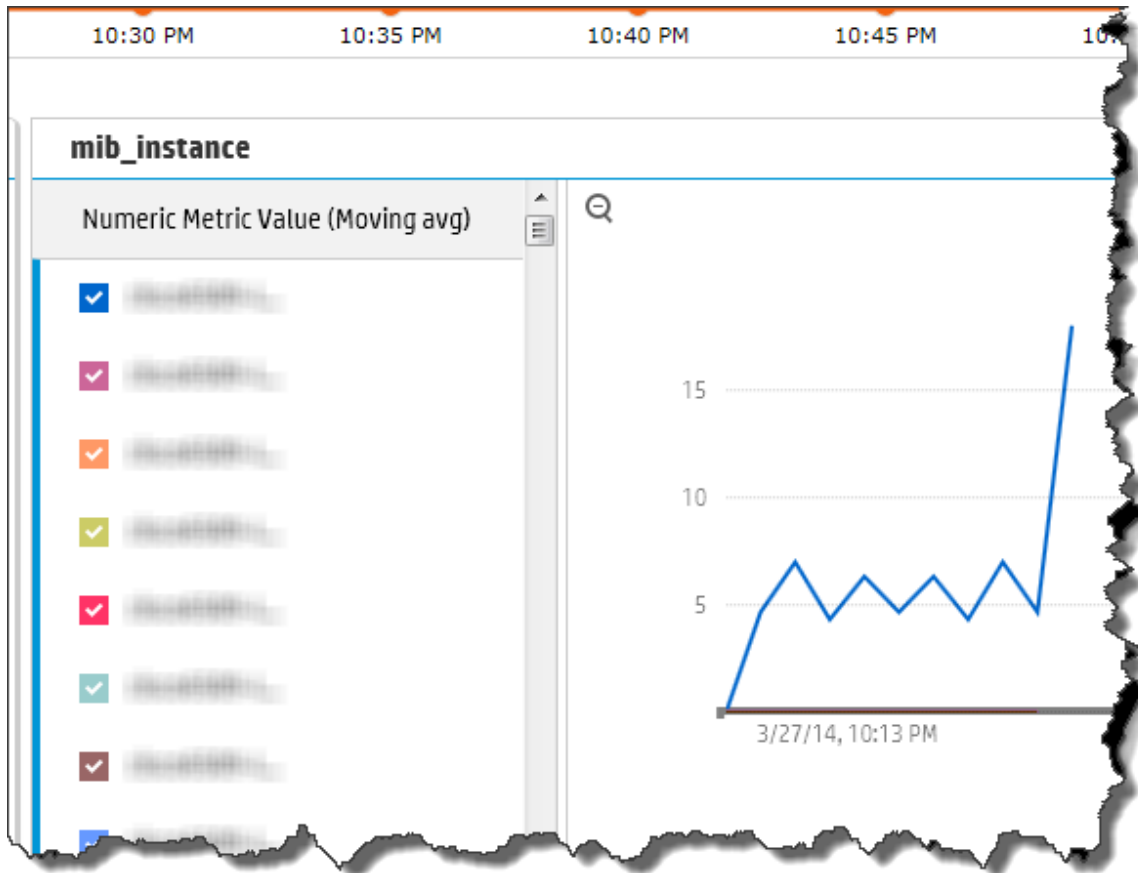
For the following mib\_instance AQL function:



The screenshot shows a web interface with a timeline at the top. The timeline has a red bar and markers for 10:30 PM, 10:35 PM, and 10:40 PM. Below the timeline is a search bar containing 'mib\_instance'. There are three tabs: 'Query', 'Visualization', and 'Parameters'. The 'Query' tab is active, showing a text area with the following AQL query:

```
from i in (nnm_netperf_mib) let analytic_interval=between
($starttime,$endtime) let interval= $interval group by
i.host_name,i.mib_instance select moving_avg(i.metric_value)
```

You might see the following mib\_instance (metric) result:

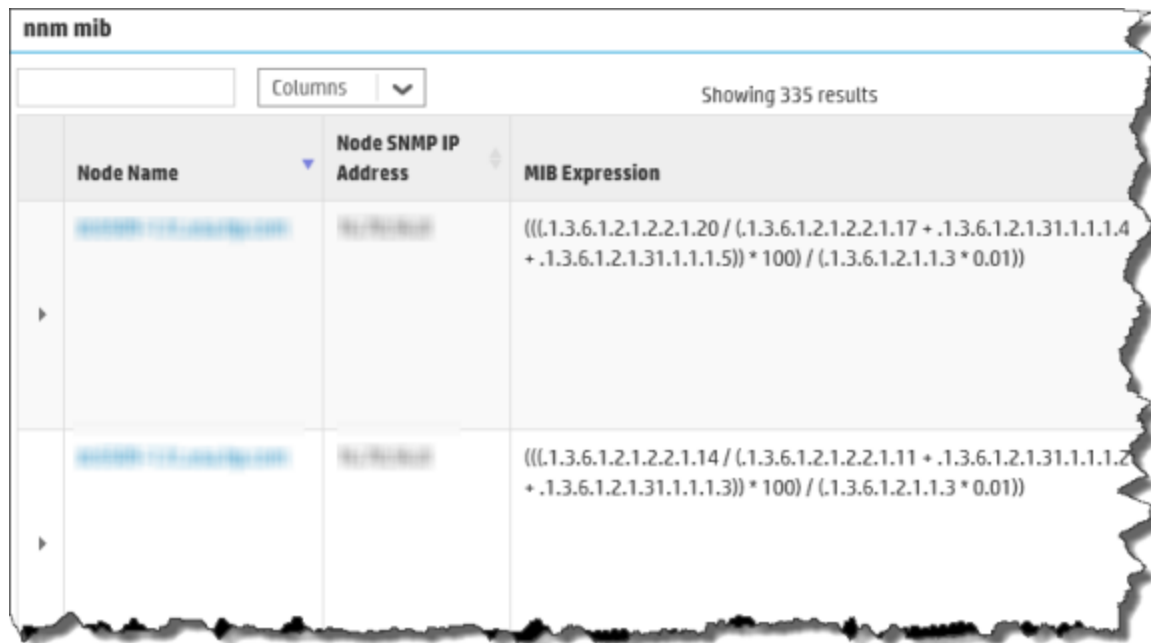


For the following nnm\_mib AQL function:

The screenshot shows a query editor interface. At the top, there is a time axis with markers for 10:00 PM, 10:05 PM, 10:10 PM, 10:15 PM, and 10:20 PM. Below the axis, the text 'nnm mib' is entered. The interface has three tabs: 'Query', 'Visualization', and 'Parameters', with 'Query' currently selected. Below the tabs, there is a prompt: 'Select an AQL function or specify an AQL query'. The AQL query is displayed in a text area:

```
from i in (nnm_netperf_mib) let analytic_interval=between($starttime,$endtime) let interval=$interval let  
aggregate_playback=$aggregate_playback_flag select  
i.host_name,i.ip_address,i.mib_expression,i.mib_instance,i.source
```

You might see the following `nnm_mib` (mib expression) result:



Node Name	Node SNMP IP Address	MIB Expression
[Redacted]	[Redacted]	$\left( \frac{((1.3.6.1.2.1.2.2.1.20 / (1.3.6.1.2.1.2.2.1.17 + 1.3.6.1.2.1.31.1.1.1.4 + 1.3.6.1.2.1.31.1.1.1.5)) * 100) / (1.3.6.1.2.1.1.3 * 0.01))}{1} \right)$
[Redacted]	[Redacted]	$\left( \frac{((1.3.6.1.2.1.2.2.1.14 / (1.3.6.1.2.1.2.2.1.11 + 1.3.6.1.2.1.31.1.1.1.2 + 1.3.6.1.2.1.31.1.1.1.3)) * 100) / (1.3.6.1.2.1.1.3 * 0.01))}{1} \right)$

9. If you want to add tags to a NNMi Custom Poller Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the [opsa-tag-manager.sh](#) reference page (or the Linux manpage) for more information.

## Configuring HPE Operations Manager (HPOM) (Creating a Database User Account on an HPOM Database Server)

Performing this task depends on how Microsoft SQL Server is set up in the HPOM environment and how you can configure the HPE Embedded Collector to communicate with the HPOM database server. There are two possible scenarios:

- **Scenario 1:** HPOM for Windows 8.x/9.x is installed on one system with Microsoft SQL Server 2005 or Microsoft SQL Server 2008 installed on the same system or a remote system. The HPE Embedded Collector, which is installed on another system, can be configured to connect to SQL Server either through Windows authentication or SQL Server authentication (mixed-mode authentication). The authentication method defined in SQL Server can be used in the HPE Embedded Collector to configure the HPOM database connection.
- **Scenario 2:** HPOM for Windows 8.x uses Microsoft SQL Server 2005 Express Edition that is embedded with it by default. Similarly, HPOM for Windows 9.x uses the embedded Microsoft SQL Server 2008 Express Edition by default. The authentication mode in this scenario is Windows NT authentication. However, in this case, a remote connection between SQL Server and the HPE Embedded Collector is not possible. Therefore, you must create a user account for the HPE Embedded Collector so that mixed-mode authentication is possible in this scenario.

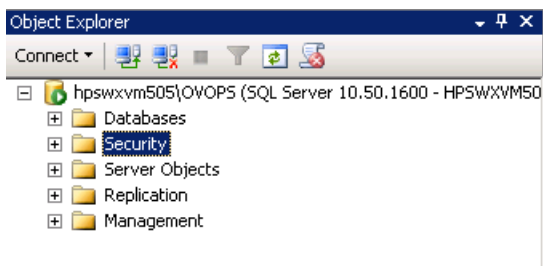
Before creating the user account, you must first enable mixed-mode authentication. For the steps, see the Enable Mixed Mode authentication after installation section in the Microsoft Support KB article at the following URL: <http://support.microsoft.com/kb/319930>

To create a user name and password for authentication purposes, perform the following steps. If you are using Microsoft SQL Server 2008, the steps are similar to the following steps performed in SQL Server 2005:

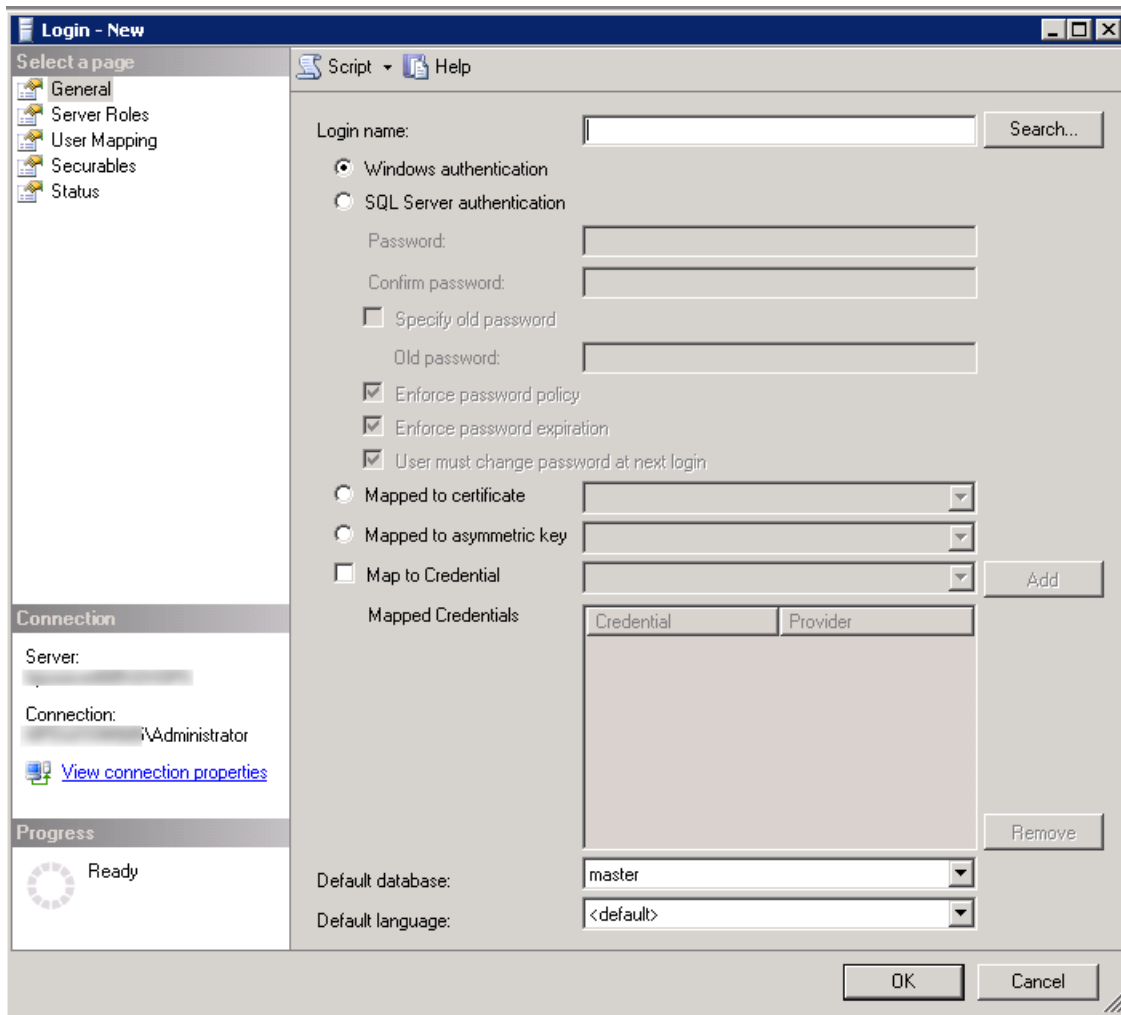
1. Create a user name and password:
  - a. Log on to the HPOM system with embedded Microsoft SQL Server 2005.
  - b. The Microsoft SQL Server Management Studio window opens. Click **Start > Programs > Microsoft SQL Server 2005 > SQL Server Management Studio**. If SQL Server Management Studio is not installed on your system, you can download it from the Microsoft web site using the following URL: <http://www.microsoft.com/downloads/en/details.aspx?FamilyID=c243a5ae-4bd1-4e3d-94b8-5a0f62bf7796>.
  - c. In the **Connect to Server** dialog box, select **NT Authentication** in the **Authentication** list, then click **Connect**.



- d. In the **Object Explorer** pane, expand **Security**.

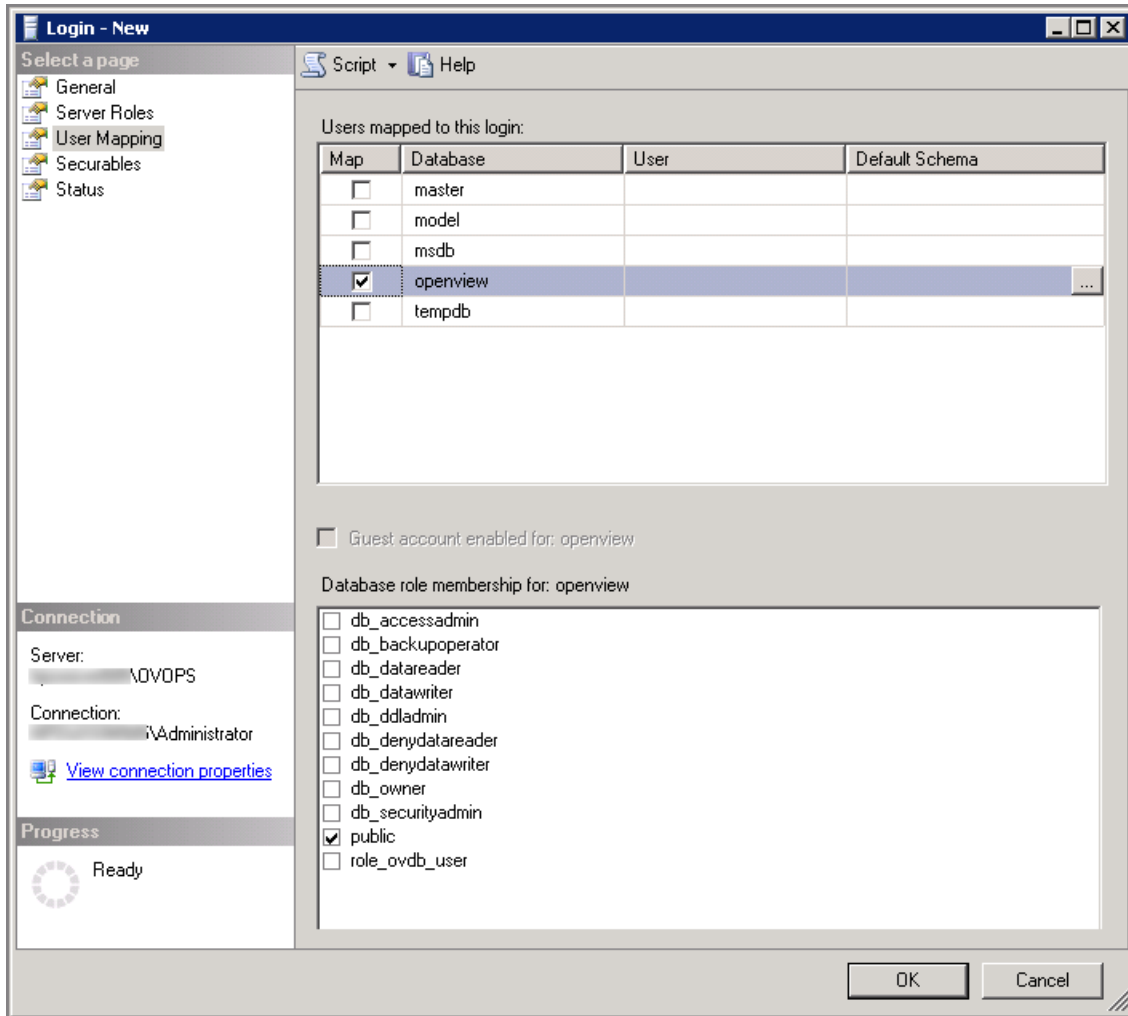


- e. Right-click **Logins** and click **New Login**. The Login - New dialog box opens.

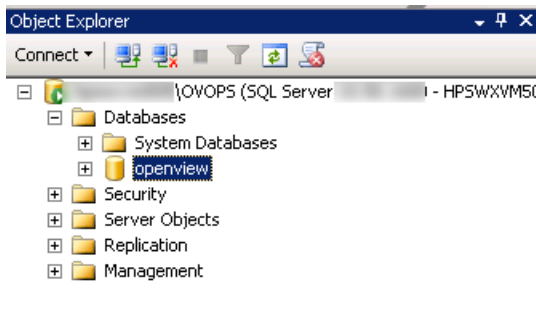


- f. In the **Login** name field, type a user name. Specify the other necessary details.
- g. Select the **SQL Server authentication** radio button.
- h. In the **Password** field, type the password.
- i. In the **Confirm password** field, retype the password. You might want to disable the password enforcement rules to create a simple password.
- j. Click **User Mapping**.
- k. Under **Users mapped to this login**, select the check box next to **openview**.

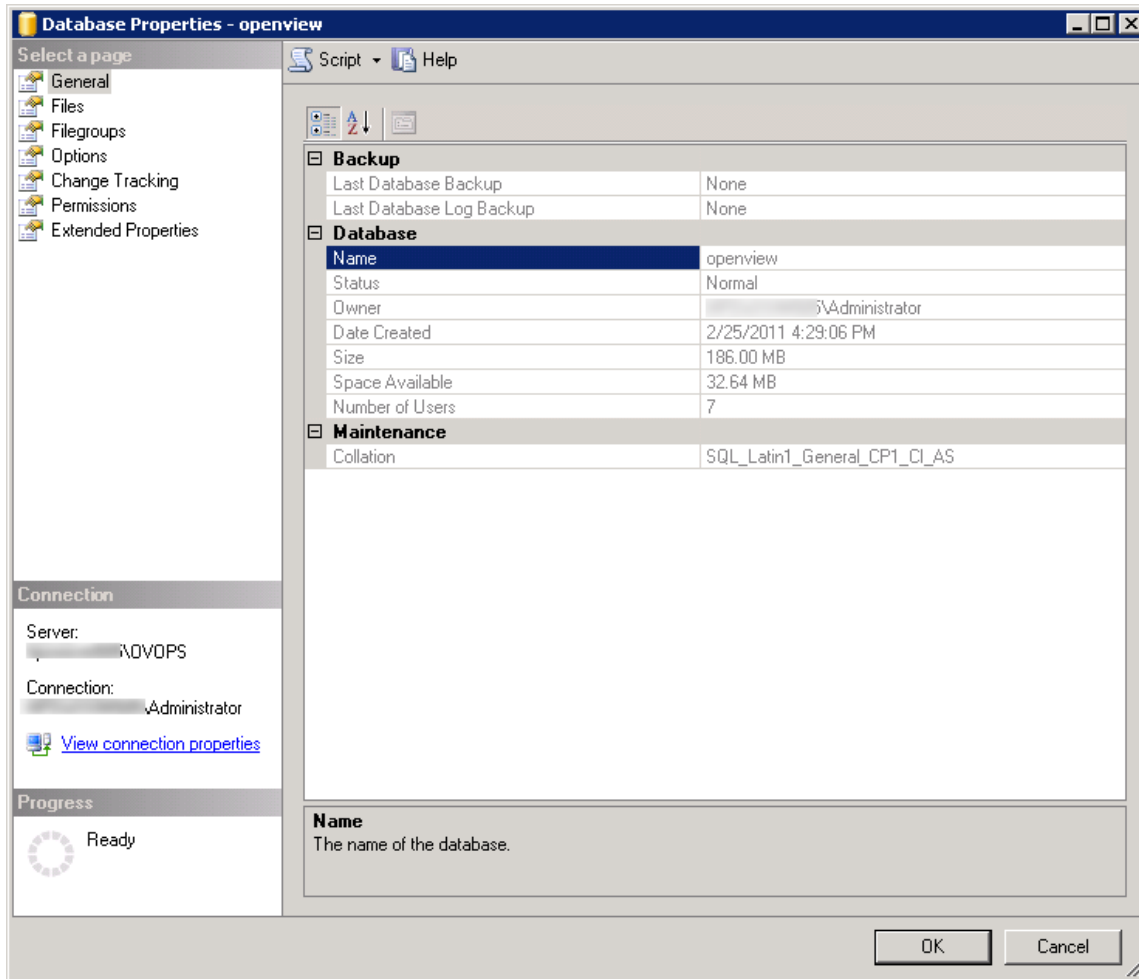




- I. Click **OK** to create the user name and password.
2. The database user must have at least the **Connect** and **Select** permissions. To enable the **Connect** and **Select** permissions for the newly created user account, follow these steps:
  - a. In the **Object Explorer** pane, expand **Databases**.

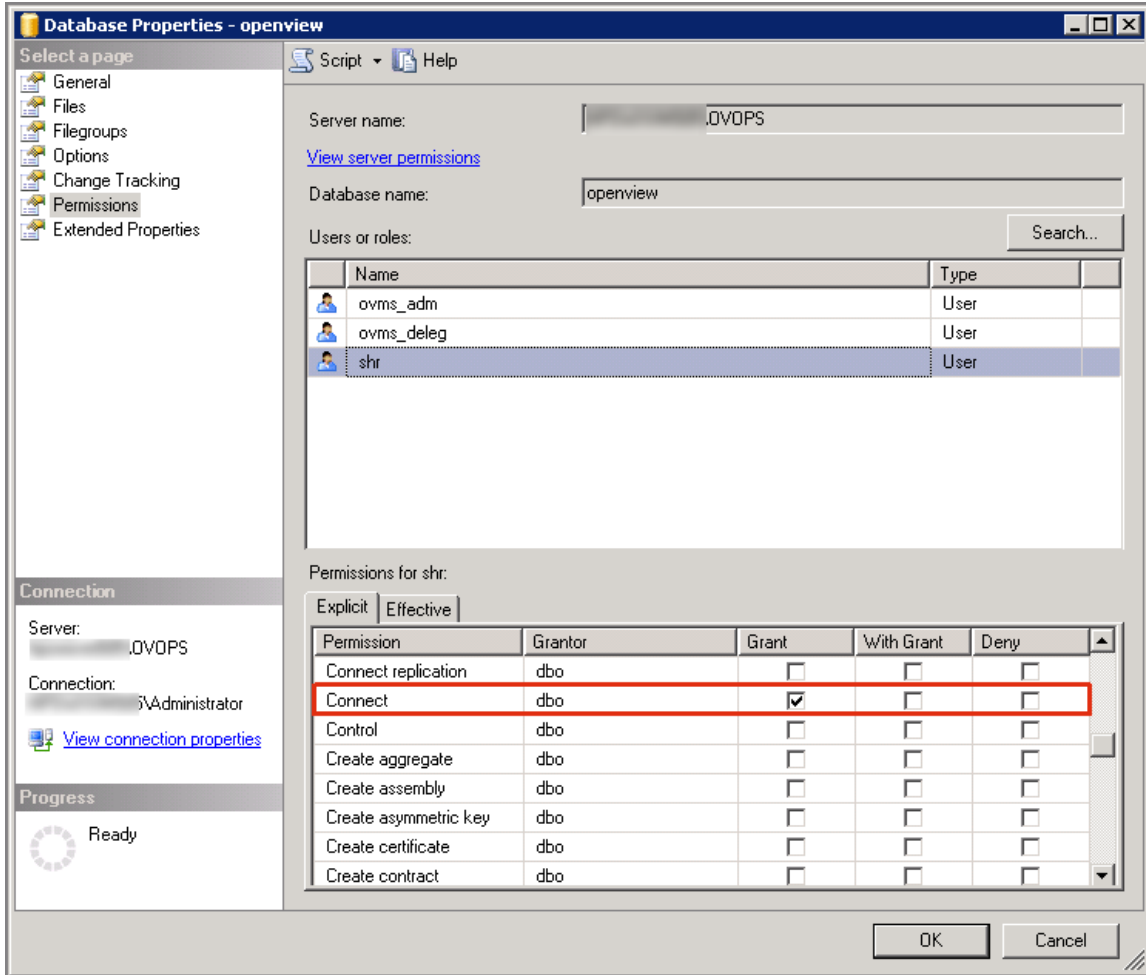


- b. Right-click **openview** , then click **Properties**. The Database Properties - openview dialog box opens.

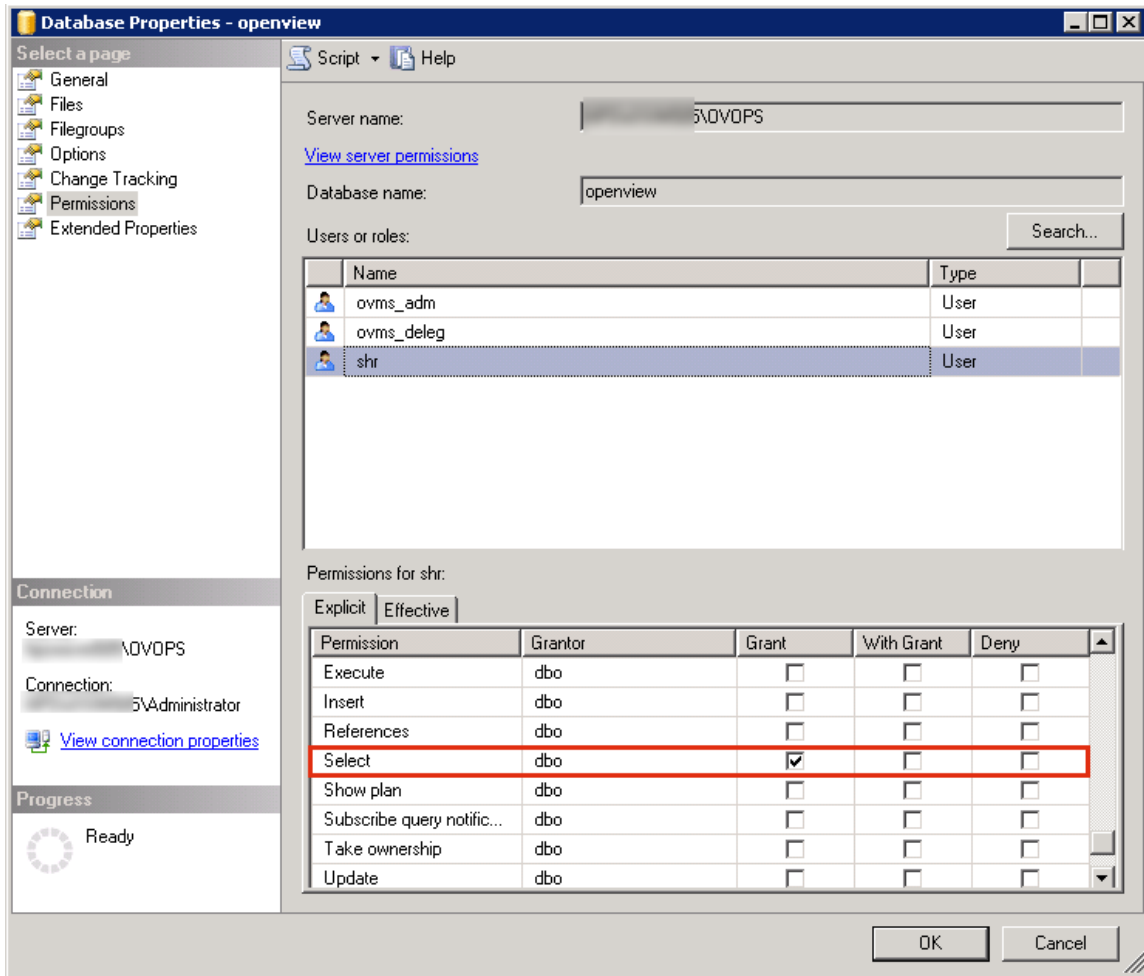


- c. Under the **Select a page** pane, click **Permissions**.
- d. Under **Users or roles**, click the newly created user account.

- e. Under **Explicit permissions for test**, scroll down to the **Connect** permission, then select the **Grant** check box for this permission.

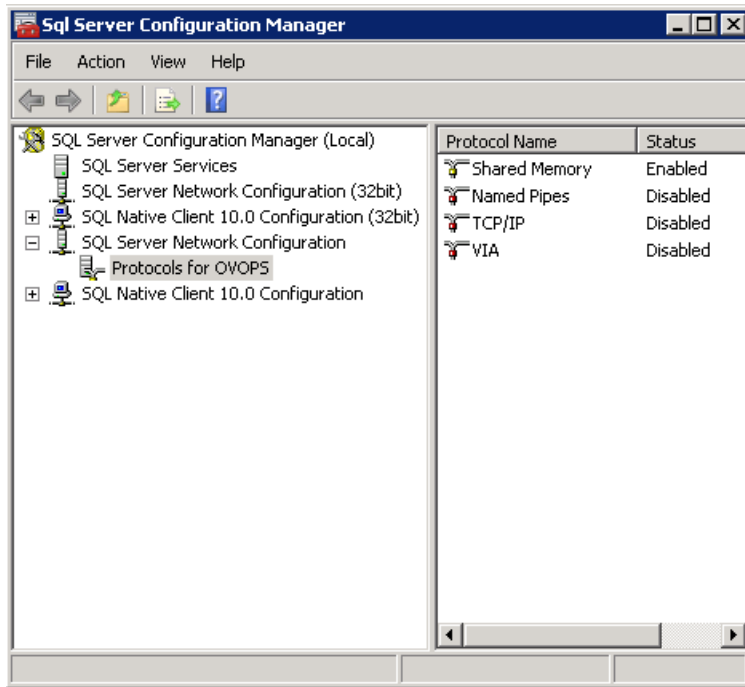


- f. Scroll down to the **Select** permission and select the **Grant** check box for this permission.

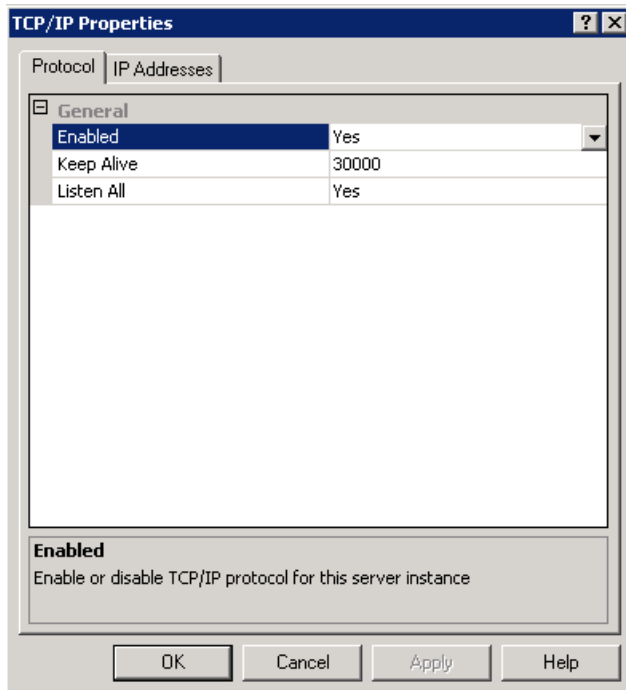


- g. Click **OK**.
- 3. Check for the HPOM server port number:
  - a. Click **Start > Programs > Microsoft SQL Server 2005 > Configuration Tools > SQL Server Configuration Manager**. The SQL Server Configuration Manager window opens.

- b. Expand **SQL Server Network Configuration** and select **Protocols for OVOPS**. If the instance name has been changed, select the appropriate instance name.

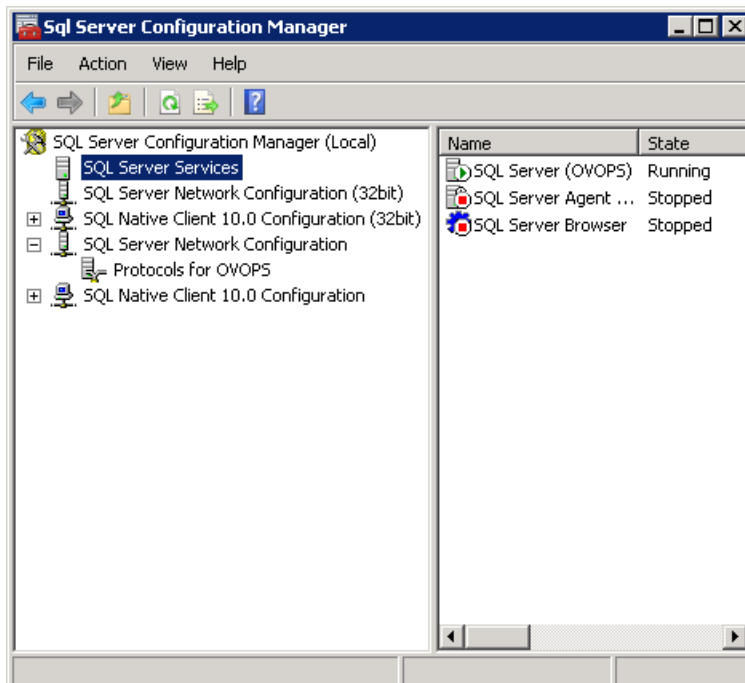


- c. On the right pane, right-click **TCP/IP**, then click **Enable**.
- d. Right-click **TCP/IP** again, then click **Properties**. The TCP/IP Properties dialog box opens.



- e. On the **IP Addresses** tab, under the **IPAll**, note the port number.
4. Restart the HPOM database server:

- a. In the SQL Server Configuration Manager window, click **SQL Server Services**.



- b. On the right pane, right-click **SQL Server (OVOPS)**, then click **Restart**.

You can use the newly created user name, password, and the observed instance name and port number when configuring the HPOM data source connection in the Administration Console.

You can perform these steps by using the command prompt utility, `osql`. For more information, see the Microsoft Support KB article at the following URL: <http://support.microsoft.com/kb/325003>

# Chapter 16: Configuring Collections for Custom Data Sources

Operations Analytics relies on collected metrics, topology, event, and log file data from a diverse set of possible data sources. An Operations Analytics Collector host contains the software that listens for data coming from a device.

To configure Operations Analytics to collect data from the supported custom data sources you plan to use, you must configure collections by creating collection templates that reside on the Operations Analytics Server. The instructions in this section explain how to configure Operations Analytics to begin collecting data for the custom data sources you plan to use.

Review the tag information located at the following link to develop the approach you want to use for creating tags for your custom collection:

["Using Tags in Operations Analytics" below](#)

Next, navigate to the instructions for the custom data source or sources you plan to use:

- ["Configuring a Custom Collection" on page 166](#)
- ["Configuring a Custom SiteScope Collection" on page 172](#)
- ["Configuring a Structured Log Collection" on page 181](#)

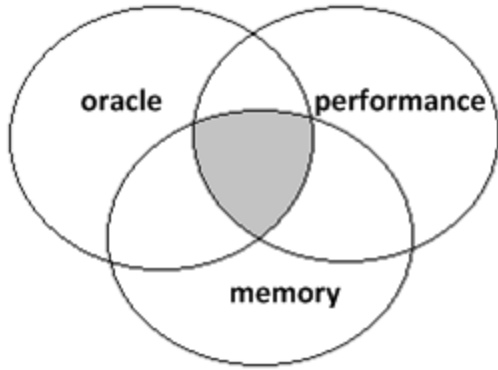
## Using Tags in Operations Analytics

A tag is a word or phrase that is associated with a metric, topology, event, or log file attribute that is stored as part of a collection in Operations Analytics. Tags are provided by Operations Analytics for collections using predefined templates. For custom collections, you must define the tags you need for your collection.

Tags are used in the Operations Analytics Phrased Query Language to create an Operations Analytics dashboard. They help to define the following:

- Entity class names for which you want information, such as a database collection tagged with **database** or a metric collection with transaction rates tagged with **transaction** and **performance**.
- Hardware and software components, such as **cpu**, **memory**, **disk**, **interface**, **tablespace**, **process**, and **threads**.
- Metrics or problem areas, such as **utilization**, **availability**, **performance**, and **change**.

Operations Analytics creates an intersection of the tags used to query for a Guided Troubleshooting Dashboard. For example, the query **oracle memory performance** returns only the metrics that are associated with all three tags (**oracle memory performance**) as represented in the following diagram:



The purpose of tagging is to find a suitable set of metrics and logs that relate to a specific question a user might pursue using Operations Analytics query languages. The Operations Analytics administrator defines tags before configuring an Operations Analytics collection or after configuring a collection using the `$OPSA_HOME/bin/opsa-tag-manager.sh` script. See ["Creating, Applying, and Maintaining Tags for Custom Collections" below](#) for more information.

## Creating, Applying, and Maintaining Tags for Custom Collections

Operations Analytics stores collected data in the form of collection tables located in a Vertica database. When configuring a collection, Operations Analytics uses collection templates in the form of XML (`*.xml`) files to establish the initial search keys and tags for a collection.

The Phrased Query Language (PQL) is a proprietary search tool provided with Operations Analytics that uses these tags and keys to narrow the data for which you are searching. After you start typing, suggestions are automatically displayed based on the tags and keys defined in predefined collections. For custom collections, you must configure the keys and tags to match the search needs for the data you plan to collect.

### Available PQL Searches using Tags

All PQL searches are primarily based on tags. PQL searches use tags to narrow your search results. Before deciding which keys and tags to use, you must research how you want PQL to narrow the searches for the data you are collecting. The information in this section discusses PQL searches using the following syntax:

- PQL searches use a `<tagname> withkey <key attribute value>` translation when performing the search.
- By using the `Host:` keyword in a PQL search, it automatically creates a `host withkey <example.servername.com>` command that, when searched on, generates a host dashboard for the query.

**Note:** A collection's `host` field must be set to "key=yes" in a collection's `<collection>.xml` file to get host suggestions when using the `Host:` keyword. Although you can make tag changes using the `opsa-tag-manager.sh` script after configuring a collection, you must configure a key column in a collection's `<collection>.xml` file before configuring a collection.

Using the `withkey` keyword in a search adds a filter for data from any key attribute field that you configured before registering a collection.



**Note:** When using Splunk as the log data source, you must directly type the hostname or IP address in the search bar. Do not use the `Host: <hostname>` or `Host: <IP Address>` for a Splunk PQL search.

- By using the `Host:` keyword in a PQL search in combination with a `Focus On` keyword, Operations Analytics suggests both key values and tag names.
- `Start-typing`, `Application`, or `Database` keywords: Using these keywords in a PQL search brings up the default dashboard for the tags and keys you provide in a search. The default dashboard show the following information (if available) from a search:
  - metrics
  - attributes
  - log messages
  - log messages count

A key designation in a columns is set by adding a `key="yes"` entry in a collections `<collection>.xml` file before publishing a collection. Setting this value tells PQL that this entire column is a key search field. When using a key column to narrow a search within a collection, Operations Analytics returns only those metrics for the specified key column value. For example, if the `host_name` column is defined as a key attribute in a `cpu` metrics collection, the `host_name` key column enables you to search for `cpu` metrics for a specific host name. An example would be `Start typing`

The `Type` selection in columns are set with a `type="attribute"` or `type="metric"` in the `<collection>.xml` file.

Use the `primary` tag to tag the most important metrics or attributes for a specific area, such as `cpu`. If you enters `cpu primary` in the search query, the results focus on only a few important metrics, which are tagged as `primary`. The `primary` tag is good for configuring the specific data you want to show up in a dashboard.

Operations Analytics supports the following searches:

- Using the `Start Typing: keyword`: You type in tags and keys to narrow a data search.
- Using the `Host: keyword`: By using the `Host:` keyword in a PQL search, it automatically invokes `host withkey <example.servername.com>` and generates a host dashboard for the query.
- Using the `withkey` keyword: You can easily do PQL searches using data from a key attribute field to which you assigned a tag in a collection template file. When typing a tag in a PQL search, the search field includes suggestions as to which tags are available for searching. When typing a PQL search, you must have configured at least one key in the collection on which you are searching for your PQL search to work. You can also provide up to three keys as long as these keys have been configured in the collection on which you are searching. An example of a PQL search using three tags and one key is as follows: `host_name cpu system performance withkey <server.mydomain.com>`

**Note:** The `withkey` command filters according to key values.

So you can see that creating the right tags and keys is important for being able to search a collection's data. When configuring an XML template file for a custom collection, consider the following:

- You can assign a key to a data field as long as it is an attribute (for example, it cannot be metric data).
- Any key you add into a into a collection's XML template file is static, and cannot be modified within a registered collection.
- You must configure a `Host` field as a key (`"key=yes"`) to get host suggestions when running a PQL search.

- To change a key value after a collection is configured, you must remove the collection first, then register the collection again using the desired key values (after you make changes to the collection's XML template file). See ["Removing a Collection Registration for a Tenant" on page 74](#) and ["Configuring Collections - Workflow" on page 17](#) for more information.

There are two types of tags, property tags and property group tags:

- **Property tags:** These tags are set for data columns. Tags in data columns are set with a `tag="<blah1>, <blah2>, <blahn>"` syntax. Example: `tags="process, performance, primary"`
- **Property group tags:** These tags are set at the collection level. Examples are `host` and `system`. You can do PQL searches using property group tags to see data for an entire collection.

When configuring an XML template file for a custom collection, you can add a tag for either attribute or metric data fields. Consider the following when creating tags:

- The tags you add into a collection's XML template file configure the initial tags for a collection. You can update a collection's tags using the `opsa-tag-manager.sh` script. See the `opsa-tag-manager.sh` reference page (or the UNIX manpage) for more information.
- You must add a tag for at least one metric field for suggestions to appear during a PQL search.
- For PQL searches to work correctly, you must configure at least one key and one tag for a collection.
- Add a `host` tag to every metric field that you want to view in the host dashboards (by doing a `Host:<my host>` search).
- Add a `host_name` tag to every key attribute field that you want to view.
- Add a `primary` tag to every metric field that you want included in a host dashboard as a result of a guided search.
- Tag a `Host` field with a `host_name` tag. Doing so permits you to use a `Drill-to` keyword in a PQL search.

As an example of setting up tags for a custom collection (before creating and publishing a collection), edit the XML template file for the custom collection and do the following :

1. Locate the field that shows the server name and add both a `host` and `host_name` tag to this field.
2. Locate the metric field or fields that you want to tag and add both a `host` and `primary` tag to these fields.
3. Publish the collection using the the interactive `opsa-collection-setup.sh` script shown in ["Configuring a Custom Collection" on page 166](#) or by using the **Custom Collection** registration instance in the **Configuration Manager**. See *Configuration Manager (How to Register a Custom Collection)* in the *Operations Analytics Help* for more information.
4. Once the data for your collection is being collected, wait 30 minutes or more, then make use of a collection's keys and tags to view data using Operations Analytics's Phrase Query Language (PQL). For example, after 30 minutes or more, you can have suggestions such as `Host:my host` from a guided search.

Below are some examples of using the `opsa-tag-manager.sh` to adjust the tags for your custom collection:

- ["Creating Property Tags" on the next page](#): A property tag is associated with a data column within a collection. By creating one or more property tags, you can use a PQL search that narrows the displayed data to one or more data columns within a collection.
- ["Creating Property Group Tags" on page 165](#): A property group tag is associated with a specific collection. By creating a property group tag, you can use a PQL search that narrows the displayed data to a specific collection.

## Creating Property Tags

Use the following tasks as an example when creating tags for a collection:

1. ["Define the PQL and tag names you want to use" below.](#)
2. ["Configure the tags" on the next page.](#)

### Define the PQL and tag names you want to use

Suppose you are collecting data in a collection called `custom_sysperf_global` and you already marked key attributes for this collection. For this example, this collection includes the metrics property UIDs shown in ["Property UIDs for the custom\\_sysperf\\_global Collection Example" below:](#)

### Property UIDs for the custom\_sysperf\_global Collection Example

Collection property group uid	Property UID
custom_sysperf_global	mem_free
custom_sysperf_global	mem_pageout_byte_rate
custom_sysperf_global	mem_pageout_rate
custom_sysperf_global	mem_swap_util
custom_sysperf_global	mem_util
custom_sysperf_global	cpu_user_mode_util
custom_sysperf_global	cpu_util
custom_sysperf_global	disk_util_peak
custom_sysperf_global	fs_space_util_peak
custom_sysperf_global	mem_swap_util
custom_sysperf_global	mem_util

Looking at this information, you decide to create tags so that you can use the following PQL searches to view this collected data:

- Memory search: Start Typing: `memory`
- Utilization search: Start Typing: `utilization`

To do this, you decide to add the `memory` and `utilization` tag names to the Property UIDs as shown in ["Property UIDs and Tags for the custom\\_sysperf\\_global Collection Example" on the next page.](#)

**Note:** As mentioned earlier, If you prefer to have metrics from this collection displayed in an Operations Analytics host dashboard you would need to consider the following actions:

- Add a `host` tag to every metric field that you want to view.
- Add a `host_name` tag to every key attribute field that you want to view.
- Add a `primary` tag to every metric field that you want included in a host dashboard as a result of a

guided search.

- Tag a Host field with a `host_name` tag. Doing so permits you to use a `Drill-to` keyword in a PQL search.

### Property UIDs and Tags for the `custom_sysperf_global` Collection Example

Collection property group UID	Property UID	Tag Name
<code>custom_sysperf_global</code>	<code>mem_free</code>	memory
<code>custom_sysperf_global</code>	<code>mem_pageout_byte_rate</code>	memory
<code>custom_sysperf_global</code>	<code>mem_pageout_rate</code>	memory
<code>custom_sysperf_global</code>	<code>mem_swap_util</code>	memory
<code>custom_sysperf_global</code>	<code>mem_util</code>	memory
<code>custom_sysperf_global</code>	<code>cpu_user_mode_util</code>	utilization
<code>custom_sysperf_global</code>	<code>cpu_util</code>	utilization
<code>custom_sysperf_global</code>	<code>disk_util_peak</code>	utilization
<code>custom_sysperf_global</code>	<code>fs_space_util_peak</code>	utilization
<code>custom_sysperf_global</code>	<code>mem_swap_util</code>	utilization
<code>custom_sysperf_global</code>	<code>mem_util</code>	utilization

### Configure the tags

To configure tags that enable you to search on both memory and utilization, do the following:

1. Create a `/tmp/mytag.csv` file.
2. Add the following content to the file:
 

```

            custom_sysperf_global,mem_free,memory
            custom_sysperf_global,mem_pageout_byte_rate,memory
            custom_sysperf_global,mem_pageout_rate,memory
            custom_sysperf_global,mem_swap_util,memory
            custom_sysperf_global,mem_util,memory
            custom_sysperf_global,cpu_user_mode_util,utilization
            custom_sysperf_global,cpu_util,utilization
            custom_sysperf_global,disk_util_peak,utilization
            custom_sysperf_global,fs_space_util_peak,host,utilizatio
            custom_sysperf_global,mem_swap_util,utilization
            custom_sysperf_global,mem_util,utilization
            
```
3. Save your work.
4. Run the following command to create these new property tags:
 

```

            opsa-tag-manager.sh -username opsatenantadmin -password opsatenantadmin -add_tags -
            type property -file /tmp/mytag.csv
            
```

After you finish the above tasks, wait 15 minutes or more, then use variations of the following PQL searches to test the property tags you configured:

- Memory search: Start Typing: memory
- Utilization search: Start Typing: utilization

## Creating Property Group Tags

Reviewing "[Property UIDs for the custom\\_sysperf\\_global Collection Example](#)" on page 163, you might decide that you also want to create tags so that you can use the following PQL search, viewing the data from the entire collection instead of creating tags for individual Property UIDs:

All metrics from this custom collection search: Start Typing: my\_system\_performance

For this approach, do the following:

1. Create a `/tmp/mytag.csv` file.
2. Add the following content to the file:  
`custom_sysperf_global,my_system_performance`
3. Save your work.
4. Run the following command to create these new property group tags:  
`opsa-tag-manager.sh -username opsatenantadmin -password opsatenantadmin -add_tags -type property_group -file /tmp/mytag.csv`

After you finish the above tasks, wait 15 minutes or more, then use the following search to view all metrics from your custom collection to test the property group tag you configured:

All metrics from this custom collection search: Start Typing: my\_system\_performance

As discussed earlier, Operations Analytics supports the following types of tags:

- Property Group Tags: Operations Analytics administrators add these tags to an entire collection.
- Property Tags: Operations Analytics administrators add these link tags to one or more properties (or database columns) for a specific collection.

To manage tags, use the `opsa-tag-manager.sh` script. See the *opsa-tag-manager.sh* reference page (or the Linux manpage) for more information.

**Note:** Tags, property uids, and property group uids are not case sensitive. They are always converted into lowercase.

## Adding Tags

To summarize the syntax of the `opsa-tag-manager.sh` script discussed earlier in this chapter, use the following command to add tags:

- **Property Tags:** `$OPSA_HOME/bin/opsa-tag-manager.sh -add_tags -type property -file /opt/HP/opsa/tmp/property_tags.csv -username <opsatenantadmin>`
- **Property Group Tags:** `$OPSA_HOME/bin/opsa-tag-manager.sh -add_tags -type property_group -file /opt/HP/opsa/tmp/property_group_tags.csv -username opsatenantadmin`

## Listing Tags

Use the following command to list tags:

- **Property Tags:** `$OPSA_HOME/bin/opsa-tag-manager.sh -list_tags -type property [-propertygroup_id ID] [-property_id ID] -username opsatenantadmin`
- **Property Group Tags:** `$OPSA_HOME/bin/opsa-tag-manager.sh -list_tags -type property_group [-propertygroup_id ID] -username opsatenantadmin`

## Deleting Tags

Do not delete any pre-existing tags used for pre-defined collection templates, as that might disrupt these collections.

Use the following command to delete tags:

- **Property Tags:** `$OPSA_HOME/bin/opsa-tag-manager.sh -delete_tags -type property -propertygroup_id <property group id> -tag_name <list of comma-separated tags> -username opsatenantadmin`
- **Property Group Tags:** `$OPSA_HOME/bin/opsa-tag-manager.sh -delete_tags -type property_group -propertygroup_id <property group id> -tag_name <list of comma-separated tags> -username opsatenantadmin`

## Configuring a Custom Collection

**Note:** If you do not want to configure this collection by using the **Collections Manager** located in the Operations Analytics console, you can configure this collection using the steps in this section.

Operations Analytics supports predefined collection templates for configuring data collections using the data sources described in "[Configuring Collections using Predefined Templates](#)" on page 106.

To collect data from sources that do not use predefined collection templates, consider configuring a Custom CSV collection. Use the following list to determine if a Custom CSV collection might work for you:

- The data source must provide Comma-separated values (CSV) data. CSV data is the only method that Operations Analytics provides to collect data (instead of those predefined or custom collection methods described in "[Configuring Collections - Workflow](#)" on page 17)
- The data source must collect CSV data based on time. There has to be a time and date column for each row in the CSV file. Both the time and date must be in that same column.

**Note:** If this is not true, you must merge these columns before creating the collection.

- The data source cannot exceed 200 data columns. If you try to create a Custom CSV collection containing more than 200 data columns, the collection creation will fail.
- The maximum supported CSV file size is 500 MB.
- Data from the CSV data source must be accessible to the Operations Analytics Collector host.
- The CSV file can be local or remote to the collector and is assumed to be available in the source directory at regular intervals.

- Each column should have a header.
- Column names should not contain any spaces.
- The CSV file will be used to create a table in Vertica. Vertica objects include tables, views, and columns. Your CSV file must use the following naming conventions:
  - A column name must be from 1 to 128 characters long.
  - A column name must begin with a letter (A through Z), diacritic marks, or non-Latin characters (200-377 octal).
  - A name cannot begin with an underscore (\_). Leading underscores are reserved for system objects.
  - Names are not case sensitive. For example, CUSTOMER and Customer represent the same names. However, if you enclose a name in quotation marks, it is case sensitive.

**Note:** Object names are converted to lowercase when they are stored in the Vertica database.

- A name cannot match a Vertica reserved word such as WHERE, VIEW, Table, ID, User, or Query.
- A name cannot match the another Vertica object that has the same type.
- The Maximum number of columns cannot exceed 1549 in a CSV file as that value is a Vertica limitation when creating a table.
- The CSV file format has to be uniform for a single collection. For example, if you create a collection with 10 columns, the subsequent files that are provided for import within Operations Analytics must have same format, including column names and data types.

For an example of data you might choose to collect using a Custom CSV collection, see the *Creating a Content Pack for Operations Analytics White Paper* at <https://hpln.hpe.com>.

**Note:** Do the following to locate the *Creating a Content Pack for Operations Analytics White Paper*:

1. Select **Products**.
2. Navigate to the **Operations Intelligence (Operations Analytics)** product, then click **Operations Intelligence**.
3. Click **Resources**, then locate the *Creating a Content Pack for Operations Analytics White Paper*.

## Important Prerequisite Steps

Complete the following prerequisite work before configuring your Custom CSV Collection using the steps in "[Configuration Steps](#)" on page 170:

1. Tenants enable you to separate information from these data sources into groups, such as collections, user accounts, and user groups. When running the commands in this chapter, the tenant model you select affects which Tenant Admin user you will use. Use one of the following tenant models:
  - **Default Tenant:** If you plan to use the default tenant, `opsa_default`, use `opsatenantadmin` as the tenant admin user and `opsatenantadmin` as the default tenant admin when running the commands in this chapter.

- **Use your own Tenant:** If you plan to configure a new tenant or use an existing tenant (other than the Default Tenant), see ["Creating Tenants " on page 17](#). If you use this option, you will need to use the tenant admin user and password you created when running the commands in this chapter.
2. For the Custom Collection, your data must be available in CSV format. If your data is not available in CSV format, you must find a way to convert the data, or the Custom Collection will not work for you.
  3. Choose the `<filename>.csv` file you want to load into the Operations Analytics database. For Operations Analytics, consider that most `<filename>.csv` files for a CSV collection will have a CSV file with a header and at least one row of data. For this example, assuming this sample file name is `your_file.csv`, copy the `your_file.csv` file to the `/tmp` directory.

For Operations Analytics, consider that most `<filename>.csv` files for a CSV collection will have a CSV file with a header and at least one row of data. For example, the header could include two columns: one with data and one with the time and date.

**Note:** The `your_file.csv` sample file contains a good sample of data. Operations Analytics uses this sample data to determine the data types and meta data to place in the `<your_template_name>.xml` sample file used in these instructions.

Do not include any of the values from the following table in the header, as Vertica does not permit these values to be used as header names

**Reserved Words for Vertica (do not use these values in the header name)**

Index Letter	Value
A	ALL, ANALYSE, ANALYZE, AND, ANY, ARRAY, AS, ASC
B	BINARY, BOTH
C	CASE, CAST, CHECK, COLUMN, CONSTRAINT, CORRELATION, CREATE, CURRENT_DATABASE, CURRENT_DATE, CURRENT_SCHEMA, CURRENT_TIME, CURRENT_TIMESTAMP, CURRENT_USER
D	DEFAULT, DEFERRABLE, DESC, DISTINCT, DO
E	ELSE, ENCODED, END, EXCEPT
F	FALSE, FOR, FOREIGN, FROM
G	GRANT, GROUP, GROUPED
H	HAVING
I	IN, INITIALLY, INTERSECT, INTERVAL, INTERVALYM, INTO
J	JOIN
K	KSAFE
L	LEADING, LIMIT, LOCALTIME, LOCALTIMESTAMP
M	MATCH



**Reserved Words for Vertica (do not use these values in the header name), continued**

Index Letter	Value
N	NEW, NOT, NULL, NULLSEQUAL
O	OFF, OFFSET, OLD, ON, ONLY, OR, ORDER
P	PINNED, PLACING, PRIMARY, PROJECTION
R	REFERENCES
S	SCHEMA, SEGMENTED, SELECT, SESSION_USER, SOME, SYSDATE
T	TABLE, THEN, TIMESERIES, TO, TRAILING, TRUE
U	UNBOUNDED, UNION, UNIQUE, UNSEGMENTED, USER, USING
W	WHEN, WHERE, WINDOW, WITH, WITHIN

- Choose the following parameter values to use when running the `opsa-csv-template-gen.sh` script:
  - name:** Choose a name that accurately describes the data you plan to collect. For example, you might choose the name `mycsv` for the source.
  - domain:** Choose a domain that accurately describes a domain in which the data you plan to collect resides. For example, you might choose the domain `birds`, to support the example in this section.
  - group:** Choose a group that accurately describes the group for which you plan to collect data. For example, you might choose the domain `eagle`, to support the example in this section.

**Note:** To specify a time zone that supports Daylight Savings Time, use the desired daylight savings time value you need as the `timezone` attribute. See ["Daylight Savings Time Codes" on page 81](#) for a list of valid timezone attributes.

**Note:** You must run the `opsa-csv-template-gen.sh` script before running the `opsa-collection-setup.sh` script shown in the next section.

**Note:** The `opsa-csv-template-gen.sh` script uses the `-sourcedir <source_directory>` command option to configure the absolute path of the existing source directory for collection input files. That directory must exist on the Operations Analytics Collector host. Copy the `<yourdata>.csv` data files for the collection you plan to create into this directory.

**Note:** As a practical example, you might have a requirement to collect data from CSV files that keep generating periodically. For this example, suppose these files use some incrementing suffix, such as `abc1.csv`, `abc2.csv`, `abc3.csv` and so on. To meet this requirement, place these CSV files in the path you choose with the `-sourcedir <source_directory>` option when you run the `opsa-csv-template-gen.sh` script.

To expand this example, if you must further limit the CSV file collections to use **only** the `abc1.csv`, `abc2.csv`, `abc3.csv` and so on files (ignoring the other files in the `<source_directory>`), use the `-filepattern <yourfilepattern>` option when you run the `opsa-csv-template-gen.sh`

script. For this example, you might run the `opsa-csv-template-gen.sh` script along with the `-filepattern abc*.csv` and the `-sourcedir /opt/HP/opsa/data/mydata` options to limit this CSV collection to read **only** the `abc1.csv`, `abc2.csv`, `abc3.csv` and so on files from the `/opt/HP/opsa/data/mydata` directory.

The following is an example of the `opsa-csv-template-gen.sh` command with all of the options shown: `opsa-csv-template-gen.sh -inputfile <Full path to the sample CSV> -name <Name of the collection> -domain <Domain Name> -group <Group Name> -sourcedir <Folder path to where the input CSVs will be located > -datecolumn <Name of the Date column in the CSV> -dateformat <Date Format of the date> -timezone <GMT of the data source> -filepattern <Only files that comply with this pattern will be processed> -grouptype <metrics or attributes> -key <Define key columns>`

See the `opsa-csv-template-gen.sh` reference page (or the Linux manpage), for more information.

## Configuration Steps

Gather the following information to prepare for configuring the Custom CSV Collection.

### Information to Collect Before Running the `opsa-collection-setup.sh` Script

Input Requested by <code>opsa-collection-setup.sh</code> Script	Value
Domain Name	Choose a domain that accurately describes a domain in which the data you plan to collect resides.
Group Name	Choose a group that accurately describes the group for which you plan to collect data.
Valid Custom CSV Template	The template file name for the file you generated in the prerequisites section (using the <code>opsa-csv-template-gen.sh</code> script).

After you complete the steps in this section, the Custom CSV Collection reads data from the CSV files within 60 seconds of the file being placed in the source directory.

**Note:** To prevent Operations Analytics from processing CSV files that are still being copied to the file system, do one of the following:

- Transfer or copy the CSV files to the destination folder using a suffix that is not CSV. After the transfer or copy completes, change the suffix to CSV .
- Transfer or copy the CSV files to a temporary location on the destination file system. After the transfer or copy completes, move the files to the destination folder.

For several examples of data you might choose to collect using a Custom CSV collection, see the *Creating a Content Pack for Operations Analytics* White Paper at <https://hpln.hpe.com>.

**Note:** Do the following to locate the *Creating a Content Pack for Operations Analytics* White Paper:

1. Select **Products**.
2. Navigate to the **Operations Intelligence (Operations Analytics)** product, then click **Operations**

### Intelligence.

3. Click **Resources**, then locate the *Creating a Content Pack for Operations Analytics* White Paper.
  1. Run the interactive `opsa-collection-setup.sh` script.
  2. When prompted, enter the tenant admin user name and password.
  3. Enter `11` to begin configuring a Custom CSV Collection.
  4. Enter `add` to configure a new Custom CSV instance.
  5. Follow the prompts to enter the requested information.
  6. Enter `back` when you are finished.
  7. Enter `execute 11` to deploy this collection to the collector host.
  8. To check for success, enter `list` and check that the Custom CSV sources were added to the collector host.
  9. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection.
10. If you want to add tags to a Custom CSV Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

## Troubleshooting the Custom Collection

If you suspect problems with your Custom CSV Collection, do the following:

1. To check the registration status of your Operations Analytics Collector host, do the following:
  - a. Run the following command: `$OPSA_HOME/bin/opsa-collection-config.sh -list -collectorhosts -allversions -username opsatenantadmin`
  - b. Review the list of registered Operations Analytics Collector hosts. If the Operations Analytics Collector host you plan to register is not on the list, you must register it using the instructions in this section.
2. View the collected data to make sure it is what you expect. If it is not, continue checking the remaining items in this list.
3. Review the content of the `your_file.csv` file and the associated `<your_template_name>.xml` file to make sure it is configured to collect the right data.
4. You must use a CSV file for the Custom Collection. Check the `<filename>.csv` file you loaded into the Operations Analytics database. For Operations Analytics, consider that most `<filename>.csv` files for a CSV collection will have a CSV file with a header and at least one row of data.
5. Check the quality of the data you are collecting. If it is not what you expected, review the content of the `<filename>.csv` file you loaded into the Operations Analytics database, as it might not be collecting the right data for you.

## Removing the Registration and Data for a Custom Collection

To remove the registration for a Custom CSV Collection, do the following:

1. Run the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -unregister -source custom -group  
group -domain domain -collectorhost <fully-qualified domain name of  
collector host>
```

**Note:** If you remove the registration for this CSV collection, and do not complete the remaining steps, remember the following important information:

- The collected data remains intact and is not removed.
- If you decide to register this collection again, you must not reuse the `your_file.csv` file, (or whatever csv file name you used to create the collection template), as you run the risk of duplicating the original collection data.
- It is a best practice to complete all of these removal steps to avoid collecting duplicate data.

2. After unregistering this Custom CSV Collection, remove the collection from the database using the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -purgecollection -source custom -  
domain domain -group group -collectorhost <fully-qualified domain name of  
collector host> -username opsatenantadmin
```

See the *opsa-collection-config.sh* reference page (or the Linux manpage), for more information.

**Note:** The command in this step also removes all Custom CSV Collection data for the specified tenant from the Operations Analytics database.

**Note:** After unregistering a Custom CSV Collection, the data remains intact. This means that you can register a Custom CSV Collection that you removed and resume that Custom CSV Collection.

3. Remove the data. For example, for the NOAA example, you would remove the `$OPSA_HOME/data/noaaCustom_processed` directory.
4. Remove the data. For example, for the NOAA example, you would remove the `$OPSA_HOME/data/noaaCustom_processed` directory.

See the *opsa-collection-config.sh* reference page (or the Linux manpage) and ["Removing a Collection Registration for a Tenant" on page 74](#) for more information.

## Configuring a Custom SiteScope Collection

There are several ways to configure a custom SiteScope collection. Use the first selection below that matches your needs:

1. If the SiteScope collection with which you are working involves monitor types that have user-defined counters, such as **Script**, **JMXMonitor**, or **XMLMetrics**, use the configuration instructions in this section to configure this Custom SiteScope collection.
2. If you are working with SiteScope version 11.22 (not version 11.22IP) or are adding a new SiteScope

collection and have some SiteScope servers already connected to Operations Analytics, do the following:

- a. Export the UOM files from all of these SiteScope servers to a single common folder as explained later in this chapter.
  - b. Use the Collections Manager to configure this Custom SiteScope collection, using the path to this common folder for the UOM folder path.
3. If you are working with a new SiteScope collection not involving multiple SiteScope servers, use the Collections Manager to configure this Custom SiteScope collection.

After you complete the steps in this section, SiteScope starts sending data to the Custom SiteScope Collection. The Custom SiteScope Collection collects data as it arrives from SiteScope.

The following table shows the monitor types currently supported by the Custom SiteScope Collection:

**Note:** If a SiteScope monitor type has only unsupported counters configured, Operations Analytics ignores that monitor type when creating the collection. Operations Analytics does not support monitor counter names longer than 128 characters. If a supported monitor's counter name is longer than 128 characters, Operations Analytics ignores that counter.

Operations Analytics supports the default counters of the supported monitors listed in "[Supported Monitor Types](#)" on the next page. If a monitor is configured in SiteScope with custom counters or metrics, such as calculated metrics or custom counters of **Script**, **JMXMonitor**, or **XMLMetrics** monitors, follow the instructions shown in "[SiteScope Monitors and Their Counters](#)" on the next page before creating this collection.

## Supported Monitor Types

Apache	Memory	URLContent
BACIntegrationConfiguration	MicrosoftWindowsEventLog	URLMonitor
BACIntegrationStatistics	MQStatusMonitor	URLSequenceMonitor
Composite	MSActiveServerPages	VMware
ConnectionStatisticsMonitor	MSIIServer	VMwareHostCPUMonitor
CPU	MSSQLServer	VMwareHostMemoryMonitor
DatabaseCounter	MSWindowsMediaServer	VMwareHostStateMonitor
DHCP	NetworkBandwidthMonitor	VMwareHostStorageMonitor
Directory	Oracle	WebServer
DiskSpace	Ping	WebService
DNS	Port	WebSphere
DynamicDiskSpace	SAPPerformance	WindowsPerformance
File	Script	WindowsResources
FTPMonitor	Service	WindowsServicesState
HealthServerLoadMonitor	SiebelApplicationServer	XMLMetrics
HyperVMonitor	SolarisZones	
JMXMonitor	SQLQuery	
LDAPMonitor	SSLCertificatesStatus	
LogEventHealthMonitor	Sybase	
LogMonitor	UnixResources	

### SiteScope Monitors and Their Counters

A SiteScope collection consists of several collections, one for each monitor type, when each collection has metrics and attributes corresponding to a monitor's counters. A collection is mapped to a database table while metrics and attributes are stored in this table's columns.

An Operations Analytics SiteScope collection's configuration framework creates collections with metrics and attributes according to the monitor types and counters configured in the SiteScope server from which Operations Analytics is collecting data. The created configuration is based on UOM files obtained from the SiteScope server. These files contain a list of monitors and their counters as they are configured on that SiteScope server.

In addition to the list of monitors and their counters, Operations Analytics must determine the data type used for each counter. This data type can be either float (for metric data) or string (for attribute data). This information is not available directly from SiteScope and is configured locally on the Operations Analytics

Server file system in the `/opt/HP/opsa/conf/collection/sitescope_metadata_patterns/` directory in files named `<monitor name>_datatypes`. These files have predefined configurations suitable for the default counters of common SiteScope monitor types. As mentioned earlier, the list of supported monitor types is shown in ["Supported Monitor Types" on the previous page](#).

Monitor types that have user-defined counters, such as **Script**, **JMXMonitor**, or **XMLMetrics**, usually require that you manually add these custom-counters' names to the corresponding `<monitor name>_datatypes` files before creating the collections. This requirement also applies to any SiteScope monitor if it has **Calculated Metrics** defined in at least one instance of its type.

**Note:** If Operations Analytics cannot define a data type for a monitor's counter, its values will not be collected. If Operations Analytics defines a wrong data type for a monitor's counter, Operations Analytics might omit any data received from that monitor.

### Modifying Data Types Configurations

To prevent a problem with SiteScope data collections due to the above requirements, you can modify the data types configuration. Detailed instructions about modifying the SiteScope metadata configuration files, including the data types configuration files, can be found in the following text file on the Operations Analytics server's file system: `/opt/HP/opsa/conf/collection/sitescope_metadata_patterns/custom/README_BEFORE_CREATING_PATTERNS.txt`

Each `<monitor name>_datatypes` file contains lines in the following format: regular expression, comma, data type (`float` or `string`). Each regular expression is expected to match one or more counter names as they appear in the UOM file. Specific regular expressions should appear before more general expressions.

For example, to define all counters starting with `size` as data type `float` and all the other counters as data type `string`, use the following:

```
size.*,float
.*,string
```

It is also possible to define the data type for exact counter names through escaping regular expressions by surrounding the name with `"\Q` and `\E"`.

For example, for a counter named `%cpu` that should be of data type `float` use the following:

```
"\Q%cpu\E",float
```

### Modifying Units and Tags

Similar to configuring data types, you can optionally configure units and tags for counters of a monitor by modifying the `<monitor name>_units` and `<monitor name>_tags` files respectively.

The tags file can contain a comma separated list of tags after a regular expression. The line that begins with `global_tags` defines collection-level tags. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) for more information.

**Note:** The units you can specify in the `<monitor name>_units` files can only be from the following list:  
%, mbps, kbps, gbps, kb, mb, gb, hz, khz, mhz, ghz, bytes, BIT, PB, EB, W, V, A, secs, millisecs, ms, pages/sec, per second, switches/sec, bytes/sec, KB/sec, interrupts/sec, packets/sec, pages/sec, errors/sec, reads/sec, bps, per hour, per min, Celsius.

After modifying the configuration files within the `/opt/HP/opsa/conf/collection/sitescope_metadata_patterns/` directory, you can run the `/opt/HP/opsa/scripts/opsa-sis-regex-matches.sh <path to uom file name>` command to see how Operations Analytics processes the counters from the UOM file.

If you plan to connect more than one SiteScope server to Operations Analytics, and you do not plan to connect them all at once (for example, if you use the Collections Manager instead of a command line collection configuration), you must do the following:

1. Export the UOM files from all of these SiteScope servers to a single common folder on the Operations Analytics server (rename the files if needed).
2. Supply the path to the folder to which you exported the UOM files using the `-uomfiles` option (using a command line) or in the UOM folder path (using the Collections Manager) when adding each SiteScope collection.

### Preparing the Operations Analytics Server for Large Numbers of SiteScope Collections

You must set the `max heap size` to 3 GB or higher on the Operations Analytics Server when Operations Analytics collects data from more than 1000 SiteScope monitors. Work with your SiteScope administrator to determine the number of monitors this collection will be monitoring. To set the `max heap size`, do the following:

1. Edit the `/opt/HP/opsa/jboss/bin/standalone.conf` file.
2. Make the change shown in bold font in the `JAVA_OPTS` section:

```
#  
# Specify options to pass to the Java VM.  
if [ "x$JAVA_OPTS" = "x" ]; then  
JAVA_OPTS="-Xms64m -Xmx3072m -XX:MaxPermSize=256m -  
Djava.net.preferIPv4Stack=true"  
JAVA_OPTS="$JAVA_OPTS -Djboss.modules.system.pkgs=$JBoss_MODULES_SYSTEM_  
PKGS -Djava.awt.headless=true"  
else  
echo "JAVA_OPTS already set in environment; overriding default settings  
with values: $JAVA_OPTS"  
fi
```
3. Save your changes.
4. Run the following command to restart the Operations Analytics Server:

```
$OPSA_HOME/bin/opsa-server restart
```

See the `opsa-server` reference page (or the Linux manpage) for more information.

**Note:** After running an `opsa-server restart` command, information logged in the `/opt/HP/opsa/log/opsa-server.log` file is removed. To view the files that retain this information across restarts, see the log files located in the `/opt/HP/opsa/jboss/standalone/log` directory. Look for log file names that begin with `server.log`.

### Gathering Information for the SiteScope Collection

Gather the following information to prepare for configuring the Custom SiteScope Collection.



### Information to Collect Before Running the `opsa-collection-setup.sh` Script (or Before Running the Collections Manager)

Input Requested by <code>opsa-collection-setup.sh</code> Script	Value
Operations Analytics Collector Node	The fully-qualified domain name or the IP address of the common collector that will collect data from the SiteScope servers. Do not use <code>localhost</code> or <code>127.0.0.1</code> .
SiteScope Server Hostname	The IP Address or fully-qualified domain name of the SiteScope server for which you are configuring a collection.
SiteScope Server LWSSO <code>initString</code>	<p>The default value of the <code>initstring</code> used for SSL communication with the SiteScope server. <b>You can obtain this <code>initString</code> from the SiteScope screen shown below this table.</b></p> <div data-bbox="792 810 1409 1037" style="border: 1px solid #ccc; padding: 5px; background-color: #f0f0f0;"> <p><b>Note:</b> If you cannot find this <b>SiteScope Server LWSSO <code>initString</code></b> in the user interface for the version of SiteScope you are using, you can find the string in the SiteScope file system at <code>&lt;SiteScope installation directory&gt;\conf\lwso\lwsofmconf.xml</code>.</p> </div>
SiteScope Server Password	The password for the user name.
SiteScope Server Port Number	The port used to connect to the SiteScope server. Set this if a server does not use the default port value. The default is 8080.
SiteScope Server Username	<p>The default user name used to connect to the SiteScope server. This is typically <code>admin</code>. This field might be set to empty (no value), as it is possible to configure SiteScope not to ask for a username and password to log on.</p> <div data-bbox="792 1434 1409 1556" style="border: 1px solid #ccc; padding: 5px; background-color: #f0f0f0;"> <p><b>Note:</b> The required permissions for this user are viewing and editing integrations and viewing and editing tags.</p> </div>

### Information to Collect Before Running the `opsa-collection-setup.sh` Script (or Before Running the Collections Manager), continued

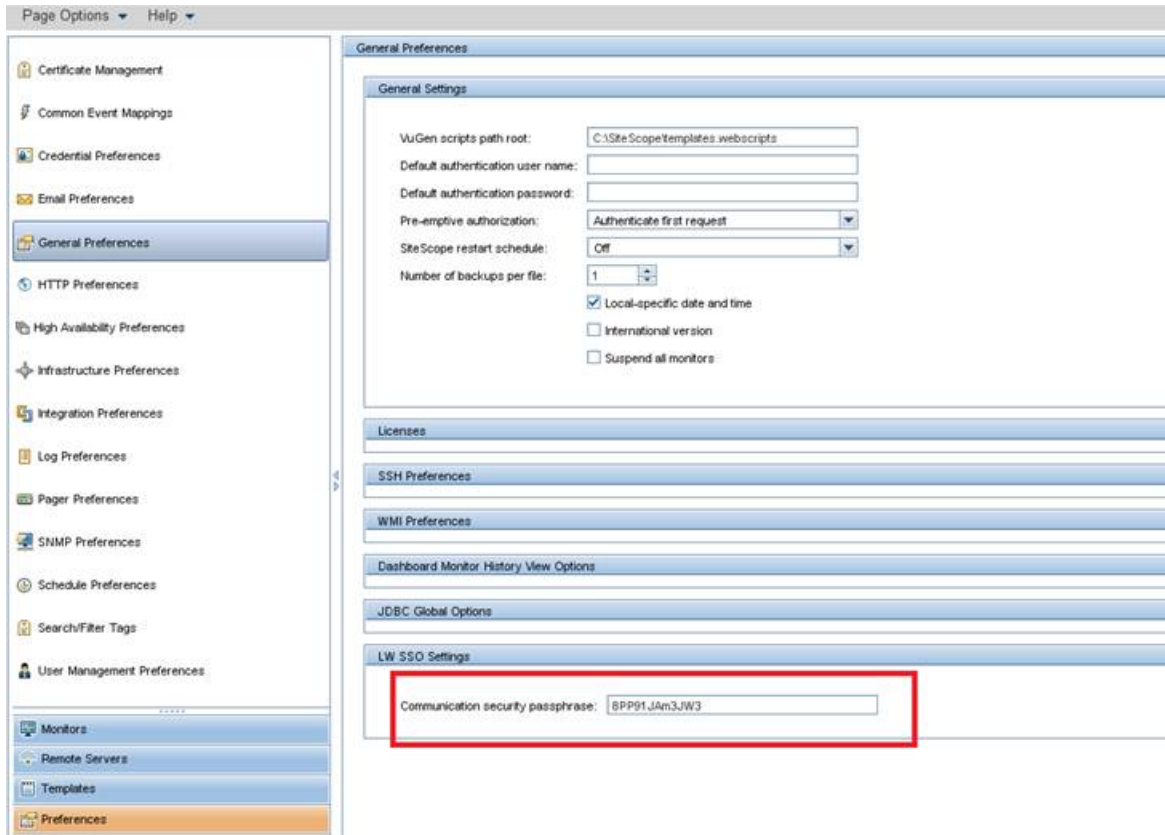
Input Requested by <code>opsa-collection-setup.sh</code> Script	Value
Use Collector IP Address (true/false)	<p>When set to <code>true</code>, the Operations Analytics integration URL (this link resides in SiteScope) uses the Operations Analytics Collector host IP address and not the Operations Analytics Collector host hostname.</p> <p><b>Note:</b> It is possible that your network is configured such that the SiteScope server cannot resolve the Operations Analytics Collector host's hostname, and can access it only using its IP address. The Operations Analytics Collector host normally sends its hostname to the SiteScope server when setting up this collection. Selecting this option configures the Operations Analytics Collector host to send its IP address to the SiteScope server instead of its hostname,</p>

**Information to Collect Before Running the opsa-collection-setup.sh Script (or Before Running the Collections Manager), continued**

Input Requested by opsa-collection-setup.sh Script	Value
Use SSL (true/false)	<p>Set this field to <code>true</code> to enable SSL communication with the SiteScope server. If you set this value to <code>true</code>, you must export the certificate from the Operations Analytics Collector host and import this certificate on each SiteScope server.</p> <p>If SiteScope is enabled with SSL, do the following:</p> <ol style="list-style-type: none"> <li>1. Copy the SiteScope server's root server certificate to each Operations Analytics Server and give the file full permissions.</li> <li>2. Do the following to import the SiteScope server's root server certificate into the Operations Analytics truststore:                             <ol style="list-style-type: none"> <li>a. Run the <code>opsa-server-manager.sh</code> script.</li> <li>b. Log on to the Operations Analytics Server as the <code>opsaadmin</code> user.</li> <li>c. Choose <b>Option 2</b> to configure SSL.</li> <li>d. Choose <b>Option 4</b> to import the trusted certificate into the OpsA truststore.</li> <li>e. Enter the file name of the certificate you want to import; then press <b>Enter</b>.</li> <li>f. Repeat the prior steps for additional certificate files you want to import.</li> <li>g. Exit the <code>opsa-server-manager.sh</code> script.</li> </ol> </li> </ol> <p>See <i>Configuring SiteScope to Use SSL</i> in the <i>HPE SiteScope Deployment Guide</i> the <code>opsa-server-manager.sh</code> reference page (or the Linux manpage), and the <code>opsa-collector-manager.sh</code> reference page (or the Linux manpage) in the Operations Analytics console for more information.</p>

**Finding the initstring in SiteScope**

**Note:** For the integration with Operations Analytics to work correctly, you must enter the communication security passphrase (LWSSO initString) as shown in the example in following graphic. If this field is empty, see the SiteScope documentation for the instructions to set a value in this field.



Follow the instructions in this section to configure a Custom SiteScope Collection for Operations Analytics.

**Note:** After gathering all of the above information, you can use the Collections Manager in the Operations Analytics console to configure the Custom SiteScope Collection. The `opsa-collection-setup.sh` script does not provide any advantages over the Collections Manager, even if you manually modified the data files.

**Note:** Configuring the Custom SiteScope Collection by using the `opsa-collection-setup.sh` script shown in this section (or by using the Collections Manager in the Operations Analytics console) automatically tags the root group in SiteScope in a way that data from all monitors will be sent to Operations Analytics.

If you want to manually select (tag) the monitors from which to receive data, (instead of using the `opsa-collection-setup.sh` script or the Configuration Manager in the Operations Analytics console), you must do the following:

1. Follow the instructions in "[Configuring a Custom SiteScope Collection \(Detailed Method\)](#)" on page 250 and use the `-ignoretag` option when running `opsa-sis-collector-auto-conf.sh` script.
  2. Follow the steps in the *Configuring SiteScope for Integrating Data with Operations Analytics (Manual Method)* section in this manual to manually tag the integration and the desired monitors.
1. Run the interactive `opsa-collection-setup.sh` script.
  2. When prompted, enter the tenant admin user name and password.
  3. When prompted, enter the index of the collector host for which to configure SiteScope.
  4. Enter 10 to begin configuring a Custom SiteScope Collection.

5. Enter `add` to configure a new SiteScope instance.
6. Follow the prompts to enter the requested information.
7. Enter `back` when you are finished.
8. Enter `execute 10` to deploy this collection to the collector host.
9. To check for success, enter `list` and check that the Custom SiteScope sources were added to the collector host.
10. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection.

11. If you want to add tags to a Custom SiteScope Collection, use the `opsa-tag-manager.sh` command. See "[Creating, Applying, and Maintaining Tags for Custom Collections](#)" on page 160 and the `opsa-tag-manager.sh` reference page (or the Linux `manpage`) for more information.

## Configuring a Structured Log Collection

Structured logs are fragments of log file data read by Operations Analytics from HPE ArcSight Logger. This log information is stored (as collections) in Operations Analytics. These collections exist so that users can perform analytics on the log file contents. For example, users might want to query for all outliers by host name and application for a particular time range.

After you complete the steps in this section, the Structured Log Collection collects data every 5 minutes.

## Configuring the Maximum Logger Sessions

Before configuring a Structured Log Collection, you might need to make some adjustments to the maximum number of permitted Logger sessions.

By default the `logger.max.sessions` property is set to a value of 5 in an Operations Analytics Collector host and 25 for an Operations Analytics Server. This means there can be a maximum of 5 Logger session per Logger host in an Operations Analytics Collector host and 25 Logger sessions per Logger host in an Operations Analytics Server.

To set the maximum number of Logger sessions for the Operations Analytics Server and Collector hosts, do the following on both the Operations Analytics Collector host and the Operations Analytics Server:

1. Edit the `$OPSA_HOME/conf/opsa-config.properties` file.
2. Set the `logger.max.sessions` property to the desired value.

**Note:** The sum of the values you set in the Operations Analytics Server and Collector hosts must not exceed 30.

3. Save your work.
4. If you changed the `logger.max.sessions` property on the Operations Analytics Server, restart the `opsa-server` service by running the following command from the Operations Analytics Server:  

```
$OPSA_HOME/bin/opsa-server restart
```

**Note:** After running an `opsa-server restart` command, information logged in the `/opt/HP/opsa/log/opsa-server.log` file is removed. To view the files that retain this information across restarts, see the log files located in the `/opt/HP/opsa/jboss/standalone/log` directory. Look for log file names that begin with `server.log`.

See the *opsa-server* reference page (or the Linux manpage) for more information.

5. If you changed the `logger.max.sessions` property on the Operations Analytics Collector host, restart the `opsa-collector` service by running the following command from the Operations Analytics Collector host:

```
$OPSA_HOME/bin/opsa-collector restart
```

See the *opsa-collector* reference page (or the Linux manpage) for more information.

If you have two or more Operations Analytics Servers configured in a distributed environment, you must spread the available 25 HPE ArcSight Logger sessions across both Operations Analytics Servers. If you do not configure these session values correctly, one server might control all of the sessions, while the remaining server cannot control any sessions.

**Note:** If you are not planning to configure structured log collections, then set the `logger.max.sessions` property on the Operations Analytics Server to 30. Doing so enables Operations Analytics to use all of the Logger sessions for rawlog searches in the Operations Analytics console.

**Note:** As mentioned above, from a resource perspective, there is a limit to the number of Logger sessions supported by HPE Operations Analytics Software. HPE strongly recommends that, when you configure Logger collections, you assign those Logger collections to one common Operations Analytics Collector host. Doing so reduces the number of Logger sessions.

## Configuring the TCP Forwarding Feature on HPE ArcSight Logger

Configuring the **TCP Forwarding** feature on HPE ArcSight Logger significantly improves the performance of the Operations Analytics Collector host. You will also observe more real-time log messages in Operations Analytics. Before configuring a Structured Log Collection, you might want to configure the **TCP Forwarding** feature in Logger as shown in ["Configuring Logger to Forward CEF Messages to Operations Analytics" on page 92](#).

## Steps to Configure a Structured Log Collection

To configure an Operations Analytics Structured Log Collection, do the following:

1. Run the following commands to make sure Logger is registered (or to register Logger):
  - a. Run the following command and review the command results to see if the Logger you plan to use is registered:

```
opsa-log-integration-config.sh -loginUser opsatenantadmin -loginPassword opsatenantadmin -list
```
  - b. If the result from the previous step does not include the Logger you plan to use, run the following command to add it:

```
opsa-log-integration-config.sh -loginUser opsatenantadmin -
```

```
loginPassword opsatenantadmin -add -host <logger-host> -loggerType  
arcsight -port 443 -sslEnabled true -username <admin or log integration  
username> -password <password>
```

See the *opsa-log-integration-config.sh* reference page (or the Linux manpage) for more information.

- Using HPE ArcSight Logger, define the search query to determine the data you want to collect. For example, you might create the following search query in HPE ArcSight Logger based on the ArcSight's WebLogic SmartConnector:

```
agentType = "weblogic_multi_file" AND deviceVendor CONTAINS "Oracle" |  
fields + startTime agentHostName sourceHostName name bytesIn bytesOut  
deviceAction requestMethod requestUrl
```

- A node list file contains details about the sources from which you plan to collect information. There are sample nodelist files located in the `$OPSA_HOME/conf/collection/sample` directory. Operations Analytics administrators can use these sample files to publish the node list file. The sample node list file for the Structured Log collection is either `sample_ArcSight_node.properties` or `sample_Splunk_node.properties`.

Complete the following steps from the Operations Analytics Server for the Structured Log collection:

- Copy the appropriate node list file from the `$OPSA_HOME/conf/collection/sample` directory to some location, such as `/tmp/mynodelist.properties`

**Note:** For example, if you are creating a nodelist file for a Log Analytics collection from Logger, you might use the following command to copy the template file:

```
cp /opt/HP/opsa/conf/collection/sample/arcsight-log-stream.properties /tmp/
```

- Edit the `/tmp/mynodelist.properties` file; add information according to what is written in the sample file; then save your work.

**HPE ArcSight Logger:** For example, using ArcSight's WebLogic SmartConnector example shown earlier, you would specify the HPE ArcSight Logger hostname and search query:

```
server.names = arcsightserver  
##node properties for 'Arcsight'  
arcsightserver.hostdnsname = <fully-qualified domain name of the HPE  
ArcSight Logger server>  
arcsightserver.query = agentType = \"weblogic_multi_file\" AND deviceVendor CONTAINS  
\"Oracle\" | fields + startTime agentHostName sourceHostName name bytesIn bytesOut  
deviceAction requestMethod requestUrl
```

**Note:** For example, if you are creating a nodelist file for a Log Analytics collection from Logger, you might, at a minimum, do the following:

- Edit the `/tmp/arcsight-log-stream.properties` file.
- Set `arcsightserver.hostdnsname = <fully-qualified domain name of Logger-host>`
- Save your work.

**Note:** Although not shown in this example, always use `deviceReceiptTime` as a field in the `mynodelist.properties` file.

Below are some helpful steps to help configure information in the bold font shown above:.

- i. Confirm that HPE ArcSight Logger is receiving the messages you expect.
- ii. Verify that HPE ArcSight Logger is processing the log messages into the correct fields. For example, make sure that the `agent_severity` and `message` fields are being populated as expected. If HPE ArcSight Logger is not parsing the messages into fields properly, then you might need to correct the configuration for the connector, receiver, or parser. See the *HPE ArcSight Logger Administrator's Guide* for more information.
- iii. Use the HPE ArcSight Logger Analyze/Search facility to fine tune your row selection. This corresponds to the configuration entries that reside before the bar character (`|`). HPE ArcSight Logger has a powerful parsing mechanism. You can tune HPE ArcSight Logger to choose the logs messages that interest you while ignoring those messages that are not interesting. HPE ArcSight Logger tuning is important, as many of the HPE ArcSight Logger receivers can receive logs from multiple sources.
- iv. The configuration entries that reside before the bar character (`|`) that you add in this step select the data (rows) to be collected.
- v. The text following the `fields + keyword` (after the bar character (`|`) that you add in this step) sets the column names. After you are satisfied with the messages, work on the fields. In HPE ArcSight Logger, add `| fields + F1 F2 F3` to select the columns you would like to send to Operations Analytics. You can do all this experimenting in HPE ArcSight Logger.
- vi. Test the entire string from this step in the HPE ArcSight Logger Analysis Search and adjust the string for the desired results before continuing.

**Note:** You must remove the `\` characters before testing the string in the HPE ArcSight Logger.

- vii. When you are satisfied after working with these tuning tips, place the entire search expression in the `/tmp/mynodelist.properties` file. You must backslash any quotes you used.

**Splunk:** If you are using Splunk instead of HPE ArcSight Logger, specify the following information in the `/tmp/mynodelist.properties` file:

```
server.names = splunkserver
##node properties for 'splunk'
splunkserver.hostdnsname = opsasplunk.fc.usa.hp.com
splunkserver.port = 8089
splunkserver.username = admin
splunkserver.username = opsa
splunkserver.use_ssl = false
splunkserver.encryptionStatus = true
```

- c. Save your work.
4. Run the following command from the Operations Analytics Server if you think there might be an existing structured log collection template you can use. Running this command shows you the available predefined templates: `$OPSA_HOME/bin/opsa-collection-config.sh -list -templates -username opsatenantadmin`
5. If there is no existing structured log collection template, do the following from the Operations Analytics Server to create one:
  - a. Review the following HPE ArcSight Logger collection templates:  
`/opt/HP/opsa/conf/collection/sample/config.templates/arcsight/1.0/apache/access/apache_access.xml`



```
/opt/HP/opsa/conf/collection/sample/config.templates/arcSight/1.0/log/structuredlog/arcSight_collection.xml  
/opt/HP/opsa/conf/collection/sample/config.templates/splunk/1.0/log/structuredlog/splunk_collection.xml
```

- b. Copy one of these templates to a temporary location; then edit the file to create the collection template you need for your structured log collection. Suppose that, for this example, we call this file `mystructuredlog.xml`.

**Note:** Considering the ArcSight's WebLogic SmartConnector example shown earlier, you might run the following command:

```
cp  
/opt/HP/opsa/conf/collection/sample/config.templates/arcSight/1.0/log/structuredlog/arcSight_collection.xml /tmp/mystructuredlog.xml
```

- c. Edit the `mystructuredlog.xml` file:

- i. Considering the ArcSight's WebLogic SmartConnector example shown earlier, you might change the domain, tags, group, and label attributes for the `collectiongroup` elements as follows:

```
<?xml version="1.0" encoding="UTF-8"?>  
<collectiongroup domain="weblogic"  
tags="log,arcSight,weblogic,access" group="access" group_type="log"  
label="WebLogic Access Log">  
<collector type="arcSight" version="5.5.0"  
collectionintervalinseconds="300">  
<sourcegroup name="default" granularityinseconds="300">  
<source name="arcSightQuery" value="" type="query" />  
</sourcegroup>  
</collector>
```

**Note:** Although not shown in this example, if you see a `mapsto` item in your collection template file, note its value, as it shows the associated column name in HPE ArcSight Logger. See the following table for more information.

**Note:** If you are using Splunk as your logger application you do not need to edit the `splunk_collection.xml` file.

### Mapping a Column Name to Attribute Values (Examples)

Column Name	Attribute Value
timestamp	deviceReceiptTime
agentHostName	agentHostName
sourceHostName	sourceHostName
name	name
bytesIn	bytesIn
bytesOut	bytesOut

### Mapping a Column Name to Attribute Values (Examples), continued

deviceAction	deviceAction
requestMethod	requestMethod
requestUrl	requestUrl

- ii. Save your work.
- d. Copy the `mystructuredlog.xml` file to  

```
/opt/HP/opsa/conf/collection/server/config.templates/<arcsight | splunk>/<version from template file><domain from template files>/<group from template files>/mystructuredlog.xml
```

Considering the ArcSight's WebLogic SmartConnector example shown earlier, you might copy the `mystructuredlog.xml` file to a new `weblogic` folder:

```
/opt/HP/opsa/conf/collection/server/config.templates/arcsight/1.0/weblogic/access
```

6. If the collection you are configuring is already registered, run the following command:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -unregister -collectorhost <fully-qualified-domain-name of collector host> -source splunk|arcSight -domain <domain from template files> -group <domain from template files> -username opsatenantadmin -username opsatenantadmin
```
7. Run the following command from the Operations Analytics Server to create the collector configuration:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -nodelist /tmp/mynodelist.properties -collectorhost <fully-qualified-domain-name of collector host> -source splunk|arcSight -domain <domain from template files> -group <domain from template files> -username opsatenantadmin -mode active|passive
```

Considering the ArcSight's WebLogic SmartConnector example shown earlier, you would run the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -nodelist /tmp/mynodelist.properties -collectorhost <fully-qualified domain name of the collector server> -source arcSight -domain weblogic -group access -username opsatenantadmin -mode active|passive
```

**Note:** If you followed the instructions in "[Configuring Logger to Forward CEF Messages to Operations Analytics](#)" on page 92, you configured Logger to send CEF message to Operations Analytics and must use the `-mode passive` option in this command. If you want Operations Analytics to actively request log information (the original product behavior), use the `-mode active` option (the default option) in this command.

See the `opsa-collection-config.sh` reference page (or the Linux manpage) for more information.

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

Look for a success message similar to the following:

```
Successfully created the collectorhost '<fully-qualified domain name of
```

```
the collector server>' configuration.  
<fully-qualified domain name of the collector server> base directory:  
/opt/HP/opsa/conf/collection/config.files/<fully-qualified domain name of  
the collector server>/opsa_default/1.0/arcsight/1.0/weblogic/access  
Successfully published the node list for this collector host.
```

8. Run the a command similar to the following to publish your collection:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost  
<mycollector.company.com> -username opsatenantadmin
```
9. Check the `$OPSA_HOME/log/collection_config.log` file (or `opsa.log` file ) for errors. Correct these errors before continuing.
10. Run the following command from the Operations Analytics Server to validate the collection configuration you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list  
-allversions -collectorhosts -username opsatenantadmin
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its version, domain, and group.

If you encounter any errors, look in the `/opt/HP/opsa/log/collection_config.log` file and review the logs carefully to understand and fix any errors.

11. Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of the collector host> -username opsatenantadmin
```

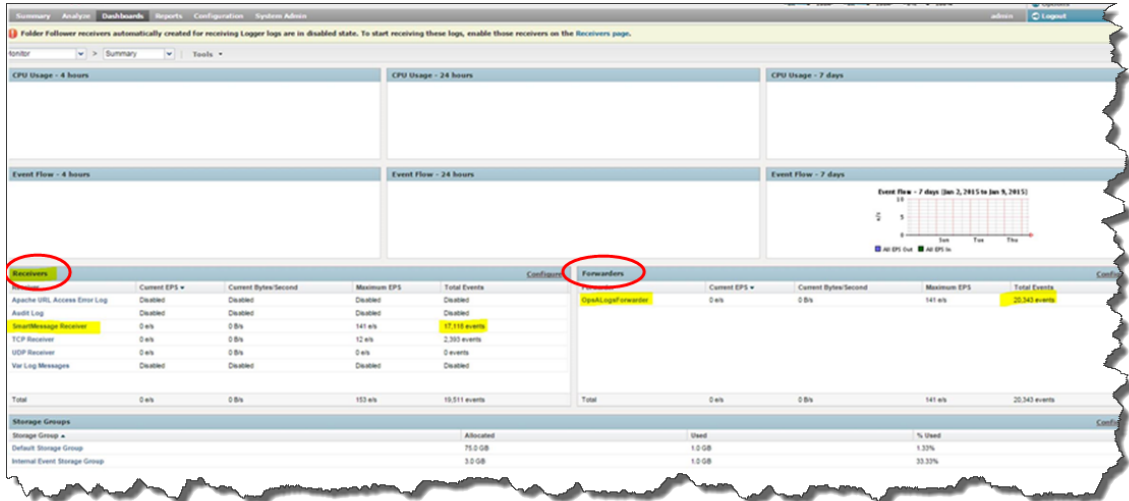
The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful and that a table was successfully created.

Considering the ArcSight's WebLogic SmartConnector example shown earlier, you might see something similar to the following:

```
Creating the collection database tables for the source:arcsight  
domain:weblogic group:access and tenant:opsa_default  
Successfully created table using  
/opt/HP/opsa/conf/collection/config.files/<fully-qualified domain name of the  
collector host>/opsa_default/1.0/arcsight/1.0/weblogic/access/metaData.xml  
for tenant opsa_default  
Registering the collection policy for the source:arcsight domain:weblogic  
group:access and tenant:opsa_default into the database  
Successfully registered collection policy for source collector:arcsight  
tenant:opsa_default- 1.0 Domain:weblogic Group:access  
Registering the list of sources for the source:arcsight domain:weblogic  
group:access and tenant:opsa_default into the database  
Successfully registered nodes for <fully-qualified domain name of the collector  
host>-opsa_default-weblogic-access in the Operations Analytics database
```

If you encounter any errors, look in the `/opt/HP/opsa/log/collection_config.log` file and review the logs carefully to understand and fix any errors.

12. Do the following to verify that the collection is working:
  - a. Open **Arcsight Logger > Dashboards** and notice the **Receivers** and **Forwarders** panes.



- b. Review the information shown in the **Receivers** pane to determine if Logger is receiving any CEF messages from the smart connectors.
  - c. Review the information shown in the **Forwarders** pane to determine if Logger is forwarding the CEF messages to Operations Analytics Collector host.
  - d. Do the following to verify that the Operations Analytics Collector host is listening for log messages:
 

Since the Operations Analytics Collector host is listening on port 4888, use your favorite command to check if the port is open. For example, you might run `netstat -a | grep 4888` to see if the Operations Analytics Collector host is successfully listening on port 4888.
13. Look in the `/opt/HP/opsa/log/loader.log` file to see that it is processing the contents of the data being collected. Considering the weblogic example shown earlier, you might see something similar to the following:

```
2014-02-15 15:16:53 DEBUG [pool-1-thread-19] LoadDataCmd:512 - archive
file :/opt/HP/opsa/data/archive/opsa_
default/data~~arcsight~~weblogic~~access~~-2014-02-15_15-16-49.782.csv
2014-02-15 15:16:53 DEBUG [collection data dir watcher] DataLoader:240 -
received notification for/opt/HP/opsa/data/load/opsa_
default/data~~arcsight~~weblogic~~access~~-2014-02-15_15-16-49.782.csv
```

**Note:** You can also test for success in several other ways:

Use a database management software tool to see if the table has been created, and that it is being populated with the expected columns.

If you do not see the table, check to see that the csv data files are automatically created for you on the Operations Analytics Collector host. Look in the following directories:

- `$OPSA_HOME/data/load/opsa_default`
- `$OPSA_HOME/data/archive/opsa_default`

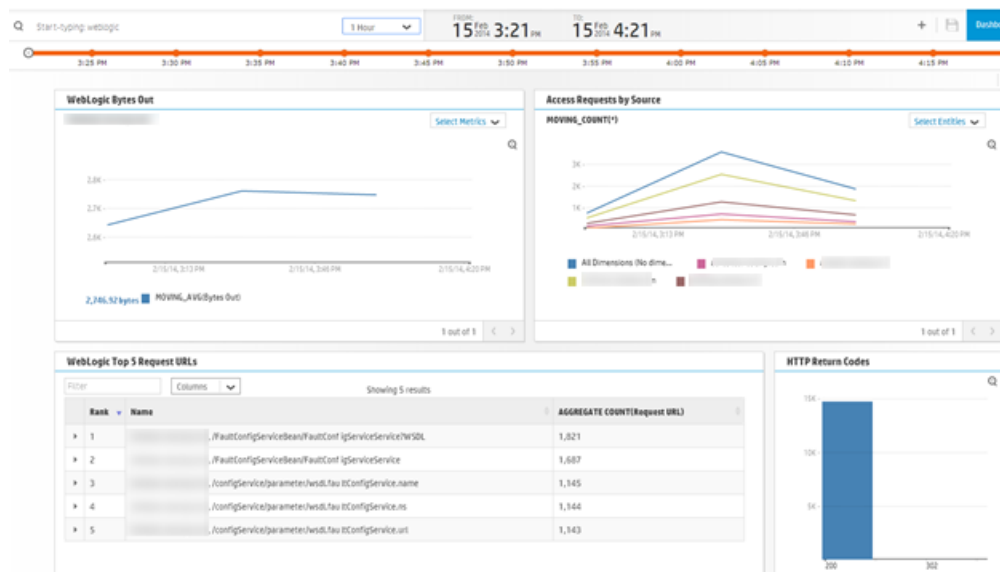
When viewing these data files, if you see the columns you expect, but no rows, you might need to correct the configuration for the connector, receiver, or parser.

- Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published. **Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. Considering the ArcSight's WebLogic SmartConnector example shown earlier, you used a name of `arcsight`, a domain of `weblogic`, and a group of `access` when creating the collection. The resulting property group uid would be `arcsight_weblogic_access`.

**Note:** Operations Analytics does not display events, such as binary events, that contains unprintable characters.

- Create dashboards and query panes for the data you are now collecting. Follow the instructions shown in the *Dashboards and Query Panes* section of the *Operations Analytics Help* for information about creating dashboards and query panes.

Considering the ArcSight's WebLogic SmartConnector example shown earlier, you might create a dashboard similar to the following:



- Create AQL functions for the data you are now collecting. See the instructions shown in the *Define Analytic Query Language (AQL) Functions* section of the *Operations Analytics Help* for information about creating AQL functions.

Considering the weblogic example shown earlier, you might create the following AQL functions:

**WebLogic Bytes Out**

```
from i in (arcsight_weblogic_access) let analytic_interval=between
($starttime, $endtime) let interval=$interval group by i.agenthostname
select moving_avg(i.bytesout)
```

**Access Requests by Source**

```
from i in (arcsight_weblogic_access) let analytic_interval=between
($starttime, $endtime) let interval=$interval group by i.sourcehostname
select moving_count(i)
```

**WebLogic Top 5 Request URLs**

```
from i in (arcsight_weblogic_access) let analytic_interval=between
```

```
($starttime,$endtime) let interval=$interval select i.agenthostname,  
i.requesturl, topN(aggregate_count(i.requesturl),5)
```

#### **HTTP Return Codes**

```
from i in (arcsight_weblogic_access) let analytic_interval=between  
($starttime,$endtime) let interval=$interval group by i.deviceaction  
select aggregate_count(i.deviceaction)
```

**Note:** Operations Analytics processes data field strings used by the Structured Log Collection. There is a limit to the length of data field strings Operations Analytics can process. Although rare, if Operations Analytics cannot process a complete data field string, it trims the string to a length that it can successfully process.

**Note:** If you stop a Structured Log Collection (or it stops collecting data for any reason) for an extended period of time, and you restart the collection, Operations Analytics gradually recovers the data from HPE ArcSight Logger. Operations Analytics recovers the last five hours of data from the time of the restart.

# Part 6: Appendixes

# Appendix 1: Configuring an HPE Operations Smart Plug-in for Oracle Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See "[Configuring an HPE Operations Smart Plug-in for Oracle Collection](#)" on page 107 for the recommended method. For a more detailed approach, you can complete the following steps for the HPE Operations Smart Plug-in for Oracle Collection.

There are two methods of configuring Operations Analytics for HPE Operations Smart Plug-in for Oracle, the **Automated Configuration Method** and the **Manual Configuration Method**. You must select one of these methods to configure Operations Analytics for HPE Operations Smart Plug-in for Oracle. Do not attempt to use both the Automated Configuration Method and the Manual Configuration Method.

After you complete the steps in this section, the HPE Operations Smart Plug-in for Oracle Collection collects metrics every 15 minutes, with 5 minute data granularity.

**Note:** An Operations Analytics Collector host can reliably collect data from approximately 5,000 nodes being monitored by the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle.

**Automated Configuration Method:** This approach is more automated than the Manual Configuration Method, making configuration easier. Do the following to use the Automated Configuration Method:

1. The Automated Configuration Method provides the sample collection template, `$OPSA_HOME/conf/collection/sample/sample_auto-config-node.properties`, located on the Operations Analytics Server. Copy the `sample-auto-config-node.properties` file to a separate location, then edit the `sample-auto-config-node.properties` file and add, among other information, the following Operations Manager information.

**Note:** The sample file mentioned in this step does not contain a password property. When using the `opsa-collection-config.sh` script (in a later step) to encrypt the password, this script prompts you for the password, encrypts it, and inserts it into the sample file.

- For an OMW host (HPE Operations Manager on a Windows server), the Automated Configuration Method includes the OMW host's fully-qualified domain name and its database details.
- For an OMU host (HPE Operations Manager on a UNIX or Linux server), the Automated Configuration Method includes the OMU host's fully-qualified domain name and its database details.

2. Save your work.
3. Run the following command from the Operations Analytics Server to encrypt the passwords in the `mynodelists.properties` file:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -encrypt <path>/sample-auto-config-node.properties
```

**Note:** You will be prompted to enter the password after running this command.

4. Run the following command from the Operations Analytics Server to configure the collector hosts and publish the collection information:



```
$OPSA_HOME/bin/opsa-collector-auto-conf.sh -nodelist <path>/<sample-auto-
config-node.properties> -collectevents -configuredomain [ORACLE|SYSTEM] -
username opsatenantadmin
```

**Note:** The `opsa-collector-auto-conf.sh` script sets up HPE Operations Agent, HPE Operations Smart Plug-in for Oracle, and OM event collection using only one command.

**Note:** The command output shows the list of registered collectors and distributes the list of nodes providing system performance metrics, Oracle performance metrics, or both among the registered collectors.

**Note:** The `opsa-collector-auto-conf.sh` script prompts you for the Tenant Admin password for the username you use in the commands shown in this section. See the `opsa-collector-auto-conf.sh` reference page (or the Linux manpage) for more information.

**Manual Configuration Method:** Do the following for a more manual approach to configuring Operations Analytics for HPE Operations Smart Plug-in for Oracle:

1. A node list file contains details about the sources from which you plan to collect information. There are sample nodelist files located in the `$OPSA_HOME/conf/collection/sample` directory. Operations Analytics administrators can use these sample files to publish the node list file. The sample node list file for the HPE Operations Agent Smart Plug-in for Oracle collection is `sample_oa_pa_node.properties`. The node list file for the HPE Operations Agent Smart Plug-in for Oracle collection must contain a list of servers that have the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle installed. The node list file for the HPE Operations Agent Smart Plug-in for Oracle collection must include the information shown in the following table:

#### Node List File Fields and Values

Field	Value
oanode1.somedomain.com	The fully-qualified domain name of a server that has the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle installed.
oanode2.somedomain.com	The fully-qualified domain name of a server that has the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle installed.
Add more servers that have the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle installed.	The fully-qualified domain name of a server that has the HPE Operations Agent and the HPE Operations Smart Plug-in for Oracle installed.

To edit the node list file, do the following from the Operations Analytics Server:

- a. Copy the `sample_OA_PA_node.properties` file from the `$OPSA_HOME/conf/collection/sample` directory to some location, such as `/tmp/mynodelist.properties`.
  - b. Edit the `/tmp/mynodelist.properties` file, adding the appropriate information; then save your work.
2. Run the following command from the Operations Analytics Server to create the collector configuration:

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -nodelist
```

```
/tmp/myodelist.properties -collectorhost <fully-qualified domain name of the collector host> -source oa -domain oraperf -group graph -username opsatenantadmin
```

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** The `opsa-collection-config.sh` script uses the values of `source`, `domain`, and `group` to select the right predefined collection template for and create the desired collection configuration.

3. Run the following command from the Operations Analytics Server to validate the collection configuration you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -allversions - collectorhosts -username opsatenantadmin
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its `version`, `domain`, and `group`.

4. Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host:

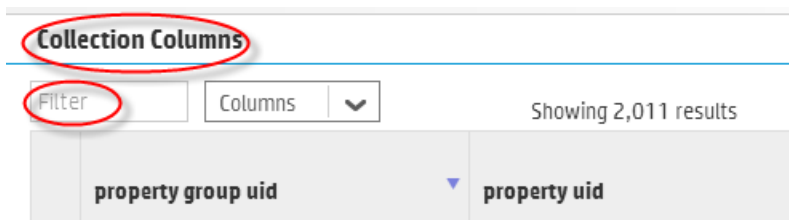
```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of the collector host> -username opsatenantadmin
```

The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

5. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `oa`, a domain of `oraperf`, and a group of `graph` when creating the collection. The resulting property group uid would be `oa_oraperf_graph`.

- a. Type the property group uid (`oa_oraperf_graph`) for this collection in the **Collection ColumnsFilter**:



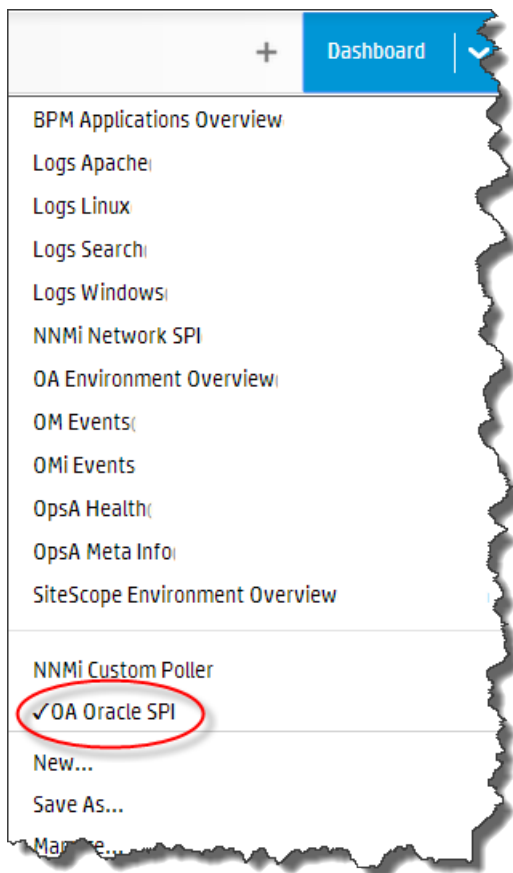
- b. After typing property group uid (oa\_oraperf\_graph) for this collection in the **Collection ColumnsFilter**, you should see some information similar to the following for this collection:

The screenshot shows a web interface titled "Collection Columns". At the top, there is a search bar containing "oa\_oraperf\_gra" and a "Columns" dropdown menu. Below the search bar, it says "Showing 82 results of 1,125". The main part of the interface is a table with the following columns: "property group uid", "property uid", "is key", and "type". The "property group uid" column contains the value "oa\_oraperf\_graph" for six rows, each preceded by a right-pointing triangle icon. These values are circled in red. The "property uid" column contains various database-related metrics, and the "is key" and "type" columns contain "false" and "attribute" or "metric" respectively.

property group uid	property uid	is key	type
oa_oraperf_graph	database_process_status	false	attribute
oa_oraperf_graph	num_users_default_system_tablespace	false	metric
oa_oraperf_graph	num_foreign_objects_system	false	metric
oa_oraperf_graph	num_tablespaces_low_free_space	false	metric
oa_oraperf_graph	num_tablespace_not_online	false	metric
oa_oraperf_graph	num_tablespaces_high_block_read_ratio	false	metric

- 6. Create dashboards and query panes for the data you are now collecting. Follow the instructions shown in the *Dashboards and Query Panes* section of the *Operations Analytics Help* for information about creating dashboards and query panes.

- For this example, assume you created the **OA Oracle SPI** dashboard. From the Operations Analytics console, open the **OA Oracle SPI** dashboard to view some of the collected information for this collection:



- Create AQL functions for the data you are now collecting. See the instructions shown in the *Define Analytic Query Language (AQL) Functions* section of the *Operations Analytics Help* for information about creating AQL functions. For example, using the property group information shown in the **OpsA Meta Info** dashboard, you might create AQL functions similar to the example shown below.
- If you want to add tags to an HPE Operations Smart Plug-in for Oracle Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

To remove nodes from an HPE Operations Smart Plug-in for Oracle Collection follow these steps:

- Copy the node list file to a temporary location. For example, you might run the following command:
 

```
cp /opt/HP/opsa/conf/collection/config.files/<collectorhost>/<tenant>1.0/oa/1.0/oraperf/graph/nodelist /tmp
```
- Edit the node list file. For example, you might edit the `tmp/nodelist` file, then remove the HPE Operations Smart Plug-in for Oracle Collection nodes.
- For this example, you might run the following command:
 

```
opsa-collection-config.sh -nodelist /tmp/nodelist -collectorhost <fully-qualified domain name of the collector host> -source oa -domain oraperf -group graph -username opsatenantadmin.
```

Enter **yes** when prompted with, "Do you want to overwrite the existing node list (instead of appending to it) (Y/N) ?"

4. For this example, you might run the following command to publish these changes:

```
opsa-collection-config.sh -publish -collectorhost <fully-qualified domain  
name of collector host> -username opsatenantadmin
```

# Appendix 2: Configuring an HPE Operations Agent Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See ["Configuring an HPE Operations Agent Collection" on page 109](#) for the recommended method. For a more detailed approach, you can complete the following steps for the HPE Operations Agent Collection.

There are two methods of configuring Operations Analytics for HPE Operations Agent, the **Automated Configuration Method** and the **Manual Configuration Method**. You must select one of these methods to configure Operations Analytics for HPE Operations Agent. Do not attempt to use both the Automated Configuration Method and the Manual Configuration Method.

The HPE Operations Agent Collection collects global system information on the host that is running the HPE Operations Agent. After you complete the steps in this section, the HPE Operations Agent Collection collects raw metrics every 15 minutes, with 5 minute data granularity.

**Note:** An Operations Analytics Collector host can reliably collect data from approximately 5,000 nodes being monitored by the HPE Operations Agent.

**Automated Configuration Method:** This approach is more automated than the Manual Configuration Method, making configuration easier. Do the following to use the Automated Configuration Method:

1. The Automated Configuration Method provides the sample collection template, `$OPSA_HOME/conf/collection/sample/sample_auto-config-node.properties`, located on the Operations Analytics Server. Copy the `sample-auto-config-node.properties` file to a separate location, then edit the `sample-auto-config-node.properties` file and add, among other information, the following Operations Manager information.

**Note:** The sample file mentioned in this step does not contain a password property. When using the `opsa-collection-config.sh` script (in a later step) to encrypt the password, this script prompts you for the password, encrypts it, and inserts it into the sample file.

- For an OMW host (HPE Operations Manager on a Windows server), the Automated Configuration Method includes the OMW host's fully-qualified domain name and its database details.
- For an OMU host (HPE Operations Manager on a UNIX or Linux server), the Automated Configuration Method includes the OMU host's fully-qualified domain name and its database details.

2. Save your work.
3. Run the following command from the Operations Analytics Server to encrypt the passwords in the `mynodelists.properties` file:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -encrypt <path>/sample-auto-config-node.properties
```

**Note:** You will be prompted to enter the password after running this command.

4. Run the following command from the Operations Analytics Server to configure the collector hosts and publish the collection information:

```
$OPSA_HOME/bin/opsa-collector-auto-conf.sh -nodelist <path>/<sample-auto-
config-node.properties> -collectevents -configuredomain [ORACLE|SYSTEM] -
username opsatenantadmin
```

**Note:** The `opsa-collector-auto-conf.sh` script sets up HPE Operations Agent, HPE Operations Smart Plug-in for Oracle, and OM event collection using only one command.

**Note:** The command output shows the list of registered collectors and distributes the list of nodes providing system performance metrics, Oracle performance metrics, or both among the registered collectors.

**Note:** The `opsa-collector-auto-conf.sh` script prompts you for the Tenant Admin password for the username you use in the commands shown in this section. See the `opsa-collector-auto-conf.sh` reference page (or the Linux manpage) for more information.

**Manual Configuration Method:** Do the following for a more manual approach to configuring Operations Analytics for HPE Operations Agent:

1. A properties file contains details about the sources from which you plan to collect information. There are sample properties files located in the `$OPSA_HOME/conf/collection/sample` directory. Operations Analytics administrators can use these sample files to publish the properties file. The sample properties file for the HPE Operations Agent collection is `sample_oa_pa_node.properties`. The properties file for the Operations Agent collection must contain a list of servers that have the HPE Operations Agent installed. The properties file for the Operations Agent collection must include the information shown in the following table:

#### Properties File Fields and Values

Field	Value
panode1.somedomain.com	The fully-qualified domain name of a server that has the HPE Operations Agent installed.
panode2.somedomain.com	The fully-qualified domain name of a server that has the HPE Operations Agent installed.
Add more servers that have the HPE Operations Agent installed	The fully-qualified domain name of a server that has the HPE Operations Agent installed.

To edit the properties file, do the following from the Operations Analytics Server:

- a. Copy the `sample_oa_pa_node.properties` file from the `$OPSA_HOME/conf/collection/sample` directory to some location, such as `/tmp/mynodelist.properties`.
  - b. Edit the `/tmp/mynodelist.properties` file, adding the appropriate information; then save your work.
2. Run the following command from the Operations Analytics Server to create the collector configuration:

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -nodelist
/tmp/mynodelist.properties -collectorhost <fully-qualified domain name of
the collector host> -source oa -domain sysperf -group global -username
opsatenantadmin
```

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** The `opsa-collection-config.sh` script uses the values of `source`, `domain`, and `group` to select the right predefined collection template for and create the desired collection configuration.

- Run the following command from the Operations Analytics Server to validate the collection configuration you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -allversions -
collectorhosts -username opsatenantadmin
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its `version`, `domain`, and `group`.

- Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host :

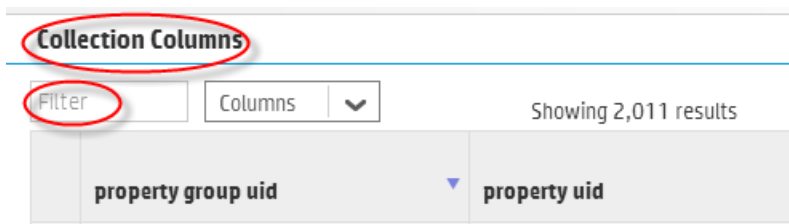
```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-
qualified domain name of the collector host> -username opsatenantadmin
```

The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

- Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

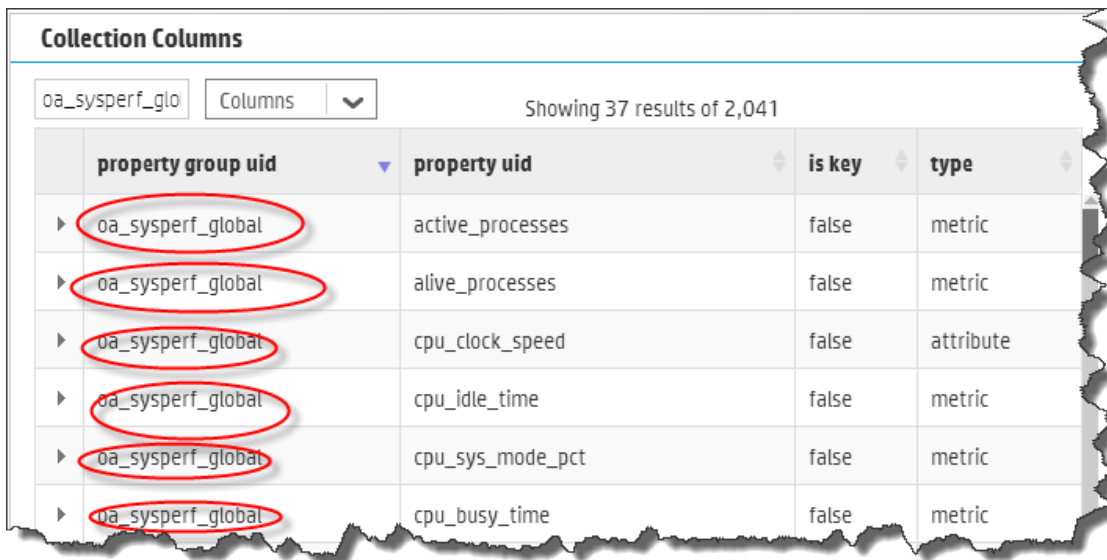
**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `oa`, a domain of `sysperf`, and a group of `global` when creating the collection. The resulting property group uid would be `oa_sysperf_global`.

- Type the property group uid (`oa_sysperf_global`) for this collection in the **Collection ColumnsFilter:**





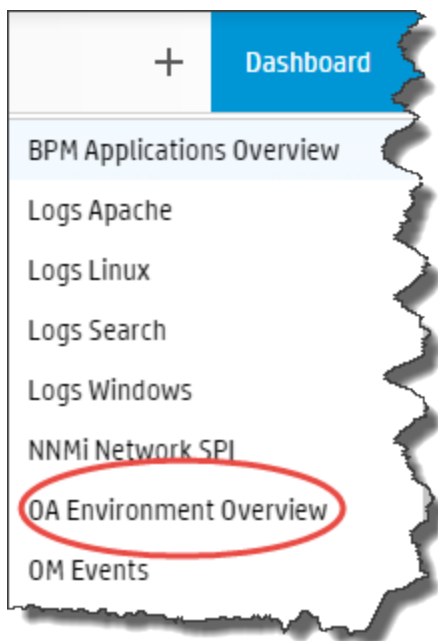
- b. After typing property group uid (`oa_sysperf_global`) for this collection in the **Collection ColumnsFilter**, you should see information for this collection.



The screenshot shows a table titled "Collection Columns" with a search filter set to "oa\_sysperf\_glo" and "Columns". It displays 37 results out of 2,041. The table has five columns: "property group uid", "property uid", "is key", and "type". The first six rows are circled in red, showing the "property group uid" as "oa\_sysperf\_global" and various "property uid" values.

property group uid	property uid	is key	type
oa_sysperf_global	active_processes	false	metric
oa_sysperf_global	alive_processes	false	metric
oa_sysperf_global	cpu_clock_speed	false	attribute
oa_sysperf_global	cpu_idle_time	false	metric
oa_sysperf_global	cpu_sys_mode_pct	false	metric
oa_sysperf_global	cpu_busy_time	false	metric

6. From the Operations Analytics console, open the **OA Environment Overview** dashboard to view some of the collected information for this collection:



**To remove nodes from an HPE Operations Agent Collection follow these steps:**

1. Copy the properties file to a temporary location. For example, you might run the following command:  

```
cp /opt/HP/opsa/conf/collection/config.files/<collectorhost>/<tenant>/1.0/oa/1.0/sysperf/global/nodelist /tmp
```
2. Edit the properties file. For example, you might edit the `tmp/nodelist` file, then remove the HPE Operations Agent Collection nodes.

3. For this example, you might run the following command:

```
opsa-collection-config.sh -nodelist /tmp/nodelist -collectorhost <fully-qualified domain name of the collector host> -source oa -domain sysperf -group global -username opsatenantadmin.
```

Enter **yes** when prompted with, "Do you want to overwrite the existing node list (instead of appending to it) (Y/N) ?"

4. For this example, you might run the following command to publish these changes:

```
opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of collector host> -username opsatenantadmin
```

# Appendix 3: Configuring an NNM iSPI Performance for Metrics Component Health Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See "[Configuring an NNM iSPI Performance for Metrics Component Health Collection](#)" on page 113 for the recommended method. For a more detailed approach, you can complete the following steps for the NNM iSPI Performance for Metrics Component Health Collection.

After you complete the steps in this section, the NNM iSPI Performance for Metrics Component Health Collection reads data from the CSV files within 60 seconds of the file being placed in the source directory.

1. For the Operations Analytics Collector host to access raw metric information from the NNM iSPI Performance for Metric's component health extension pack, you must export these metrics to CSV files. Run the following command on the NNM iSPI Performance for Metric server to export these metrics to CSV files in the `/csvexports` directory:
  - **Windows (Raw Information):**  
`<Install_Dir>\NNMPerformanceSPI\bin\configureCsvExport.ovpl -p Component_Health -a "Raw,<Target-Dir>"`
  - **UNIX: (Raw Information):** `/opt/OV/NNMPerformanceSPI/bin/configureCsvExport.ovpl -p Component_Health -a "Raw,<Target-Dir>"`

**Note:** You must make the exported component health metrics available on the Operations Analytics Collector host in the `/opt/HP/opsa/data/netcomponent` directory.

If you want to use a different directory than `/opt/HP/opsa/data/netcomponent`, do the following:

- a. Edit the following collection template:  
`/opt/HP/opsa/conf/collection/server/config.templates/nnmispi/1.0/netcomponent/component/nnmispi_netcomponent_component_collection.xml.`
- b. Specify a different directory for the `sourcedir` attribute.

**Note:** The `opsa` user on the Operations Analytics Collector host must have read and write access to the component health metric files in the Operations Analytics Collector host to move them to the processed directory. The default process directory is `/opt/HP/opsa/data/netcomponent_processed`.

For example, to configure read and write access to the component health metric files to the Operations Analytics Collector host when the files are located on a Windows server, do the following:

- a. On a Windows server, navigate to **Computer Management > System Tools > Shares > Shared Folders**.
- b. Right-click beneath shares and open the new share wizard.

- c. Create shares for the directories in which the .csv files are stored.
- d. From the Operations Analytics Collector host, add the correct entries to the `/etc/fstab` file. Use the following entries as a model:
 

```
//10.17.18.19/final /opt/HP/opsa/data/nnm cifs
username=administrator,password=password,uid=opsa,rw 0 0
//10.15.14.13/componentfinal /opt/HP/opsa/data/netcomponent cifs
username=admin,password=passwd,uid=opsa,rw 0 0
//10.15.14.13/interfacefinal /opt/HP/opsa/data/netinterface cifs
username=admin,password=passwd,uid=opsa,rw 0 0
```
- e. Use the `mount -a` command to get the directories mounted.

2. Run the following command from the Operations Analytics Server to create the collector configuration:
 

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -collectorhost <fully-qualified domain name of the collector host> -source nnmispi -domain netcomponent -group component -username opsatenantadmin
```

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** The `opsa-collection-config.sh` script uses the values of `source`, `domain`, and `group` to select the right predefined collection template for and create the desired collection configuration.

3. Run the following command from the Operations Analytics Server to validate the collection configuration you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -allversions -collectorhosts -username opsatenantadmin
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its `version`, `domain`, and `group`.

4. Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host :

```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of the collector host> -username opsatenantadmin
```

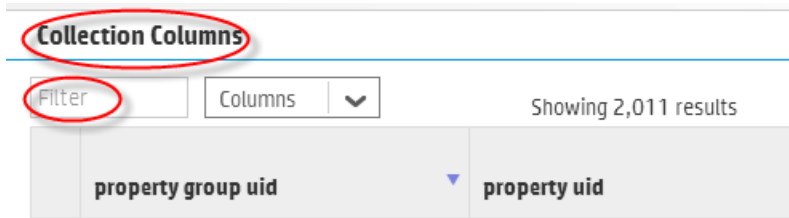
The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

5. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Do the following to look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `nnmispi`, a domain of `netcomponent`, and a group of `component` when creating the collection. The resulting

property group uid would be `nnmispi_netcomponent_component`.

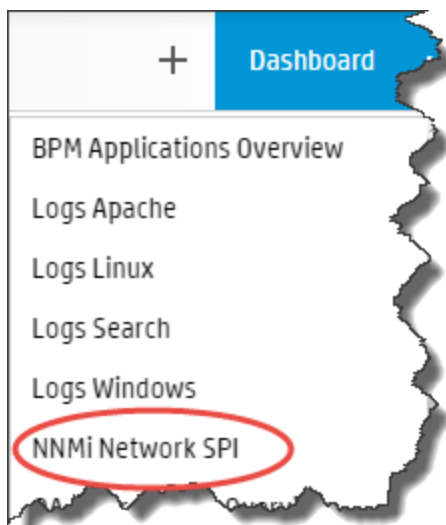
- a. Type the property group uid (`nnmispi_netcomponent_component`) for this collection in the **Collection Columns Filter**:



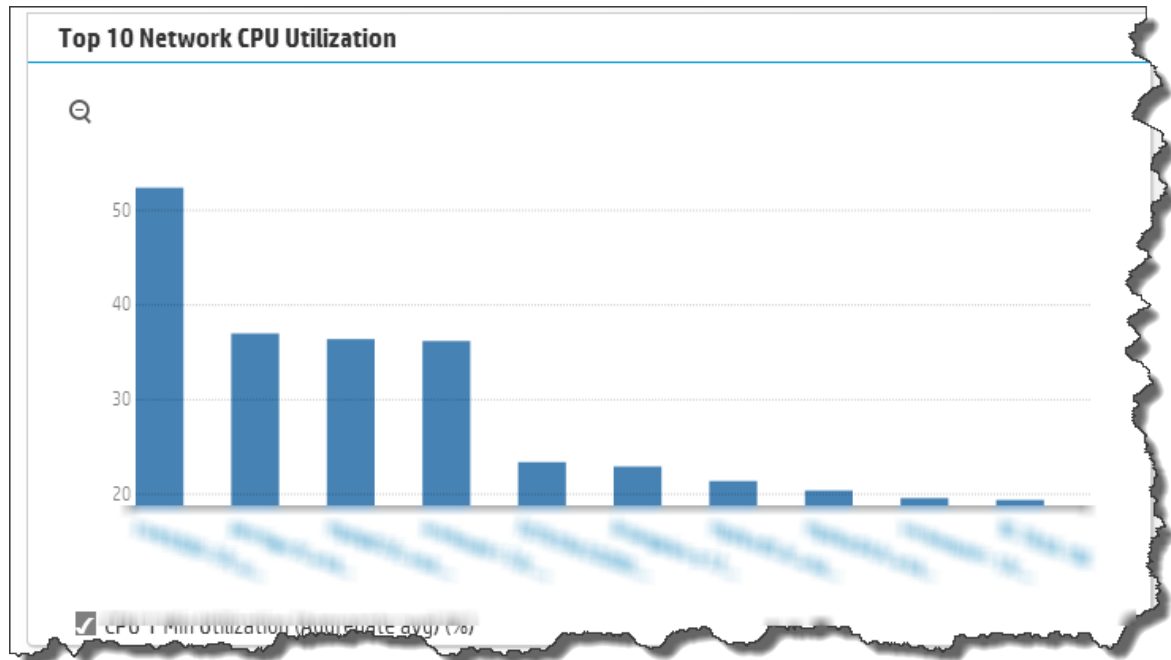
- b. After typing property group uid (`nnmispi_netcomponent_component`) for this collection in the **Collection Columns Filter**, you should see information in the resulting table:

property group uid	property uid	is key	type
nnmispi_netcomponent_component	backplane_utilization	false	metric
nnmispi_netcomponent_component	backplane_utilization_baseline_exception_count	false	metric
nnmispi_netcomponent_component	backplane_utilization_baseline_exception_rate	false	metric
nnmispi_netcomponent_component	backplane_utilization_forecast_baseline_12_week	false	metric
nnmispi_netcomponent_component	backplane_utilization_forecast_ba	false	metric

6. From the Operations Analytics console, open the **NNMi Network SPI** dashboard to view some of the collected information for this collection:



The following is a small example of NNM ISPI Performance for Metrics Component Health Collection data provided by the **NNMi Network SPI** dashboard.



7. If you want to add tags to an NNM ISPI Performance for Metrics Component Health Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

# Appendix 4: Configuring an NNM iSPI Performance for Metrics Interface Health Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See "[Configuring an NNM iSPI Performance for Metrics Interface Health Collection](#)" on page 117 for the recommended method. For a more detailed approach, you can complete the following steps for the NNM iSPI Performance for Metrics Interface Health Collection.

After you complete the steps in this section, the NNM iSPI Performance for Metrics Interface Health Collection reads data from the CSV files within 60 seconds of the file being placed in the source directory.

1. For the Operations Analytics Collector host to access live metric information from the NNM iSPI Performance for Metric's interface health extension pack, you must export these metrics to CSV files. Run the following command on the NNM iSPI Performance for Metric server to export these metrics to CSV files in the `/csvexports` directory:

- **Windows (Raw Information):**

```
<Install_Dir>\NNMPerformanceSPI\bin\configureCsvExport.ovpl -p  
Interface_Health -a "Raw,<Target_Directory">
```

- **UNIX (Raw Information):**

```
/opt/OV/NNMPerformanceSPI/bin/configureCsvExport.ovpl -p Interface_  
Health -a "Raw,<Target_Directory">
```

**Note:** You must make the exported interface health metrics available on the Operations Analytics Collector host in the `/opt/HP/opsa/data/netinterface` directory.

If you want to use a different directory than `/opt/HP/opsa/data/netinterface`, do the following:

- a. Edit the following collection template:

```
/opt/HP/opsa/conf/collection/server/config.templates/nnmispi/1.0/  
netinterface/interface/nnmispi_netinterface_interface_  
collection.xml.
```

- b. Specify a different directory for the `sourcedir` attribute.

**Note:** The `opsa` user on the Operations Analytics Collector host must have read and write access to the interface health metric files in the Operations Analytics Collector host to move them to the processed directory. The default process directory is `/opt/HP/opsa/data/netinterface_processed`.

For example, to configure read and write access to the interface health metric files to the Operations Analytics Collector host when the files are located on a Windows server, do the following:

- a. On a Windows server, navigate to **Computer Management > System Tools > Shares > Shared Folders**.
- b. Right-click beneath shares and open the new share wizard.

- c. Create shares for the directories in which the .csv files are stored.
- d. From the Operations Analytics Collector host, add the correct entries to the `/etc/fstab` file. Use the following entries as a model:
 

```
//10.17.18.19/final /opt/HP/opsa/data/nnm cifs
username=administrator,password=password,uid=opsa,rw 0 0
//10.15.14.13/componentfinal /opt/HP/opsa/data/netcomponent cifs
username=admin,password=passwd,uid=opsa,rw 0 0
//10.15.14.13/interfacefinal /opt/HP/opsa/data/netinterface cifs
username=admin,password=passwd,uid=opsa,rw 0 0
```
- e. Use the `mount -a` command to get the directories mounted.

2. Run the following command from the Operations Analytics Server to create the collector configuration:
 

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -collectorhost <fully-qualified domain name of the collector host> -source nnmispi -domain netinterface -group interface -username opsatenantadmin
```

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** The `opsa-collection-config.sh` script uses the values of `source`, `domain`, and `group` to select the right predefined collection template for and create the desired collection configuration.

3. Run the following command from the Operations Analytics Server to validate the collection configuration you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -allversions -collectorhosts -username opsatenantadmin
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its version, domain, and group.

4. Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host:

```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of the collector host> -username opsatenantadmin
```

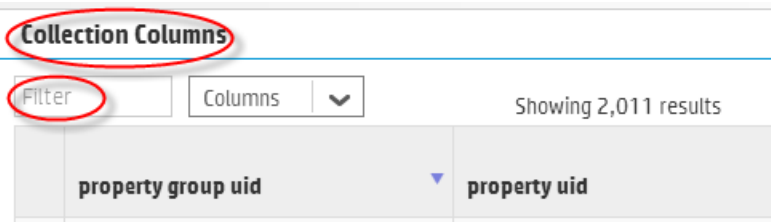
The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

5. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `nnmispi`, a domain of `netinterface`, and a group of `interface` when creating the collection. The resulting property group uid would be `nnmispi_netinterface_interface`.



- a. Type the property group uid (nnmispi\_netinterface\_interface) for this collection in the **Collection ColumnsFilter**:



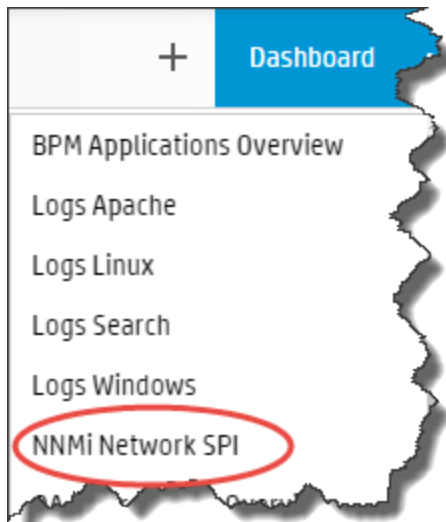
- b. After typing property group uid (nnmispi\_netinterface\_interface) for this collection in the **Collection ColumnsFilter**, you should see information in the resulting table:

**Collection Columns**

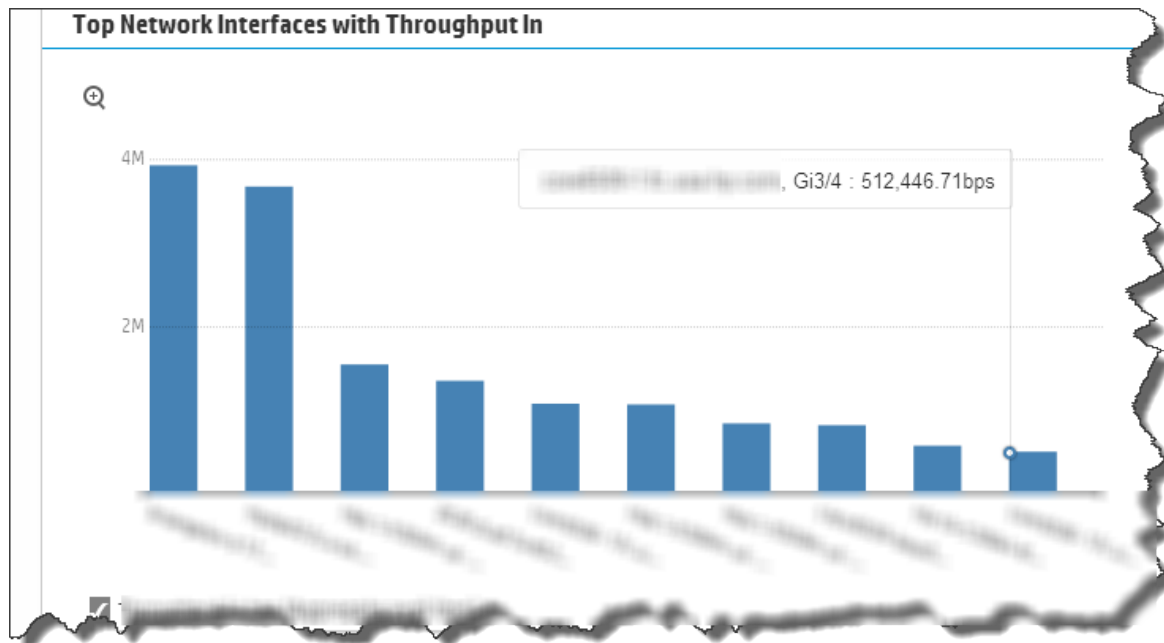
nnmispi\_netint Columns Showing 184 results of 1,125

property group uid	property uid	is key	type
nnmispi_netinterface_interface	ackfailurecount	false	metric
nnmispi_netinterface_interface	availability_threshold_exception_count	false	metric
nnmispi_netinterface_interface	availability_threshold_exception_rate	false	metric
nnmispi_netinterface_interface	broadcast_packets	false	metric
nnmispi_netinterface_interface	broadcast_packets_in	false	metric
nnmispi_netinterface_interface	broadcast_packets_out	false	metric

6. From the Operations Analytics console, open the **NNMi Network SPI** dashboard to view some of the collected information for this collection:



The following is a small example of NNM ISPi Performance for Metrics Interface Health Collection data provided by the **NNMi Network SPI** dashboard.



7. If you want to add tags to an NNM ISPi Performance for Metrics Interface Health Collection, use the `opsa-tag-manager.sh` command. See "[Creating, Applying, and Maintaining Tags for Custom Collections](#)" on page 160 and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

# Appendix 5: Configuring the HPE OMi Events Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See ["Configuring an HPE Operations Manager i \(OMi\) Events Collection" on page 120](#) for the recommended method. For a more detailed approach, you can complete the following steps for the HPE OMi Events Collection.

After you complete the steps in this section, the HPE OMi Events Collection collects events every 15 minutes, and collects all OMi events that occurred since the last poll.

**Note:** To support this collection using Oracle RAC, do the following:

1. Copy the `tnsnames.ora` file from the Oracle server to the following locations:  
Operations Analytics Server: `/opt/HP/opsa/conf/collection/tnsnames.ora`  
Operations Analytics Collector: `/opt/HP/BSM/PMDB/config/tnsnames.ora`
2. Rename the `tnsnames.ora` files:  
Operations Analytics Server: `/opt/HP/opsa/conf/collection/bsm-tnsnames.ora`  
Operations Analytics Collector: `/opt/HP/BSM/PMDB/config/bsm-tnsnames.ora`

**Note:** The OMi collection is also able to accept events from HPE Service Health Analyzer (SHA), a component of Business Service Management (BSM). If you have installed SHA on a BSM server and have configured the OMi collection, the OMi collection automatically accepts SHA events. You can then use the collected SHA event data to anticipate and predict IT problems. The following is a short description of SHA: HPE Service Health Analyzer analyzes abnormal service behavior and alerts IT managers of service degradation before an issue affects their business.

**Note:** An Operations Analytics Collector host can only collect data for a single HPOM or OMi event source. If you configure more than one HPOM or OMi event source for an Operations Analytics Collector host, it collects the events from only one of the event sources at every collection interval. It cannot be determined from which event source data collection occurs for a given collection interval. To remedy this, configure a separate Operations Analytics Collector host for each HPOM or OMi event source.

## Configuring the HPE OMi Events Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See ["Configuring an HPE Operations Manager i \(OMi\) Events Collection" on page 120](#) for the recommended method. For a more detailed approach, you can complete the following steps for the OMi collection events:

1. A node list file contains details about the sources from which you plan to collect information. There are sample nodelist files located in the `$OPSA_HOME/conf/collection/sample` directory. Operations Analytics administrators can use these sample files to publish the node list file. Choose the sample node list file based on the database used by your HPE OMi application: `sample_Omi_MSSQL_node.properties` or `sample_Omi_ORACLE_node.properties`. The node list file for the HPE OMi Event collection must include the information shown in the following table:

### Node List File Fields and Values

Field	Value
omidbserver.hostdnsname	The fully-qualified domain name or IP address for the server housing the OMi event database
omidbserver.port	1433: The port number to use to connect to the OMi database server.  <b>Note:</b> The default port is 1433, which is suitable for accessing most MS SQL Server installations. Oracle typically uses port 1521. PostgreSQL typically uses ports 5432 or 5433.
omidbserver.username	USERNAME: The name of a database user that has READ access to the OMi/Event Management schema in BSM. Check with your BSM Administrator or the database administration staff for the proper credentials
omidbserver.instanceName	INSTANCE_NAME The instance name of the OMi database. If you are using Oracle RAC, use the service name in this field.
omidbserver.datasource_type	OMI
omidbserver.database_type	ORACLE, MSSQL or PostgreSQL  <b>Note:</b> This value must be configured as the Database type in the <b>Edit Operations Manager i Events</b> screen in OMi.
omidbserver.database_name	DATABASE_NAME The OMi database schema.

To edit the node list file, do the following from the Operations Analytics Server:

- a. Copy the `sample_OMi_MSSQL_node.properties` or `sample_OMi_ORACLE_node.properties` file from the `$OPSA_HOME/conf/collection/sample` directory to some location, such as `/tmp/myodelist.properties`.  
  

**Note:** Choose the sample node list file based on the database used by your HPE OMi application.

**Note:** The sample file mentioned in this step does not contain a password property. When using the `opsa-collection-config.sh` script (in a later step) to encrypt the password, this script prompts you for the password, encrypts it, and inserts it into the sample file.
  - b. Edit the `/tmp/myodelist.properties` file, adding the appropriate information; then save your work.
2. Run the following command from the Operations Analytics Server to encrypt the password:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -encrypt /tmp/myodellists.properties
```

**Note:** You will be prompted to enter the password after running this command.
  3. Run the following command from the Operations Analytics Server to create the collector configuration:  

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -nodelist
```

```
/tmp/mynodelist.properties -collectorhost <fully-qualified-domain-name of collector host> -source omi -domain events -group omievents -username opsatenantadmin
```

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** The `opsa-collection-config.sh` script uses the values of `source`, `domain`, and `group` to select the right predefined collection template for and create the desired collection configuration.

**Note:** To support this collection for OMi version 10 instead of OMi version 9.2x, change this command as follows:

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -nodelist /tmp/mynodelist.properties -templateversion 1.1 -collectorhost <fully-qualified-domain-name of collector host> -source omi -domain events -group omievents -username opsatenantadmin
```

4. Run the following command from the Operations Analytics Server to verify and validate the collection configuration you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -allversions -collectorhosts -username opsatenantadmin
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its version, domain, and group.

5. Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host:

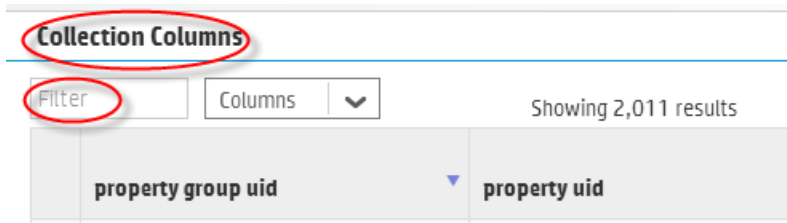
```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of the collector host> -username opsatenantadmin
```

The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

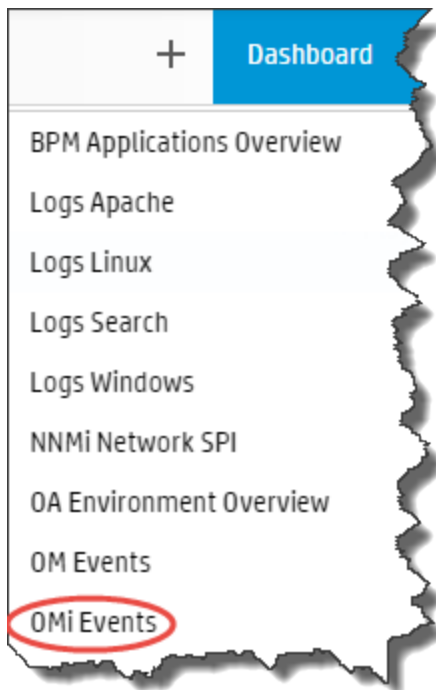
6. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `omi`, a domain of `events`, and a group of `omievents` when creating the collection. The resulting property group uid would be `omi_events_omievents`.

- a. Type the property group uid (`omi_events_omevents`) for this collection in the **Collection Columns Filter**:



- b. After typing property group uid (`omi_events_omevents`) for this collection in the **Collection ColumnsFilter**, you should see information for this collection.
7. From the Operations Analytics console, open the **OMi Events** dashboard to view some of the collected information for this collection:



# Appendix 6: Configuring an HPE Operations Manager (HPOM) Events Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See ["Configuring an HPE Operations Manager \(HPOM\) Events Collection" on page 124](#) for the recommended method. For a more detailed approach, you can complete the following steps for the HPOM Events Collection.

For special circumstances related to how Microsoft SQL Server is set up in the HPOM environment, see ["Configuring HPE Operations Manager \(HPOM\) \(Creating a Database User Account on an HPOM Database Server\)" on page 150](#)

## Configuration Steps

After you complete the steps in this section, the HPE Operations Manager Events Collection collects events every 15 minutes, and collects all OM events that occurred since the last poll.

**Note:** An Operations Analytics Collector host can only collect data for a single HPOM or OMi event source. If you configure more than one HPOM or OMi event source for an Operations Analytics Collector host, it collects the events from only one of the event sources at every collection interval. It cannot be determined from which event source data collection occurs for a given collection interval. To remedy this, configure a separate Operations Analytics Collector host for each HPOM or OMi event source.

There are two methods of configuring Operations Analytics for the HPOM events collection, the **Automated Configuration Method** and the **Manual Configuration Method**. You must select one of these methods to configure Operations Analytics for the HPOM events collection. Do not attempt to use both the Automated Configuration Method and the Manual Configuration Method.

**Automated Configuration Method:** This approach is more automated than the Manual Configuration Method, making configuration easier. Do the following to use the Automated Configuration Method:

1. The Automated Configuration Method provides the sample collection template, `$OPSA_HOME/conf/collection/sample/sample_auto_config_node.properties`, located on the Operations Analytics Server. Copy the `sample_auto_config_node.properties` file to a separate location, then edit the `sample_om_node.properties` file and add, among other information, the following Operations Manager information:

**Note:** The sample file mentioned in this step does not contain a password property. When using the `opsa-collection-config.sh` script (in a later step) to encrypt the password, this script prompts you for the password, encrypts it, and inserts it into the sample file.

- For an OMW host (HPE Operations Manager on a Windows server), the Automated Configuration Method includes the OMW host's fully-qualified domain name and its database details.
  - For an OMU host (HPE Operations Manager on a UNIX or Linux server), the Automated Configuration Method includes the OMU host's fully-qualified domain name and its database details.
2. Save your work.

3. Encrypt the passwords in the node properties file by running the following command from the Operations Analytics Server:

```
$OPSA_HOME/bin/opsa-collection-config.sh -encrypt <path>/sample_auto_
config_node.properties
```

**Note:** You will be prompted to enter the password after running this command.

4. Run the following command from the Operations Analytics Server to configure the collector hosts and publish the collection information:

```
$OPSA_HOME/bin/opsa-collector-auto-conf.sh -nodelist <path>/<sample_om_
node.properties> -collectevents -configuredomain [Oracle|System] -username
opsatenantadmin
```

**Note:** The `opsa-collector-auto-conf.sh` script sets up HPE Operations Agent, HPE Operations Smart Plug-in for Oracle, and OM event collection using only one command.

**Note:** The command output shows the list of registered collectors and distributes the list of nodes providing system performance metrics, Oracle performance metrics, or both among the registered collectors.

**Note:** The `opsa-collector-auto-conf.sh` script prompts you for the Tenant Admin password for the username you use in the commands shown in this section. See the `opsa-collector-auto-conf.sh` reference page (or the Linux manpage) for more information.

**Manual Configuration Method:** Do the following for a more manual approach to configuring Operations Analytics for the HPOM events collection:

1. A node list file contains details about the sources from which you plan to collect information. There are sample nodelist files located in the `$OPSA_HOME/conf/collection/sample` directory. Operations Analytics administrators can use these sample files to publish the node list file. There are two sample node list files for the HPOM Events collection: `sample_OMW_node.properties` (for HPE Operations Manager for Windows) and `sample_OMU_node.properties` (for HPE Operations Manager for UNIX and Linux). For HPOM events, the node list files contain, among other information, a list of servers that have HPOM installed.

The node list file for HPE Operations Manager for Windows must include the information shown in the following table:

#### Node List File Fields and Values

Field	Value
<code>omwdbserver.hostdnsname</code>	The fully-qualified domain name of the HPOM server.
<code>omwdbserver.port</code>	1433: The port used to connect to the HPOM server.
<code>omwdbserver.username</code>	The user name to use for connecting to the HPOM server. See <a href="#">"Configuring HPE Operations Manager (HPOM) (Creating a Database User Account on an HPOM Database Server)"</a> on page 150 for instructions about creating this user.
<code>omwdbserver.instanceName</code>	OVOPS



**Node List File Fields and Values, continued**

Field	Value
omwdbserver.datasource_type	OM
omwdbserver.database_type	MSSQL
omwdbserver.database_name	openview

The node list file for HPE Operations Manager for UNIX and Linux must include the information shown in the following table:

Field	Value
omudbserver.hostdnsname	The fully-qualified domain name of the HPOM server.
omudbserver.port	1521: The port used to connect to the HPOM server.
omudbserver.username	opc_op: The user name to use for connecting to the HPOM server.
omudbserver.database_name	null
omudbserver.instance_name	openview
omudbserver.datasource_type	OM
omudbserver.database_type	ORACLE

To edit the node list file, do the following from the Operations Analytics Server:

- a. Copy the `sample_OMW_node.properties` or `sample_OMU_node.properties` file from the `$OPSA_HOME/conf/collection/sample` directory to some location, such as `/tmp/mynodelist.properties`.
 

**Note:** The sample files mentioned in this step do not contain a password property. When using the `opsa-collection-config.sh` script (in a later step) to encrypt the password, this script prompts you for the password, encrypts it, and inserts it into the sample file.
  - b. Edit the `/tmp/mynodelist.properties` file, adding the appropriate information; then save your work.
2. Run the following command from the Operations Analytics Server to encrypt the password:
 

```
$OPSA_HOME/bin/opsa-collection-config.sh -encrypt /tmp/mynodelists.properties
```

**Note:** You will be prompted to enter the password after running this command.

3. Run the following command from the Operations Analytics Server to create the collector configuration:
 

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -nodelist /tmp/mynodelist.properties -collectorhost <fully-qualified-domain-name of collector host> -source om -domain events -group omevents -username opsatenantadmin
```

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** The `opsa-collection-config.sh` script uses the values of `source`, `domain`, and `group` to select the right predefined collection template for and create the desired collection configuration.

- Run the following command from the Operations Analytics Server to validate the collection configuration you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -allversions -
collectorhosts -username opsatenantadmin
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its `version`, `domain`, and `group`.

- Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host :

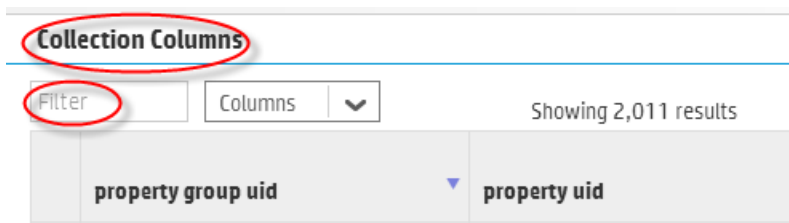
```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified
domain name of the collector host> -username opsatenantadmin
```

The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

- Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

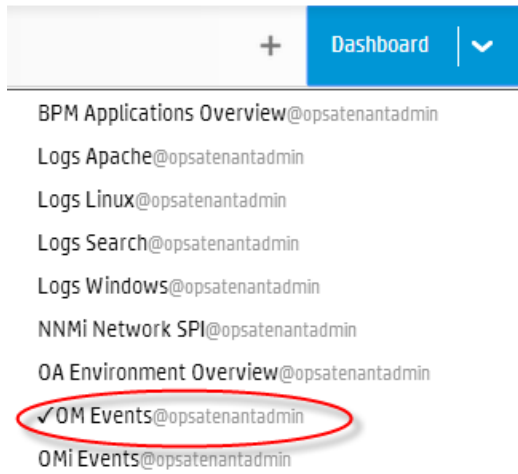
**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `om`, a domain of `events`, and a group of `omevents` when creating the collection. The resulting property group uid would be `om_events_omevents`.

- Type the property group uid (`om_events_omevents`) for this collection in the **Collection ColumnsFilter**:



- After typing property group uid (`om_events_omevents`) for this collection in the **Collection ColumnsFilter**, you should see information for this collection.

7. From the Operations Analytics console, open the **OM Events** dashboard to view some of the collected information for this collection:



# Appendix 7: Configuring an HPE BSM RTSM Configuration Item (CI) Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See "[Configuring an HPE BSM RTSM Configuration Item \(CI\) Collection](#)" on page 127 for the recommended method. For a more detailed approach, you can complete the following steps for the HPE BSM RTSM Collection.

After you complete the steps in this section, the HPE BSM RTSM CI Collection collects data every 6 hours.

## Setting the Correct BSM User Name Permissions for OMi 9.x

When configuring either a BSM RTSM CI collection or a BPM Collection in Operations Analytics you must enter a BSM user name. This BSM user name is used for connecting to the RTSM DPS server, and must be configured for the correct roles.

**Note:** The user you plan to use for the BPM Collection must be part of the Integration Users Group and include the following OpenAPI required roles:

```
CmdbOpenApiQuery  
CmdbOpenApiClassModel  
CmdbOpenApiUpdate  
CmdbOpenApiImpact
```

These values could be named as shown below in newer versions:

```
RTSMOpenApiQuery  
RTSMOpenApiClassModel  
RTSMOpenApiUpdate  
RTSMOpenApiImpact
```

Before completing the remaining configuration steps in this section, do the following to test if the user has the required permissions:

1. Try to log on to BSM as your users using the following URL :  
`http://<BSM>:21212/axis2/services/UcmdbService`

**Note:** The log on is successful if you see a web page that shows the following message: Please enable REST support in WEB-INF/conf/axis2.xml and WEB-INF/web.xml.

If your credentials are not accepted you are prompted to enter your user name and password. If this happens, the user does not have the required permissions.

2. If the previous step fails, your user is missing some required permissions. Do not continue until you do the following:

**Note:** For these instructions to work correctly, you must have used the `createuser` method to create the user. For example, if you used the `createIntegrationUser` method, these instructions

will not work correctly.

- a. Open the RTSM JMX console using the following URL:  
`http://<BSM>:21212/jmx-console/`
- b. Under the **UCMDB** heading, navigate to **UCMDB:service=Security Services**.
- c. Invoke `setRolesForUser JMX` and give the user either the Admin role or all of the OpenAPI roles:

**Admin role:**

Admin

**OpenAPI related roles:**

`CmdbOpenApiQuery`, `CmdbOpenApiClassModel`, `CmdbOpenApiUpdate`,  
`CmdbOpenApiImpact`

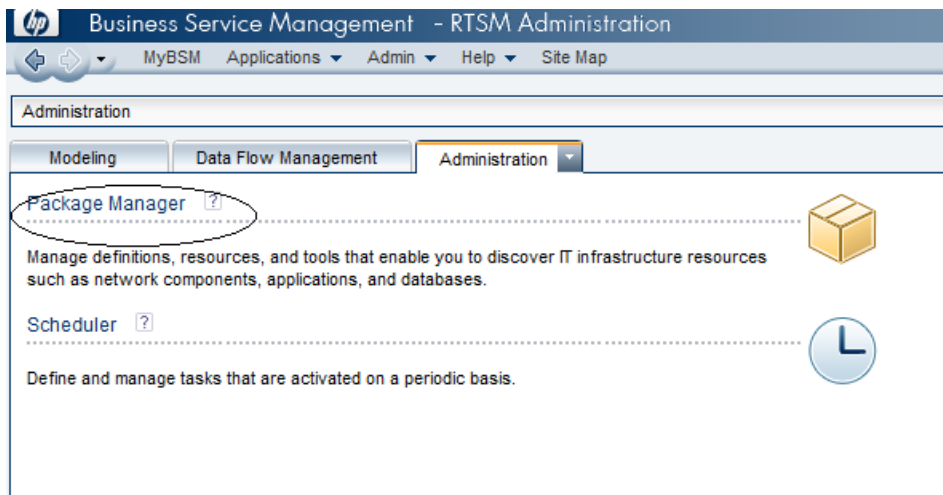
**Note:** To prevent making mistakes when entering the role names, retrieve the available roles by invoking `getAclController JMX` then copy and paste the role names.

3. Repeat step 1 to verify that you correctly made the permissions changes.

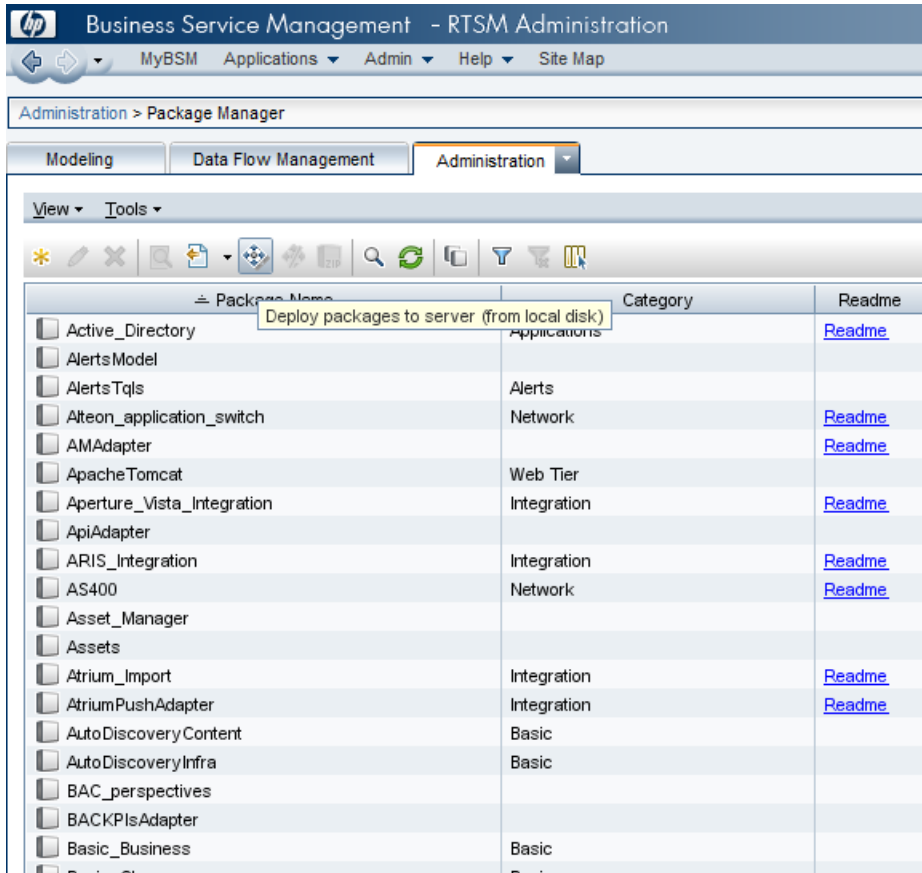
Now the BSM user you tested should have all of the required permissions.

## Configuration Steps

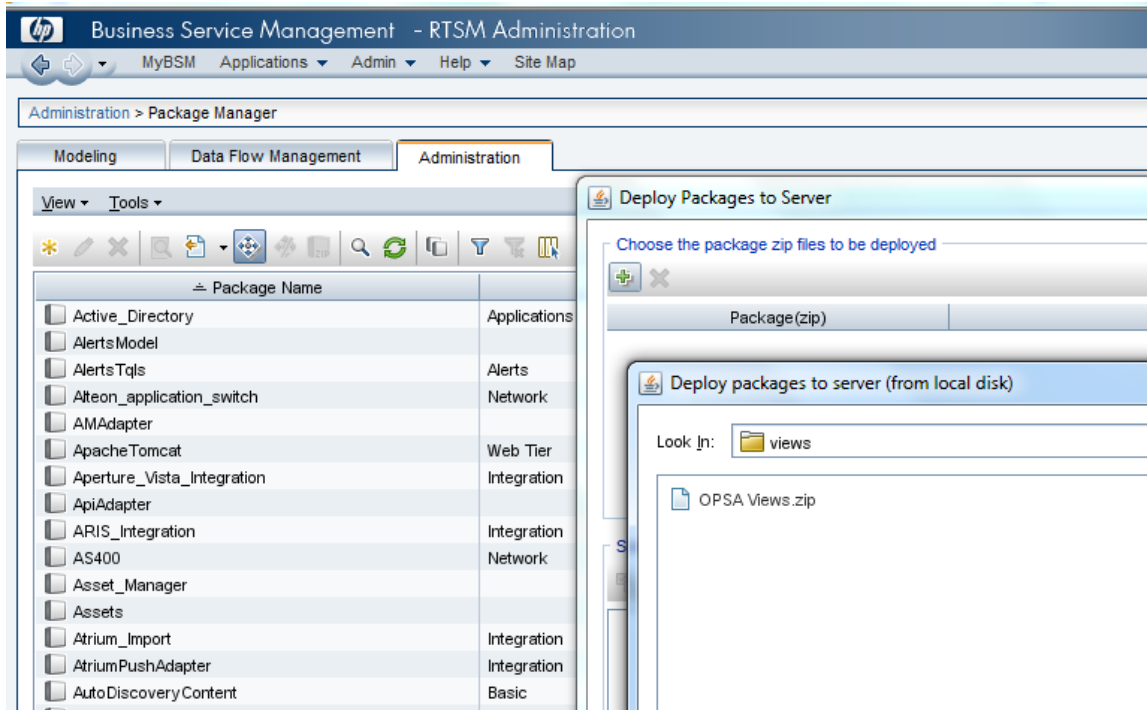
1. Before configuring any of the HPE BSM RTSM collections, you must deploy Operations Analytics views on the BSM Server. Do the following:
  - a. Copy the `$OPSA_HOME/conf/collection/rtsm_views/OPSA_Views.zip` file to the local server from where the BSM UI is launched.
  - b. Access the **Package Manager** module through the BSM UI:



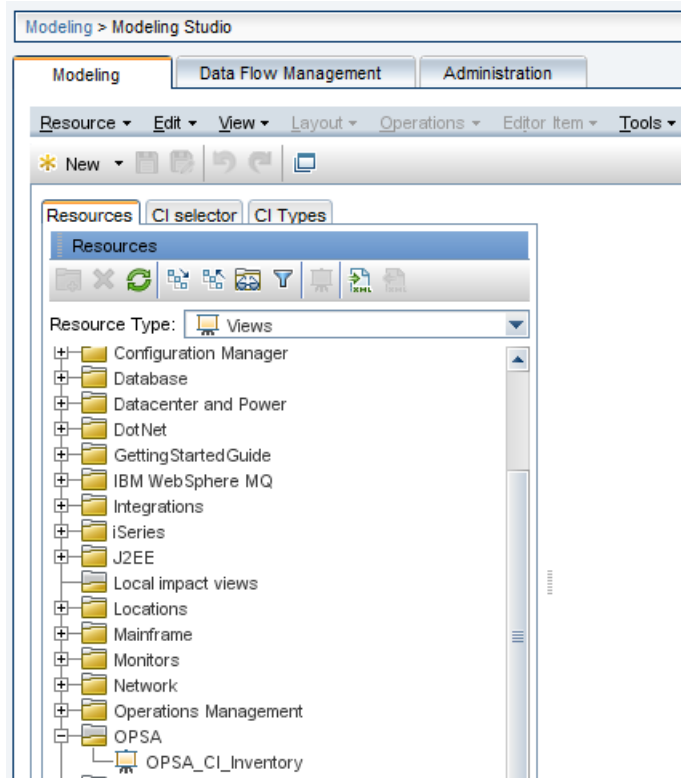
- c. Select the **Deploy packages to server (from local disk)** option.



- d. Select the **OPSA\_Views.zip** file from the local disk as shown in the following screen shot:



- e. Once deployed, the views should be visible in the Modeling studio as shown in the following screen shot:



2. A node list file contains details about the sources from which you plan to collect information. There are sample nodelist files located in the `$OPSA_HOME/conf/collection/sample` directory. Operations Analytics administrators can use these sample files to publish the node list file. The sample node list file for the BSM RTSM CI collection is `sample_RTSM_node.properties`.

**Note:** Operations Analytics administrators can use this sample file to publish the node list file.

The node list file for the BSM RTSM CI collection must include the information shown in the following table:

### Node List File Fields and Values

Field	Value
<code>rtmsserver.hostdnsname</code>	The fully-qualified domain name of the RTSM DPS server.
<code>rtmsserver.port</code>	21212: The port used to connect to the RTSM DPS server.
<code>rtmsserver.username</code>	admin: The user name to use for connecting to the RTSM DPS server.
<code>rtmsserver.datasource_type</code>	rtsm

To edit the node list file, do the following from the Operations Analytics Server:

- a. Copy the `sample_RTSM_node.properties` file from the `$OPSA_HOME/conf/collection/sample` directory to some location, such as `/tmp/mynodelist.properties`:
 

**Note:** The sample file mentioned in this step does not contain a password property. When using the `opsa-collection-config.sh` script (in a later step) to encrypt the password, this script prompts you for the password, encrypts it, and inserts it into the sample file.
  - b. Edit the `/tmp/mynodelist.properties` file, adding the appropriate information; then save your work.
3. Run the following command from the Operations Analytics Server to encrypt the password:
 

```
$OPSA_HOME/bin/opsa-collection-config.sh -encrypt /tmp/mynodelist.properties
```

**Note:** You will be prompted to enter the password after running this command.

4. Run the following command from the Operations Analytics Server to create the collector configuration:
 

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -nodelist /tmp/mynodelist.properties -collectorhost <fully-qualified domain name of the collector host> -source rtsm -domain ci -group inventory -username opsatenantadmin
```

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** The `opsa-collection-config.sh` script uses the values of `source`, `domain`, and `group` to select the right pre-defined collection template to create the desired collection configuration.

5. Run the following command from the Operations Analytics Server to validate the collection configuration



you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh  
-list -collectorhosts -allversions -username opsatenantadmin
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its version, domain, and group.

6. Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host:

```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of the collector host> -username opsatenantadmin
```

The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host.

To verify that the collector configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

7. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `rtsm`, a domain of `ci`, and a group of `inventory` when creating the collection. The resulting property group uid would be `rtsm_ci_inventory`.

# Appendix 8: Configuring an HPE Business Process Monitor Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See ["Configuring an HPE Business Process Monitor Collection" on page 133](#) for the recommended method. For a more detailed approach, you can complete the following steps for the Business Process Monitor (BPM) Collection.

After you complete the steps in this section, BPM starts sending data to the BPM Collection. The BPM Collection collects metrics related to application transaction response times. The BPM Collection collects data as it arrives from BPM.

**Note:** You must set the `max heap size` to 3 GB or higher on the Operations Analytics Server when the following conditions are met:

- Operations Analytics monitors 100 or more BPM applications with 100 or more transactions per application.
- Operations Analytics users make five or more concurrent attempts to open the Operations Analytics default BPM dashboard.

To set the `max heap size`, do the following

1. Edit the `/opt/HP/opsa/jboss/bin/standalone.conf` file.
2. Make the change shown in bold font in the `JAVA_OPTS` section:

```
#
# Specify options to pass to the Java VM.
if [ "x$JAVA_OPTS" = "x" ]; then
JAVA_OPTS="-Xms64m -Xmx3072m -XX:MaxPermSize=256m -
Djava.net.preferIPv4Stack=true"
JAVA_OPTS="$JAVA_OPTS -Djboss.modules.system.pkgs=$JBoss_MODULES_
SYSTEM_PKGS -Djava.awt.headless=true"
else
echo "JAVA_OPTS already set in environment; overriding default settings
with values: $JAVA_OPTS"
fi
```

3. Save your changes.
4. Run the following command to restart the Operations Analytics Server:

```
$OPSA_HOME/bin/opsa-server restart
```

See the `opsa-server` reference page (or the Linux manpage) for more information.

**Note:** After running an `opsa-server restart` command, information logged in the `/opt/HP/opsa/log/opsa-server.log` file is removed. To view the files that retain this information across restarts, see the log files located in the `/opt/HP/opsa/jboss/standalone/log` directory. Look for log file names that begin with `server.log`.

**Note:** Connecting two or more Operations Analytics Collector hosts to the same BSM server host is not a supported configuration.

**Complete the following before proceeding:**

**Note:** For this example, the fully-qualified domain name of the BSM DPS server is `servername.location.domain.com`.

Add an entry for the BSM DPS server to the `/etc/hosts` file in the domain in which the Operations Analytics Collector host resides. For example, you would add a line for the BSM DPS server to the `/etc/hosts` file using the following format:

```
10.1.2.3 servername.location.domain.com servername.
```

**Note:** You must use the alias, `servername`, as the BSM DPS host name in the node list file.

## Setting the Correct BSM User Name Permissions for OMi 9.x

When configuring either a BSM RTSM CI collection or a BPM Collection in Operations Analytics you must enter a BSM user name. This BSM user name is used for connecting to the RTSM DPS server, and must be configured for the correct roles.

**Note:** The user you plan to use for the BPM Collection must be part of the Integration Users Group and include the following OpenAPI required roles:

```
CmdbOpenApiQuery
CmdbOpenApiClassModel
CmdbOpenApiUpdate
CmdbOpenApiImpact
```

These values could be named as shown below in newer versions:

```
RTSMOpenApiQuery
RTSMOpenApiClassModel
RTSMOpenApiUpdate
RTSMOpenApiImpact
```

Before completing the remaining configuration steps in this section, do the following to test if the user has the required permissions:

1. Try to log on to BSM as your users using the following URL :  
`http://<BSM>:21212/axis2/services/UcmdbService`

**Note:** The log on is successful if you see a web page that shows the following message: Please enable REST support in WEB-INF/conf/axis2.xml and WEB-INF/web.xml.

If your credentials are not accepted you are prompted to enter your user name and password. If this happens, the user does not have the required permissions.

2. If the previous step fails, your user is missing some required permissions. Do not continue until you do the following:

**Note:** For these instructions to work correctly, you must have used the `createuser` method to create the user. For example, if you used the `createIntegrationUser` method, these instructions will not work correctly.

- a. Open the RTSM JMX console using the following URL:  
`http://<BSM>:21212/jmx-console/`

- b. Under the **UCMDB** heading, navigate to **UCMDB:service=Security Services**.
- c. Invoke `setRolesForUser JMX` and give the user either the Admin role or all of the OpenAPI roles:  
**Admin role:**  
Admin

**OpenAPI related roles:**

`CmdbOpenApiQuery`, `CmdbOpenApiClassModel`, `CmdbOpenApiUpdate`,  
`CmdbOpenApiImpact`

**Note:** To prevent making mistakes when entering the role names, retrieve the available roles by invoking `getAclController JMX` then copy and paste the role names.

3. Repeat step 1 to verify that you correctly made the permissions changes.

Now the BSM user you tested should have all of the required permissions.

Follow the instructions in this section to configure an HPE Operations Manager Events Collection for Operations Analytics.

1. Follow the instructions in this section to configure an HPE Operations Manager Events Collection for Operations Analytics.
2. A node list file contains details about the sources from which you plan to collect information. There are sample nodelist files located in the `$OPSA_HOME/conf/collection/sample` directory. Operations Analytics administrators can use these sample files to publish the node list file. The sample node list file for the BPM collection is `sample_BPM_node.properties`. The node list file for the BPM collection needs to include a single node from the BSM cluster. This node must be a DPS node. Operations Analytics uses this node to extract BPM data from the BSM cluster. Operations Analytics also uses this node to obtain the BSM location name from BSM's RTSM. The node list file for the BSM BPM collection must include the information shown in the following table:

**Node List File Fields and Values**

Field	Value
<code>bpmserver.hostdnsname</code>	The fully-qualified domain name of the RTSM DPS server.
<code>bpmserver.port</code>	21212: The port used to connect to the RTSM DPS server.
<code>bpmserver.username</code>	admin: The user name to use for connecting to the RTSM DPS server.

To edit the node list file, do the following from the Operations Analytics Server:

- a. Copy the `sample_BPM_node.properties` file from the `$OPSA_HOME/conf/collection/sample` directory to some location, such as `/tmp/myodelist.properties`.

**Note:** The sample file mentioned in this step does not contain a password property. When using the `opsa-collection-config.sh` script (in a later step) to encrypt the password, this script prompts you for the password, encrypts it, and inserts it into the sample file.

- b. Edit the `/tmp/myodelist.properties` file, adding the appropriate information; then save your work.
3. Run the following command from the Operations Analytics Server to encrypt the password:  
`$OPSA_HOME/bin/opsa-collection-config.sh -encrypt /tmp/myodelist.properties`

**Note:** You will be prompted to enter the password after running this command.

4. Ping the BSM server from the Operations Analytics Server to make sure that communication between the Operations Analytics Server and the BSM Server is functioning.
5. Run the interactive `opsa-collection-setup.sh` script.
6. Enter `8` to begin configuring a BPM Collection.
7. Follow the prompts to enter the requested information.
8. Enter `f` or `finish` after you finish entering all of your information.

## Configuration Steps (Manual Method)

To configure a Business Process Monitor (BPM) collection, do the following:

1. A node list file contains details about the sources from which you plan to collect information. There are sample nodelist files located in the `$OPSA_HOME/conf/collection/sample` directory. Operations Analytics administrators can use these sample files to publish the node list file. The sample node list file for the BPM collection is `sample_BPM_node.properties`. The node list file for the BPM collection needs to include a single node from the BSM cluster. This node must be a DPS node. Operations Analytics uses this node to extract BPM data from the BSM cluster. Operations Analytics also uses this node to obtain the BSM location name from BSM's RTSM. The node list file for the BSM BPM collection must include the information shown in the following table:

### Node List File Fields and Values

Field	Value
<code>bpmserver.hostdnsname</code>	The fully-qualified domain name of the RTSM DPS server.
<code>bpmserver.port</code>	21212: The port used to connect to the RTSM DPS server.
<code>bpmserver.username</code>	admin: The user name to use for connecting to the RTSM DPS server.

To edit the node list file, do the following from the Operations Analytics Server:

- a. Copy the `sample_BPM_node.properties` file from the `$OPSA_HOME/conf/collection/sample` directory to some location, such as `/tmp/myodelist.properties`.
 

**Note:** The sample file mentioned in this step does not contain a password property. When using the `opsa-collection-config.sh` script (in a later step) to encrypt the password, this script prompts you for the password, encrypts it, and inserts it into the sample file.
  - b. Edit the `/tmp/myodelist.properties` file, adding the appropriate information; then save your work.
2. Run the following command from the Operations Analytics Server to encrypt the password:
 

```
$OPSA_HOME/bin/opsa-collection-config.sh -encrypt /tmp/myodelist.properties
```

**Note:** You will be prompted to enter the password after running this command.

3. Run the following command from the Operations Analytics Server to create the collector configuration:
 

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -nodelist
```

```
/tmp/myodelist.properties -collectorhost <fully-qualified-domain-name of collector host> -source bpm -domain application -group performance -username opstenantadmin
```

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** The `opsa-collection-config.sh` script uses the values of `source`, `domain`, and `group` to select the right predefined collection template to create the desired collection configuration.

4. Run the following command from the Operations Analytics Server to validate the collection configuration you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -allversions -collectorhosts -username opstenantadmin>
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its version, domain, and group.

5. Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host :

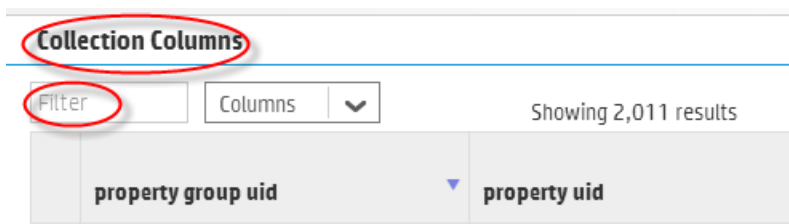
```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of the collector host> -username opstenantadmin
```

The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

6. Let the collection run for five minutes or longer. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this collection, you used a name of `bpm`, a domain of `application`, and a group of `performance` when creating the collection. The resulting property group uid would be `bpm_application_performance`.

- a. Type the property group uid (`bpm_application_performance`) for this collection in the **Collection ColumnsFilter**:



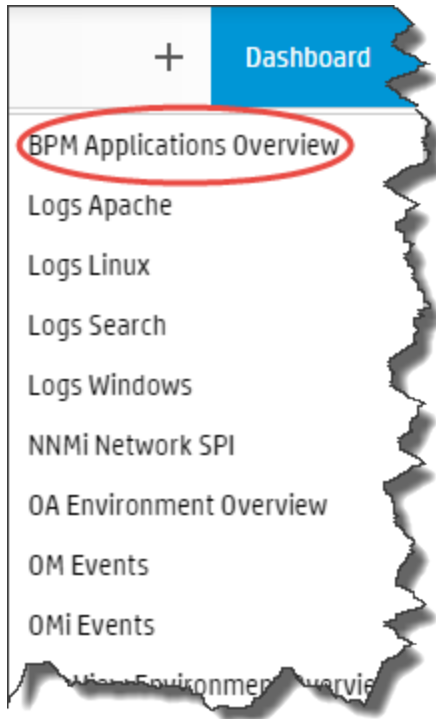
- b. After typing property group uid (bpm\_application\_performance) for this collection in the **Collection ColumnsFilter**, you should see information for this collection.

**Collection Columns**

bpm\_applicatio Columns ▾ Showing 14 results of 2,041

property group uid ▾	property uid ▾	is key ▾	type ▾
▶ bpm_application_performance	application	true	attribute
▶ bpm_application_performance	application_id	false	attribute
▶ bpm_application_performance	location	true	attribute
▶ bpm_application_performance	location_id	false	attribute
▶ bpm_application_performance	status	false	metric
▶ bpm_application_performance	transaction	true	attribute

- 7. From the Operations Analytics console, open the **BPM Application Overview** dashboard to view some of the collected information for this collection:



# Appendix 9: Configuring ArcSight Logger Out of the Box Smart Connector Collections (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See ["Configuring ArcSight Logger Out of the Box Smart Connector Collections" on page 139](#) for the recommended method. For a more detailed approach, you can complete the following steps for configuring Out of the Box Smart Connectors.

The following steps are required to configure and publish the out of the box SmartConnectors. For more information about these connectors, see *Out of the Box Log Content* in the *Operations Analytics Installation Guide*.

**Note:** From a resource perspective, there is a limit to the number of Logger sessions supported by Operations Analytics Software. HPE strongly recommends that, when you configure Logger collections, you assign those Logger collections to one common Operations Analytics collector. Doing so reduces the number of Logger sessions.

1. Run the following command from the Operations Analytics Server to confirm that you have the required templates:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -templates -username opsatenantadmin
```

If the required templates are present, the result will include the following line (the required template names are bold in this example):

```
1] Source: arcsight  
Version: 1.0, Domain: apache [access, error], Domain: linux [syslog],  
Domain: windows [event], Domain: cisco [ios]
```

2. If you do not have the required templates, place the template xml files in the following locations:

```
/opt/HP/opsa/conf/collection/server/config.templates/arcsight/1.0/apache/access/apache_access.xml
```

```
/opt/HP/opsa/conf/collection/server/config.templates/arcsight/1.0/apache/error/apache_error.xml
```

```
/opt/HP/opsa/conf/collection/server/config.templates/arcsight/1.0/linux/syslog/linux_syslog.xml
```

```
/opt/HP/opsa/conf/collection/server/config.templates/arcsight/1.0/windows/event/windows_event.xml
```

```
/opt/HP/opsa/conf/collection/server/config.templates/arcsight/1.0/cisco/ios/cisco_ios.xml
```

3. Run the following commands from the Operations Analytics Server to create the collector configuration:

**Note:** You will be prompted to enter the password after running each of the following commands. You changed the opsatenantadmin user password during installation.



```

$OPSA_HOME/bin/opsa-collection-config.sh -create -collectorhost
<Operations Analytics collector IP Address> -source arcsight -domain
apache -group access -username opsatenantadmin
$OPSA_HOME/bin/opsa-collection-config.sh -create -collectorhost Operations
Analytics collector IP Address> -source arcsight -domain apache -group
error -username opsatenantadmin
$OPSA_HOME/bin/opsa-collection-config.sh -create -collectorhost Operations
Analytics collector IP Address> -source arcsight -domain windows -group
event -username opsatenantadmin
$OPSA_HOME/bin/opsa-collection-config.sh -create -collectorhost Operations
Analytics collector IP Address> -source arcsight -domain linux -group
syslog -username opsatenantadmin
$OPSA_HOME/bin/opsa-collection-config.sh -create -collectorhost Operations
Analytics collector IP Address> -source arcsight -domain cisco -group ios
-username opsatenantadmin

```

4. Run the following command to confirm that the Logger is configured for the opsa tenant:

```

$OPSA_HOME/bin/opsa-log-integration-config.sh -list -loginUser
opsatenantadmin -loginPassword <password>

```

If the result does not include the IP address of the ArcSight Logger machine, run the following command:

```

$OPSA_HOME/bin/opsa-log-integration-config.sh -loginUser <tenantadmin1> -
loginPassword <tenantadmin1Pwd> -add -host <fully-qualified domain name of
Loggerhost1> -collectorHost <fully-qualified domain name of Collectorhost1> -username
<Loggeruser1> -loggerType arcsight -password <Loggeruser1pwd> -port 443 -sslEnabled
true -base64Decode true -allFields true -tcpMode passive

```

**Note:** For the user name in the above command, use the `-username` option for the HPE ArcSight Logger username and the `-loginUser` option for the Tenant Admin user. See the `opsa-log-integration-config.sh` reference page (or the Linux manpage) for more information.

5. A node list file contains details about the sources from which you plan to collect information. You need to modify the IP address in the following node list files, which are located in the following directory: `$OPSA_HOME/conf/collection/sample`

- `apache_access_node.properties`
- `apache_error_node.properties`
- `linuxlog_node.properties`
- `winevent_node.properties`

In each file, set the IP address of ArcSight Logger server in the `arcsightserver1.hostdnsname` variable. For example:

```

server.names = arcsightserver1
##node properties for 'Arcsight'
arcsightserver1.hostdnsname = <ArcSight Logger IP>

```

The IP address should be the same as the IP address displayed in the previous step.

6. As a non-root user, run the following command to publish the node list file to the collector host:

```

$OPSA_HOME/bin/opsa-collection-config.sh -nodelist
/opt/HP/opsa/conf/collection/sample/apache_access_node.properties -
collectorhost Operations Analytics collector IP Address> -source arcsight
-domain apache -group access -username opsatenantadmin -password
<password>

./opsa-collection-config.sh -nodelist
/opt/HP/opsa/conf/collection/sample/apache_error_node.properties -
collectorhost Operations Analytics collector IP Address> -source arcsight
-domain apache -group error -username opsatenantadmin -password <password>

./opsa-collection-config.sh -nodelist
/opt/HP/opsa/conf/collection/sample/winevent_node.properties -
collectorhost Operations Analytics collector IP Address> -source arcsight
-domain windows -group event -username opsatenantadmin -password
<password>

./opsa-collection-config.sh -nodelist
/opt/HP/opsa/conf/collection/sample/linuxlog_node.properties -
collectorhost Operations Analytics collector IP Address> -source arcsight
-domain linux -group syslog -username opsatenantadmin -password <password>

./opsa-collection-config.sh -nodelist
/opt/HP/opsa/conf/collection/sample/cisco_ios_node.properties -Operations
Analytics collector IP Address> -source arcsight -domain cisco -group ios
-username opsatenantadmin -password <password>

```

7. Run the following command from the Operations Analytics Server to validate the collection configuration that you just created:

```

$OPSA_HOME/bin/opsa-collection-config.sh -list
-collectorhosts -allversions -username opsatenantadmin

```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its version, domain, and group.

8. Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host:

```

$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-
qualified domain name of the collector host> -username opsatenantadmin

```

The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collector configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

9. To confirm that the process ran correctly, wait five minutes and then open the following log file on the Operations Analytics Collector host:

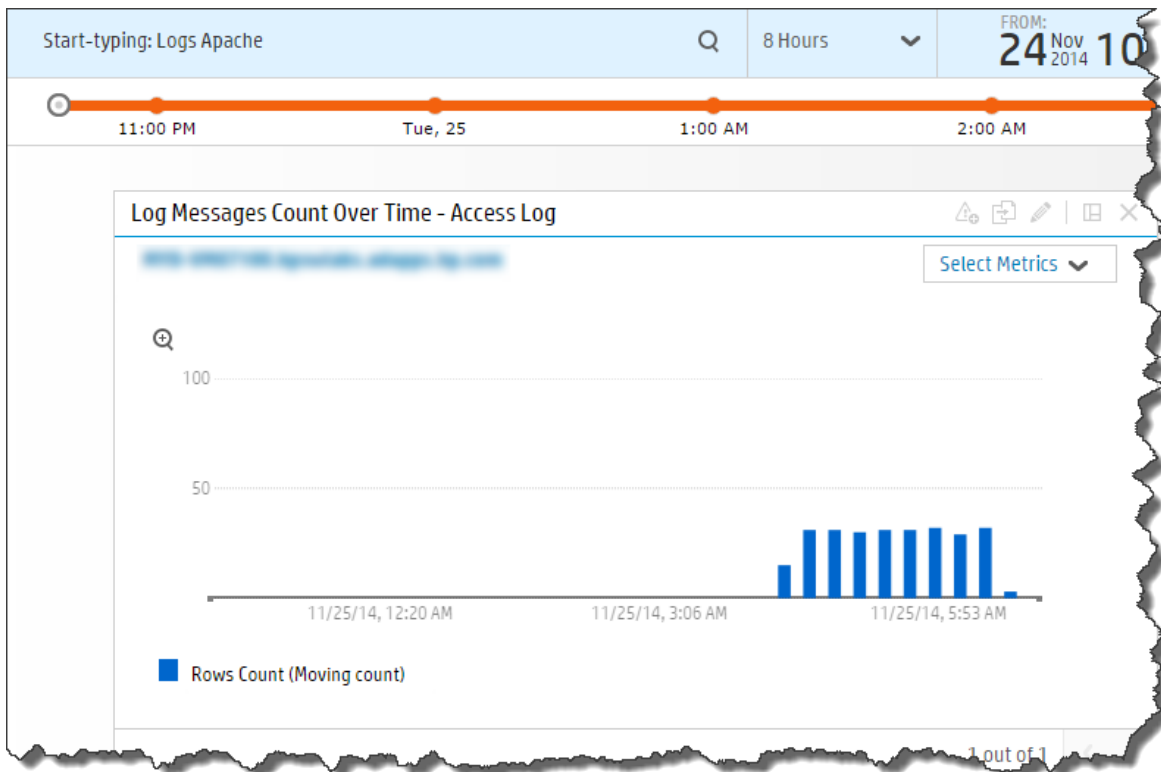
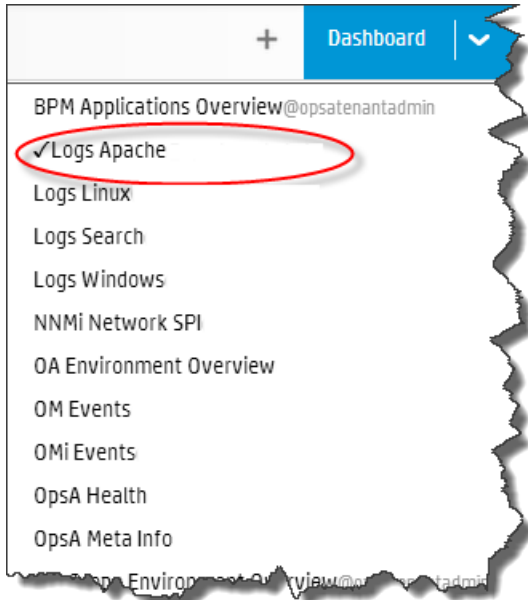
```

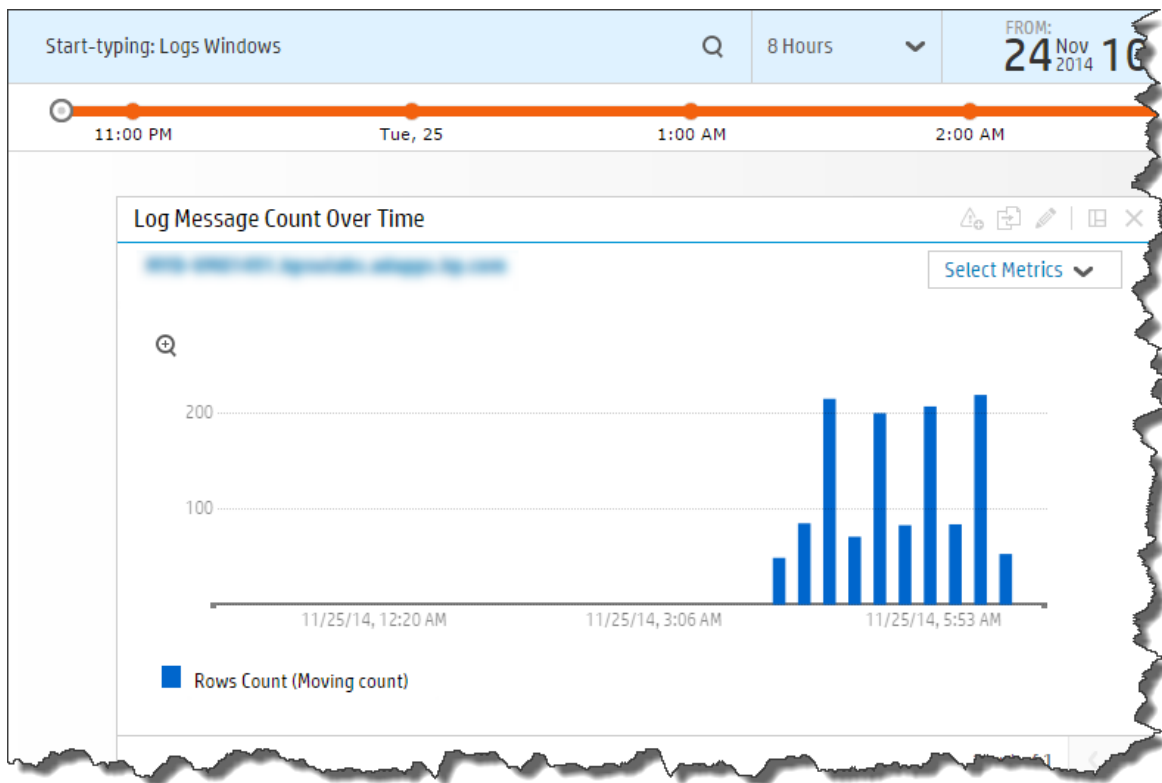
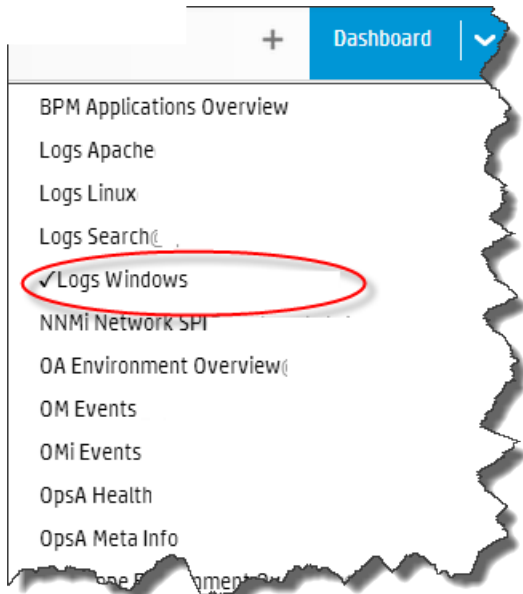
$OPSA_HOME/log/opsa-collector.log

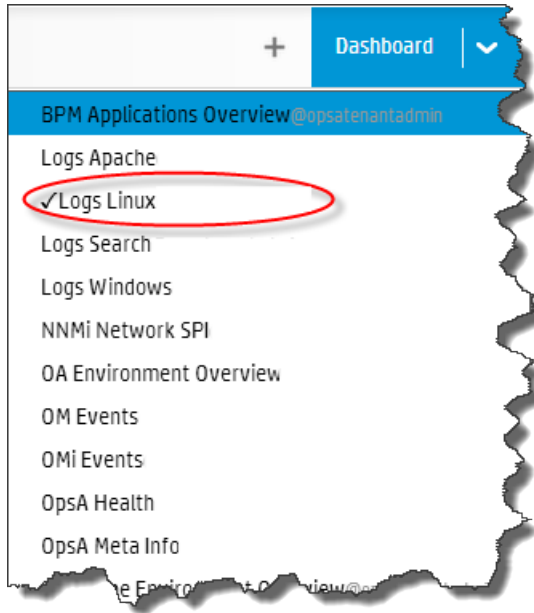
```

and confirm that it does not contain any errors.

- 10. From the Operations Analytics console, open the following dashboards to view some of the collected information for these collections:







# Appendix 10: Configuring a Custom Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See ["Configuring a Custom Collection" on page 166](#) for the recommended method. For a more detailed approach, you can complete the following steps for the Custom Collection.

Operations Analytics supports predefined collection templates for configuring data collections using the data sources described in ["Configuring Collections using Predefined Templates " on page 106](#).

To collect data from sources that do not use predefined collection templates, consider configuring a Custom CSV collection. Use the following list to determine if a Custom CSV collection might work for you:

- The data source must provide Comma-separated values (CSV) data. CSV data is the only method that Operations Analytics provides to collect data (instead of those predefined or custom collection methods described in [" Configuring Collections - Workflow" on page 17](#)
- The data source must collect CSV data based on time. There has to be a time and date column for each row in the CSV file. Both the time and date must be in that same column.

**Note:** If this is not true, you must merge these columns before creating the collection.

- The data source cannot exceed 200 data columns. If you try to create a Custom CSV collection containing more than 200 data columns, the collection creation will fail.
- The maximum supported CSV file size is 500 MB.
- Data from the CSV data source must be accessible to the Operations Analytics Collector host.
- The CSV file can be local or remote to the collector and is assumed to be available in the source directory at regular intervals.
- Each column should have a header.
- Column names should not contain any spaces.
- The CSV file will be used to create a table in Vertica. Vertica objects include tables, views, and columns. Your CSV file must use the following naming conventions:
  - A column name must be from 1 to 128 characters long.
  - A column name must begin with a letter (A through Z), diacritic marks, or non-Latin characters (200-377 octal).
  - A name cannot begin with an underscore (\_). Leading underscores are reserved for system objects.
  - Names are not case sensitive. For example, CUSTOMER and Customer represent the same names. However, if you enclose a name in quotation marks, it is case sensitive.

**Note:** Object names are converted to lowercase when they are stored in the Vertica database.

- A name cannot match a Vertica reserved word such as WHERE, VIEW, Table, ID, User, or Query.
- A name cannot match the another Vertica object that has the same type.

- The Maximum number of columns cannot exceed 1549 in a CSV file as that value is a Vertica limitation when creating a table.
- The CSV file format has to be uniform for a single collection. For example, if you create a collection with 10 columns, the subsequent files that are provided for import within Operations Analytics must have same format, including column names and data types.

For an example of data you might choose to collect using a Custom CSV collection, see the *Creating a Content Pack for Operations Analytics* White Paper at <https://hpln.hpe.com>.

**Note:** Do the following to locate the *Creating a Content Pack for Operations Analytics* White Paper:

1. Select **Products**.
2. Navigate to the **Operations Intelligence (Operations Analytics)** product, then click **Operations Intelligence**.
3. Click **Resources**, then locate the *Creating a Content Pack for Operations Analytics* White Paper.

## Important Prerequisite Steps

Complete the following prerequisite work before configuring your Custom CSV Collection using the steps in "Configuration Steps" on page 241:

1. Tenants enable you to separate information from these data sources into groups, such as collections, user accounts, and user groups. When running the commands in this chapter, the tenant model you select affects which Tenant Admin user you will use. Use one of the following tenant models:
  - **Default Tenant:** If you plan to use the default tenant, `opsa_default`, use `opsatenantadmin` as the tenant admin user and `opsatenantadmin` as the default tenant admin when running the commands in this chapter.
  - **Use your own Tenant:** If you plan to configure a new tenant or use an existing tenant (other than the Default Tenant), see "Creating Tenants" on page 17. If you use this option, you will need to use the tenant admin user and password you created when running the commands in this chapter.
2. For the Custom CSV Collection, your data must be available in CSV format. If your data is not available in CSV format, you must find a way to convert the data, or the Custom CSV Collection will not work for you.
3. Choose the `<filename>.csv` file you want to load into the Operations Analytics database. For Operations Analytics, consider that most `<filename>.csv` files for a CSV collection will have a CSV file with a header and at least one row of data. For this example, assuming this sample file name is `your_file.csv`, copy the `your_file.csv` file to the `/tmp` directory.

For Operations Analytics, consider that most `<filename>.csv` files for a CSV collection will have a CSV file with a header and at least one row of data. For example, the header could include two columns: one with data and one with the time and date.

**Note:** The `your_file.csv` sample file contains a good sample of data. Operations Analytics uses this sample data to determine the data types and meta data to place in the `<your_template_name>.xml` sample file used in these instructions.

Do not include any of the values from the following table in the header, as Vertica does not permit these values to be used as header names

**Reserved Words for Vertica (do not use these values in the header name)**

Index Letter	Value
A	ALL, ANALYSE, ANALYZE, AND, ANY, ARRAY, AS, ASC
B	BINARY, BOTH
C	CASE, CAST, CHECK, COLUMN, CONSTRAINT, CORRELATION, CREATE, CURRENT_DATABASE, CURRENT_DATE, CURRENT_SCHEMA, CURRENT_TIME, CURRENT_TIMESTAMP, CURRENT_USER
D	DEFAULT, DEFERRABLE, DESC, DISTINCT, DO
E	ELSE, ENCODED, END, EXCEPT
F	FALSE, FOR, FOREIGN, FROM
G	GRANT, GROUP, GROUPED
H	HAVING
I	IN, INITIALLY, INTERSECT, INTERVAL, INTERVALYM, INTO
J	JOIN
K	KSAFE
L	LEADING, LIMIT, LOCALTIME, LOCALTIMESTAMP
M	MATCH
N	NEW, NOT, NULL, NULLSEQUAL
O	OFF, OFFSET, OLD, ON, ONLY, OR, ORDER
P	PINNED, PLACING, PRIMARY, PROJECTION
R	REFERENCES
S	SCHEMA, SEGMENTED, SELECT, SESSION_USER, SOME, SYSDATE
T	TABLE, THEN, TIMESERIES, TO, TRAILING, TRUE
U	UNBOUNDED, UNION, UNIQUE, UNSEGMENTED, USER, USING
W	WHEN, WHERE, WINDOW, WITH, WITHIN

- Choose the following parameter values to use when running the `opsa-csv-template-gen.sh` script:
  - name:** Choose a name that accurately describes the data you plan to collect. For example, you might choose the name `mycsv` for the source.
  - domain:** Choose a domain that accurately describes a domain in which the data you plan to collect resides. For example, you might choose the domain `birds`, to support the example in this section.



- **group**: Choose a group that accurately describes the group for which you plan to collect data. For example, you might choose the domain `eagle`, to support the example in this section.

See the `opsa-csv-template-gen.sh` reference page (or the Linux manpage), for more information.

5. Choose the following parameter values you plan to use when running the `opsa-collection-config.sh` script:
  - **source** : For the custom CSV collections, always use `custom` for the source.
  - **domain**: Use the domain that you selected in the previous step.
  - **group**: Use the group that you selected in the previous step.

See the `opsa-collection-config.sh` reference page (or the Linux manpage), for more information.

## Configuration Steps

After you complete the steps in this section, the Custom CSV Collection reads data from the CSV files within 60 seconds of the file being placed in the source directory.

For several examples of data you might choose to collect using a Custom CSV collection, see the *Creating a Content Pack for Operations Analytics* White Paper at <https://hpln.hpe.com>.

**Note:** Do the following to locate the *Creating a Content Pack for Operations Analytics* White Paper:

1. Select **Products**.
2. Navigate to the **Operations Intelligence (OpsA)** product, then click **Operations Intelligence**.
3. Click **Resources**, then locate the *Creating a Content Pack for Operations Analytics* White Paper.

1. Do the following from the Operations Analytics Server
  - a. Run the following command to create a template for this new collection based on the sample data in the `your_file.csv` file:

```
$OPSA_HOME/bin/opsa-csv-template-gen.sh -inputfile /tmp/your_file.csv -name mycsv -domain birds -group eagle -sourcedir /opt/HP/opsa/data/<mydata> -datecolumn Time -dateformat MM/dd/yyyy hh:mm:ss -timezone GMT+0 -filepattern '*.csv' -groupstype metrics -key String, Usage in MHz
```

**Note:** To specify a time zone that supports Daylight Savings Time, use the desired daylight savings time value you need as the `timezone` attribute. See "[Daylight Savings Time Codes](#)" on page 81 for a list of valid timezone attributes.

**Note:** You must define at least one property as a key column using the `-key` option. Do not specify a timestamp or metric as a key column with the `-key` option.

After this command completes, it creates the `<your_template_name>.xml` file and displays the path to this file. The `<your_template_name>.xml` file is a collection template created from the `your_file.csv` file. Look for a message similar to the following:

```
Generated the Custom CSV collection template  
/opt/HP/opsa/conf/collection/server/config.templates/custom/1.0/birds/eagle/mycsv.xml
```

- b. Create the following directory on the Operations Analytics Collector host:  
`/opt/HP/opsa/data/<mydata>`
- c. Run the following command from the Operations Analytics Collector host to set the correct file ownership:  
`chown opsa /opt/HP/opsa/data/<mydata>`

See the *opsa-csv-template-gen.sh* reference page (or the Linux manpage) for more information.

**Note:** The purpose of the `-datecolumn`, `-dateformat`, and `-timezone` options is to identify one column from the `your_file.csv` file as the `timestamp` column for the database table. This column selection is mandatory for Operations Analytics collections using metric tables. These options are provided to help you, as the Operations Analytics administrator, identify the correct column.

**Note:** When creating a custom CSV template, do not use a column named `timestamp_utc`, as doing so causes an error when you attempt to publish the collection. If you already registered a collection see "[Removing a Collection Registration for a Tenant](#)" on page 74 for instructions about removing the registration for this collection.

**Note:** As an example, suppose you plan to use `your_file.csv` as your CSV file, and that it contains the following information:

- a. Using this information in an example, you would use the following command to create your custom CSV template:

```
$OPSA_HOME/bin/opsa-csv-template-gen.sh -inputfile /tmp/your_
file.csv -name mycsv -domain birds -group eagle -sourcedir
/opt/HP/opsa/data/mydata -datecolumn Time -dateformat MM/dd/yyyy
hh:mm:ss -timezone GMT-7 -filepattern *.csv -grouptype metrics -key
String
```

After this command completes, look for a message similar to the following:

```
Generated the Custom CSV collection template
/opt/HP/opsa/conf/collection/server/config.templates/custom/1.0/bird
s
/eagle/mycsv.xml
```

- b. Create the following directory on the Operations Analytics Collector host:  
`/opt/HP/opsa/data/mydata`
- c. Run the following command from the Operations Analytics Collector host to set the correct file ownership:  
`chown opsa /opt/HP/opsa/data/mydata`

**Note:** As an example, suppose you plan to use `your_file.csv` as your CSV file, and that it contains the following information:

```
Time,Value1,String1
02/23/2014 23:42:00,6.543,eagle
02/23/2014 23:52:00,7.543,eagle
02/23/2014 23:62:00,8.543,eagle
```

Use the following pattern letters when configuring the date format to use when parsing date strings:

Letter	Date or Time Component	Presentation	Examples
G	Era designator	Text	AD
Y	Year	Year	1996; 96
M	Month in Year	Month	July; Jul; 07
w	Week in Year	Number	27
W	Week in month	Number	2
D	Day in year	Number	189
d	Day in month	Number	10
F	Day of week in month	Number	2
E	Day in week	Text	Tuesday; Tue
a	Am/Pm marker	Text	PM
H	Hour in day (0-23)	Number	0
k	Hour in day (1-24)	Number	24
K	Hour in am/pm (0-11)	Number	0
h	Hour in am/pm (1-12)	Number	12
m	Minute in hour	Number	30
s	Second in minute	Number	55
S	Millisecond	Number	978
z	Time zone	General time zone	Pacific Standard Time; PST; GMT-08:00
Z	Time zone	RFC 822 time zone	-0800

The following examples show how to interpret date and time patterns in the U.S. locale. The given date and time are 2001-07-04 12:08:56 local time in the U.S. Pacific Time time zone.

Date and Time Pattern	Result
"yyyy.MM.dd G 'at' HH:mm:ss z"	2001.07.04 AD at 12:08:56 PDT
"EEE, MMM d, 'yy"	Wed, Jul 4, '01
"h:mm a"	12:08 PM
"hh 'o'clock' a, zzzz"	12 o'clock PM, Pacific Daylight Time
"K:mm a, z"	0:08 PM, PDT

Date and Time Pattern	Result
"yyyy.MMMMM.dd GGG hh:mm aaa"	02001.July.04 AD 12:08 PM
"EEE, d MMM yyyy HH:mm:ss Z"	Wed, 4 Jul 2001 12:08:56 -0700
"yyMMddHHmmssZ"	010704120856-0700
"yyyy-MM-dd'T'HH:mm:ss.SSSZ"	2001-07-04T12:08:56.235-0700
"MM/dd/yyyy hh:mm:ss"	10/04/2001 12:08:56
To use epoch time, substitute <code>-dateformat s</code> for the <code>-dateformat MM/dd/yyyy hh:mm:ss</code> option as shown in following example: <code>-dateformat s 1002197336</code> Look at the resulting epoch time shown in the next column:	1002197336 (the epoch equivalent of 10/04/2001 12:08:56)

2. You must have a registered an Operations Analytics Collector host for the Custom CSV collections you plan to configure.  
 To check the registration status of your Operations Analytics Collector host, do the following:
  - a. Run the following command: `$OPSA_HOME/bin/opsa-collection-config.sh -list -collectorhosts -allversions -username opsatenantadmin`
  - b. Review the list of registered Operations Analytics Collector hosts. If the Operations Analytics Collector host you plan to register is not on the list, you must register it using the instructions in this section.

See [Registering Each Operations Analytics Collector Host](#) for more information.

3. Using this example as a guideline, review the collection properties in the `/opt/HP/opsa/conf/collection/server/config.templates/custom/1.0/birds/eagle/mycsv.xml` file:
  - a. Change the property type (`type="attribute"` or `type="metric"`).

**Note:** A collection property can be either an attribute (a descriptor for an entity, such as `host_name`) or a metric (typically a measurement), such as `CPU utilization`.

- b. Review the attributes and decide which of them are key attributes. Set up two three key attributes by setting `key="yes"` for the desired key attribute.

**Note:** You can use keys to uniquely identify an entity instance so users can narrow a search within a single collection or match metrics for one entity (a collection row) to the same metric or a related entity across collections.

**Note:** When using PQL and the `withkey` command, you can use up to three key column values for a singly query. See *About the Phrase Query Language* in the *Operations Analytics Help* for more information.

- c. Save your work.
4. **Optional Step:** You might have a need to transform data before it is stored in the Operations Analytics database. You can do this by editing the `<your_template_name>.xml` file and adding transform methods.

Operations Analytics provides the following methods for transforming data:

- `add(x)`
- `subtract(x)`
- `multiply(x)`
- `divide(x)`
- `replace(x)`  
where `x` is a float data type.
- `concat(str)`
- `replace(str)`
- `replacewith(currentStr, newStr)`  
where `Str` represents string for a string data type

For example, consider the following column description:

```
<column name="CPU Utilization" position="9" datatype="float" label="CPU  
Utilization" columnname="cpu_util" length="0" key="no" type="metric"  
tags="utilization,performance,primary" mapsto="" unit="%" value="" />
```

In this example, you want the column description to read as follows:

```
<column name="CPU Utilization" position="9" datatype="float" label="CPU  
Utilization" columnname="cpu_util" length="0" key="no" type="metric"  
tags="utilization,performance,primary" mapsto="" unit="%" value="multiply  
(100)" />
```

To add the transform, edit the `<your_template_name>.xml` file, add `value-multiply(100)` to the column for CPU Utilization, then save your work.

#### Valid Values for unit

You can use any of the following entries for the unit field:

```
"%"  
"bytes"  
"mbps"  
"kpbs"  
"gbps"  
"kb"  
"mb"  
"gb"  
"hz"  
"khz"  
"mhz"  
"ghz"  
"BIT"  
"PB"  
"EB"  
"W"  
"V"  
"A"  
"secs"  
"millisecs"
```

```
"ms"  
"pages/sec"  
"per second"  
"switches/sec"  
"bytes/sec"  
"KB/sec"  
"interrupts/sec"  
"pages/sec"  
"errors/sec"  
"reads/sec"  
"bps"  
"per hour"  
"per min"
```

5. For this *birds* example, run the following command from the Operations Analytics Server to create the collector configuration:

```
$OPSA_HOME/bin/opsa-collection-config.sh -create -collectorhost <fully-qualified domain name of the collector host> -source custom -domain birds -group eagle -username opsatenantadmin
```

**Note:** The `opsa-collection-config.sh` script prompts you for the Tenant Admin password for the username you use in the `opsa-collection-config.sh` command.

**Note:** When you run the command in this step, always use the `-source custom` argument when creating a custom CSV collector configuration.

To create and publish collections supported by Operations Analytics, you normally provide `source`, `domain`, and `group` options to the `opsa-collection-config.sh` script. The definition for each of these options is as follows:

- **source:** Specifies the name of the source collector.
- **domain:** Specifies the domain name to which the collected data belongs.
- **group:** Specifies the group name to which the collected data belongs.

**Note:** The `opsa-collection-config.sh` script uses the values of `source`, `domain`, and `group` to select the right collection template and create the desired collection configuration.

To see the predefined values for these options, see the *opsa-collection-config.sh* reference page (or the Linux manpage).

**Note:** Although the *opsa-collection-config.sh* reference page provides you with the predefined values for these options, use the `custom` source option along with options that differ from the predefined values for the `domain` and `group` options when creating Custom CSV Collections.

6. Run the following command from the Operations Analytics Server to publish this collection configuration to the Operations Analytics Collector host :

```
$OPSA_HOME/bin/opsa-collection-config.sh -publish -collectorhost <fully-qualified domain name of the collector host> -username opsatenantadmin
```

The `-publish` option uploads the collection configuration you created to the Operations Analytics Collector host. To verify that the collection configuration published successfully, look for a message stating that the publish was successful, that a table was successfully created, and that the collection was restarted.

7. Run the following command from the Operations Analytics Server to validate the collection configuration you just created:

```
$OPSA_HOME/bin/opsa-collection-config.sh -list -allversions -  
collectorhosts -username opsatenantadmin
```

To verify a successful collection configuration creation, look for a message showing the expected collector host name, tenant name, and tenant version. The message should also include the source template details such as its version, domain, and group.

8. You must copy the data files (or set up some way of automatically copying the data files) from the data source to the Operations Analytics Collector host and set the correct file ownership. Do the following for the collection you plan to configure:

- a. Copy the files to the following directory on the Operations Analytics Collector host: `$OPSA_HOME/data/mydata` (or to the directory that relates to the custom collection you created).
- b. Run the following command from the Operations Analytics Collector host to set the correct file ownership:  

```
chown opsa $OPSA_HOME/data/mydata
```

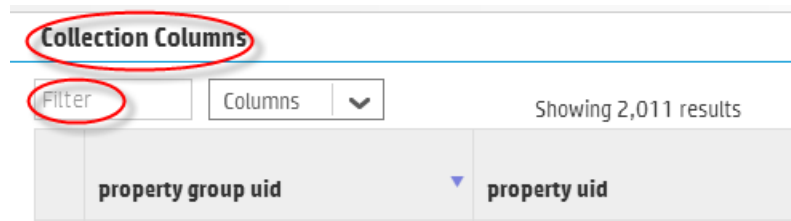
After completing this step, you should see data in the `$OPSA_HOME/data/mydata_processed` folder within a few minutes.

**Note:** After Operations Analytics processes data in the `yourfile.csv` file, it removes the `yourfile.csv` file from the `$OPSA_HOME/data/mydata` directory and creates the `$OPSA_HOME/data/mydata_processed` folder and its contents.

9. From the Operations Analytics console, view the **OpsA Meta Info** dashboard. Look for the **property group uid** for the collection you just created and published.

**Note:** The property group uid consists of a combination of the `source`, `domain`, and `group` parameters you used to create the collection. For this example, you would have used a name of `custom`, a domain of `birds`, and a group of `eagle` when creating the collection. The resulting property group uid would be `custom_birds_eagle`.

- a. Type the property group uid (`custom_birds_eagle`) for this collection in the **Collection ColumnsFilter:**



- b. After typing property group uid (`custom_birds_eagle`) for this collection in the **Collection ColumnsFilter**, you should see information in the resulting table:

**Collection Columns**

custom\_birds\_eagle Columns ▾ Showing 4 results of 2,041

	property group uid ▾	property uid ⚡	is key ⚡	type ⚡
▶	custom_birds_eagle	string1	true	attribute
▶	custom_birds_eagle	value1	false	metric
▶	custom_birds_eagle	timestamp	false	attribute
▶	custom_birds_eagle	timestamp_utc	false	attribute

10. Create dashboards and query panes for the data you are now collecting. Follow the instructions shown in the *Dashboards and Query Panes* section of the *Operations Analytics Help* for information about creating dashboards and query panes.
11. Create AQL functions for the data you are now collecting. See the instructions shown in the *Define Analytic Query Language (AQL) Functions* section of the *Operations Analytics Help* for information about creating AQL functions.
12. If you want to add tags to a Custom CSV Collection, use the `opsa-tag-manager.sh` command. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) and the `opsa-tag-manager.sh` reference page (or the Linux manpage) for more information.

## Troubleshooting the Custom CSV Collection

If you suspect problems with your Custom CSV Collection, do the following:

1. To check the registration status of your Operations Analytics Collector host, do the following:
  - a. Run the following command: `$OPSA_HOME/bin/opsa-collection-config.sh -list -collectorhosts -allversions -username opsatenantadmin`
  - b. Review the list of registered Operations Analytics Collector hosts. If the Operations Analytics Collector host you plan to register is not on the list, you must register it using the instructions in this section.
2. View the collected data to make sure it is what you expect. If it is not, continue checking the remaining items in this list.
3. Review the content of the `your_file.csv` file and the associated `<your_template_name>.xml` file to make sure it is configured to collect the right data.
4. You must use a CSV file for the Custom CSV Collection. Check the `<filename>.csv` file you loaded into the Operations Analytics database. For Operations Analytics, consider that most `<filename>.csv` files for a CSV collection will have a CSV file with a header and at least one row of data.
5. Check the quality of the data you are collecting. If it is not what you expected, review the content of the `<filename>.csv` file you loaded into the Operations Analytics database, as it might not be collecting the right data for you.



## Removing the Registration and Data for a Custom CSV Collection

To remove the registration for a Custom CSV Collection, do the following:

1. Run the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -unregister -source custom -group  
group -domain domain -collectorhost <fully-qualified domain name of  
collector host>
```

**Note:** If you remove the registration for this CSV collection, and do not complete the remaining steps, remember the following important information:

- The collected data remains intact and is not removed.
- If you decide to register this collection again, you must not reuse the `your_file.csv` file, (or whatever csv file name you used to create the collection template), as you run the risk of duplicating the original collection data.
- It is a best practice to complete all of these removal steps to avoid collecting duplicate data.

2. After unregistering this Custom CSV Collection, remove the collection from the database using the following command:

```
$OPSA_HOME/bin/opsa-collection-config.sh -purgecollection -source custom -  
domain domain -group group -collectorhost <fully-qualified domain name of  
collector host> -username opsatenantadmin
```

See the *opsa-collection-config.sh* reference page (or the Linux manpage), for more information.

**Note:** The command in this step also removes all Custom CSV Collection data for the specified tenant from the Operations Analytics database.

**Note:** After unregistering a Custom CSV Collection, the data remains intact. This means that you can register a Custom CSV Collection that you removed and resume that Custom CSV Collection.

3. Remove the data. For example, for the NOAA example, you would remove the `$OPSA_HOME/data/noaaCustom_processed` directory.

See the *opsa-collection-config.sh* reference page (or the Linux manpage) and "[Removing a Collection Registration for a Tenant](#)" on page 74 for more information.

# Appendix 11: Configuring a Custom SiteScope Collection (Detailed Method)

It is recommended that you use a more automated method of configuring this collection. See ["Configuring a Custom SiteScope Collection" on page 172](#) for the recommended method. For a more detailed approach, you can complete the following steps for the Custom SiteScope Collection.

After you complete the steps in this section, SiteScope starts sending data to the Custom SiteScope Collection. The Custom SiteScope Collection collects data as it arrives from SiteScope.

The following table shows the monitor types currently supported by the Custom SiteScope Collection:

**Note:** If a SiteScope monitor type has only unsupported counters configured, Operations Analytics ignores that monitor type when creating the collection. Operations Analytics does not support monitor counter names longer than 128 characters. If a supported monitor's counter name is longer than 128 characters, Operations Analytics ignores that counter.

Operations Analytics supports the default counters of the supported monitors listed in ["Supported Monitor Types" on the next page](#). If a monitor is configured in SiteScope with custom counters or metrics, such as calculated metrics or custom counters of **Script**, **JMXMonitor**, or **XMLMetrics** monitors, follow the instructions shown in ["SiteScope Monitors and Their Counters" on the next page](#) before creating this collection.

## Supported Monitor Types

Apache	Memory	URLContent
BACIntegrationConfiguration	MicrosoftWindowsEventLog	URLMonitor
BACIntegrationStatistics	MQStatusMonitor	URLSequenceMonitor
Composite	MSActiveServerPages	VMware
ConnectionStatisticsMonitor	MSIIServer	VMwareHostCPUMonitor
CPU	MSSQLServer	VMwareHostMemoryMonitor
DatabaseCounter	MSWindowsMediaServer	VMwareHostStateMonitor
DHCP	NetworkBandwidthMonitor	VMwareHostStorageMonitor
Directory	Oracle	WebServer
DiskSpace	Ping	WebService
DNS	Port	WebSphere
DynamicDiskSpace	SAPPerformance	WindowsPerformance
File	Script	WindowsResources
FTPMonitor	Service	WindowsServicesState
HealthServerLoadMonitor	SiebelApplicationServer	XMLMetrics
HyperVMonitor	SolarisZones	
JMXMonitor	SQLQuery	
LDAPMonitor	SSLCertificatesStatus	
LogEventHealthMonitor	Sybase	
LogMonitor	UnixResources	

### SiteScope Monitors and Their Counters

A SiteScope collection consists of several collections, one for each monitor type, when each collection has metrics and attributes corresponding to a monitor's counters. A collection is mapped to a database table while metrics and attributes are stored in this table's columns.

An Operations Analytics SiteScope collection's configuration framework creates collections with metrics and attributes according to the monitor types and counters configured in the SiteScope server from which Operations Analytics is collecting data. The created configuration is based on UOM files obtained from the SiteScope server. These files contain a list of monitors and their counters as they are configured on that SiteScope server.

In addition to the list of monitors and their counters, Operations Analytics must determine the data type used for each counter. This data type can be either float (for metric data) or string (for attribute data). This information is not available directly from SiteScope and is configured locally on the Operations Analytics

Server file system in the `/opt/HP/opsa/conf/collection/sitescope_metadata_patterns/` directory in files named `<monitor name>_datatypes`. These files have predefined configurations suitable for the default counters of common SiteScope monitor types. As mentioned earlier, the list of supported monitor types is shown in ["Supported Monitor Types" on the previous page](#).

Monitor types that have user-defined counters, such as **Script**, **JMXMonitor**, or **XMLMetrics**, usually require that you manually add these custom-counters' names to the corresponding `<monitor name>_datatypes` files before creating the collections. This requirement also applies to any SiteScope monitor if it has **Calculated Metrics** defined in at least one instance of its type.

**Note:** If Operations Analytics cannot define a data type for a monitor's counter, its values will not be collected. If Operations Analytics defines a wrong data type for a monitor's counter, Operations Analytics might omit any data received from that monitor.

### Modifying Data Types Configurations

To prevent a problem with SiteScope data collections due to the above requirements, you can modify the data types configuration. Detailed instructions about modifying the SiteScope metadata configuration files, including the data types configuration files, can be found in the following text file on the Operations Analytics server's file system: `/opt/HP/opsa/conf/collection/sitescope_metadata_patterns/custom/README_BEFORE_CREATING_PATTERNS.txt`

Each `<monitor name>_datatypes` file contains lines in the following format: regular expression, comma, data type (`float` or `string`). Each regular expression is expected to match one or more counter names as they appear in the UOM file. Specific regular expressions should appear before more general expressions.

For example, to define all counters starting with `size` as data type `float` and all the other counters as data type `string`, use the following:

```
size.*,float
.*,string
```

It is also possible to define the data type for exact counter names through escaping regular expressions by surrounding the name with `"\Q` and `\E"`.

For example, for a counter named `%cpu` that should be of data type `float` use the following:

```
"\Q%cpu\E",float
```

### Modifying Units and Tags

Similar to configuring data types, you can optionally configure units and tags for counters of a monitor by modifying the `<monitor name>_units` and `<monitor name>_tags` files respectively.

The tags file can contain a comma separated list of tags after a regular expression. The line that begins with `global_tags` defines collection-level tags. See ["Creating, Applying, and Maintaining Tags for Custom Collections" on page 160](#) for more information.

**Note:** The units you can specify in the `<monitor name>_units` files can only be from the following list:

%, mbps, kbps, gbps, kb, mb, gb, hz, khz, mhz, ghz, bytes, BIT, PB, EB, W, V, A, secs, millisecs, ms, pages/sec, per second, switches/sec, bytes/sec, KB/sec, interrupts/sec, packets/sec, pages/sec, errors/sec, reads/sec, bps, per hour, per min, Celsius.

After modifying the configuration files within the `/opt/HP/opsa/conf/collection/sitescope_metadata_patterns/` directory, you can run the `/opt/HP/opsa/scripts/opsa-sis-regex-matches.sh <path to uom file name>` command to see how Operations Analytics processes the counters from the UOM file.

If you plan to connect more than one SiteScope server to Operations Analytics, and you do not plan to connect them all at once (for example, if you use the Collections Manager instead of a command line collection configuration), you must do the following:

1. Export the UOM files from all of these SiteScope servers to a single common folder on the Operations Analytics server (rename the files if needed).
2. Supply the path to the folder to which you exported the UOM files using the `-uomfiles` option (using a command line) or in the UOM folder path (using the Collections Manager) when adding each SiteScope collection.

## Detailed Configuration Steps

Configuring a SiteScope Collection by creating custom collector templates is a two-step process:

1. ["Generating and Configuring Templates \(Custom SiteScope Collection\)" below](#)
2. Continue with ["Configuring SiteScope for Integrating Data with Operations Analytics \(Automated Method\)" on page 255](#)

If you prefer using a manual method to configure SiteScope for Integrating data with Operations Analytics (Operations Analytics), see ["Configuring a Custom SiteScope Collection \(Detailed Method\)" on page 250](#).

## Generating and Configuring Templates (Custom SiteScope Collection)

To configure a Custom SiteScope Collection, you must use SiteScope Unit Of Measurement (UOM) files as an input for the `opsa-sis-collector-auto-conf.sh` script.

To use metrics that are not supported by the default UOM file complete the steps shown below.

1. Complete these substeps for each SiteScope server from which you plan to collect data.
  - a. Using the SiteScope UI, navigate to the **Diagnostics Integration Preferences** page (**Using SiteScope > Preferences > Integration Preferences > Diagnostics Integration Preferences**)
  - b. Click **Generate UOM XML**. Doing so creates the UOM XML file on the HPE SiteScope server in the following location: `%SITESCOPE_HOME%\conf\integration\data_integration_uom.xml`.
2. Create an empty directory on the Operations Analytics Server; then copy the generated UOM files to this newly created directory.

**Note:** Rename the UOM files before you copy them to the newly created directory, as many of the generated UOM files might have the same name (`data_integration_uom.xml`).

**Note:** When creating SiteScope collection templates, only place valid UOM files in the directory. Do not place any other files in that directory.

3. Optional: You can use the `opsa-sis-collector-auto-conf` script to create complete collection templates for most of the monitor types shown in ["Configuring a Custom SiteScope Collection \(Detailed Method\)" on page 250](#). However, there are a few created templates you might need to customize after you create them. For example, you might need to customize the template contents of the following SiteScope monitor types, as you should vary the template content to match the data you configure the monitor to collect:

- Script
- XMLMetrics
- JMXMonitor

There are two tasks you might need to complete when customizing the creation of a SiteScope collection template for a particular monitor type:

- a. Parsing the counter names to separate out metric names from instance attributes:** Create a regular expression definition in the `/opt/HP/opsa/conf/collection/sitescope_measure_regex_patterns/custom` directory. See the `/opt/HP/opsa/conf/collection/sitescope_measure_regex_patterns/custom/README_BEFORE_CREATING_PATTERNS.txt` file for specific instructions about creating regular expressions to parse the counter names for a SiteScope monitor type.
- b. Defining the data type, tags and units for a parsed metric:** Create a regular expression definition in the `/opt/HP/opsa/conf/collection/sitescope_metadata_patterns/custom` directory. See the `/opt/HP/opsa/conf/collection/sitescope_measure_regex_patterns/custom/README_BEFORE_CREATING_PATTERNS.txt` file for specific instructions about creating regular expression definitions for assigning data types, tags, and units to metrics for a SiteScope monitor type.

After you finish these steps, use the `-uomfiles` option in the next set of steps to define a UOM folder path containing UOM files you manually extracted:

1. If you are using Operations Analytics for SiteScope version 11.22IP or newer, skip this step (proceed to ["Configuring SiteScope for Integrating Data with Operations Analytics \(Automated Method\)" on the next page](#)). If you are using an earlier version of SiteScope (earlier than SiteScope version 11.22IP), complete one of the following options:
  - **Option 1:** Use the `opsa-sis-collector-auto-conf.sh` script with the default UOM file. The default UOM file is located at `$OPSA_HOME/conf/collection/sitescope_configuration/uom/data_integration_uom.xml`. Using the default UOM file, proceed to step 2.

**Note:** Operations Analytics includes a default UOM file, `$OPSA_HOME/conf/collection/sitescope_configuration/uom/data_integration_uom.xml`, which supports many of the metrics supported by Operations Analytics. Use the `-uomfiles` option to optionally define a UOM folder path containing UOM files you manually extracted.

- **Option 2:** To use metrics that are not supported by the default UOM file complete the steps shown below.
  - i. Complete these substeps for each SiteScope server from which you plan to collect data.
    - A. Using the SiteScope UI, navigate to the **Diagnostics Integration Preferences** page (**Using SiteScope > Preferences > Integration Preferences > Diagnostics Integration Preferences**)
    - B. Click **Generate UOM XML**. Doing so creates the UOM XML file on the HPE SiteScope server in the following location: `%SITESCOPE_HOME%\conf\integration\data_integration_uom.xml`.
  - ii. Create an empty directory on the Operations Analytics Server; then copy the generated UOM files to this newly created directory.

**Note:** Rename the UOM files before you copy them to the newly created directory, as many of the generated UOM files might have the same name (`data_integration_uom.xml`).

**Note:** When creating SiteScope collection templates, only place valid UOM files in the directory. Do not place any other files in that directory.

- iii. Optional: You can use the `opsa-sis-collector-auto-conf` script to create complete collection templates for most of the monitor types shown in "[Configuring a Custom SiteScope Collection \(Detailed Method\)](#)" on page 250. However, there are a few created templates you might need to customize after you create them. For example, you might need to customize the template contents of the following SiteScope monitor types, as you should vary the template content to match the data you configure the monitor to collect:
- Script
  - XMLMetrics
  - JMXMonitor

There are two tasks you might need to complete when customizing the creation of a SiteScope collection template for a particular monitor type:

**A. Parsing the counter names to separate out metric names from instance**

**attributes:** Create a regular expression definition in the `/opt/HP/opsa/conf/collection/sitescope_measure_regex_patterns/custom` directory. See the `/opt/HP/opsa/conf/collection/sitescope_measure_regex_patterns/custom/README_BEFORE_CREATING_PATTERNS.txt` file for specific instructions about creating regular expressions to parse the counter names for a SiteScope monitor type.

- B. Defining the data type, tags and units for a parsed metric:** Create a regular expression definition in the `/opt/HP/opsa/conf/collection/sitescope_metadata_patterns/custom` directory. See the `/opt/HP/opsa/conf/collection/sitescope_measure_regex_patterns/custom/README_BEFORE_CREATING_PATTERNS.txt` file for specific instructions about creating regular expression definitions for assigning data types, tags, and units to metrics for a SiteScope monitor type.

After you finish these steps, use the `-uomfiles` option in the next set of steps to define a UOM folder path containing UOM files you manually extracted:

## 2. Configuring SiteScope for Integrating Data with Operations Analytics (Automated Method)

Complete the following tasks to configure HPE SiteScope to forward data to an Operations Analytics Collector host.

- a. A node list file contains details about the sources from which you plan to collect information. The node list file for the Custom SiteScope Collections must include the information shown in the following table.

**Note:** Each of the following settings could be configured for a specific SiteScope server, such as `server1`. If the SiteScope server value is missing, the default setting is used. For example, if the `"<server1>.port = "` string does not exist in the node list file, Operations Analytics uses the value of the `"default.port = "` setting for `server1`.

### Node List Fields and Values

Field	Value
server.names	The aliases of the SiteScope server names, delimited by commas. These are the servers from which you plan to collect SiteScope information.
<server>.hostdnsname	IP Address or fully-qualified domain name of the SiteScope servers for which you are configuring collections. If you want to support failover for the SiteScope servers, specify all the SiteScope servers included in the failover configuration.
.port	<p>The port used to connect to the SiteScope server. Set this if a server does not use the default.port value.</p> <p>The <code>server.port</code> setting could be configured for a specific server, such as <code>server1</code>. If the server value is missing, the default setting is used. For example if the "<code>&lt;server1&gt;.port =</code>" string does not exist in the node list file, Operations Analytics uses the value of the "<code>default.port =</code>" setting for <code>server1</code>.</p>
.username	The default user name used to connect to the SiteScope server. This is typically <code>admin</code> . This field might be set to empty (no value), as it is possible to configure SiteScope not to ask for a username and password to log on.
.initString	<p>The default value of the <code>initString</code> used for SSL communication with the SiteScope server. <b>You can obtain this <code>initString</code> from the SiteScope screen shown below this table.</b></p> <div style="background-color: #f0f0f0; padding: 5px;"> <p><b>Note:</b> If you cannot find this <b>SiteScope LWSSO <code>initString</code></b> in the user interface for the version of SiteScope you are using, you can find the string in the SiteScope file system at <code>&lt;SiteScope installation directory&gt;\conf\lwssolwssofmconf.xml</code>.</p> </div>

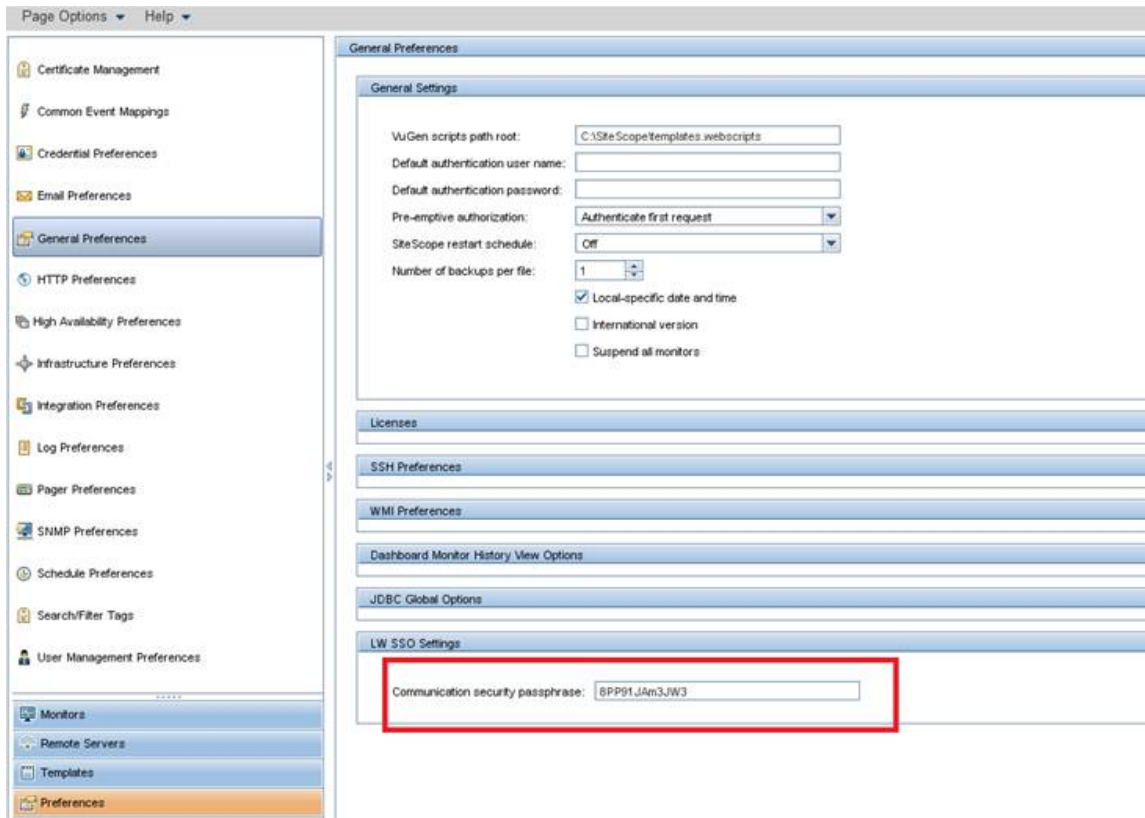


### Node List Fields and Values, continued

Field	Value
.use_ssl	<p>Set this field to <code>true</code> to enable SSL communication with the SiteScope server. The default setting is <code>false</code>.            If you set <code>default.use_ssl=true</code>, you must export the certificate from the Operations Analytics Collector host and import this certificate on each SiteScope server.</p> <p>If SiteScope is enabled with SSL, do the following:</p> <ol style="list-style-type: none"> <li>i. Copy the SiteScope server's root server certificate to each Operations Analytics Server and give the file full permissions.</li> <li>ii. Run the <code>opsa-server-manager.sh</code> script.               <ol style="list-style-type: none"> <li>A. Log on to the Operations Analytics Server as the <code>opsaadmin</code> user.</li> <li>B. Choose <b>Option 2</b> to configure SSL.</li> <li>C. Choose <b>Option 4</b> to import the trusted certificate into the OpsA truststore.</li> <li>D. Enter the file name of the certificate you want to import; then press <b>Enter</b>.</li> <li>E. Repeat the prior steps for additional certificate files you want to import.</li> <li>F. Exit the <code>opsa-server-manager.sh</code> script.</li> </ol> </li> </ol> <p>See <i>Configuring SiteScope to Use SSL</i> in the <i>HPE SiteScope Deployment Guide</i> the <code>opsa-server-manager.sh</code> reference page (or the Linux manpage), and the <code>opsa-collector-manager.sh</code> reference page (or the Linux manpage) in the Operations Analytics console for more information.</p>
.opsa_collector	<p>The fully-qualified domain name or the IP address of the common collector that collects data from the SiteScope servers. Do not use <code>localhost</code> or <code>127.0.0.1</code>.</p> <p><b>Note:</b> This IP address must be accessible from the SiteScope server.</p>

### Finding the initstring in SiteScope

**Note:** For the integration with Operations Analytics to work correctly, you must enter the communication security passphrase (LWSSO `initString`) as shown in the example in following graphic. If this field is empty, see the SiteScope documentation for the instructions to set a value in this field.



View the sample node list file shown below:

```
server.names=sis01313, sis01388
#properties for sis01313 servers
sis01313.hostdnsname=sis1.somedomain.com
#properties for sis01388 server
sis01388.hostdnsname=sis2.somedomain.com
sis01388.port=18080
#common properties for sis servers
default.port=8080
default.username=admin
default.initString=8PP91JAm3JW3
default.use_ssl=false
default.opsa_collector=opsac
```

To edit the node list file, do the following from the Operations Analytics Server:

Edit the `$OPSA_HOME/conf/collection/sitescope_configuration/sample_SiteScope_node.properties` file, adding the appropriate information from the examples shown above, then save your work.

**Note:** The sample file mentioned in this step does not contain a password property. When using the `opsa-collection-config.sh` script (in a later step) to encrypt the password, this script prompts you for the password, encrypts it, and inserts it into the sample file.

- b. Run the following command from the Operations Analytics Server to encrypt the password:  
`$OPSA_HOME/bin/opsa-collection-config.sh -encrypt $OPSA_HOME/conf/collection/sitescope_configuration/sample_SiteScope_node.properties`

**Note:** If the SiteScope password is empty, edit the nodelist file and remove the value from the appropriate `<server>.password` setting. For example, you might change the value to `sis01.password =`

**Note:** You will be prompted to enter the password after running this command.

- c. Run the following command from the Operations Analytics Server to create the collector configuration.

```
$OPSA_HOME/bin/opsa-sis-collector-auto-conf.sh -nodelist $OPSA_HOME/conf/collection/sitescope_configuration/sample_SiteScope_node.properties -username opsatenantadmin -password <password> [-ignoretag] [-forceupdate] [-forcedelete] [-skipcontent] [-uomfiles] <path to directory containing UOM files>
```

**Note:** When running the `opsa-sis-collector-auto-conf.sh` script, you might see an error similar to the following :

```
No implementation defined for org.apache.commons.logging.LogFactory.
```

If this happens, run the command in this step from the `/opt/HP/opsa/bin/support/` directory.

Use the following option definitions for this command:

- o The `-nodelist` options points to the node list file created earlier.
- o `opsatenantadmin` is the default predefined Tenant Admin user for the predefined `opsa_default` tenant. If you are not using the default tenant, use the Tenant Admin user and password for the tenant you defined for your collections.
- o `opsatenantadmin` is the password for the default predefined Tenant Admin user (for the predefined `opsa_default` tenant). If you are not using the default tenant, use the Tenant Admin user and password for the tenant you defined for your collections.
- o Use the `-ignoretag` option to ignore the step of tagging the monitors within SiteScope. The `opsa-sis-collector-auto-conf.sh` script creates a tag named `opsa_<tenant-name>` and associates it with the root SiteScope group, which means that all monitors will be recursively tagged automatically and dynamically. In some cases, you might want to configure only a subset of the monitors. In those situations, use the `ignoretag` option to manually handle the tagging.
- o Use the `-forceupdate` option if you did not make any changes since the last time you ran the `opsa-sis-collector-auto-conf.sh` script, and still want to **force** the script to make changes in already saved SiteScope profiles. If you use the `-forceupdate` option when running the `opsa-sis-collector-auto-conf.sh` script, it deletes the old integration configuration and replaces it with the new configuration. For example, if you made some manual changes on the SiteScope profile side and want to return to the original configuration, use the `-forceupdate` option.
- o Use the `-forcedelete` option if you want to remove SiteScope configurations made since you last ran the `$OPSA_HOME/bin/opsa-sis-collector-auto-conf.sh` script. To do this, remove the corresponding alias from the `server.names=` setting in the nodelist file, then run the `$OPSA_HOME/bin/opsa-sis-collector-auto-conf.sh` script using the `-forcedelete` option.
- o As mentioned earlier, Operations Analytics includes a default UOM file, `$OPSA_HOME/conf/collection/sitescope_configuration/uom/data_integration_uom.xml`, which supports many of the metrics supported by Operations Analytics. Use the `-`

`uomfiles` option to optionally define a UOM folder path containing UOM files you manually extracted.

After completing the configuration steps in this section, SiteScope begins forwarding data to the Operations Analytics Collector host based on the configuration choices you made.

## Configuring SiteScope for Integrating Data with Operations Analytics (Manual Method)

Complete the steps using this option if you prefer using a manual method to configure SiteScope for Integrating data with Operations Analytics (Operations Analytics).

The following tasks, showing steps and diagrams, explain an example of configuring HPE SiteScope to forward data to an Operations Analytics Collector host.

**Note:** You must complete the step in [Configuring a Custom SiteScope Collection \(Detailed Method\)](#) before completing the configuration steps in this section.

To configure SiteScope to send data to Operations Analytics, you must complete 3 tasks:

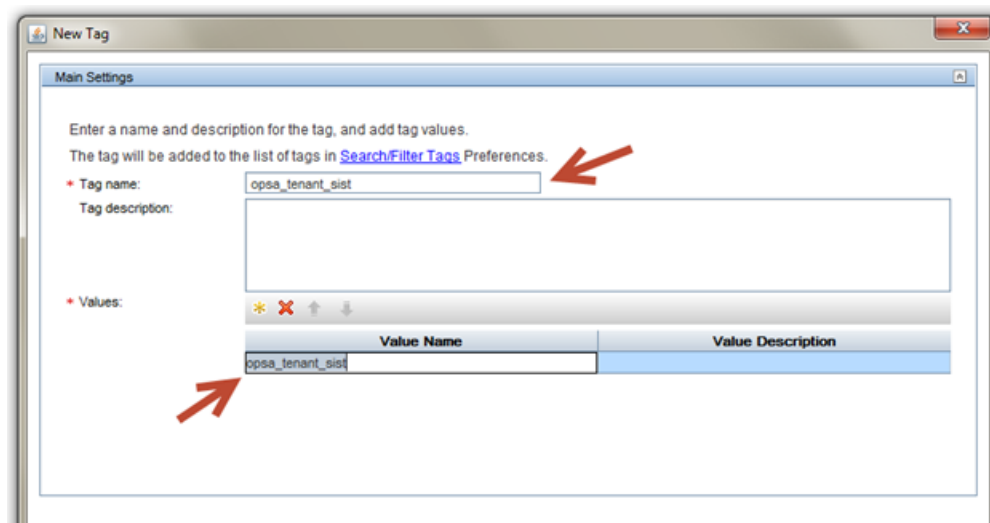
- "Task 1: Creating a SiteScope Tag" below
- "Task 2: Using the New SiteScope Tag to Mark the Monitor or Monitor Groups" on the next page
- "Task 3: Creating a New Data Integration Preference" on page 262

### Task 1: Creating a SiteScope Tag

To create a SiteScope tag, do the following:

1. Log on to SiteScope as an **Admin** user.
2. Navigate to **Preferences > Search/Filter Tags**
3. Click the **New Tag icon** (the gold-colored star) to create a new tag.

The following shows the window that should open:



For the **Tag Name** value, enter the name of your choice. For example, you might enter `opsa_tenant_sist`. Click the gold-colored star in the **Values** area, then enter a **Value Name** using the identical string

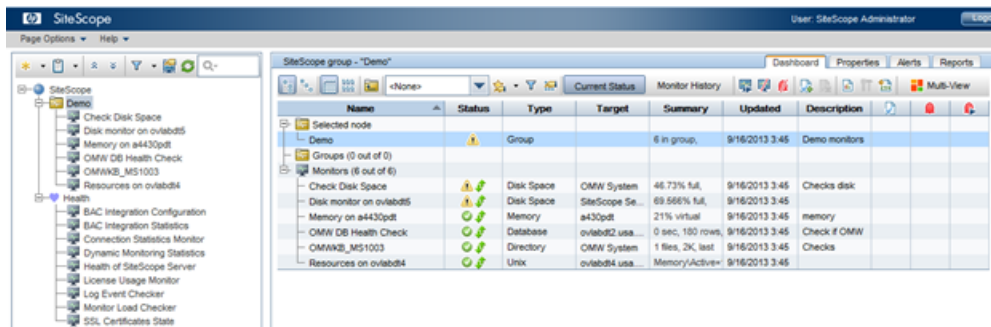
that you used for the **Tag Name** value (`opsa_tenant_sist` for this example).

4. Click **OK** to save the tag definition.

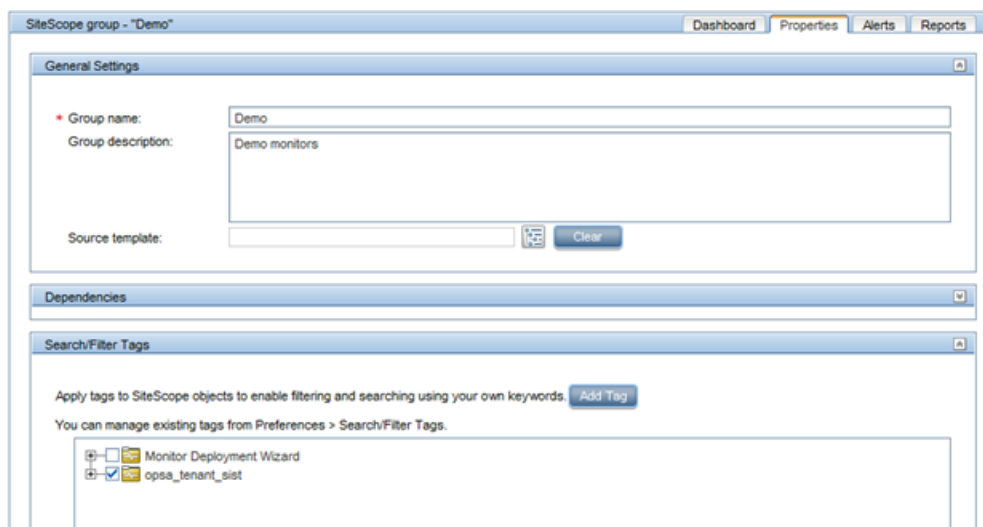
## Task 2: Using the New SiteScope Tag to Mark the Monitor or Monitor Groups

To use the tag you just created to mark the Monitor Groups, individual Monitors, or both, from which you want metrics sent to Operations Analytics, do the following:

1. Navigate to the Monitors panel in SiteScope. This is normally the main screen you see when you first log on to SiteScope. The following shows an example system:



2. For each Monitor Group or individual Monitor from which you want metrics sent to Operations Analytics, mark the Group or Monitor with the tag you created in ["Task 1: Creating a SiteScope Tag" on the previous page](#). For example, to mark the entire **Demo** Monitor Group (as in sending metrics from all of the monitors in the group), follow these steps:
  - a. Select the **Monitor Group** name in the hierarchy list on the left of the screen.
  - b. Click the **Properties** tab. For a Monitor Group, the following window opens:



- c. In the **Search/Filter Tags** configuration panel, select the checkbox for the tag you created in ["Task 1: Creating a SiteScope Tag" on the previous page](#).
- d. Click **Save** to save your changes to the Monitor Group configuration.

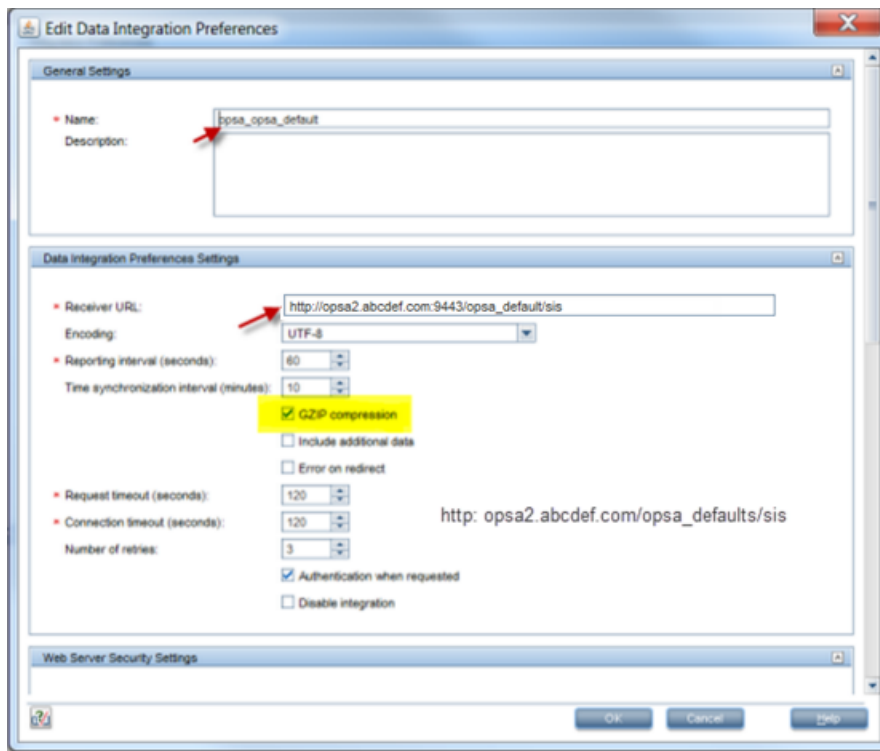
**Note:** If you do not want to send metrics **from all of the monitors within a group**, you must mark each desired monitor individually. The steps are the same as :

- i. Select the **Monitor Group** name in the hierarchy list on the left of the screen.
- ii. Click the **Propertiestab** and a window opens.
- iii. Navigate to the **Search/Filter Tags** panel.
- iv. Select the checkbox for the tag you created in "[Task 1: Creating a SiteScope Tag](#)" on page 260.
- v. Click **Save** to save your changes to the Monitor Group configuration.

### Task 3: Creating a New *Data Integration* Preference

In this final task, configure a new *Data Integration* preference that tells SiteScope where to send the marked data metrics:

1. From SiteScope, Navigate to **Preferences > Integration Preferences**.
2. Click the gold-colored star (the New Integration icon), then select the **Data Integration** link in the pop-up window. The following configuration window should appear:



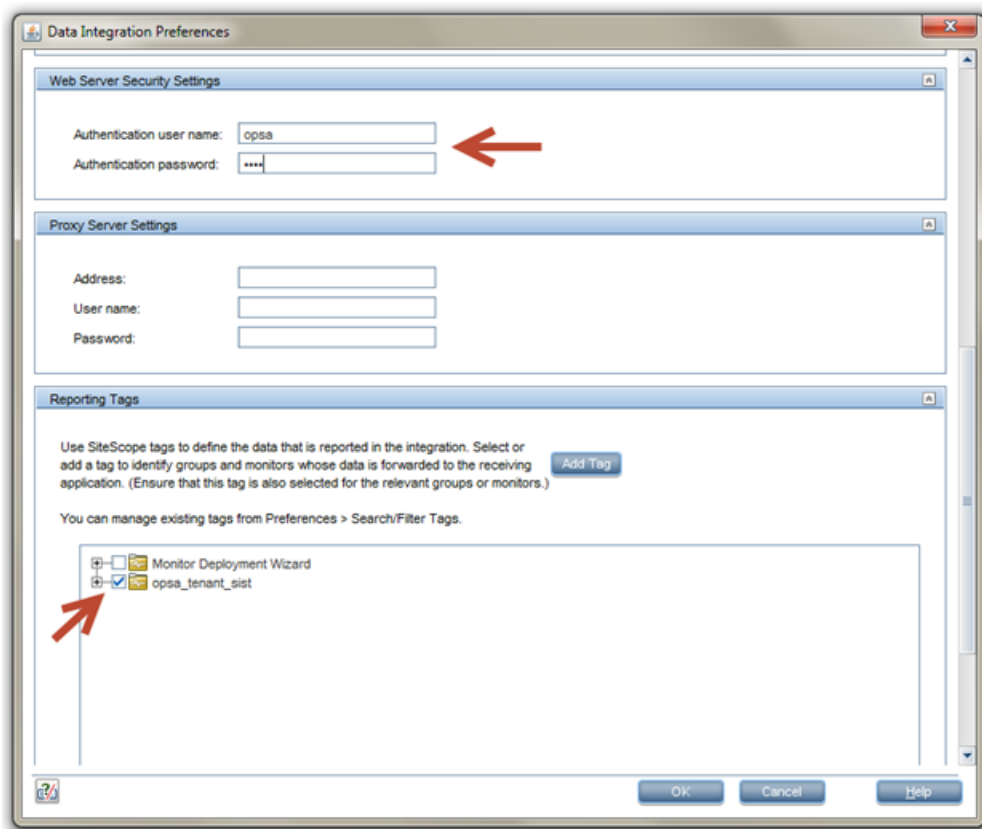
Provide a Name for this Data Integration, then provide the Receiver URL using the following format:  
`http://<fully-qualified domain name or ip address of the Operations Analytics Collector>:9443/<tenant_name>/sis`

Select the **GZIP compression** option.

In this example, the target Operations Analytics Collector is `opsa2.abcdef.com` and the target Operations Analytics tenant is `opsa_default` (the default tenant). You do not need to change any other settings, as shown in the configuration window above.

3. Scroll down in the configuration window. In the **Web Server Security Settings** panel, authenticate using the credentials for the tenant being configured, which is `opsa` in this example.

**Note:** These credentials are the same as those you would use to log on to the Operations Analytics console for a given tenant. For the example, the credentials are `opsa` (user name) and the associated password you set for this user during installation.



4. Finally, check the box for the tag that you created earlier in ["Task 1: Creating a SiteScope Tag" on page 260](#). Selecting this tag is the most important setting, as it connects the previously marked **Monitor Groups** and **Monitors** to the Data Integration being configured.
5. Click **OK** to create the new SiteScope Data Integration.

After completing the configuration steps in this section, SiteScope begins forwarding data to the Operations Analytics Collector host based on the configuration choices you made.

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**Feedback on HPE Operations Analytics Configuration Guide (Operations Analytics 2.32)**

Just add your feedback to the email and click send.

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We appreciate your feedback!