Article

Service Assurance Suite

Release number 9.4

SolutionPack for EMC Smarts Summary Sheet

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- Overview 2
- Technical specifications 2
- Where to find the latest SolutionPack software 3
- Installation steps 3
- Post-installation steps 7
- Troubleshooting 12

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Overview

Learn how to install and configure the SolutionPack for EMC Smarts. This SolutionPack notifies your operators of real-time network events and displays the root-cause and impact of the event. Historical event data is available as well.

The SolutionPack for EMC Smarts collects performance and availability metrics from your Smarts domain managers and displays them in Dashboard reports.

When the SolutionPack for EMC Smarts is configured to work with Service Assurance Manager, the network operator can view and manage notifications from the EMC M&R Operations interface.

When the SolutionPack for EMC Smarts is configured to work with the IP Configuration Manager, the administrator can maintain IP polling and threshold settings from the EMC M&R Administration interface. The article, *How to Maintain IP Manager Settings*, provides more information.

Technical specifications

SolutionPack version
2.1.1

Compatible EMC M&R version
6.5u1 and later

Data collection method
Smarts collector

Main reports
Reports display in **Report Library** › **EMC Smarts**.

Events
Lists events from networks monitored by EMC Smarts domain managers.

Domain Manager Health
Provides health-related metrics for networks monitored by EMC Smarts domain managers.

ESM Performance
Provides performance metrics for the EMC Smarts Server Manager.

IP (AM-PM)
Provides availability and performance metrics for IP networks monitored by EMC Smarts domain managers.

ACM Performance
Provides performance metrics for the EMC Smarts Application Connectivity Manager.

Additional reports display in these tabs:

- **Dashboards** › **Network**
- **Explore** › **Network**
- **Operations** › **Network**

By default, the SolutionPack for EMC Smarts uses the Smarts discovery associated with a Presentation Service Assurance Manager (SAM). When you configure the SolutionPack to link to the Presentation SAM server and to its Broker, the SolutionPack connects to the domain managers through the `host:port/DM_name` settings. Notifications from SAM

display in the Notification List in the EMC M&R User Interface. Device details from underlying Smarts domain managers connected to that Broker display in other EMC M&R reports.

Alternatively, you may connect the SolutionPack for EMC Smarts directly to the underlying Smarts domain managers.

Here are examples of the statistics collected by the SolutionPack for EMC Smarts:

- IP Availability Manager (AM)/Performance Manager (PM) (statistics on network devices and links)
- Server Performance Manager (SPM)/EMC Server Manager (ESM) (statistics on UNIX and Windows servers, physical and virtual servers and applications)
- Application Connectivity Monitor (ACM) (statistics on transaction response time and availability
- Service Assurance Manager (SAM) (historical view of SAM notifications)
- SAM (real-time view of SAM notifications)

Where to find the latest SolutionPack software

Install the latest core software update for your product suite. SolutionPacks distributed with core software have a 30-day free evaluation period. If you plan to use the software longer than 30 days, you must install a SolutionPack license before the trial period ends.

This 30-day free evaluation only applies to new installations and is not available for upgraded installations. If you upgrade the core software and want to try a new SolutionPack, you must request a license for that SolutionPack by completing a Support Request (SR) form, which is available on the EMC Online Support website at http://support.emc.com.

Installation steps

Installing the SolutionPack for EMC Smarts

Before you begin

- Determine whether you need a SolutionPack license file by checking the feature names and expiration dates listed in **Centralized Management › License Management**. If the license is not listed, obtain one by completing a Support Request (SR) form, which you can find on the EMC support website http://support.emc.com.
- Ensure the core modules, such as the Module-Manager, are up-to-date on all servers since not all module dependencies are validated during the SolutionPack installation. See the *EMC M&R Installation and Configuration Guide* for more information.
- Ensure you have installed and configured the Presentation Service Assurance Manager (SAM) server with Notification Cache Publishing enabled.
- Ensure you have enabled security settings to allow interoperability with EMC M&R by setting these flags in the `runcmd_env.sh` file:

Flag	Value
SM_ALLOW_LEGACY_CRYPTO=	TRUE

Flag	Value
SM_TLS_PROTOCOLS=	+TLSv1.1

- Ensure these services associated with the Presentation SAM installation are running:

Service name	Description of feature
`ic-broker`	Broker connected to Presentation SAM server
`ic-sam-server-pres`	Presentation SAM with Notification Cache Publishing
`smarts-tomcat`	Smarts EDAA and Notification Cache (hosted by Tomcat server)
`smarts-rabbitmq`	Notification Exchange (Rabbit MQ)
`smarts-elasticsearch`	Storage/Search engine used by the Notification Cache

- Obtain the login credentials and the Fully Qualified Domain Names (FQDN) for the servers where Smarts Broker, Smarts EDAA, and Presentation SAM servers are running.
- Review the article, *How to Set Up SAM, EMC M&R, and the SolutionPack for EMC Smarts*, for additional configuration procedures.

Follow these steps to install the SolutionPack for EMC Smarts.

Procedure

1. Log in to **Centralized Management**.
2. Select **SOLUTIONPACK CENTER**.
3. Select **SolutionPack for EMC Smarts** in the **Browse and Install SolutionPacks** screen.
4. Read the summary information and click **Install**.
5. Accept the default instance name or type a new name.

   One SolutionPack for EMC Smarts instance may be configured for each Presentation SAM server.
6. Select which server each component will be installed on.

   The recommended servers are:

   - Data Collection--Collector
   - Database--Primary Backend
   - Events--Primary Backend
   - Reports--Front End
7. Click **Next** and complete the field entries for the **Data collection**, **Database**, **Events**, and **Reports** screens.

   Click the question mark icon to access field-level help. (Actual screens and version numbers will vary from the examples shown in this article.)

   - Data collection setup when installing SolutionPack for EMC Smarts on page 5
   - Event datastore when installing SolutionPack for EMC Smarts on page 5
   - Report setup when installing SolutionPack for EMC Smarts on page 6
8. Click **Install** after you complete the last screen.

   The installation process begins.

9. Select the maximize arrow next to each component to view the installation process.

   When the installation successfully completes, green checkmarks appear.

10. After installation is complete, select **Centralized Management** › **SolutionPack** to verify the installed SolutionPack.

After you finish

Perform these post-installation tasks:

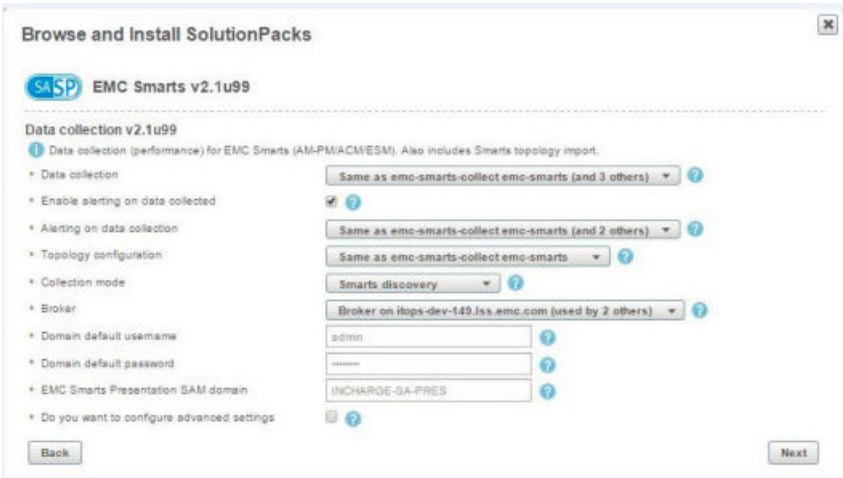
- For Windows environments only, configure the Domain Manager Health collection package. (No additional configuration is required for EMC Smarts domain managers running on Linux platforms.)
- Enable Event processing by configuring the `APG.xml` file.
- If you chose `Datastore` as the Database Type in the **Events** list box, you must also configure the `server.xml` and the Datastore database schema in order for event processing to work.
- Set up non-administrator roles and assign users to these roles.
- If using the IP Configuration Manager, set the polling and thresholds values. The article, *How to Manage IP Settings*, provides more information.

Data collection setup when installing SolutionPack for EMC Smarts

Accept the default settings or configure custom data collection settings.

- In the **Collection** list box, you can accept the default `Smarts Discovery` option to connect the SolutionPack to the Smarts Broker, Service Assurance Manager, and the underlying Smarts domains. You can filter domains for data collection by selecting, **Do you want to configure advanced settings**.
- If you choose `Smarts collector` instead of `Smarts Discovery`, you can collect topology data from individual Smarts domain managers by configuring their credentials.

Figure 1 Data Collection example



Event datastore when installing SolutionPack for EMC Smarts

You can choose the database that will hold active and inactive (archived) event data coming from the underlying Smarts domain managers. The `MySQL` database can hold both active and inactive (archived) event data. If you choose `Datastore` as the

Database Type, `MySQL` will still hold active event data, but `Datastore` will hold the inactive (archived) event data.

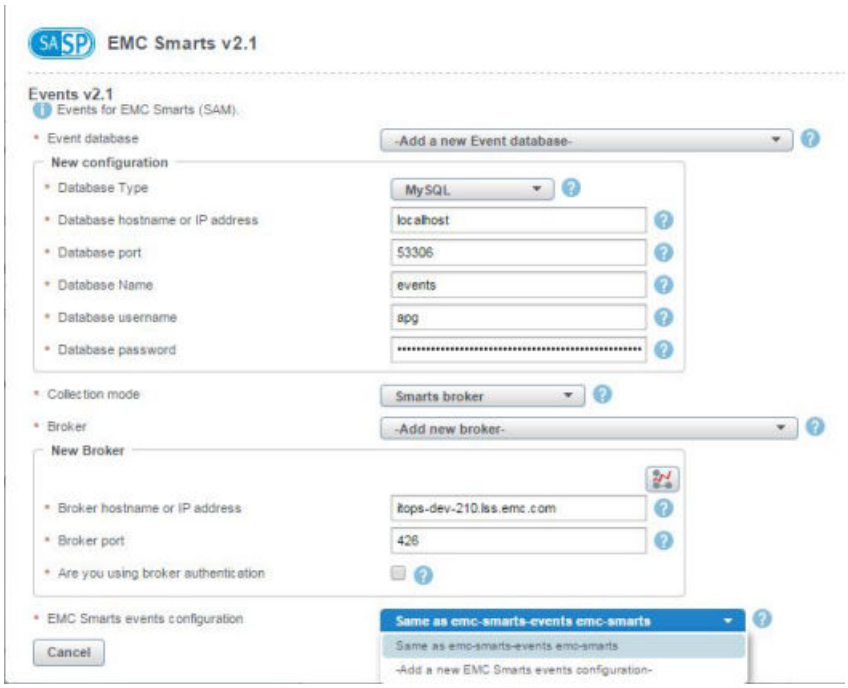
New installations of the SolutionPack for Smarts should choose the `Datastore` option as the Database Type. Do not enable the option, **Do you want to configure advanced settings**, because this is used when migrating archived event data and that is not applicable to new installations.

Note

Deployments that used `MySQL` as the Events database in earlier versions of Watch4net may want to use the default `MySQL` entry when updating SolutionPackBlocks. After migration or update processes have successfully completed, you can change the entry to use `Datastore` as the database for inactive (archived) events.
If you are updating the SolutionPackBlocks and you choose `Datastore` as the Database Type, do not enable the option, **Do you want to configure advanced settings**. First, ensure you have successfully installed the SolutionPack for EMC Smarts and performed the post-installation steps. Then return to the Events setup screen to migrate the event data using the **Do you want to configure advanced settings** option.

The event data migration procedures are in the article, *How to migrate archived events after updating the EMC Smarts SolutionPack*.

Figure 2 Events setup example



Report setup when installing SolutionPack for EMC Smarts

In the Report list box, you must specify

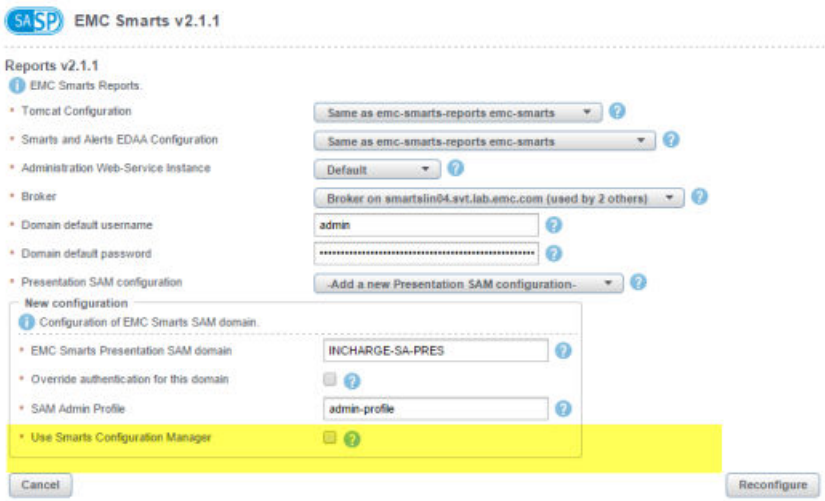
- **EMC M&R Tomcat Hostname**—Enter in the Fully Qualified Domain Name (FQDN) of your EMC M&R Frontend server. For example, if your EMC M&R Frontend server is at `http://www.example.com:58080/APG`, type, `www.example.com` here.
  - Ensure you added the parameter, `SM_CAS_SERVER`, to the `runcmd_env.sh` file in the Presentation SAM server. The hostname portion of the URL entry for

`SM_CAS_SERVER` has to match the hostname in the **EMC M&R Tomcat Hostname** field. Use only the Fully Qualified Domain Name (FQDN). Do not use the IP address.

- **Smarts EDAA hostname or IP address**—Enter the Fully Qualified Domain Name (FQDN) of your EMC Smarts EDAA Hostname. For example, if your EMC Smarts EDAA Hostname is at `http://www.example.com:8080/`, type `www.example.com` here.
- **Presentation SAM configuration**—Type the name of the Presentation SAM Server that was started with the Notification Cache Publishing option. (This is the domain name, such as `INCHARGE-SA-PRES`. Do not enter the service name, such as `ic-sam-server-pres`.)
- **Use Smarts Configuration Manager**—Select this checkbox if you plan to use EMC M&R and the SolutionPack for EMC Smarts to manage IP Settings such as polling and thresholds. Specify the name of the Configuration Manager in the Configuration Manager field if it does not use the default name. If you are enabling this feature after you have already installed the SolutionPack for EMC Smarts, click **Reconfigure** to apply the new settings.

If you enabled the security configuration checkbox (`HTTPS enabled for Watch4net and Smarts`), you must adjust the port settings to reflect your security configuration.

Figure 3 Report setup example



Post-installation steps

Database types for storing event data

Complete the post-installation configuration steps for the type of database (MySQL or Datastore) that holds the archived event data.

Depending upon which Database Type you choose, you must edit the `APG.xml` and `server.xml` files in order for your reports to point to the correct database. If you switch from one database to another after you install the SolutionPack, you must adjust the entries in these files so the reports will continue to display archived event data properly.

- If you choose MySQL as the Database type, Configuring MySQL as the archived event database for SolutionPack for EMC Smarts on page 8
- If you choose Datastore as the Database type, Configuring Datastore as the archived event database for SolutionPack for EMC Smarts on page 8 and Configure the Datastore database schema on page 10

Configuring MySQL as the archived event database for SolutionPack for EMC Smarts

If you select `MySQL` as the Database Type for Events when you installed the SolutionPack for EMC Smarts, you must edit `APG.xml` before using the SolutionPack.

Before you begin

Obtain the hostnames or IP addresses of the servers where the databases and Default Tomcat servers are running. When you edit configuration files, replace the italic text shown in the examples with the actual host name or IP address. For example, for **Tomcat::Default-*hostname-or-IP*** replace *hostname-or-IP* with the Tomcat default server hostname or IP address.

Procedure

1. Edit `APG.xml`.
   a. From **Centralized Management › Logical Overview › Miscellaneous › Web-Servers (1) › Tomcat::Default-*hostname-or-IP***, expand the Configuration files and edit `conf\Catalina\localhost\APG.xml`.
   b. Uncomment the Resource Links in this section, `<!-- emc-smarts-events for MySQL -->`, so MySQL is used as the database for both active and inactive (archived) events.

```
 <!-- emc-smarts-events for MySQL -->

<ResourceLink name="jdbc/FLOW-RPE2-ARCH:{ mapping=FLOW-
RPE2.xml, table=events_archive }" global="jdbc/FLOW-EVENTS"
type="javax.sql.DataSource" />
<ResourceLink name="jdbc/FLOW-RPE2-LIVE:{ mapping=FLOW-
RPE2.xml, table=events_live }" global="jdbc/FLOW-EVENTS"
type="javax.sql.DataSource" />
```

2. Restart the Tomcat service to make the change effective.

Configuring Datastore as the archived event database for SolutionPack for EMC Smarts

If you select **Datastore** as the Database Type for Events when you installed the SolutionPack for EMC Smarts, you must edit `server.xml` and `APG.xml` files before using the SolutionPack.

Before you begin

Obtain the hostnames or IP addresses of the servers where the databases and Default Tomcat servers are running. When you edit configuration files, replace the italic text shown in the examples with the actual host name or IP address. For example, for **Tomcat::Default-*hostname-or-IP*** replace *hostname-or-IP* with the Tomcat default server hostname or IP address.

Procedure

1. Edit `server.xml` file.
   a. From **Centralized Management › Logical Overview › Miscellaneous › Web-Servers (1) › Tomcat::Default-*hostname-or-IP***, expand the Configuration files and edit `conf\server.xml`.

b. Uncomment the section starting with `<!-- Defines the connection to the Events Archive database for APG Datastore. -->`

```
<!-- Defines the connection to the Events Archive database for
APG Datastore. -->
<Resource name="jdbc/FLOW-DS-EVENTS" auth="Container"
type="javax.sql.DataSource" maxActive="10" maxIdle="10"
validationQuery="SELECT 1" testOnBorrow="false"
testWhileIdle="true" timeBetweenEvictionRunsMillis="10000"
minEvictableIdleTimeMillis="60000" maxWait="10000"
username="admin" password="changeme"
driverClassName="com.watch4net.x100.jdbc.Driver"
removeAbandoned="true" removeAbandonedTimeout="60"
ogAbandoned="true" url="jdbc:x100://localhost:48443/Databases/
APG-Datastore/Default" />
```

2. Edit APG.xml.

a. From **Centralized Management › Logical Overview › Miscellaneous › Web-Servers (1) › Tomcat::Default-*hostname-or-IP***, expand the Configuration files and edit `conf\Catalina\localhost\APG.xml`.

b. Comment the Resource Links in this section, `<!-- emc-smarts-events for MySQL -->`, so MySQL will not be used as the database for archived events.

```
 <!-- emc-smarts-events for MySQL -->
<!--
<ResourceLink name="jdbc/FLOW-RPE2-ARCH:{ mapping=FLOW-
RPE2.xml, table=events_archive }" global="jdbc/FLOW-EVENTS"
type="javax.sql.DataSource" />
<ResourceLink name="jdbc/FLOW-RPE2-LIVE:{ mapping=FLOW-
RPE2.xml, table=events_live }" global="jdbc/FLOW-EVENTS"
type="javax.sql.DataSource" />
-->
```

c. Uncomment the Resource Links in this section, `<!-- emc-smarts-events for datastore -->`.

```
<!-- emc-smarts-events for datastore  -->
<ResourceLink name="jdbc/FLOW-RPE2-ARCH:{ mapping=FLOW-
RPE2.xml, table=events_archive }" global="jdbc/FLOW-DS-EVENTS"
type="javax.sql.DataSource" />
<ResourceLink name="jdbc/FLOW-RPE2-LIVE:{ mapping=FLOW-
RPE2.xml, table=events_live }" global="jdbc/FLOW-EVENTS"
type="javax.sql.DataSource" />
```

3. Restart the tomcat service to make the change effective.

4. Start the Datastore service.

a. If starting from Centralized Management, navigate to Physical Overview and select the Backend server hosting the Datastore database. Start the APG-Datastore:Default service.

b. If using CLI commands, navigate to the installation bin folder (for example, `/opt/APG/bin`) and issue the commands, `./manage-modules.sh service start datastore Default` (for Linux) or `manage-modules.cmd service start datastore Default` (for Windows).

After you finish

You must also configure the Datastore database schema the first time you choose **Datastore** as the Database Type when installing the EMC Smarts SolutionPack. Configure the Datastore database schema on page 10

Configure the Datastore database schema

You must configure the Datastore database schema before you can load event data.

Before you begin

If you selected **Datastore** as the Database Type when installing the EMC Smarts SolutionPack, you must load a database schema to enable the Event Processing Manager.

Inactive (archived) events are written to the Datastore database. Active events are written to the MySQL database.

Procedure

1. Log in to the host running EMC M&R.
2. Connect to the Datastore with this command, `/<INSTALL_DIR>/APG/bin/datastore-client`
3. From the prompt, copy and paste in the contents of `/<INSTALL_DIR>/APG/Event-Processing/APG-Datastore-Writer/emc-smarts/ddl/ds-event-x100.sql`

   This creates the schema.
4. Start the Event Processing Manager service.
   a. If starting from Centralized Management, navigate to Physical Overview and select the Backend server hosting the Datastore database. Select **Event-Processor-Manager::*emc-smarts*** and click **Start** to start the service.

      Replace the instance name with one from your deployment if different from *emc-smarts*.
   b. If using CLI commands, navigate to the installation `bin` folder (for example, `/opt/APG/bin`) and issue `./manage-modules.sh service start event-processing-manager emc-smarts` (for Linux) or `manage-modules.cmd service start event-processing-manager emc-smarts` (for Windows).

      Replace the instance name with one from your deployment if different from *emc-smarts*.
5. Verify the schema loaded properly by issuing this command from the datastore-client command prompt: `sql> select count(* ) from events_archive;`

   In the resulting output, you will see something similar to 1 row. For example, `query: 0.01 sec; total: 0.01 sec`

Configure icStats helper for EMC Smarts health collection

Additional configuration is required to enable Smarts Health data collection for EMC Smarts domains running on Windows. Metrics for the processor, memory, and other domain information cannot be collected until icStats helper is set up.

EMC Smarts health collection is now part of the emc-smarts-collect package, installed as part of the SolutionPack for EMC Smarts.
Configure the icStats helper for EMC Smarts domains running on Windows platforms. (No additional configuration is required for EMC Smarts domains running on Linux platforms.)

Procedure

1. Obtain `plist.exe` from http://technet.microsoft.com/en-us/sysinternals/bb896682.aspx

2. Install `plist.exe` in the PATH statement for each Windows host.

Set role restrictions for non-administrator users of SolutionPack for Smarts

If you want additional user roles, such as oper (operator), or profiles configured in your Presentation SAM server, you must set role restrictions after installing the SolutionPack for Smarts.

The default role is assigned to administrator. Add additional roles as needed.

Procedure

1. From **Administration** › **Roles**, click **New Role**.
2. Click **Modules & Restrictions Access** and expand the **Smarts** module.
3. Add an existing smarts profile (such as `oper-profile` or `default-profile`) and click **Save**.
4. From **Administration** › **Users**, create a new user and assign them the role.

Confirming report creation

After you install a SolutionPack, you can view its reports.

To view the reports:

Procedure

1. Go to **User Interface** › **Report Library**.
2. Click the SolutionPack to view its reports.

Results

It may take up to an hour to display all relevant information in these reports.

Hide unused entries in the navigation tree

You can hide default entries in the navigation tree if you have not installed the products that populate them with data.

Before you begin

The default EMC M&R platform displays nodes such as **Operations**, **Explore**, **Dashboards**, and **Planning** in the navigation tree. Other product suites that also use EMC M&R as their platform display entries under these nodes by default. However, no data populates these entries unless you are using those products. The SolutionPack for EMC Smarts populates data in the **Network** block under **Operations**, **Explore**, and **Dashboards**.

Procedure

1. To hide entries in the navigation tree, click **Edit Mode** from the EMC M&R User Interface.
2. Find the storage-related blocks in the list and select, **Always Hide**.

   Do not hide the **Network** block under the **Operations**, **Explore**, or **Dashboards** nodes. The **Network** block contains all of the SolutionPack for EMC Smarts views and reports. The **Planning** node is not used by the SolutionPack for EMC Smarts.

Troubleshooting

Report display problems

- What to do if data does not appear in any reports on page 12
- What to do if data does not appear in some reports on page 12
- Viewing collector errors in the Collector-Manager log files on page 13

What to do if data does not appear in any reports

Procedure

1. After the completion of at least three collection cycles, verify if data is populating into the reports. If there is still no data in the reports, continue to the next step.
2. Run the scheduled task to import data into reports. If there is still no data in the reports, continue to the next step.
3. To view the log files for errors, go to **Centralized Management** and click **Collecting** › **Collector-Manager::‹*instance name*›** › **Log Files**.

Running a scheduled task to import data into reports

After you push a new configuration into a collector, a scheduled task runs and populates the reports with new data. You can manually run the scheduled task to import the data more quickly.

Before you begin

Allow at least three polling cycles to pass before manually running the scheduled task.

Procedure

1. Click **Administration**.
2. Click **Centralized Management**.
3. Expand **Scheduled Tasks**.
4. Click **Database**.
5. Select the **import-properties-Default** task.
6. Click **Run Now**.
7. Confirm success in running the task in the **Last Result** and **Last Result Time** columns.

What to do if data does not appear in some reports

Procedure

1. Run the scheduled task to import data into reports. If there is still no data in the reports, continue to step 2.
2. Search for the metric in the database.
3. To view the log files for errors, go to **Centralized Management** and click **Collecting** › **Collector-Manager::‹*instance name*›** › **Log Files**.

Searching for metrics in the database

You can verify that a metric is being collected and used for reporting when you search and find the metric in the database.

Procedure

1. Go to the **Administration** page.
2. Under **Modules**, click **Management of Database Modules**.
3. On the **Metric Selection** page, create the filter, type the number of results, and select the properties to display for the metric.

   For example, to list up to 100 results of the SignalWait Time metric with the properties of device and IP, type **`name=='SignalWaitTime'`** in the **Filter** field, **`100`** in the **Maximum results** field, and select device and IP for the **Properties to show**.
4. Click **Query.**

   A list of the metric results appears. If nothing displays, the metric is not being collected.

Downloading diagnostic files

Download all log files from all servers when needed to solve a problem.

Procedure

1. Click **Administration.**
2. Click **Centralized Management**
3. Select **Logs and Diagnostics**.
4. Click **Generate diagnostic files**.

   When generation is completed, a **Download** button appears.
5. Click **Generate Download** to generate a `.zip` file containing all logs from all servers.
6. Click Open to open the `.zip` file or Save to save it to a specific location.

Viewing collector errors in the Collector-Manager log files

Review the Collector-Manager log files to troubleshoot problems with data collection.

Procedure

1. Click **Administration**.
2. Click **Centralized Management**.
3. Expand **Collecting**.
4. Click the Collector-Manager for your collector instance.

   Collector-Manager::*‹Collector-Manager instance›* - *‹physical_host_ID›*
5. Expand **Log Files** and click the **View File** icon to review the configuration error messages.

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