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Installation Guide for Service Health Analyzer Data Collector

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SHA Data Collectors

HP Service Health Analyzer (SHA) enables you to be proactive in managing your data center's physical and logical infrastructure, with very low overhead. It uses a self learning algorithm to analyze historical and current data, and if certain criteria are met, reports on the current state of abnormal IT services and their topology location. SHA uses a run-time analytics engine that can anticipate IT problems before they occur, by analyzing abnormal service behavior and alerting IT managers of real service degradation before an issue impacts their business.

This document describes how to install the following data collectors that work with SHA:

- **SHA Data Collector for Network Node Manager i**

This data collector uses the NNM iSPI Performance for Metrics to collect metrics from NNMi and convert them to a CSV format that can be read by SHA. For further information, see ["SHA Data Collector for Network Node Manager i" on page 7](#).

- **SHA Data Collector for Operation Agent / Performance Agent**

This data collector polls data from available HP Operation Agents (OA) or Performance Agents (PA). For further information, see ["SHA Data Collector for Operations Agent" on page 11](#).

These data collectors work as follows:

On the Gateway server, the Analytics Loader listens for samples on the bus which it converts to analytic samples using the Analytics metadata, and then loads it in the Analytics schema. The Analytics Loader then sends the abnormal samples (samples that are unavailable or have a baseline breach) to the Analytics schema so that the SHA engine can trace it.

On the Data Processing Server, the SHA engine reads the abnormalities every five minutes, and combines them based on the RTSM model. If the anomaly is significant, the SHA engine sends an alert.

Every night the offline engine aggregates the raw data into five minutes intervals. Once a week the baseline engine reads the aggregated data and refreshes the baseline results.

Required Information

Before installing the SHA Data Collector, the following information is needed to connect to SHA:

For a Microsoft SQL Server with the BSM Management Database

- **Host name** - The name of the machine on which the BSM Management database is installed.

If you are connecting to a non-default Microsoft SQL server instance in dynamic mode, you will need to enter the server name in the following format:

<host_name>\<instance_name>

- **Port name** - The Microsoft SQL server's TCP/IP port. The default port is **1433**.
- **Database name** - The name of the SHA database.
- **Authentication method** - If you use **SQL server authentication**, you need a user name and password for a user with administrator permissions.

For an Oracle Server with the BSM Management Database

- **Host name** - The name of the machine on which the BSM Management database is installed.
- **Port** - The Oracle listener port.
- **SID** - The Oracle instance name that uniquely identifies the instance of the Oracle database.
- **Schema name**
- **Schema password**

SHA Data Tablespace Settings

The following table specifies the recommended sizes for BSM System Health Analyzer (SHA) tablespaces:

Tablespace	BSM Deployment			Remarks
	Small	Medium	Large	
SHA	200 GB	600 GB	1 TB per each SHA Analytics schema	The actual size is dependent on the total number of managed nodes and SHA metrics, the SHA aggregation policy, and the purging policy of the SHA database data tables. Estimation is based on a default retention policy of 60 days.

SHA Data Collector for Network Node Manager i

HP Network Node Manager (NNM) is an HP software product which aids network administration and consolidates network management activities. Activities include the ongoing discovery of network nodes, monitoring events, and providing network fault management.

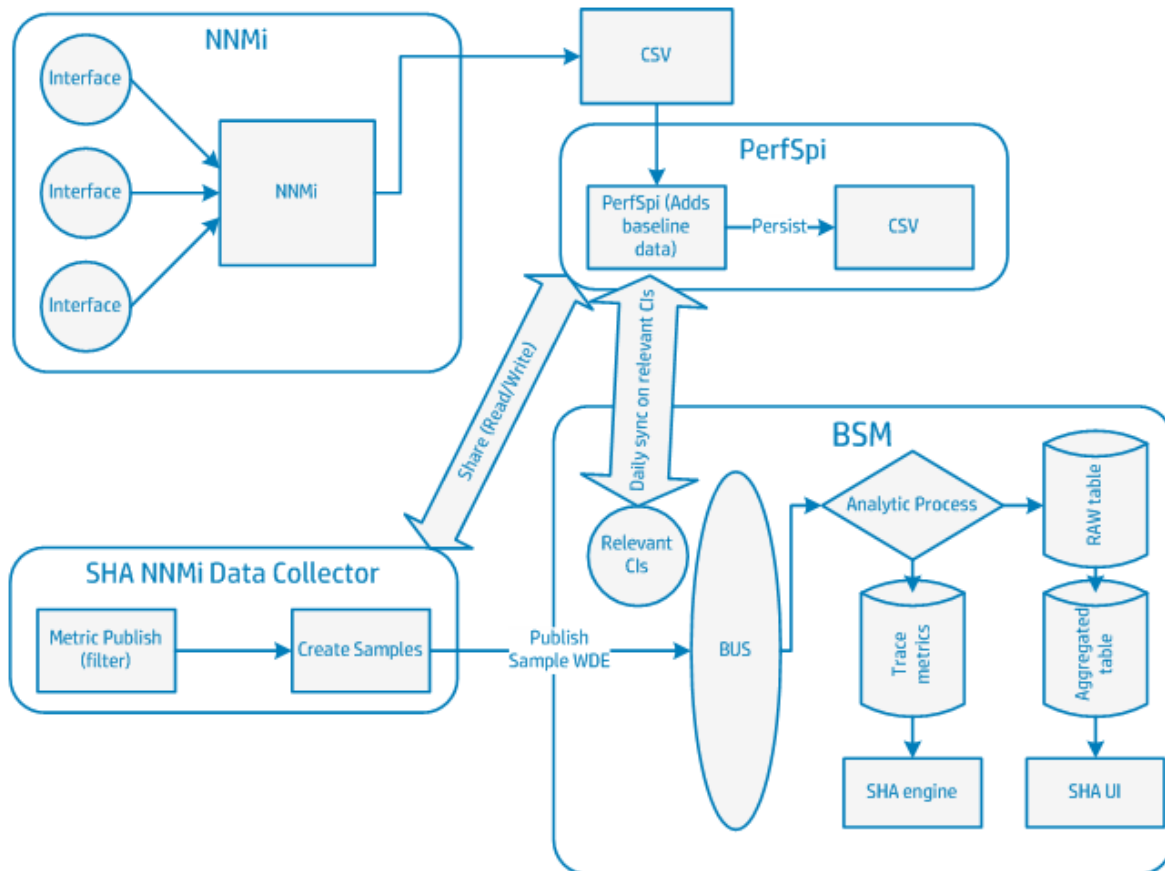
The NNMi series software contains a toolset to help you maintain a healthy network across your organization. NNMi can discover network nodes (such as switches and routers) on an ongoing basis, providing an up-to-date representation of the network topology.

The HP SHA Data Collector for Network Node Manager i (NNMi), uses the NNM iSPI Performance for Metrics to collect metrics from NNMi.

NNM iSPI Performance for Metrics calculates baseline data and converts the metrics to a CSV file.

Note: NNMi and SHA Data Collector must be installed on separate servers with read/write file sharing enabled.

The Data Collector reads the CSV file and checks if the nodes are in the SHA CI selection filter, which it then converts to BSM samples and sends to the Gateway server via Web Data Entry (WDE).



How to Install SHA Data Collector for Network Node Manager i

This task describes how to install the SHA Data Collector for NNMi.

1. Enable NNMi-BSM topology integration to make CIs from NNMi available as RTSM-Analytics CIs:
 - a. In NNMi, select **Integration Module Configuration > HP BSM Topology**.
 - b. Select **Enable Integrations** and enter the following information:
 - o NNMi server name, user name, and password
 - o BSM server name and port number
 - o RTSM user name and password
 - c. Click **Submit**.
2. On the NPS machine, open a command prompt and run the following command to create a folder for SHA data:

```
configureCsvExport.ovpl -p Interface_Health -a "Raw,C:\NPSExportData"
```

Note: If you receive an error, run the following instead of the command above:

```
configureCsvExport.ovpl -p Interface_Health -a "LIVE,C:\NPSExportData"
```

3. To confirm that the process ran successfully, open the folder **C:\NPSExportData** and confirm that there are CSV files in the folder. It may take up to five minutes for files to appear in this folder.
4. In BSM, set the location of the NPS Export Data folder:
 - a. Select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.
 - b. Select **Foundation > Analytics Data Collector (SHA) > NPSExportData shared folder**.
 - c. Enter the name of the NPS Export Data folder as defined in the steps above (C:\NPSExportData).
5. On the server where the NNM iSPI Performance for Metrics is installed, insert or access the required SHA Data Collector DVD and run the following:

- **For Windows:** Run `<BSM_SHA_Windows>\Windows_Setup\HPSha_9.26_setup.exe`
- **For Linux:** Log into the server as the root user and run the following script:
`<BSM_SHA_Linux>/Linux_Setup/HPSha_9.26_setup.bin`

There are separate DVDs for Windows and Linux.

6. Follow the initial steps in the installation wizard.

Note: By default, Red Hat Enterprise Linux versions 6.x and 7 do not support 32 bit processes. Because BSM and SHA use 32 bit Nanny processes and a 32 bit JRE, you need to run the `rhel_oel_installation_fix` script in order to install the required 32 bit libraries.

7. In the Group Selection screen, select **HP Business Service Management - Analytics NNM Data Collector**.
8. Click **Next** until the Management Schema - Management Database Server Type screen appears. Select the server type with the BSM Management database (Microsoft SQL or Oracle) and click **Next**.
9. Depending on the server type selected, the following appears:
 - **For Microsoft SQL Server:** In the Management Schema - MS SQL Settings screen, enter the required information for the Microsoft SQL server with the BSM Management Database.
 - **For Oracle:** In the Management Schema - Management Oracle Schema Settings screen, enter the required information for the Oracle server with the BSM Management Database.

For further information, see ["Required Information" on page 5](#).

10. Click **Next** until the Login Settings screen appears and enter the JMX password for the server on which you are installing the SHA Data Collector.
11. On the Summary screen, verify that the installation was completed successfully, and then click **Finish**.
12. Start the BSM SHA Data Collector:
 - **For Windows:** Click **Windows Start button > All Programs > HP Business Service Management > Enable HP Business Service Management**.
 - **For Linux:** Run `/opt/HP/BSM/scripts/run_hpbsm restart`.
 - **Using a Daemon Script (in Linux):** Run `/etc/init.d/hpbsmd restart`

Once you have installed the SHA Data Collector, you can check that it is configured properly using the following:

- ["Check which CIs are Being Monitored by SHA" below.](#)
- ["Check the Data Collector is Installed Correctly" on page 17.](#)

Check which CIs are Being Monitored by SHA

Once you have installed the SHA Data Collector, you need to check which CIs are being monitored by SHA and confirm that these CIs are reported by NNMi.

1. In BSM, select **Admin > Service Health Analyzer > CI Selection** tab and take note of the CIs which are being monitored.
2. Select **Admin > RTSM Administration > Modeling** tab > **IT Universe Manager**.
3. On the CI Selector pane, select the **Search CI** tab and select a CI that you identified in step 1.
4. In the Apply Perspective Pane to CI (on the right side of the screen), select **Impact Perspective** and click the **Apply Perspectives** button.
5. Select the required CI, and in the Properties tab at the bottom of the window confirm that the **Monitored By** property has a value of **[NNM]**.

SHA Data Collector for Operations Agent

The SHA Data Collector for Operations Agent (OA) collects metrics from HP Operations Agent (version 8.60 and later) or Performance Agents (PA) (version 5.0 and later).

To configure the metric types in the SHA analysis, see "How To Add and Remove Metric Types in the SiteScope, Diagnostics, SCOM, BSMC, and PA Metadata Files" in the BSM Application Administration Guide.

Each data collector can handle up to 5000 agents. If required, you can install multiple data collectors. SHA Data Collectors do not support HA (High Availability).

Note: This Data collector is not required as the BSM Gateway Server contains this data collection ability. This functionality is turned off by default, but you can activate it by entering the following into a browser:

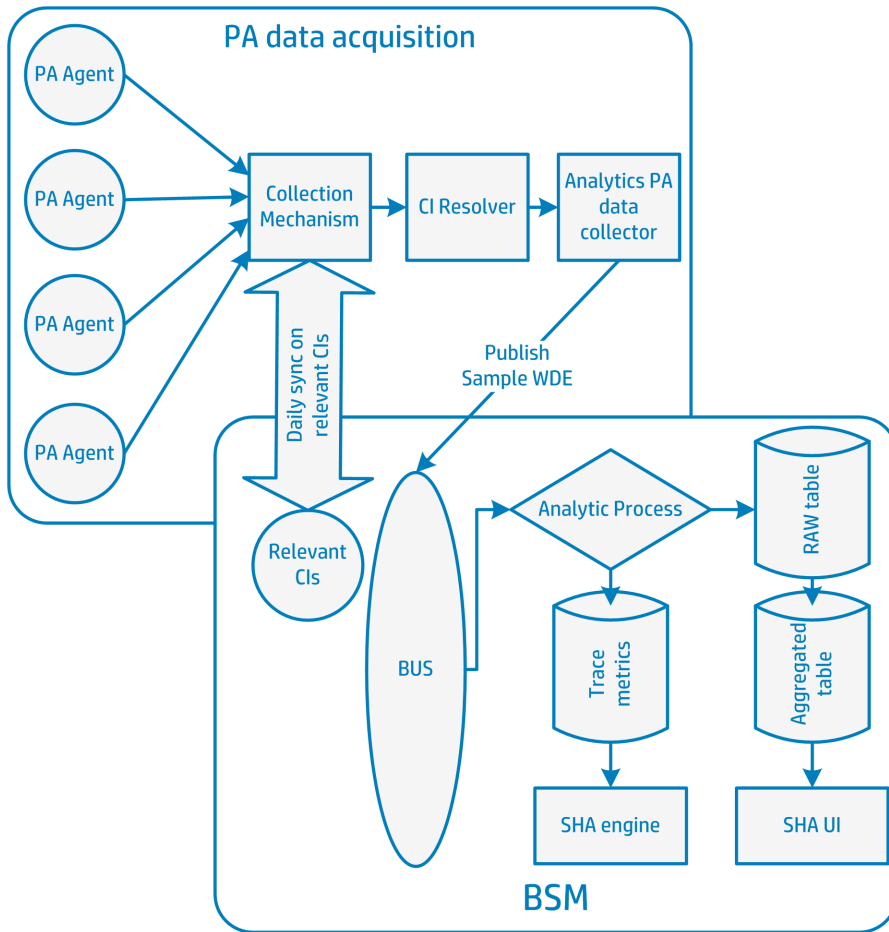
`http://<GW>:11021/invoke?operation=enableService&objectname=Foundations%3Atype%3DNannyManager&value0=analytics_dc&type0=java.lang.String`

where <GW> is the FQDN of the BSM Gateway Server.

Before you install the SHA Data Collector for Operations Agent, you must have agents from Operations or Performance Agent that report to BSM.

This data collector is installed on a standalone server.

The Data Collector uses RTSM to fetch the content of the *Hosts with HP Operation Agents* view. It then checks if the agent nodes are in the SHA CI selection filter, and polls the agents for five minutes of aggregated data, using the CODA protocol. It then converts the data to BSM samples and sends the samples to the Gateway server via Web Data Entry (WDE).



Note: If there are no agents visible, it is possible that the agents are hidden from the **Hosts with HP Operations Agents** view.

You can modify this setting in Infrastructure Settings:

1. Select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.
2. Select **Foundations > Analytics Data Collector > Analytics Data Collector - General Settings**.
3. Change the **PA Agents View Name** setting to **Hosts with HP Operations Agents - Discovery** (add "**- Discovery**" to the setting).

Once you have modified this setting, refresh the agents in JMX. To refresh this setting:

1. In a browser, enter the following:
http://<Analytics DC>:29931/mbean?objectname=Topaz%3Aservice%3DPA+data+collector
2. Select **refreshPAAgents**.

System Requirements

Following are the system requirements for SHA Data Collector for Operations Agent:

Caution: You cannot install SHA 9.20 on a machine on which Operation Agent 11.1 or later is already installed. If you have Operation Agent version 11.1 or later, you must uninstall it before installing SHA. You can then reinstall Operation Agent if required.

Operating System

Windows:

- Windows Server 2012 Standard/Datacenter Edition (64-bit)
- Windows Server 2012 R2 Standard/Datacenter Edition (64-bit)
- Windows Server 2008 Enterprise Edition SP2 or later (64 bit)
- Windows Server 2008 Standard Edition SP2 or later (64 bit)
- Windows Server 2008 R2 Enterprise Edition SP1 or later (64 bit)
- Windows Server 2008 R2 Standard Edition SP1 or later (64 bit)
- Windows Server 2008 R2 Datacenter Edition SP1 or later (64 bit)

Note:

- For Windows Server 2008, User Access Control (UAC) must be disabled during the installation process.
- For Windows Server 2008 SP2, User Access Control (UAC) must always be disabled.

Linux:

- Red Hat Enterprise Linux 6.x, 5.3 or any later 5.x version (Intel x64 64 bit)
- Oracle Linux (OEL) 6.x or 5.5 (x86-64)

Note: Regardless of the operating system version, the entire Distribution (with OEM support) and the latest recommended Patch Cluster are required.

CPU

The following CPU types are supported:

- Intel Dual Core Xeon Processor 2.4 GHz or higher
- AMD Operation Dual Core Processor 2.4 GHz or higher

Memory: 2 GB

Virtual Memory/Swap Space: 2 GB

Note: The SHA Data Collector does not require its own database or web server capabilities.

How to Install SHA Data Collector for Operations Agent

This task describes how to install the SHA Data Collector for Operations Agent (OA).

1. On the server, insert or access the required SHA Data Collector DVD and run the following:
 - **For Windows:** Run `<BSM_SHA_Windows>\Windows_Setup\HPSha_9.26_setup.exe`
 - **For Linux:** Log into the server as the root user and run the following script:
`<BSM_SHA_Linux>/Linux_Setup/HPSha_9.26_setup.bin`

There are separate DVDs for Windows and Linux.

Note: By default, Red Hat Enterprise Linux versions 6.x and 7 do not support 32 bit processes. Because BSM and SHA use 32 bit Nanny processes and a 32 bit JRE, you need to run the `rhel_oel_installation_fix` script in order to install the required 32 bit libraries.

2. Follow the initial steps in the installation wizard.
3. In the Group Selection screen, select **HP Business Service Management - Analytics PA Data Collector**.
4. Click **Next** until the Management Schema - Mgmt. Database Server Type screen appears. Select the server type with the BSM Management database (Microsoft SQL or Oracle) and click **Next**.
5. Depending on the server type selected the following appears:
 - **For Microsoft SQL Server:** In the Management Schema - MS SQL Settings screen, enter the required information for the Microsoft SQL server with the BSM Management Database.
 - **For Oracle:** In the Management Schema - Management Oracle Schema Settings screen, enter the required information for the Oracle server with the BSM Management Database.

For further information, see ["Required Information" on page 5](#).

6. Click **Next** until the Login Settings screen appears and enter the JMX password for the server on which you are installing the data collector.
7. On the Summary screen, verify that the installation was completed successfully, and then click **Finish**.

Advanced Configuration

Changing references in the database for the SHA Data Collector

You do not need to change references to the SHA Data Collector as SHA automatically sends samples to BSM, and BSM does not need to know where the SHA database is located.

However, if you want BSM users to be able to see the location of SHA in the interface or to manually refresh the data, you can set the reference in the following Infrastructure Setting:

Admin > Platform > Setup and Maintenance > Infrastructure Settings > Foundations - Analytics Data Collector > External Analytics PA Data Collector address.

Splitting SHA Data Collectors

If you have a large number of agents (more than 5000), you can create multiple TQLs for the OA agents. For example, you could divide items alphabetically using different data collectors for [a-m].* and [n-z].*

1. Install two new PA servers.
2. On each server, open the following XML file:

```
\\conflanalytics_dc\spring\analytics_dc_external-spring.xml
```

3. Modify the file as follows:

```
<bean id="analytics.dc.model.adapter" class="com.hp.bsm.analytics.data.  
    collector.adapters.SettingsManagerAdapter" lazy-init="true">  
<property name="viewName" value="Hosts with HP Operations Agents - part 2"/>  
    <!-- part 3... -->  
</bean>
```

4. Restart the PA servers.

Ports

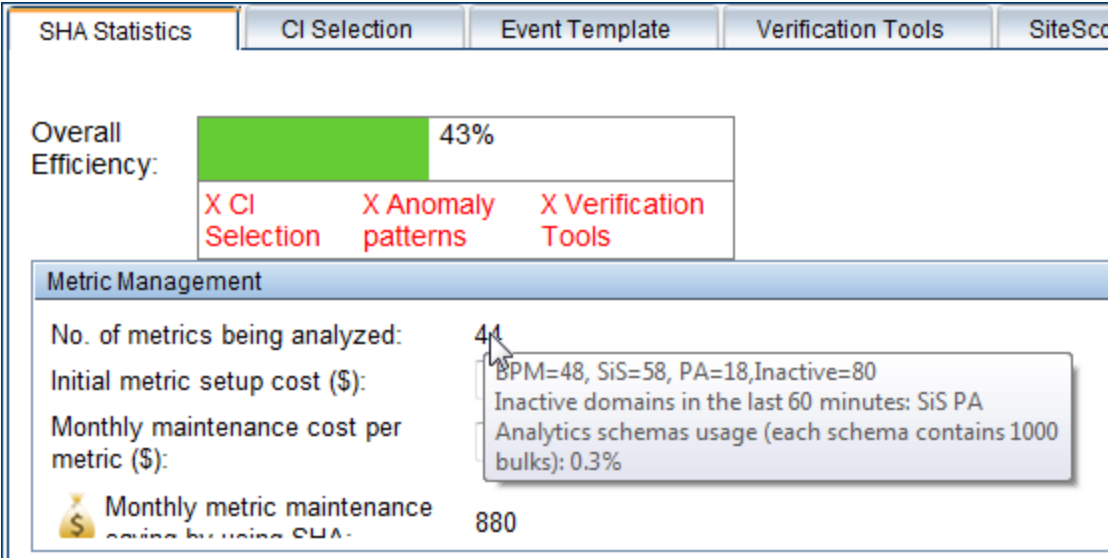
The following ports need to be open between the SHA Data Collector and BSM:

Port	Role
1521, 1433	BSM Database
80	Communication with the BSM Gateway server to send the metrics
21212	Communication with the BSM RTSM
381..383	Communication to fetch the metrics from the agents

Check the Data Collector is Installed Correctly

In BSM, you can confirm that NNMI or PA metrics are being analyzed on the SHA Statistics tab:

- 1. In BSM, select **Admin > Service Health Analyzer > SHA Statistics** tab.
- 2. Under **Metric Management**, position the pointer over the **No. of metrics being analyzed** field to view a breakdown of the number of metrics being analyzed by each data collector and a list of data collectors with no input in the last hour, and confirm that NNM or PA is listed as a data collector.



Troubleshooting

The SHA Data Collector server is a simple version of BSM which runs only the data collector service. As a result, common problems can be solved following the regular procedures in the BSM documentation. For details, see Appendix F of the BSM Database Guide

If the SHA Data Collector failed to Connect to the Management Database, make sure that the parameters are set correctly in the following files:

- `conf/bsm-tnsnames.ora`
- `odb/conf/jdbc.properties`

Manually Rerunning the Configuration Wizard

The SHA Data Collector installation process opens a simplified version of the BSM Configuration Wizard which includes only the options required by SHA.

Run the following file to manually re-run the SHA Configuration Wizard:

- **Windows:** `bin\postinstall-analytics.bat`
- **Linux:** `bin/postinstall-analytics.sh`

Unable to Connect to the Management Database

If you get the following error message:

ORA-12505 Connection refused, the specified SID (tsogenp) was not recognized by the Oracle server.

Copy the file **mcOracle.jar** (or **mcSqlServer.jar**) from the BSM Server library to **HPBSM/lib** on the SHA machine.

Using SHA with Operations Analytics

For information about using SHA with Operations Analytics, see HP Operations Analytics - BSM Integration Guide, in the [HP Software Support site](https://softwaresupport.hp.com) (<https://softwaresupport.hp.com>).

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