

# HP SiteScope

for the Windows, Solaris, and Linux operating systems

Software Version: 11.11

---

## Documentation Updates

Document Release Date: July 2011

Software Release Date: July 2011



# Legal Notices

## Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

## Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

## Copyright Notices

© Copyright 2005 - 2011 Hewlett-Packard Development Company, L.P.

## Trademark Notices

Adobe® and Acrobat® are trademarks of Adobe Systems Incorporated.

Intel®, Pentium®, and Intel® Xeon® are trademarks of Intel Corporation in the U.S. and other countries.

iPod is a trademark of Apple Computer, Inc.

Java is a registered trademark of Oracle and/or its affiliates.

Microsoft®, Windows®, Windows NT®, and Windows® XP are U.S registered trademarks of Microsoft Corporation.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates.

UNIX® is a registered trademark of The Open Group.

## Acknowledgements

This product includes software developed by the Apache Software Foundation (**<http://www.apache.org>**).

This product includes software developed by the JDOM Project (**<http://www.jdom.org>**).

## Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates, or to verify that you are using the most recent edition of a document, go to:

**<http://h20230.www2.hp.com/selfsolve/manuals>**

This site requires that you register for an HP Passport and sign-in. To register for an HP Passport ID, go to:

**<http://h20229.www2.hp.com/passport-registration.html>**

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

# Support

Visit the HP Software Support web site at:

**<http://www.hp.com/go/hpsoftwaresupport>**

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

**<http://h20229.www2.hp.com/passport-registration.html>**

To find more information about access levels, go to:

**[http://h20230.www2.hp.com/new\\_access\\_levels.jsp](http://h20230.www2.hp.com/new_access_levels.jsp)**

---

# Table of Contents

<b>Welcome to This Guide .....</b>	<b>7</b>
How This Guide Is Organized .....	7
Who Should Read This Guide .....	8
Additional Online Resources.....	8
Documentation Updates .....	9
<b>Chapter 1: Documentation Updates for SiteScope 11.11 .....</b>	<b>11</b>
Event Integration for Technology Integration Monitors.....	12
Reporting Topology Without Data for Technology Integration Monitors .....	21
Virtualization Enhancements.....	24
VMware Capacity Management Solution Template .....	34
Amazon CloudWatch Custom Metrics Integration .....	38
Using the Classic SiteScope Failover Solution.....	43
<b>Chapter 2: EMS Metrics Flow With Custom Topology</b>	
- <b>Best Practices .....</b>	<b>47</b>
Create a Metrics Flow With Custom Topology .....	47
Example – Create a Metrics Flow With Custom Topology .....	56
<b>Chapter 3: EMS Metrics Flow With Computer/Monitor Topology</b>	
- <b>Best Practices .....</b>	<b>67</b>
Create a Metrics Flow With Computer - Monitor Topology .....	67
Example – Create a Metrics Flow With Computer - Monitor Topology .....	71
<b>Chapter 4: EMS Metrics Flow With No Topology - Best Practices .....</b>	<b>77</b>
Create a Metrics Flow With No Topology.....	77
Example – Create a Metrics Flow With No Topology .....	84

Table of Contents

---

# Welcome to This Guide

This guide supplements the current SiteScope 11.10 documentation set, and provides information on the new features provided in SiteScope 11.11.

**This chapter includes:**

- ▶ How This Guide Is Organized on page 7
- ▶ Who Should Read This Guide on page 8
- ▶ Additional Online Resources on page 8
- ▶ Documentation Updates on page 9

## How This Guide Is Organized

The guide contains the following parts:

**Chapter 1 Documentation Updates for SiteScope 11.11**

Describes how to use the new features that were added in SiteScope 11.11.

**Chapter 2 EMS Metrics Flow With Custom Topology - Best Practices**

Provides best practices for creating an integration monitor to capture and forward metrics samples from a third-party system using the custom topology flow.

**Chapter 3 EMS Metrics Flow With Computer/Monitor Topology - Best Practices**

Provides best practices for creating an integration monitor to capture and forward metrics samples from a third-party system using the Computer - Monitor topology.

## Chapter 4 EMS Metrics Flow With No Topology - Best Practices

Provides best practices for creating an integration monitor to capture and forward metrics samples from a third-party system using the No Topology flow.

### Who Should Read This Guide

This guide is intended for the following users of SiteScope:

- ▶ SiteScope/BSM administrators
- ▶ SiteScope/BSM application administrators
- ▶ SiteScope/BSM data collector administrators
- ▶ SiteScope/BSM end users

Readers of this guide should be knowledgeable about enterprise system administration, infrastructure monitoring systems, and SiteScope, and have familiarity with the systems being set up for monitoring. In addition, readers who are integrating with BSM should be familiar with BSM and enterprise monitoring and management concepts.

### Additional Online Resources

**Troubleshooting & Knowledge Base.** Enables you to search the Self-solve knowledge base in the Troubleshooting page on the HP Software Support Web site. Choose **Help > Troubleshooting & Knowledge Base**. The URL for this Web site is <http://h20230.www2.hp.com/troubleshooting.jsp>.

**HP Software Support** accesses the HP Software Support Web site. This site enables you to browse the Self-solve knowledge base. You can also post to and search user discussion forums, submit support requests, download patches and updated documentation, and more. Choose **Help > HP Software Support**. The URL for this Web site is [www.hp.com/go/hpsoftwaresupport](http://www.hp.com/go/hpsoftwaresupport).

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract.



To find more information about access levels, go to:

[http://h20230.www2.hp.com/new\\_access\\_levels.jsp](http://h20230.www2.hp.com/new_access_levels.jsp)

To register for an HP Passport user ID, go to:

<http://h20229.www2.hp.com/passport-registration.html>

**HP Software Web site** accesses the HP Software Web site. This site provides you with the most up-to-date information on HP Software products. This includes new software releases, seminars and trade shows, customer support, and more. Choose **Help > HP Software Web site**. The URL for this Web site is [www.hp.com/go/software](http://www.hp.com/go/software).

## Documentation Updates

HP Software is continually updating its product documentation with new information.

To check for recent updates, or to verify that you are using the most recent edition of a document, go to the HP Software Product Manuals Web site (<http://h20230.www2.hp.com/selfsolve/manuals>).

Welcome to This Guide

# 1

---

## Documentation Updates for SiteScope 11.11

This chapter includes:

- "Event Integration for Technology Integration Monitors" on page 12
- "Reporting Topology Without Data for Technology Integration Monitors" on page 21
- "Virtualization Enhancements" on page 24
- "VMware Capacity Management Solution Template" on page 34
- "Amazon CloudWatch Custom Metrics Integration" on page 38
- "Using the Classic SiteScope Failover Solution" on page 43

---

**Note:** This guide supplements the existing SiteScope 11.10 documentation set (included with this service pack), and provides information on the new features included in SiteScope 11.11.

---

## Event Integration for Technology Integration Monitors

Use the Common Event integration to integrate events from third-party domain managers or applications to BSM 9.x using Technology Integration Monitors (also known as EMS). Unlike the legacy EMS events, the new BSM integration allows users to manage the events in Operations Management event sub system and the Service Health console.

You can use the event field mapping user interface to determine the event message content. You can also control topology reporting to BSM. You can use one of the two default topologies, **Computer** and **Computer - Running Software**, or you can report custom topology.

In addition, this new Common Event integration provides the option to report topology only to BSM, without reporting the data. For details, see "Reporting Topology Without Data for Technology Integration Monitors" on page 21.

This task describes how to enable event integration for SiteScope integration monitors:

This task includes the following steps:

- "Plan the integration strategy" on page 13
- "Configure BSM integration" on page 13
- "Configure HP Operations Manager event integration" on page 13
- "Configure the integration monitor" on page 14
- "Test the field mapping script - optional" on page 19
- "Results" on page 20

## 1 Plan the integration strategy

Review the Integration Monitor types. Consider the type of information you want to view in BSM from your EMS system. Determine whether one of the specific Integration Monitors meets your organization's needs or whether a generic Integration Monitor (Technology Log File, Database, SNMP Trap, Web Service) is required.

For more information, see "Integration Monitors Overview" in *Using SiteScope* in the SiteScope help.

## 2 Configure BSM integration

You must integrate SiteScope and BSM. For details, see "How to Configure the Integration Between SiteScope and BSM" in *Using SiteScope*.

## 3 Configure HP Operations Manager event integration

Follow the steps for configuring the event integration in "How to Enable SiteScope to Send Events to HPOM or BSM" in *Using SiteScope*.

---

### Note:

- You do not need to select **Enable sending events** in the **HP Operations Manager Integrations Main Settings** panel (step 9, "Enable SiteScope to send events to HPOM or BSM"), because this step applies only to sending events for regular SiteScope monitors. Events for integration monitors are automatically sent when the integration monitor is configured to use the **Common Events** sample mapping script.
  - Step 11 "Enable/Disable sending events for monitor instances and alerts" is not relevant for enabling or disabling sending events for integration monitors.
  - You do not need to select the **Enable HP Operations Manager metrics integration** check box in the **HP Operations Manager Metrics Integrations** panel.
-

## 4 Configure the integration monitor

Configure the integration monitor as described in steps 2, 3, 4, and 6 of "How to Deploy Integration Monitors" in *Using SiteScope*.

In step 6, "Edit field mapping and topology script", perform the following:

- a In the **Field Mapping** area, select the **Common Events** field mapping script, and click **Load File**.

---

**Note:** In SiteScope 11.11, the **Events** script was replaced by **Legacy Events** and a new data type, **Common Events**, was added.

---

- b Edit the script to enable SiteScope to retrieve the data from the monitored application that you want to forward to BSM by mapping the following script values to the corresponding field mapping group in which they appear in the log file from which you want to extract data:

Field Name	Description
<b>Mandatory Values</b>	
Title	Summary of the event.
Severity	Severity of the event. Possible values are: Normal, Warning, Minor, Major, and Critical.
SourceHint	Information about the monitoring application and the corresponding probe/agent that is responsible for creating the event.

Field Name	Description
<b>Optional Values</b>	
CiHint	<p>Information about a CI that is related to the event.</p> <p><b>Note:</b> You can use the following formats for CI resolution hints:</p> <ul style="list-style-type: none"> <li>▶ <b>Standalone CIs that do not exist in the context of Node and descendant CIs.</b> For example, Business Application, Business Service, or Siebel Enterprise. CI resolution hint should be a CI name. <b>Example:</b> For a Business Service CI named myBusinessService, the CI resolution hint would be: MeasurementCIHint(1)="myBusinessService". Note that the CI name must be unique in RTSM.</li> <li>▶ <b>Node topology and descendant CI types.</b> CI resolution hint should be a fully qualified domain name or an IP address of a node that follows the @@ separator. <b>Example:</b> To report a node with IP address 12.34.56.78, the CI resolution hint would be: "@@12.34.56.78" or "@@&lt;MachineName&gt;".</li> <li>▶ <b>CIs which exist in the context of Node and descendant CI types.</b> For example, CIs which belong to CI types that inherit from Running Software, Node Element, or Network Entity. You must specify in the hint both the Node/descendant CI and the CI connected to the Node/descendant CI, separated by @@. <b>Example:</b> For an Oracle Database CI connected to the Node/descendant CI, the CI resolution hint should be in the format: "&lt;oraclesid&gt;:&lt;product name&gt;@@&lt;fqdnhostname&gt;".</li> </ul>
EtiHint	<p>Event Type Indicator hint in the format: [ETI Name]:[ETI Value]:[Metric Value]</p> <p><b>Example:</b> CPULoad:Critical:50</p> <p>For more information on BSM indicators, see "Health Indicators, KPIs, and KPI Domains" in <i>Using Service Health</i> in the BSM Documentation Library.</p>

Field Name	Description
ComponentCi	<p>Information used to identify a subcomponent of a CI. This CI subcomponent is used to calculate an aggregated status within BSM's Service Health for selected CIs.</p> <p>If an HI is populated by events from multiple components, you can specify a component name in this field in order to ensure the correct calculation of the HI state.</p> <p><b>Example:</b> If you have a Computer CI with two CPUs, <code>cpu #1</code> and <code>cpu #2</code>, events from both CPUs will be sent to the same CPU Load HI. By default, the events will override each other and create an incorrect HI state. To prevent this, you can populate <code>ComponentCi</code> with values <code>"cpu #1"</code> and <code>"cpu #2"</code> which will cause the HI state to be calculated as an aggregated state between the two events.</p>
HostHint	<p>Information about a CI of type Node that is hosting the CI related to the event. This field is mandatory when reporting topology which includes Node CIs.</p>
Description	<p>Additional information describing the event.</p>
Category	<p>Name of a logical group to which the event belongs. An event category is similar to a message group in HPOM.</p> <p><b>Example:</b> Database, Security, Network</p>
SubCategory	<p>Name of a logical subgroup (category) to which the event belongs.</p> <p><b>Example:</b> Oracle (database), Accounts (security), Routers (network)</p>
Key	<p>A unique string representing the type of event that occurred. Two events can have the same key if both events represent the same situation in the managed environment. Events with the same key are treated as duplicates.</p> <p><b>Example:</b> <code>foohost:barhost:CPULoad:Critical</code></p>



Field Name	Description
CloseKey	<p>Enables the event that is sent to close all events whose <b>Key</b> attribute matches the CloseKey pattern expression. You can use wildcards (*) if necessary.</p> <p><b>Example:</b> barhost:CPULoad&lt;*&gt;</p>
LogOnly	<p>This field allows submitting an event that goes directly into the history event browser as a closed event. Such an event goes through the complete event processing (CI Resolution, updating HIs, and so forth), but has its <b>Life Cycle State</b> set to <b>closed</b> from the beginning. For details on CI Resolution, see "CI Resolution" in <i>Using Operations Management</i> in the BSM Documentation Library.</p> <p>Typical examples of events having this attribute set to "True" are events that will result in resetting a Health Indicator to a "Normal" or "Good" state, or an event signaling that a previous problem no longer exists (where the problem was reported in another event).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>➤ <b>True.</b> Logs all events automatically on arrival.</li> <li>➤ <b>False.</b> Events are not logged automatically.</li> <li>➤ <b>True for normal severity.</b> Automatically logs events with Normal severity only.</li> </ul> <p><b>Default value:</b> False</p>
<b>Attributes</b>	
#cma1= #cma2= #cma3= #cma4= #cma5=	<p>Use these attributes to send any custom attributes in the event.</p> <p><b>Note:</b> Only the predefined custom mapping attributes are supported. You cannot change a custom attribute name (cma1-cma5) or add a new one.</p>

- Optionally, you can map the data to a topology script to forward the data to the correct CI hierarchy in BSM. In the **Topology Settings** area, select a topology script template from the following options:

- **Computer.** Select to create a topology with a Computer CI.

---

**Note:** Information about Computer CI is taken from the **HostHint** field.

---

- **Computer - Running Software.** Select to create a topology with a Computer CI as the parent CI and a Running Software CI under it.

---

**Note:** Information about Computer CI is taken from the **HostHint** field and the name of the Running Software CI is taken from the **Category** field.

---

- **Custom.** Select to create your own topology script.

---

**Note:**

- **Computer** and **Computer - Running Software** out-of-the-box topology scripts that are available for the **Common Events** data type only.
  - The following scripts are available only when SiteScope is connected to BSM versions 9.x or later: **Computer**, **Computer - Running Software**, **Node**, and **Node - Running Software**.
-

Edit the topology settings. The topology templates are specially configured with the necessary values to forward data to the required CIs in BSM's RTSM.

---

**Note:**

- When using field mapping, you can use the field mapping fields as an input for topology script. For example, if using common event mapping, you can access the value of the **Category** field in the following way:  
`category = Framework.getDestinationAttribute("Category")`
  - In addition, you can access values of the "monitor variables", such as `group0`, `group1`, and so forth, from Technology Log File Integration monitor, or the names of database columns in Technology Database Integration monitor, or other variables in the other integration monitors. For example, you can access the value of the `group1` variable, in the following way:  
`group1 = Framework.getDestinationAttribute("group1")`
- 

## **5 Test the field mapping script - optional**

In the **Topology Settings** area, click **Test Script** to test the script before running the monitor. This tests the following:

- Checks the field mapping and topology script syntax.
- Displays the mapping results.
- Displays the topology results if a topology script has been configured.

The test does not forward events or topology to BSM.

## 6 Results

When events are gathered from a third-party system and processed by integration monitors, common events are generated, and SiteScope writes the event data to the **HPSiteScopeOperationsManagerIntegration.log** file in the <SiteScope root directory>\logs directory. Each event is written as a separate line in the log. The log file policy instructs the agent to read this file and create event messages that are sent to BSM.

You can view the event in the Operations Management Event Browser (if you have an Event Management Foundation license). If Operations Management is not part of your BSM installation, you can view events that affect CI status using a health indicator in Service Health.

## Reporting Topology Without Data for Technology Integration Monitors

You can have SiteScope report only the topology discovered by the SiteScope Technology Integration monitors, without reporting the data.

This task includes the following steps:

- "Configure the Technology Integration monitor" on page 21
- "Test the script - optional" on page 23

### 1 Configure the Technology Integration monitor

- a When configuring a Technology Integration monitor, in the **Topology Settings** panel, select the **Report topology without data** check box.

---

**Note:** When this option is selected, the **Field Mapping** area is not available.

---

- b Select a topology script template from the following options:
  - **Computer.** Select to create a topology with a Computer CI.
  - **Computer - Running Software.** Select to create a topology with a Computer CI as the parent CI and a Running Software CI under it.
  - **Custom.** Select to create your own topology script, if you want the retrieved data to be sent to specific CIs instead of the Computer or Running Software CIs.

- c Map the data discovered by the monitor to the relevant attributes in the topology settings. The topology templates are specially configured with the necessary values for reporting topology only to BSM.

The following values are mandatory:

For Template	Field Name	Description
<ul style="list-style-type: none"> <li>➤ Computer</li> <li>➤ Computer - Running Software</li> </ul>	target_name	<p>The name of the host machine. This can be added manually or taken from <code>Framework.getDestinationAttribute("&lt;someAttribute&gt;")</code>.</p> <p><b>Example:</b>  <code>Framework.getDestinationAttribute("group0")</code></p>
<ul style="list-style-type: none"> <li>➤ Computer</li> <li>➤ Computer - Running Software</li> </ul>	target_ip	<p>IP of the host machine. This can be added manually, calculated using <code>HostIPCachingManager.getIPByHostName(target_name)</code> if <code>target_name</code> represents a valid host machine, or you can use <code>HostIPCachingManager.getIPByHostName("&lt;someAttribute&gt;")</code>.</p>
Computer - Running Software	name	<p>Running Software name. This can be added manually or taken from <code>Framework.getDestinationAttribute("&lt;someAttribute&gt;")</code>.</p>

---

**Note:**

- **Computer** and **Computer - Running Software** are out-of-the-box topology scripts that are available for the report topology without data type flow.
  - The **Computer** and **Computer - Running Software** scripts are available only when SiteScope is connected to BSM versions 9.x or later.
-

**Note:** You can access values of the "monitor variables", such as group0, group1, and so forth, from Technology Log File Integration monitor, or the names of database columns in Technology Database Integration monitor, or other variables in the other integration monitors. For example, you can access the value of the group1 variable, in the following way:

```
group1 = Framework.getDestinationAttribute("group1")
```

---

## 2 Test the script - optional

In the **Topology Settings** area, click **Test Script** to test the script before running the monitor. This displays the topology results.

The test does not forward topology to BSM.

## Virtualization Enhancements

Enhancements were made to the SiteScope Virtualization monitors (VMware Host and VMware Performance) in the following areas:

- ▶ "Added New Configuration Metrics to the Virtualization Monitors" on page 24
- ▶ "Metrics Integration Support for VMware Monitors" on page 25
- ▶ "Extended Topology Reporting for VMware Monitors" on page 28
- ▶ "Added Option to Deploy VMware Performance Monitor Without Connecting to Server" on page 32
- ▶ "Tuning the System for Loaded Environments" on page 32

### **Added New Configuration Metrics to the Virtualization Monitors**

Configuration metrics for the VMware ESX Host and VMs (such as Total physical memory available on the host, number of cores, and others) were added to the VMware Performance and VMware Host monitors.

For details, see the *SiteScope Monitor Metrics and Measurements* document, available from <SiteScope root directory>\sisdocs\pdfs\**SiteScope\_Monitors\_Metrics.doc** or from the SiteScope Home page in the SiteScope Help. You can also access the documentation in the HP Software Support Web site.



## Metrics Integration Support for VMware Monitors

SiteScope uses the HP Operations agent to make metrics data from VMware Host and VMware Performance monitors available to HP Performance Manager and to the Performance Perspective tab in BSM's Operations Management.

The reported metrics are now associated with the relevant resource: ESX host, VM, or Resource Pool. The target is the counter target (not the monitor target).

Monitor Type	Reports Metrics For	Reports Metrics to the Following Tables
VMware Host	ESX	VMware Host CPU, Memory, Storage, State, Network, System tables
	VMs	VMware VM CPU, Memory, Storage, State, Network, System tables
VMware Performance	ESX	VMware Host CPU, Memory, Storage, State, Network, System tables
	VMs	VMware VM CPU, Memory, Storage, State, Network, System tables
	Resource Pool	VMware Resource Pool table

### How to Enable SiteScope to Report VMware Monitor Metrics to the HP Operations Agent

This task describes how to enable SiteScope to report VMware monitor metrics to the HP Operations Agent. It includes the following steps:

- "Enable SiteScope to report metrics to the HP Operations Agent" on page 26
- "Configure the VMware monitor" on page 26
- "Configuring integration preferences - optional" on page 26

## 1 Enable SiteScope to report metrics to the HP Operations Agent

To enable SiteScope to report metrics to HPOM and BSM reporting products, the HP Operations agent must be installed on the SiteScope server, and the HP Operations Manager metrics integration must be enabled. For details on configuring the metrics integration, see "How to Enable SiteScope to Report Metrics to the HP Operations Agent" in *Using SiteScope*.

## 2 Configure the VMware monitor

- a Configure the monitor properties.

For details, see the Monitor Settings page for the specific monitor in *Monitor Reference 11.10*.

- b Enable the VMware monitor to send metrics to the HP Operations agent.

For each VMware monitor instance that you want to report metrics data to the agent data storage, expand **HP Integration Settings** in the monitor properties, and select **Report metrics to HP Operations agent** in the HP Operations Manager Integration Settings section.

## 3 Configuring integration preferences - optional

You can modify the settings related to the VMware monitors in **Preferences > Infrastructure Preferences > Monitoring Settings**. For details on these settings, see "Notes and Limitations" on page 27.

## Notes and Limitations

- To support motion and changes in the vCenter, such as change of IP or host name, you can change the interval for updating the data saved to the cache in the **Frequency of VM configuration retrieval from vCenter (hours)** field in **Preferences > Infrastructure Preferences > Monitor Settings**. By default, data is updated every 4 hours. You can also configure this by modifying the `_vmwareRetrieveConfFrequencyHours` property in the `<SiteScope root directory>\groups\master.config` file.
- By default, the VMware Performance monitor sends each metric to a specific table with its ESX host server, VM, or resource pool target, according to its data type. To revert back to the old behavior where the monitor sends all metrics to one table, clear the **Report VMware Performance monitor metrics to OA metrics classes** check box in **Preferences > Infrastructure Preferences > Monitor Settings**. You can also modify this setting in the `<SiteScope root directory>\groups\master.config` file by changing the `_omReportNewVmwareMetricClasses` property value to `=false`.
- The VMware Performance monitor supports the following metrics types only: CPU, disk, memory (mem), network (net), state and sys (system). All other metrics types are currently not supported, including general metrics such as `usageToPresevationRelation` and `usageToLimitRelation` metrics.
- The first time you start monitoring a new VM or ESX host, it takes more time to get the data and to view it in the HP Operations agent.

## **Extended Topology Reporting for VMware Monitors**

VMware Performance and VMware Host monitors can identify the topology of the VMware servers being monitored. The monitors create the following topology in BSM's RTSM.

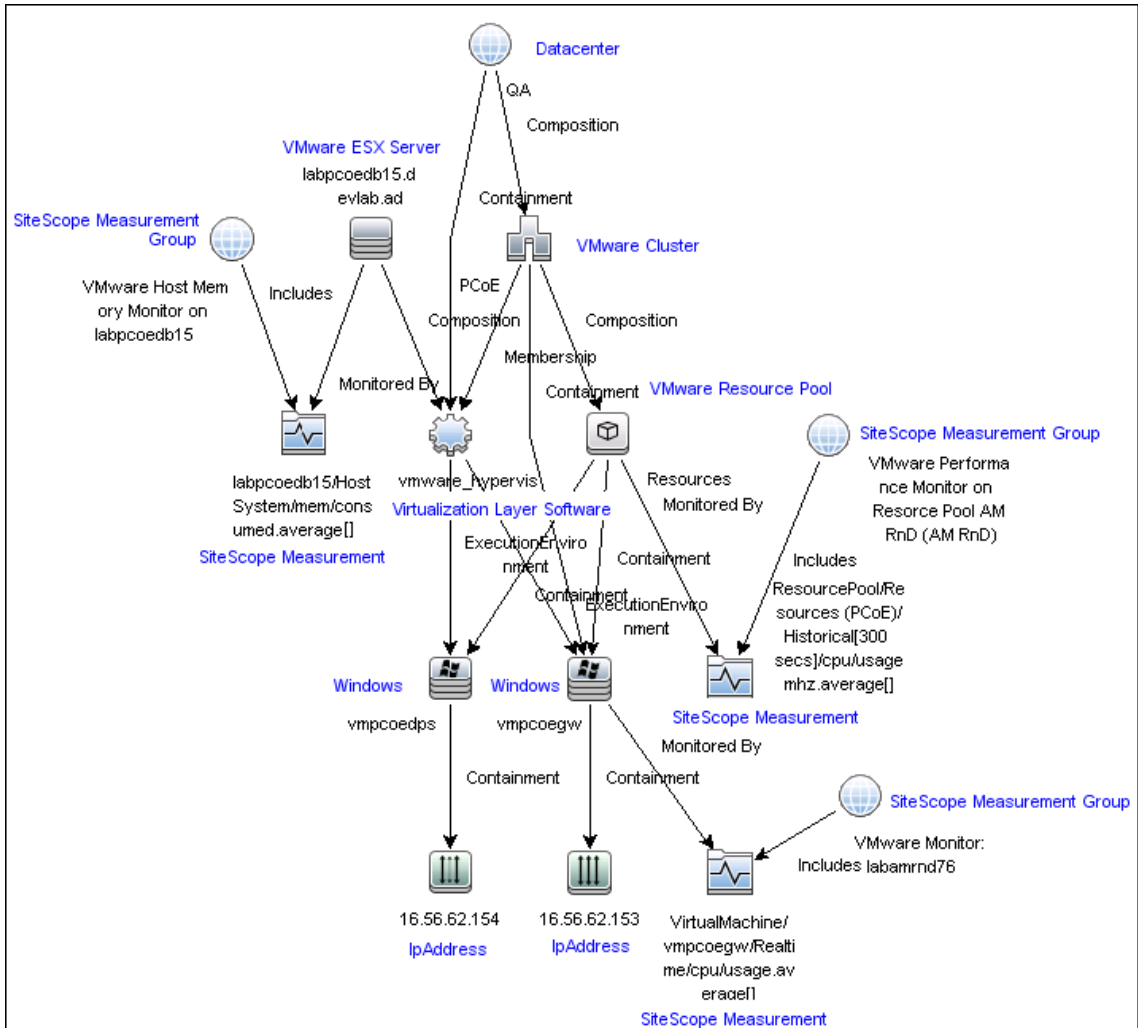
Extended topology reporting for the VMware Performance and VMware Host monitors:

- ▶ **VMware Host monitors:** Added cluster and datacenter CI types for reporting topology.
- ▶ **VMware Performance monitor:** Added cluster and resource pool CI types for reporting topology.

Each selected counter for VMware Host or Performance monitors is reported to RTSM as a SiteScope measurement and is linked to the relevant SiteScope measurement group and monitored CI (VM, ESX, and so forth).

## VMware Host Monitors

The VMware Host monitors (VMware Host CPU, VMware Host Memory, VMware Host Storage, VMware Host Network, VMware Host State) report to BSM's RTSM the following topology:

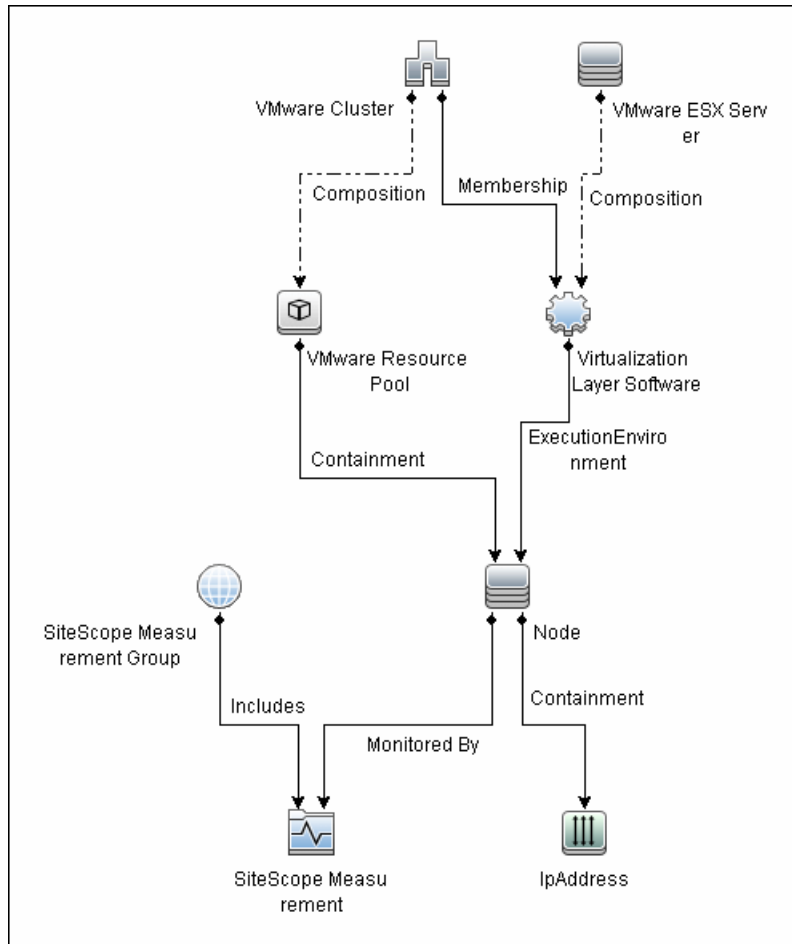


**Note:** VMware Host monitors report cluster and datacenter topology only with a connection to vCenter.

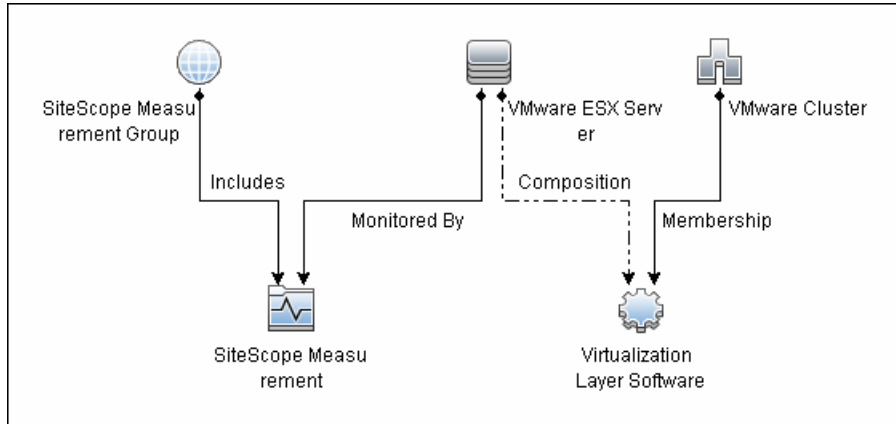
### VMware Performance Monitor

The VMware Performance monitor now reports to BSM's RTSM the following topologies (in addition to reporting the Node CI for the virtual machine (VM) and the VMware ESX Server CI (ESX), and the connection between the VM and ESX):

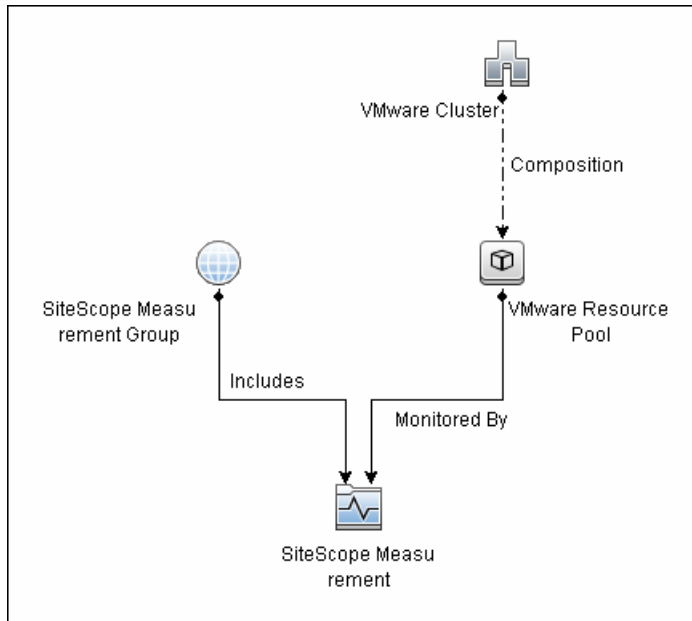
#### Cluster to Virtual Machine:



**Cluster to ESX Server:**



**Cluster to Resource Pool:**



## Added Option to Deploy VMware Performance Monitor Without Connecting to Server

Added the **Verify monitor properties with remote server** check box to the Deployment Values dialog box when deploying the VMware Performance monitor from a template. Clearing this option deploys the monitor without having to connect to the server, thereby enabling template deployment on powered on and powered off VMs. When this option is selected (the default setting), deployment fails for VMs that are not powered on.

## Tuning the System for Loaded Environments

SiteScope installed on a 64-bit environment supports configurations with up to 2150 VMware Host and VMware Performance monitors running concurrently. This loaded system can be integrated with BSM and OM metrics.

To support loaded environments, the following system tuning is required:

- ▶ SiteScope sizing is required to increase JVM heap size, desktop heap size, and the number of file handles. You can use the SiteScope Configuration Tool to size SiteScope. For details, see "Using the SiteScope Configuration Tool" in the *HP SiteScope Deployment Guide* PDF.
- ▶ Add the **\_runGCPeriod=1200000** property to the `<SiteScope root directory>\groups\master.config` file. This means that SiteScope initiates running the garbage collector every 20 minutes (1200000 milliseconds) for better performance.
- ▶ Tune the following vCenter/ESX connection parameters in the `<SiteScope root directory>\groups\master.config` file (as required):
  - ▶ **\_vmWareConnectionPoolMaxIdlePervCenterKey=**
  - ▶ **\_vmWareConnectionPoolMaxSizePervCenterKey=**
  - ▶ **\_vmWareConnectionPoolMaxTotal=**
  - ▶ **\_vmWareConnectionTimeOut=**



- Increase the number of dynamic monitors handles in **Preferences > Infrastructure Preferences > Dynamic Monitoring Settings**:
  - **Dynamic monitoring core thread pool size: 50**
  - **Dynamic monitoring maximum thread pool size: 70**

## VMware Capacity Management Solution Template

Added the VMware Capacity Management solution template. This solution template enables SiteScope to collect data from VMware monitors and report it to the data store on the HP Operations agent. This data can then be used in various supported reporting products, including HP Service Health Optimizer (SHO), HP's capacity management solution, and Service Health Reporter (SHR), HP's service centric cross-domain reporting solution.

---

**Note:** You must have the VMware Host Solution Template Optional License to use the VMware Capacity Management solution template. Contact your HP sales representative for more information about Solution licensing.

---

This section includes:

- ▶ "Solution Template Monitors" on page 34
- ▶ "How to Deploy the VMware Capacity Management Solution Template" on page 37

### Solution Template Monitors

The VMware Capacity Management solution consists of the following templates:

- ▶ "Template for Monitoring VMware Host" on page 35
- ▶ "Template for Monitoring the Resource Pool" on page 36
- ▶ "Template for Monitoring VM" on page 36

---

**Note:** The template monitors are not configured with threshold settings, since the reporting products require raw data and topology only.

---

## Template for Monitoring VMware Host

The VMware Host template uses VMware Host monitors to monitor performance and configuration metrics for the Hosts. The Template is per single Host, and should be deployed for all Hosts.

The template includes the following monitors:

- VMware Host CPU monitor
- VMware Host Memory monitor
- VMware Host Storage monitor
- VMware Host Network monitor
- VMware Host State monitor

---

**Note:** The counters in these monitors are not the same counters as in the VMware Host solution template.

---

When deploying the template, you need to specify the following template variables: Host name, connection\_link (vCenter or Host URL), username (vCenter or Host username with view host permissions), password (vCenter or Host password), is vCenter (true if vCenter; false if Host), and select the **Verify monitor properties with remote server** check box during template deployment.

The VMware Host monitors also report the following topology to BSM:

- Cluster -> Host
- Datacenter -> Host
- Datacenter -> Cluster

## Template for Monitoring the Resource Pool

The Resource Pool template uses the VMware Performance monitor to monitor performance and configuration metrics for the Resource Pool. This template is per single Resource Pool, and it should be deployed for all Resource Pools.

When deploying the template, you need to specify the following template variables: resource pool name, vCenter url, username (vCenter username with view Resource Pool permissions), password (vCenter password), and select the **Verify monitor properties with remote server** check box during template deployment.

The VMware Performance monitor also reports the following topology to BSM:

- ▶ Cluster -> Resource Pool
- ▶ ESX Host -> VM
- ▶ Cluster -> VM
- ▶ Cluster -> Resource Pool to VMs

## Template for Monitoring VM

The VM template uses the VMware Performance monitor to monitor performance and configuration metrics for the VMs. The Template is per single VM, and should be deployed for all VMs.

When deploying the template, you need to specify the following template variables: vm (VM name), vCenter URL, username (vCenter username with view VM permissions), password (vCenter password).

---

**Note:** We recommend clearing the **Verify monitor properties with remote server** check box during template deployment. Clearing this option deploys the monitor without connecting to the server, thereby enabling template deployment on powered on and powered off VMs. When this option is selected (the default setting), deployment fails for VMs that are not powered on.

---

The VMware Performance monitor also reports the following topology to BSM:

- ESX Host -> VM
- Cluster -> VM
- Cluster -> Resource Pool -> VMs

## How to Deploy the VMware Capacity Management Solution Template

This task describes how to deploy the VMware Capacity Management solution template.

It includes the following steps:

- "Prerequisites" on page 37
- "Deploy the template" on page 37

### 1 Prerequisites

- You must have the VMware Host Solution Template Optional license to use the Solution Template. Contact your HP sales representative for more information about Solution licensing.
- The license must be imported from a license file in **Preferences > General Preferences > Licenses**.

### 2 Deploy the template

We recommend deploying the solution template using a CSV file, since you can perform multiple deployments at one time, without having to manually enter variable values for each deployment in the user interface.

You can create a CSV file for the VMware Capacity Management templates using the vSphere client export to file option (**File > Export > Export List**). This enables you to export all VM names, Resource Pool names, and Host names to the CSV file. After creating the file, you can edit the file and add template variables such as vCenter URL, username, and password.

For more information on deploying a SiteScope Solution Template, see "How to Deploy a SiteScope Solution Template" in *Using SiteScope*.

## Amazon CloudWatch Custom Metrics Integration

Added support for the Amazon CloudWatch Custom Metrics integration. This integration enables customers who use SiteScope for monitoring their AWS-hosted applications to report any SiteScope metrics to an Amazon CloudWatch service. Amazon CloudWatch enables Auto Scaling, reporting and alerting.

This section includes:

- "How to Configure the Amazon CloudWatch Custom Metrics Integration" on page 38
- "Amazon CloudWatch Integration Preferences Dialog Box" on page 39

### How to Configure the Amazon CloudWatch Custom Metrics Integration

This task describes the steps involved in configuring the Amazon CloudWatch integration.



This task includes the following steps:

- "Prerequisites" on page 39
- "Configure the integration settings" on page 39
- "Results" on page 39

## 1 Prerequisites

Only an administrator in SiteScope, or a user granted **Edit integration preferences** permissions can create or make changes to Integration Preferences. For details on user permissions, see "User Management Preferences Overview" on page 928.

## 2 Configure the integration settings

- a Select **Preferences > Integration Preferences**. In the Integration Preferences page:
  - Click the **New Integration**  button and select **Amazon CloudWatch Integration**, or
  - Select an existing Amazon CloudWatch integration and click **Edit Integration** .
- b Configure the integration settings as described below.

## 3 Results

SiteScope reports EC2 data to the Amazon CloudWatch service.

### Amazon CloudWatch Integration Preferences Dialog Box

This dialog box enables you to create a new Amazon CloudWatch integration or to edit an existing integration. This is used to forward SiteScope data to an Amazon CloudWatch service.

UI Element	Description
<b>General Settings Panel</b>	
<b>Name</b>	Name by which to identify this integration in the SiteScope interface. <b>Note:</b> This is a required field.
<b>Description</b>	Description of the integration. This could include information on the application receiving the data from SiteScope. This description appears only in the Integration Preferences page in SiteScope.

UI Element	Description
<b>Amazon CloudWatch Integration Preferences Settings Panel</b>	
<b>Namespace</b>	The namespace corresponding to the service of interest. <b>Note:</b> This is a required field. <b>Default value:</b> HP/SiteScope
<b>Encoding</b>	Encoding used by the receiving application. <b>Default value:</b> UTF-8
<b>Reporting interval (seconds)</b>	Time in seconds between when SiteScope finishes sending data to the next period SiteScope begins sending data. <b>Note:</b> This is a required field. <b>Default value:</b> 60 seconds
<b>Time synchronization interval (minutes)</b>	To synchronize between the time of the SiteScope server and the server receiving SiteScope data, SiteScope can periodically report the time that is registered on its server. The receiving server can then synchronize the time of the data samples coming from SiteScope with the time on its own server so that there is no discrepancy between the time of the SiteScope data and the application's own data.  Select in minutes how often you want SiteScope to report to the time of the SiteScope server to the server receiving SiteScope data. <b>Default value:</b> 10 minutes
<b>Request timeout (seconds)</b>	Timeout, in seconds, until a connection is established with the server. A value of zero means there is no timeout used. <b>Note:</b> This is a required field. <b>Default value:</b> 120 seconds
<b>Connection timeout (seconds)</b>	Socket timeout, in seconds, to wait for data. A timeout value of zero means there is no timeout used. <b>Note:</b> This is a required field. <b>Default value:</b> 120 seconds



UI Element	Description
<b>Number of retries</b>	Number of times SiteScope attempts to establish a connection. <b>Default value:</b> 3
<b>Disable integration</b>	SiteScope does not forward data to the server. The integration preference setting remains. Use when temporarily disabling the integration. <b>Default value:</b> Not selected
<b>Amazon CW Security Settings Panel</b>	
<b>AWS Access Key ID</b>	An alphanumeric token that uniquely identifies a request sender. This ID is associated with your AWS Secret Access Key.
<b>AWS Secret Key</b>	The key assigned to you by AWS when you sign up for an AWS account. Used for request authentication.
<b>Proxy Server Settings Panel</b>	
<b>NTLM V2 Proxy</b>	Select if the proxy requires authentication using NTLM version 2. <b>Default value:</b> Not selected
<b>Address</b>	Proxy server address if applicable.
<b>User name</b>	Username for the proxy server.
<b>Password</b>	Password for the specified server.

UI Element	Description
<b>Reporting Tags Panel</b>	
<b>&lt;Tag name and values&gt;</b>	<p>SiteScope uses the tag selected here to determine what data is forwarded to the receiving application. You must select at least one tag for each integration. That same tag must be selected for the groups, subgroups, and monitors whose data you want forwarded to the receiving application.</p> <p>When selecting an integration tag for an object, the tag propagates to that object's children. If you tag a group with this Integration tag, all its subgroups and monitors report their status to the receiving application.</p> <p><b>Example:</b> Create a tag called Integration1 and select it here. For each group, monitor, or both, whose status you want to report to the receiving application, select this tag under the <b>Search/Filter Tags</b> setting for the object.</p> <p><b>Note:</b> You can select multiple tags for each integration preference. You can select multiple Integration tags for the objects to be reported.</p>
<b>Add Tag</b>	<p>Opens the New Tag dialog box, enabling you to add new keyword tags. For user interface details, see "New/Edit Tag Dialog Box" on page 167.</p> <p><b>Tip:</b> Use the word Integration when creating an Integration tag. Because the Integration tags appear along with all other Search/Filter tags created for the SiteScope, this helps you identify which tag to select for enabling a group or monitor for the integration.</p>

## Using the Classic SiteScope Failover Solution

The classic SiteScope Failover solution was reinstated as an alternative to using the SiteScope Failover Manager solution (introduced in SiteScope 11.00) for providing automated failover functionality. This enables you to choose the failover solution that best suits your needs.

- ▶ The classic solution simplifies the upgrade to SiteScope 11.x for existing customers, and does not require additional hardware. Classic SiteScope Failover can be enabled from the SiteScope Configuration Tool.
- ▶ The new SiteScope Failover Manager solution has many benefits, such as data and configuration continuity, although it does require additional hardware.
- ▶ It is planned to consolidate these two failover solutions in a future SiteScope release

---

**Note:** To use SiteScope in classic SiteScope Failover mode, a valid SiteScope Failover license file is required. If you do not have a valid license file, you can submit a request to renew or upgrade your license using the HP License Key Delivery Service site.

---

### To change SiteScope to classic SiteScope Failover mode:

- 1** Open the SiteScope Configuration Tool (**Start > Programs > HP SiteScope > Configuration Tool**).
- 2** In the Introduction screen, select the **Change to classic SiteScope Failover mode** check box, and then click **Next**.
- 3** The Change to classic SiteScope Failover mode screen opens.  
Click **Next** to complete the change to classic SiteScope Failover operation.
- 4** Open a Web browser and direct it to open the SiteScope Failover instance. For example, <http://localhost:8080/SiteScope>.
- 5** In the left panel, select the **Preferences** context menu, and click **General Preferences**. In the **Licenses** section, click **Select** and select the SiteScope Failover (High Availability) license key file.

- 6 In the preferences menu section, click **Failover Preferences**. The Failover Preferences page opens. Enter the name or IP address and port of the primary SiteScope server and the login credentials as described in “Configuring Failover Preferences” in the *HP SiteScope Failover Guide* PDF.
- 7 Open the **SiteScope root installation>\groups\master.config** file and add **topazPrefs** and **file** to the **\_serverFilter** property.
- 8 Click **Mirror Configuration Now** to continue. SiteScope copies all the files over from the primary machine and restarts when the mirroring operation is complete.
- 9 After the failover has restarted, refresh your Web browser or redirect your browser to the SiteScope Failover address. If there are SiteScope user names and passwords defined on the primary SiteScope, enter the same user names and passwords to access the failover.

For details on using classic SiteScope Failover, see the *HP SiteScope Failover Guide* PDF available from <SiteScope root installation>\sisdocs\pdfs\ClassicSiteScopeFailover.pdf.

### **Operations Manager Metrics Integration Support with Classic SiteScope Failover**

Classic SiteScope Failover 11.11 provides support for OM metrics integration. Note that SiteScope Failover reports metrics to its HP Operations agent (not to the primary's agent).

### **Operations Manager Event Integration with Classic SiteScope Failover**

To enable classic SiteScope Failover support for OM event integration, perform the steps in "How to Enable SiteScope to Send Events to HPOM or BSM" in *Using SiteScope* in the SiteScope help, both for the primary SiteScope and for the SiteScope Failover.

Event flow and host discovery flow work without any additional steps. For the Monitor Discovery integration, follow the steps in "How to Enable the SiteScope Monitor Discovery Policy" in *Using SiteScope* in the SiteScope help for the primary SiteScope only.

## Notes and Limitations

- ▶ Since there will be only one SiteScope service tree (and it is affected by events), it is not possible to know if it is affected by what was reported from the primary or failover SiteScope.
- ▶ The Failover group is not displayed since this group is on the failover server only.
- ▶ When the primary is down, events triggered from monitors that are monitoring the SiteScope server (in this case, the SiteScope server is the failover) do not affect the service tree.
- ▶ Groups and monitors added when the primary is down are not displayed in the service tree.
- ▶ The Drill Down to SiteScope tool works only when the primary SiteScope is running.
- ▶ If there are different agent configurations on the primary and SiteScope Failover (for example, an agent is installed on a different path), the agent command on the failover server will not run from the Event Integration preferences user interface and you need to enter the agent path manually beforehand.



# 2

---

## EMS Metrics Flow With Custom Topology - Best Practices

This chaptersection includes:

- "Create a Metrics Flow With Custom Topology" on page 47
- "Example – Create a Metrics Flow With Custom Topology" on page 56

### Create a Metrics Flow With Custom Topology

This task describes the steps involved in creating an integration for metrics samples using the custom topology flow.

---

**Note:** For an c of this task, see "Example – Create a Metrics Flow With Custom Topology" on page 56.

---

This task includes the following steps:

- "Design the Topology Flow" on page 48
- "Change the CI Resolver TQL" on page 48
- "Select an Indicator" on page 49
- "Define an HI Assignment" on page 50
- "Define a KPI Assignment for each CI type" on page 51
- "Configure Field Mapping" on page 52

- ["Create the Custom Topology Script" on page 53](#)
- ["View Integration Results" on page 54](#)

## 1 Design the Topology Flow

The first stage in creating an EMS integration for metrics samples using the custom topology flow is the design. When planning the design strategy, you need to consider the following:

### ➤ CIs for topology

Consider the entities that you want to report to BSM. For these entities, you might also want to report data and to view the health status of these entities in BSM's Service Health.

For example, you have a third-party application named TPA that writes to a database. The entries in this database contain performance data on CPU and network usage of different computers. In this case, you will probably want to create a topology that reports Computer CIs to BSM.

### ➤ Data that you want to be reported for these CIs

Consider what data you have for these CIs and how it can be attached to the CIs. What is the relevant health indicator (HI) for the data being reported? If there is no such indicator, consider creating a new HI. Which KPI or HI assignments create the desired HIs and KPIs? If no such assignments exist, consider creating your own.

## 2 Change the CI Resolver TQL

- a In BSM, select **Admin > Platform > Infrastructure Settings**.
  - Select **Applications**.
  - Select **End User/System Availability Management**.
  - In the **End User/System Availability Management - SiteScope CI Resolver Settings**, change the value of the **TQL Queries** parameter from **CIs Monitored by SiteScope** to **OMiAutoView**.



- b** Restart BSM to apply the change.

---

**Note:** This TQL does not support models with a large number of CIs (it may cause performance problems in such models).

---

### 3 Select an Indicator

To view the status of a CI, you need an HI which provides a fine-grained measure of the health of the CI. In most cases, you want to view the HI in BSM's Service Health. The HI is also used in Service Level Management (SLM). For details on HIs in Service Health and SLM, see "Health Indicators and KPIs - Overview" in *Using Service Health* in the BSM Documentation Library.

---

**Note:** For alignment reasons, we recommend using an out-of-the-box HI; only create your own HI if you do not find an existing HI that fits your needs.

---

To select an existing HI or create a new HI:

- a** In BSM, select **Admin > Service Health / Service Level Management > Repositories > Indicators**.
- b** From the CI type hierarchy in the left pane, select the CI type which you are going to report from your topology script. The assigned indicators for the CI type are displayed in the Indicators pane. When you select an indicator, its details are displayed in the right pane. For more details on topology scripts, see step 7 on page 53.
- c** Check if you already have an existing HI that fits your requirements. If you do not, create a new one. For details on how to create HIs, see "How to Create or Edit an ETI or HI Template in the Indicator Repository" in *Using Service Health* in the BSM Documentation Library.

- d If you create a new HI, you should publish the changes to SiteScope. In BSM, select **Admin > System Availability Management > Metrics and Indicators** and click **Publish Changes**. The changes should reach SiteScope within no more than 5 minutes.

#### 4 Define an HI Assignment

After you select an HI, you need to define an HI assignment that will assign the HI to a CI. The assignment also defines which data samples will be captured by this HI and which business rule will be used to calculate the status of the HI according to the data samples.

For more information on HI assignments in Service Health, see "Health Indicator Assignments Page" in *Using Service Health* in the BSM Documentation Library. For more information on HI assignments in SLM, see "Health Indicator Assignments Page" in *Using Service Level Management* in the BSM Documentation Library.

To define an HI assignment:

- a In BSM, select **Admin > Service Health / Service Level Management > Assignments > Health Indicator Assignments**.
- b From the CI type hierarchy in the left pane, select the CI type which you are going to report from your topology script. The assigned indicators for the CI type are displayed in the Indicators pane. When you select an indicator, its details are displayed in the right pane. For more details on topology scripts, see step 7 on page 53.
- c Create a new HI assignment. For details on how to create the assignment, see "How to Define a KPI or HI Assignment" in *Using Service Health* or "How to Define a KPI or HI Assignment" in *Using Service Level Management* in the BSM Documentation Library.
  - In the **Condition** area, enter a unique value for your integration in the **Monitored By** field. This enables you to distinguish between the CIs reported by your integration to other CIs of this type which are not reported by the integration.
  - When you create the topology script for the monitor, enter the `monitored_by` attribute with this value on the CI you report. For more details on topology scripts, step 7 on page 53.

- Select the HI you chose in step 3.
- Choose the business rule to use for the HI calculation. We recommend using the **SiteScope Worst Status Rule**. You can also use the **SiteScope Consecutive Worst Status Log** or **SiteScope Best Status Rule**.
- In the selector, enter the following:
  - eti\_id = (Binary) <<Health Indicator Type ID>>
  - ci\_id = (Binary) <<CI ID>>
  - sampleType = (String) ss\_t

The integration monitor sends metrics samples (ss\_t) that contain the same eti\_id as your ETI and same CI ID as the CI's.

The eti\_id in the sample is sent by SiteScope according to your field mapping entry for the monitor in step 6.

The ci\_id is found by the CI resolver in BSM. For it to find the CI, it uses the CI hint sent by SiteScope in the sample, according to your field mapping entry for the monitor in step 6.

For details on field mapping for metrics samples, see "Configuring Field Mapping for Metrics Samples" in *Using SiteScope*.

## 5 Define a KPI Assignment for each CI type

Verify whether you have an appropriate KPI assignment, or create if one does not already exist. The assignment determines which KPI to put on the CI and for which HIs.

If you use one of the default HIs then there should already be a default KPI assignment for your HI and you do not need to create one.

- For more information on KPI assignments in Service Health, see "KPI Assignments Page" in *Using Service Health* in the BSM Documentation Library.
- For more information on KPI assignments in Service Level Management (SLM), see "KPI Assignments Page" in *Using Service Level Management* in the BSM Documentation Library.

To create a KPI assignment:

- a** In BSM, select **Admin > Service Health > Repositories > Indicators**.
- b** From the CI type hierarchy in the left pane, select the CI type which you are going to report from your topology script. The assigned indicators for the CI type are displayed in the Indicators pane. When you select an indicator, its details are displayed in the right pane. For more details, see "Create the Custom Topology Script" on page 53.
- c** Create a new KPI assignment. For details, see "How to Define a KPI or HI Assignment or "Applications" in *Using Service Health* or "How to Define a KPI or HI Assignment" in *Using Service Level Management* in the BSM Documentation Library.
- d** In the KPI assignment, the related HI should be the one you chose in step 3.

---

**Note:** If you also want to view the integration results in Service Level Management (SLM), you need to define the Service Level Agreement (SLA). For more information on SLAs, see "Agreements Manager Page" in *Using Service Level Management* in the BSM Documentation Library.

---

## 6 Configure Field Mapping

Now it is time to configure the monitor. In the **Field Mapping** section of the integration monitor, select the **Metrics** sample type to load the metrics script, and enter the details you want to send in the `ss_t` sample file.

- ▶ For the **MeasurementETI** value, enter the label of the HI you chose previously in step 3.
- ▶ Enter a hint for the CI in **MeasurementCIHint**. This hint helps the CI resolver in BSM to recognize the CI to which the sample should be attached.

For details on values for the metrics script, see "Configuring Field Mapping for Metrics Samples" in *Using SiteScope*.

## 7 Create the Custom Topology Script

Finally you should create the topology script. The script defines how to report CIs to BSM. For details on the topology script, see "Topology Settings for Technology Integration Monitors" in *Using SiteScope*.

For the **monitored\_by** attribute of the CI, enter the identifier for this integration. This is the same value you used in the HI assignment in step 4.

---

### Note:

- ▶ [Same note also in 1. Working with SiteScope Integration Monitors > Topology Settings for Technology Integration Monitors > "Editing the Topology Script". 2. Working with SiteScope Integration Monitors > How to Deploy Integraton Monitors 3. Field mapping tasks - "How to config FM for CE/LE/M?T"? 4. EMS Metrics custom topology flow](#)When using field mapping, you can use the field mapping fields as an input for topology script. For example, if using common event mapping, you can access the value of the Category field in the following way:  
`category = Framework.getDestinationAttribute("Category")`
- ▶ In addition, you can access values of the "monitor variables", such as group0, group1, and so forth, from Technology Log File Integration monitor, or the names of database columns in Technology Database Integration monitor, or other variables in the other integration monitors. For example, you can access the value of the group1 variable, in the following way:  
`group1 = Framework.getDestinationAttribute("group1")`

**Tip:** To troubleshoot topology issues, see "Business Service Management Topology Issues" in *Best Practices for the SiteScope-Business Service Management/Operations Manager Integration*.

---

## 8 View Integration Results

After configuring the HI and KPI assignments in BSM and the monitor in SiteScope (including field mapping and topology script), you can view the results.

- Create a view in RTSM to view the results of the integration in BSM's Service Health or Service Level Management application. The view should describe the topology you defined in step 7.

For details on creating the view, see "Modeling Studio Page" in the *Modeling Guide* in the BSM Documentation Library.

If you defined the integration for SLM as well, you can view the integration results in SLM reports. For more information on SLM and on the reports, see "Working with the Service Level Management Application" in *Using Service Level Management* in the BSM Documentation Library.

- You can also view the integration data in System Availability Management reports. In the different reports, specify a filter for the data that you want to be displayed in the graphs.

Configure the filter to include the following values that you defined in the field mapping in step 6:

- **Target:** Select a value that was defined in the TargetName field in the Integration Monitor Field Mapping.
- **Monitor type:** Select a value that was defined in the MonitorType in the Integration Monitor Field Mapping.
- **Monitor title/name:** Select a value that was defined in the MonitorName in the Integration Monitor Field Mapping.

- ▶ **Measurement:** Select a value that was defined in the MeasurementName(x) in the Integration Monitor Field Mapping.

## Example – Create a Metrics Flow With Custom Topology

This example describes how to create an integration monitor to capture and forward metrics samples from a third-party system that monitors different Oracle databases to BSM using the custom topology script template. This template enables you to create your own topology.

---

**Note:** For a task related to this example, see "Create a Metrics Flow With Custom Topology" on page 47.

---

This example includes the following steps:

- "Design Stage" on page 56
- "Select an Indicator" on page 58
- "Define an HI Assignment" on page 59
- "Define a KPI Assignment" on page 61
- "Configure Field Mapping" on page 63
- "Create the Custom Topology Script" on page 65
- "View Integration Results" on page 66

### 1 Design Stage

You have an application named My Oracle Monitoring. This application writes measurements from Oracle databases running on different computers to a log file.

Since the application writes to log files, create a Technology Log File Integration monitor for the integration. The topology that you want to report includes Oracle CIs, and you will create a HI on these CIs. You will focus on one indicator and one measurement that you are interested in.

Entries in the log file:

- amrnd153,27,1,good
- amrnd153,82,1,warning



➤ amrnd153,80,1,warning

The monitor:

Technology Log File Integration Monitor Settings

Server: SiteScope Server

\* Log file path name: c:\ems\OracleLog.txt

\* Content match: /(.\*),(\*),(\*),(\*)/

No error if file not found

Log file encoding: windows-1252

Run alerts: For each log entry matched

Report topology without data

EMS time difference: 0 Days

---

Monitor Run Settings

---

Field Mapping

---

Topology Settings

---

Dependencies

---

Threshold Settings

If unavailable: Set monitor status according to Thresholds

Default status: Good

On internal error: Set monitor status according to Thresholds

Error if

## 2 Select an Indicator

For the My Oracle Monitoring application, use the CPU Usage by SQL (Database) indicator. This indicator reports SQL as well as Oracle usage.

The screenshot displays the Oracle Enterprise Manager interface for configuring an indicator. The left pane shows a tree view of CI Types, with 'Database' > 'Oracle' > 'SQL Server' selected. The middle pane lists various indicators, with 'CPU Usage by SQL (Database)' highlighted. The right pane shows the configuration details for this indicator.

**Details - CPU Usage by SQL**

**General**

Name: CPUUsagebySQL  
 Type: Health Indicator with associated Event Type Indicator  
 Description: Indicates SQL statements with high CPU time per execution  
 Application: Both Service Health and SLM  
 Units:

**States**

Display Name	Status	Icon
High	Warning	Warning icon
Normal [Default]	Normal	Normal icon

**Service Health**

Generate Events: Health indicator does not generate events  
 Default Rule: Generic Two Arguments Rule  
 Formatting method: No formatting method selected

**SLM**

Default Rule: API Duration-Based Sample Rule

This indicator is defined on the Oracle CI type (the CI that will be reported), and is appropriate for the measurement being read from the log. This measurement describes the amount of CPU that Oracle uses.

### 3 Define an HI Assignment

Next you create the indicator assignment in Service Health.

Define a Health Indicator Assignment. When a condition is filled, Health Indicators are assigned to any CI that meets the condition.

**Assignment Settings**

ID: d1489bdb-c4e9-40fd-a643-01b40c240569

\* Name: My Oracle HI assignment

Description:

**Condition**

\* Monitored by: My Oracle Monitoring integration

Property Name	Operator	Value
---------------	----------	-------

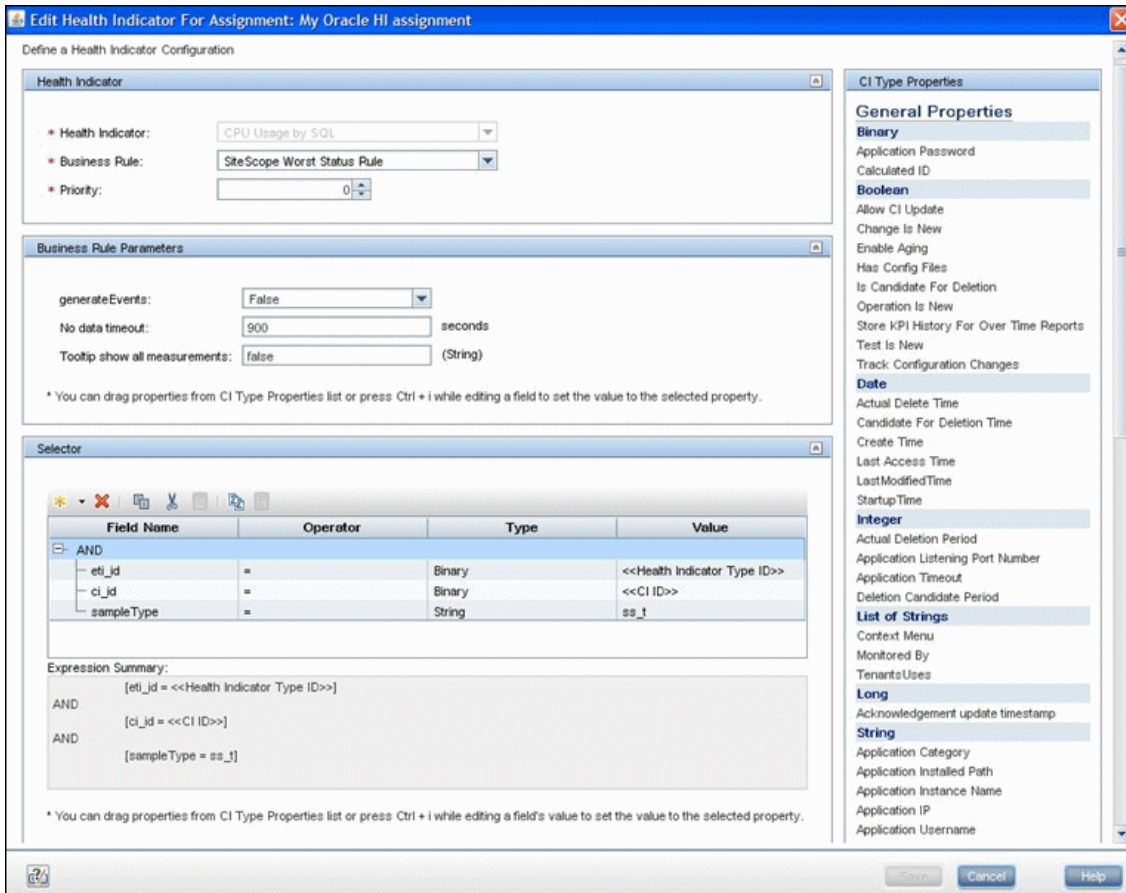
**Health Indicator Configurations**

Health Indicator	Business Rule
CPU Usage by SQL	SiteScope Worst Status Rule

Save Cancel Help

You can see that for the **Monitored by** condition, you entered My Oracle Monitoring Integration. This value helps you distinguish Oracle CIs reported by this integration from other Oracle CIs that are being reported. This assigns the CPU Usage by SQL indicator on the Oracle CIs that are reported by this integration only.

If you edit the indicator in this assignment, you get this:



The CPU Usage by SQL indicator is calculated using the **SiteScope Worst Status Rule**. The selector defines that samples of type `ss_t` (the metrics sample type) with the same `ci_id` and `eti_id` as the current CI and ETI are captured by this indicator on this Oracle CI. You do not want other samples to be captured.

## 4 Define a KPI Assignment

Since you used a default indicator, you do not need to create a KPI assignment as there is an existing Service Health KPI assignment on Oracle CIs.

**Edit KPI Assignment for CI Type: Oracle**

Define a KPI Assignment. When a condition is filled, KPIs and/or Context Menus are assigned to any CI that meets the condition.

**Assignment Settings**

ID:

Name:

Description:

**Condition**

Monitored by:

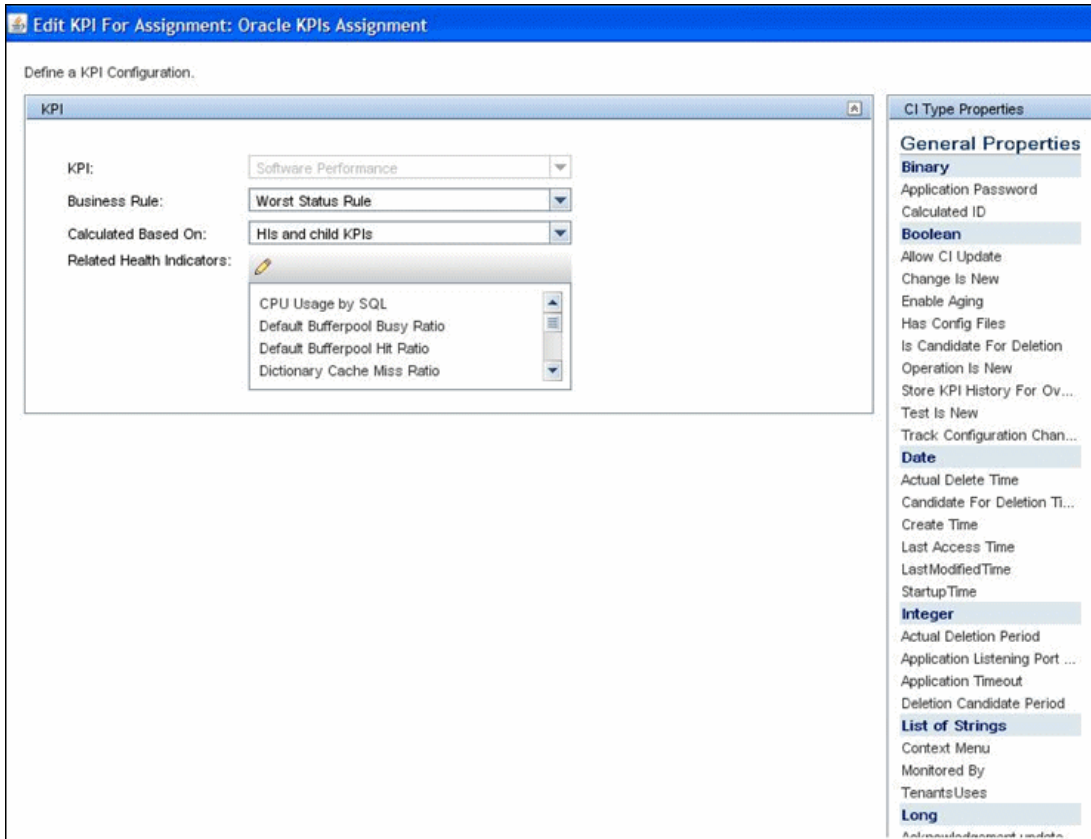
Property Name	Operator	Value

**KPI Configurations**

KPI	Calculated Based On	Related Health Indicators	Business Rule
Software Availability	His and child KPIs	Database Object Status, Database Segm...	Worst Status Rule
Software Performance	His and child KPIs	CPU Usage by SQL, Default Bufferpool B...	Worst Status Rule

**Context Menus**

Select the Software Performance KPI:



You can see that one of the indicators related to this KPI is the CPU Usage by SQL indicator which you used.

## 5 Configure Field Mapping

This is the field mapping for the integration:

```
[DEFAULT_PARAMETERS$]
# Time stamp in seconds since Jan 1st 1970 format.
# Use time() to get the sitescope host time or str_to_seconds() to read a value from
the input event
TimeStamp:DOUBLE=time()

# Quality in SiteScope terms: QUALITY_ERROR, QUALITY_WARNING,
QUALITY_GOOD
Quality:INT=$group3.equals("error") ? QUALITY_ERROR :
$group3.equals("warning") ? QUALITY_WARNING : QUALITY_GOOD

# Logical monitor name (e.g. "Whatsup Gold log integration")
MonitorName="My Oracle mon on " + $group0

# The name of the host / device that caused this event. If the name cannot be
determined an IP address can be used instead
TargetName=$group0

# The status string of the monitor (e.g: "Log file read, 3 matches found")
MonitorState="running..."

# The monitor type (e.g. "My Log Monitor", "Third Party CPU Monitor")
MonitorType="My Oracle"

# Measurement name (e.g. "matches per minute", "CPU Utilization")
MeasurementName(1)="oracle cpu usage"
# Value as double
Value(1):DOUBLE=parseDouble($group1)
# ETI name (optional, can be also configured in the BSM measurement-to-indicator
mapping if no custom topology script is defined)
MeasurementETI(1)="CPU Usage by SQL"
# CI resolution hint (optional, required only if "custom topology" or "no topology"
option is selected in monitor topology settings)
MeasurementCIHint(1)="mainInstance@@@ + $group0
```

(continued)

```
#####
# In order to send more than one measurement #
# per DB row / Log file line add pairs      #
# MeasurementName(*)=                      #
# Value(*):DOUBLE=                          #
# MeasurementETI(*)=                        #
# MeasurementCIHint(*)=                    #
# where * = 1,2,..,n                       #
#####

[allR]
$MATCH=true
$ACTION=SEND(ss_t)
```

You can see that you defined a new monitor type: My Oracle.

The monitor name is My Oracle mon on \$group0 where \$group 0 is also the target computer on which the Oracle database is running.

The measurement name is oracle cpu usage and its value is taken from the log file. The quality that is sent is conditional and depends on what is written in the log file.

The ETI to which the measurement is mapped is CPU Usage by SQL.

The CI hint is in the format <<oracle sid>>@@<<computer name>>. The CI hint helps the CI Resolver in BSM to find the CI to which this data sample should be attached.



## 6 Create the Custom Topology Script

This is the topology script you created:

```
import system_lib
import modeling

# Java imports
from java.lang import *
from java.util import *
from appilog.common.system.types.vectors import ObjectStateHolderVector
from appilog.common.system.types import ObjectStateHolder
from appilog.common.system.types import AttributeStateHolder
from appilog.common.system.types.vectors import StringVector

def DiscoveryMain(Framework(:
    global OSHVResult
    OSHVResult = ObjectStateHolderVector()
    # creating the node
    node = system_lib.createNode(Framework)
    (OSHVResult.add(node

    # creating the oracle ci
    monitorTarget = Framework.getDestinationAttribute("TargetName")
    "databaseSid = "mainInstance
    (oracle = modeling.createDatabaseOSH("oracle",databaseSid, None, None, node
    ()monitoredByList = StringVector
    ("monitoredByList.add("My Oracle Monitoring integration
    ((oracle.setAttribute(AttributeStateHolder("monitored_by", monitoredByList
    ("oracle.setBoolAttribute("root_enableageing", "true
    OSHVResult.add(oracle)

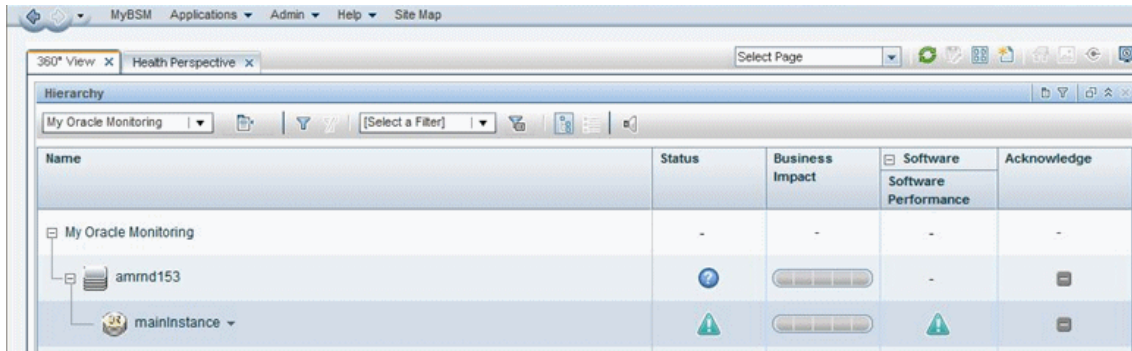
return OSHVResult
```

You can see that:

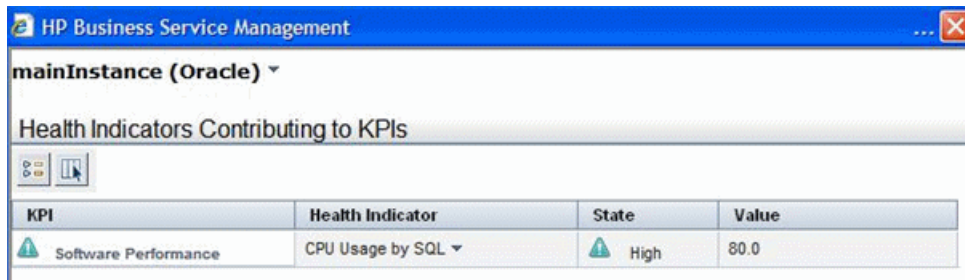
- ▶ `system_lib.createNode(Framework)` creates the node on which the database is running.
- ▶ `modeling.createDatabaseOSH` creates the Oracle CI.
- ▶ `mainInstance` is the SID of the Oracle you used.
- ▶ My Oracle Monitoring integration is the `monitored_by` attribute which is the condition you gave in the indicator assignment (see "Define an HI Assignment" on page 50).

## 7 View Integration Results

Finally, you created a view for the integration, and this is what is displayed in BSM's Service Health:



These are the results of the indicator status on the monitored machine:



The state and value are the same as you assigned in the field mapping.

# 3

---

## EMS Metrics Flow With Computer/Monitor Topology - Best Practices

This chapter includes:

- "Create a Metrics Flow With Computer - Monitor Topology" on page 67
- "Example – Create a Metrics Flow With Computer - Monitor Topology" on page 71

### Create a Metrics Flow With Computer - Monitor Topology

This task describes the steps involved in designing and implementing the EMS metrics flow using the Computer - Monitor topology script template. The topology describes a Computer CI connected to a SiteScope monitor CI with a Monitored By link.

---

**Note:** For an example of this task, see "Example – Create a Metrics Flow With Computer - Monitor Topology" on page 71.

---

This task includes the following steps:

- "Design the topology flow" on page 68
- "Map Metrics to Indicators" on page 68
- "Map Metrics to Indicators in SAM Administration" on page 68
- "Define Field Mapping" on page 69

- ▶ "Select a Topology Script" on page 70
- ▶ "View Integration Results" on page 70

## 1 Design the topology flow

Before you start, plan the following:

- ▶ The type of the monitor and the metrics you will have.
- ▶ The HIs you want to be created on the Computer CI you will report in topology.
- ▶ For most of the default HIs, there are already HI and KPI assignments, and there is no need to create new ones.
- ▶ The metrics you want to map to the HIs.

## 2 Map Metrics to Indicators

There are two ways to define the mapping of your metrics to HIs:

- ▶ In System Availability Management (SAM) Administration. Use this option to create a general mapping for your monitor type, or if you want to use regular expressions for the measurements in the mapping. For details, see step 3: "Map Metrics to Indicators in SAM Administration" on page 68.
- ▶ In the Field Mapping of the technology integration monitor. Use this option for simpler cases. For example, if you want to define a mapping between a metric to an HI without using regular expressions. For details, see step 4: "Define Field Mapping" on page 69.

## 3 Map Metrics to Indicators in SAM Administration

Define the mappings in SAM Administration:

- In BSM, select **Admin > System Availability Management > Metrics and Indicators**.
- Click **Select Monitor** and then click the **New Monitor** button.

- c Enter the details of the new monitor type:
  - **Monitor display name:** Enter the name of the monitor that will be displayed in the monitor list when you click the **Select Monitor** button.
  - **Monitor topaz name:** Enter the type of the monitor as you will define in your field mapping (see step 4: "Define Field Mapping" on page 69).
  - **Monitor class name:** Enter the type of the monitor as you will define in your field mapping (see step 4: "Define Field Mapping" on page 69).
  - **Monitor Category:** Enter **Custom**.

For more details, see "Create New Monitor Dialog Box" in *Using System Availability Management* in the BSM Documentation Library.
- d Select the new monitor type.
- e Create new indicator mappings for this monitor. For details on how to create the indicator mapping, see "Metrics and Indicators Tab" in *Using System Availability Management* in the BSM Documentation Library.
- f Click **Publish Changes** to publish the changes you made to SiteScope. The changes should reach SiteScope within no more than 5 minutes.

#### 4 Define Field Mapping

In the Field Mapping section of the integration monitor in SiteScope, select the **Metrics** field mapping script and define the field mapping.

- If you used SAM Administration to define the indicator mapping (see step 3 on page 68), enter the monitor name you used in the indicator mapping in SAM Administration for the **MonitorType** value.
- For the **MeasurementETI(x)** value, if you already defined a mapping between the metric and the indicator in SAM Administration (see step 3 on page 68), this field should not be set (keep it commented out). Otherwise, it should be uncommented and you should enter the label (display name) of one of the existing indicators that is defined on the Computer CI that suits your requirements. For example, CPU Load, for a measurement that checks CPU usage.

- ▶ The **MeasurementCIHint(x)** value should not be set (keep it commented out), since SiteScope sets the CI hint automatically.

For more details on values for the metrics script, see "Configuring Field Mapping for Metrics Samples" in *Using SiteScope*.

## 5 Select a Topology Script

In the Topology Settings section of the integration monitor, select **Computer - Monitor** from the Topology template list. You do not need to fill any topology script.

## 6 View Integration Results

After defining metrics assignments and configuring the monitor in SiteScope (including field mapping and topology script), you can view the results in the following applications:

### In Service Health:

- a** In BSM, select **Applications > Service Health > Top View**.
- b** In the drop down list, select:
  - ▶ **System Hardware Monitoring** to view the status of the Computer CI.
  - ▶ **System Monitors** view to view the monitor and its status.

### In SAM Reports:

You can also view the data of your integration in SAM reports. In the different reports, specify a filter for the data that you want to be displayed in the graphs.

Configure the filter to include the following values that you defined in the field mapping in step 4:

- ▶ **Target:** Select a value that was defined in the **TargetName** field in the Integration Monitor Field Mapping.
- ▶ **Monitor type:** Select a value that was defined in the **MonitorType** in the Integration Monitor Field Mapping.
- ▶ **Monitor title/name:** Select a value that was defined in the **MonitorName** in the Integration Monitor Field Mapping.

- **Measurement:** Select a value that was defined in the MeasurementName(x) in the Integration Monitor Field Mapping.

## Example – Create a Metrics Flow With Computer - Monitor Topology

This example describes how to create an integration monitor to capture and forward metrics samples from a third-party system that monitors different disks to BSM using the Computer - Monitor topology script.

---

**Note:** For a task related to this example, see "Create a Metrics Flow With Computer - Monitor Topology" on page 67.

---

This example includes the following steps:

- "Design stage" on page 71
- "Map Metrics to Indicators in SAM Administration" on page 72
- "Define the Field Mapping" on page 74
- "Select a Topology Script" on page 75
- "View Integration Results" on page 76

### 1 Design stage

You have a third-party application that writes to a log file. It writes to the log the disk usage of different computers.

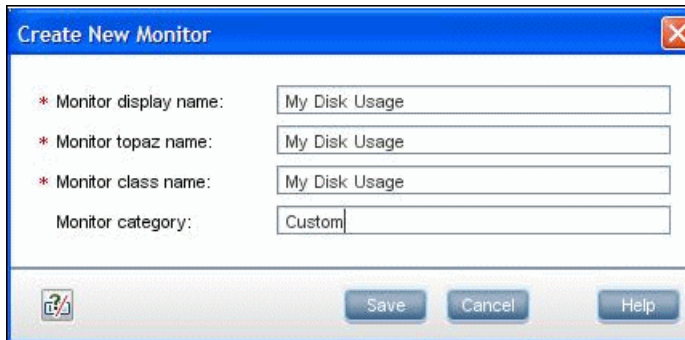
Since the application writes to log files, create a Technology Log File Integration monitor for the integration. Use the **Metrics** field mapping and the **Computer - Monitor** topology script template, and select the Host Disk Utilization indicator. There is no need to create assignments for this HI or KPI since there are existing assignments for them.

Entries in the log file:

- labamrnd42,disk,d,65,warning
- labamrnd42,disk,d,70,warning
- labamrnd42,disk,d,70,warning

## 2 Map Metrics to Indicators in SAM Administration

Create a new monitor type in **BSM > Admin > System Availability Management > Metrics and Indicators**.

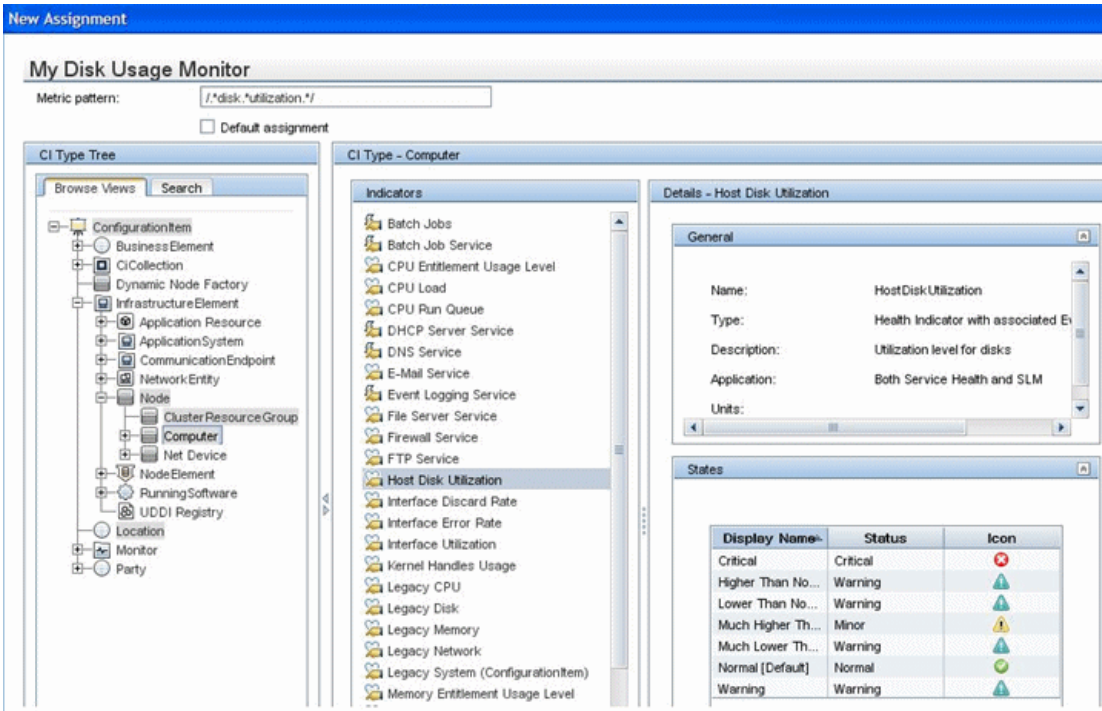


The screenshot shows a dialog box titled "Create New Monitor". It has a blue header bar with the title and a close button. The main area contains four input fields with labels and asterisks indicating required fields: "Monitor display name:" (value: My Disk Usage), "Monitor topaz name:" (value: My Disk Usage), "Monitor class name:" (value: My Disk Usage), and "Monitor category:" (value: Custom). At the bottom, there are three buttons: "Save", "Cancel", and "Help", and a help icon on the left.

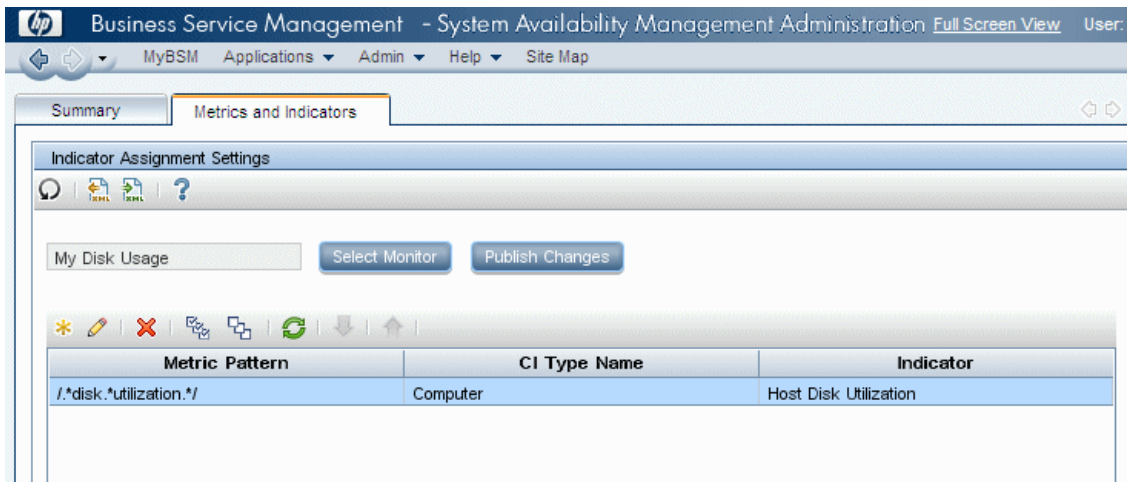
My Disk Usage is the monitor type and Custom is the category.



Now, define a new indicator mapping for the monitor:



This is how the table looks when you save it:



### 3 Define the Field Mapping

This is the field mapping you use:

```
[$DEFAULT_PARAMETERS$]
# Time stamp in seconds since Jan 1st 1970 format.
# Use time() to get the sitescope host time or str_to_seconds() to read a value from
the input event
TimeStamp:DOUBLE=time()

# Quality in SiteScope terms: QUALITY_ERROR, QUALITY_WARNING,
QUALITY_GOOD
Quality:INT=$group4.equals("error") ? QUALITY_ERROR :
$group4.equals("warning") ? QUALITY_WARNING : QUALITY_GOOD

# Logical monitor name (e.g. "Whatsup Gold log integration")
MonitorName="Disk Usage on " + $group0

# The name of the host / device that caused this event. If the name cannot be
determined an IP address can be used instead
TargetName=$group0

# The status string of the monitor (e.g. "Log file read, 3 matches found")
MonitorState="Checking disk utilization..."

# The monitor type (e.g. "My Log Monitor", "Third Party CPU Monitor")
MonitorType="My Disk Usage"

# Measurement name (e.g. "matches per minute", "CPU Utilization")
MeasurementName(1)="disk " + $group2 + " utilization"
# Value as double
Value(1):DOUBLE=parseDouble($group3)
# ETI name (optional, can be also configured in the BSM measurement-to-indicator
mapping if no custom topology script is define)
#MeasurementETI(1)=
# CI resolution hint (optional, required only if "custom topology" or "no topology"
option is selected in monitor topology settings)
#MeasurementCIHint(1)=
```

(continued)

```
#####
# In order to send more than one measurement #
# per DB row / Log file line add pairs #
# MeasurementName(*)= #
# Value(*):DOUBLE= #
# MeasurementETI(*)= #
# MeasurementCIHint(*)= #
# where * = 1,2,..,n #
#####

[allR]
$MATCH=true
$ACTION=SEND(ss_t)
```

You can see that the **MonitorType** value is **My Disk Usage** (as defined in the indicator mapping in SAM Administration).

The measurement matches the regular expression defined in the indicator mapping: `MeasurementName(1)="disk " + $group2 + " utilization"`.

**MeasurementETI(1)** is commented out since you already defined a mapping in SAM Administration.

**MeasurementCIHint(1)** is commented out since SiteScope sets the hint automatically.

#### 4 Select a Topology Script

Select the **Computer - Monitor** script from the Topology template list.

## 5 View Integration Results

You can view the target computer being monitored (labamrnd42) in the System Hardware Monitoring view of the Service Health application.

Name	Status	Business Impact	System		Acknowledge
			Legacy System	System Performance	
System Hardware Monitoring	-	-	-	-	-
avaknin1	?		?	-	-
labmail01	?		-	-	-
labamrnd42	!		-	!	-
scdam070	?		-	-	-
vmrnd145	?		?	?	-
vmamrnd150	?		-	?	-

These are the results of the indicator status on the monitored machine:

**labamrnd42 (Computer) ▾**

Health Indicators Contributing to KPIs

KPI	Health Indicator	State	Value
! System Performance	Host Disk Utilization ▾	! Much Higher Than Normal	70.0

Close
Help

# 4

---

## EMS Metrics Flow With No Topology - Best Practices

This chapter includes:

- ▶ "Create a Metrics Flow With No Topology" on page 77
- ▶ "Example – Create a Metrics Flow With No Topology" on page 84

### Create a Metrics Flow With No Topology

This task describes the steps involved in designing and implementing the EMS metrics flow using the **No Topology** script template.

Use this flow to use integration monitors to send metrics samples for an already existing topology in BSM. In this flow, SiteScope sends data without sending topology.

---

**Note:** For an example of this task, see "Example – Create a Metrics Flow With No Topology" on page 84.

---

This task includes the following steps:

- ▶ "Design the topology flow" on page 78
- ▶ "Change the CI Resolver TQL" on page 78
- ▶ "Select an Indicator" on page 79
- ▶ "Define an HI Assignment" on page 80
- ▶ "Define a KPI Assignment for each CI type" on page 81

- "Configure Field Mapping" on page 82
- "View Integration Results" on page 82

## 1 Design the topology flow

The first stage in creating an EMS integration for metrics samples using No Topology is the design. When planning the design strategy, you need to consider the following:

### ➤ CIs for topology

Since you are using the No Topology option, you probably already have CIs in the RTSM to which you want to report data using EMS monitors.

### ➤ Data that you want to be reported for these CIs

Consider what data you have for these CIs and how it can be attached to the CIs. What is the relevant health indicator (HI) for the data being reported? If there is no such indicator, consider creating a new HI. Which KPI or HI assignments create the desired HIs and KPIs? If no such assignments exist, consider creating your own.

For example, if you have data on CPU usage and network usage, you can use the CPU Load and Interface Utilization HIs that are defined for the Computer CI type, and you can use the System Performance KPI. Check if there are HI and KPI assignments that meet your needs, and if not, consider creating them.

## 2 Change the CI Resolver TQL

- a In BSM, select **Admin > Platform > Infrastructure Settings**.
  - Select **Applications**.
  - Select **End User/System Availability Management**.
  - In the **End User/System Availability Management - SiteScope CI Resolver Settings**, change the value of the **TQL Queries** parameter from **CIs Monitored by SiteScope** to **OMiAutoView**.

- b** Restart BSM to apply the change.

---

**Note:** This TQL does not support models with a large number of CIs (it may cause performance problems in such models).

---

### 3 Select an Indicator

To view the status of a CI, you need an HI which provides a fine-grained measure of the health of the CI. In most cases, you want to view the HI in BSM's Service Health. The HI is also used in Service Level Management (SLM). For details on HIs in Service Health and SLM, see "Health Indicators and KPIs - Overview" in *Using Service Health* in the BSM Documentation Library.

---

**Note:** For alignment reasons, we recommend using an out-of-the-box HI; only create your own HI if you do not find an existing HI that fits your needs.

---

To select an existing HI or create a new HI:

- a** In BSM, select **Admin > Service Health / Service Level Management > Repositories > Indicators**.
- b** Select a CI type.
- c** Check if you already have an existing HI that fits your requirements. If you do not, create a new one. For details on how to create HIs, see "How to Create or Edit an ETI or HI Template in the Indicator Repository" in *Using Service Health* in the BSM Documentation Library in the BSM Documentation Library.
- d** If you create a new HI, you should publish the changes to SiteScope. In BSM, select **Admin > System Availability Management > Metrics and Indicators** and click **Publish Changes**. The changes should reach SiteScope within no more than 5 minutes.

## 4 Define an HI Assignment

After you select an HI, you need to define an HI assignment that will assign the HI to a CI. The assignment also defines which data samples will be captured by this HI and which business rule will be used to calculate the status of the HI according to the data samples.

For more information on HI assignments in Service Health, see "Health Indicator Assignments Page" in *Using Service Health* in the BSM Documentation Library. For more information on HI assignments in SLM, see "Health Indicator Assignments Page" in *Using Service Level Management* in the BSM Documentation Library.

To define an HI assignment:

- a** In BSM, select **Admin > Service Health / Service Level Management > Assignments > Health Indicator Assignments**.
- b** Select a CI type.
- c** Create a new HI assignment. For details on how to create the assignment, see "How to Define a KPI or HI Assignment" in *Using Service Health* or "How to Define a KPI or HI Assignment" in *Using Service Level Management* in the BSM Documentation Library.
  - In the **Condition** area, enter a unique value for your integration in the **Monitored By** field. This enables you to distinguish between the CIs reported by your integration to other CIs of this type which are not reported by the integration.
  - Select the HI you chose in step 3.
  - Choose the business rule to use for the HI calculation. We recommend using the **SiteScope Worst Status Rule**. You can also use the **SiteScope Consecutive Worst Status Log** or **SiteScope Best Status Rule**.
  - In the selector, enter the following:
    - eti\_id = (Binary) <<Health Indicator Type ID>>
    - ci\_id = (Binary) <<CI ID>>
    - sampleType = (String) ss\_t

The integration monitor sends metrics samples (ss\_t) that contain the same eti\_id as your ETI and same CI ID as the CI's.



The `eti_id` in the sample is sent by SiteScope according to your field mapping entry for the monitor in step 6.

The `ci_id` is found by the CI resolver in BSM. For it to find the CI, it uses the CI hint sent by SiteScope in the sample, according to your field mapping entry for the monitor in step 6.

For details on field mapping for metrics samples, see "Configuring Field Mapping for Metrics Samples" in *Using SiteScope*.

## 5 Define a KPI Assignment for each CI type

Verify whether you have an appropriate KPI assignment, or create one if one does not already exist. The assignment determines which KPI to assign to the CI and for which HIs.

If you use one of the default HIs then there should already be a default KPI assignment for your HI and you do not need to create one.

- ▶ For more information on KPI assignments in Service Health, see "KPI Assignments Page" in *Using Service Health* in the BSM Documentation Library.
- ▶ For more information on KPI assignments in SLM, see "KPI Assignments Page" in *Using Service Level Management* in the BSM Documentation Library.

To create a KPI assignment:

- a** In BSM, select **Admin > Service Health > Repositories > Indicators**.
- b** Choose the type of your CI.
- c** Create a new KPI assignment. For details, see "How to Define a KPI or HI Assignment or "Applications" in *Using Service Health* or "How to Define a KPI or HI Assignment" in *Using Service Level Management* in the BSM Documentation Library.
- d** In the KPI assignment, the related HI should be the one you chose in step 3.

---

**Note:** If you also want to view the integration results in Service Level Management (SLM), you need to define the Service Level Agreement (SLA). For more information on SLAs, see "Agreements Manager Page" in *Using Service Level Management* in the BSM Documentation Library.

---

## 6 Configure Field Mapping

Now it is time to configure the monitor. In the **Field Mapping** section of the integration monitor, select the **Metrics** sample type to load the metrics script, and enter the details you want to send in the `ss_t` sample file.

- ▶ For the **MeasurementETI** value, enter the label of the HI you chose previously in step 3.
- ▶ Enter a hint for the CI in **MeasurementCIHint**. This hint helps the CI resolver in BSM to recognize the CI to which the sample should be attached.

For details on values for the metrics script, see "Configuring Field Mapping for Metrics Samples" in *Using SiteScope*.

## 7 View Integration Results

After configuring the HI and KPI assignments in BSM and the monitor in SiteScope (including field mapping), you can view the results.

- ▶ Create a view in RTSM to view the results of the integration in BSM's Service Health or Service Level Management application. The view should describe the CIs you want to view.

For details on creating the view, see "Modeling Studio Page" in the *Modeling Guide* in the BSM Documentation Library.

If you defined the integration for SLM as well, you can view the integration results in SLM reports. For more information on SLM and on the reports, see "Working with the Service Level Management Application" in *Using Service Level Management* in the BSM Documentation Library.

- ▶ You can also view the integration data in System Availability Management reports. In the different reports, specify a filter for the data that you want to be displayed in the graphs.

Configure the filter to include the following values that you defined in the field mapping in step 6:

- ▶ **Target:** Select a value that was defined in the TargetName field in the Integration Monitor Field Mapping.
- ▶ **Monitor type:** Select a value that was defined in the MonitorType in the Integration Monitor Field Mapping.
- ▶ **Monitor title/name:** Select a value that was defined in the MonitorName in the Integration Monitor Field Mapping.
- ▶ **Measurement:** Select a value that was defined in the MeasurementName(x) in the Integration Monitor Field Mapping.

## Example – Create a Metrics Flow With No Topology

This example describes how to create an integration monitor to capture and forward metrics samples from a third-party system that monitors different Oracle databases to BSM using the No Topology flow. This flow is used to send metric samples when a topology already exists in BSM, and there is no need to report the CIs.

---

**Note:** For a task related to this example, see "Create a Metrics Flow With No Topology" on page 77.

---

This example includes the following steps:

- "Design Stage" on page 84
- "Select an Indicator" on page 86
- "Define an HI Assignment" on page 86
- "Define a KPI Assignment" on page 88
- "Define the Field Mapping" on page 90
- "View Integration Results" on page 92

### 1 Design Stage

You have an application named My Oracle Monitoring. This application writes various measurements from Oracle databases running on different computers to a log file.

Since the application writes to log files, you need to create a Technology Log File Integration monitor for the integration. The measurements will be assigned to Oracle CIs that already exist in RTSM; therefore the CIs do not need to be reported. The data is assigned to HIs on the CIs. You will focus on one indicator and one measurement that you are interested in.

Entries in the log file:

- amrnd153,27,1,good
- amrnd153,82,1,warning

➤ amrnd153,80,1,warning

The monitor:

Technology Log File Integration Monitor Settings

Server:	<input type="text" value="SiteScope Server"/> <input type="button" value="Browse Servers"/> <input type="button" value="Add Remote Server"/>
* Log file path name:	<input type="text" value="c:\ems\OracleLog.txt"/>
* Content match:	<input "="" type="text" value="/(.*),(.*),(.*),(.*)"/> <input type="button" value="Open Tool"/>
	<input type="checkbox"/> No error if file not found
Log file encoding:	<input type="text" value="windows-1252"/>
Run alerts:	<input type="text" value="For each log entry matched"/>
	<input type="checkbox"/> Report topology without data
EMS time difference:	<input type="text" value="0"/> <input type="text" value="Days"/>

---

Monitor Run Settings

---

Field Mapping

---

Topology Settings

---

Dependencies

---

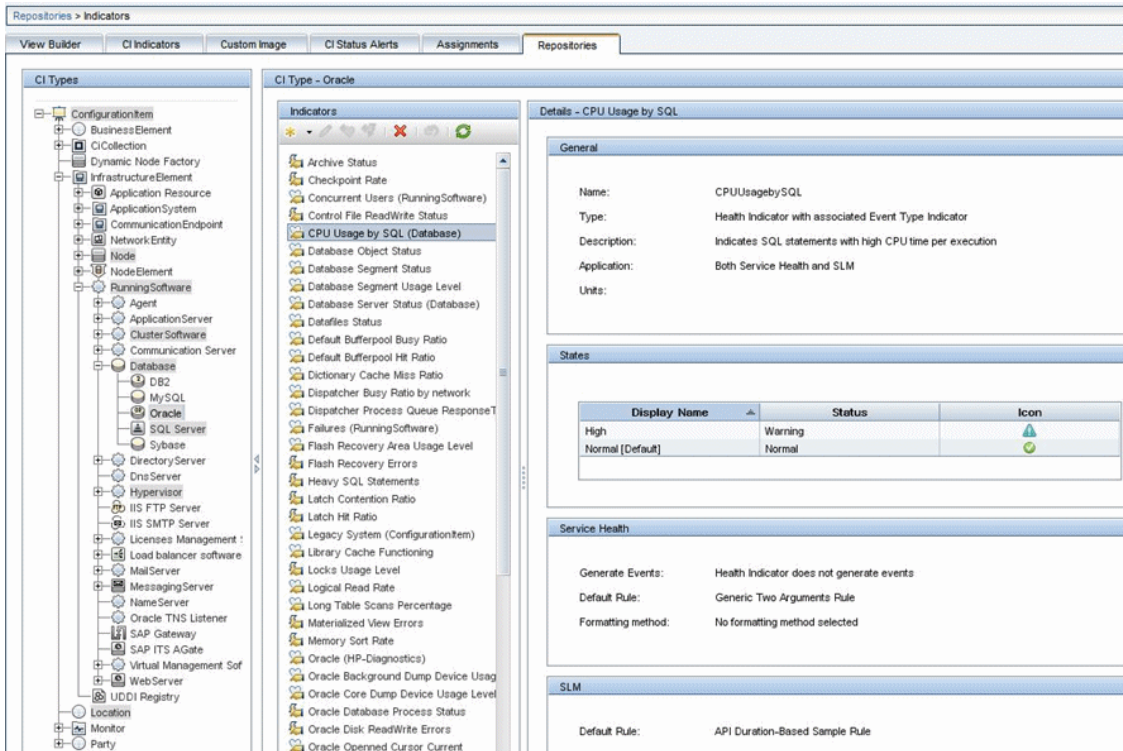
Threshold Settings

If unavailable:	<input type="text" value="Set monitor status according to Thresholds"/>
Default status:	<input type="text" value="Good"/>
On internal error:	<input type="text" value="Set monitor status according to Thresholds"/>
	<input type="button" value="Add Default Thresholds"/> <input type="button" value="Remove Default Thresholds"/>

Error if

## 2 Select an Indicator

For the My Oracle Monitoring application, use the CPU Usage by SQL (Database) indicator. This indicator reports SQL as well as Oracle usage.

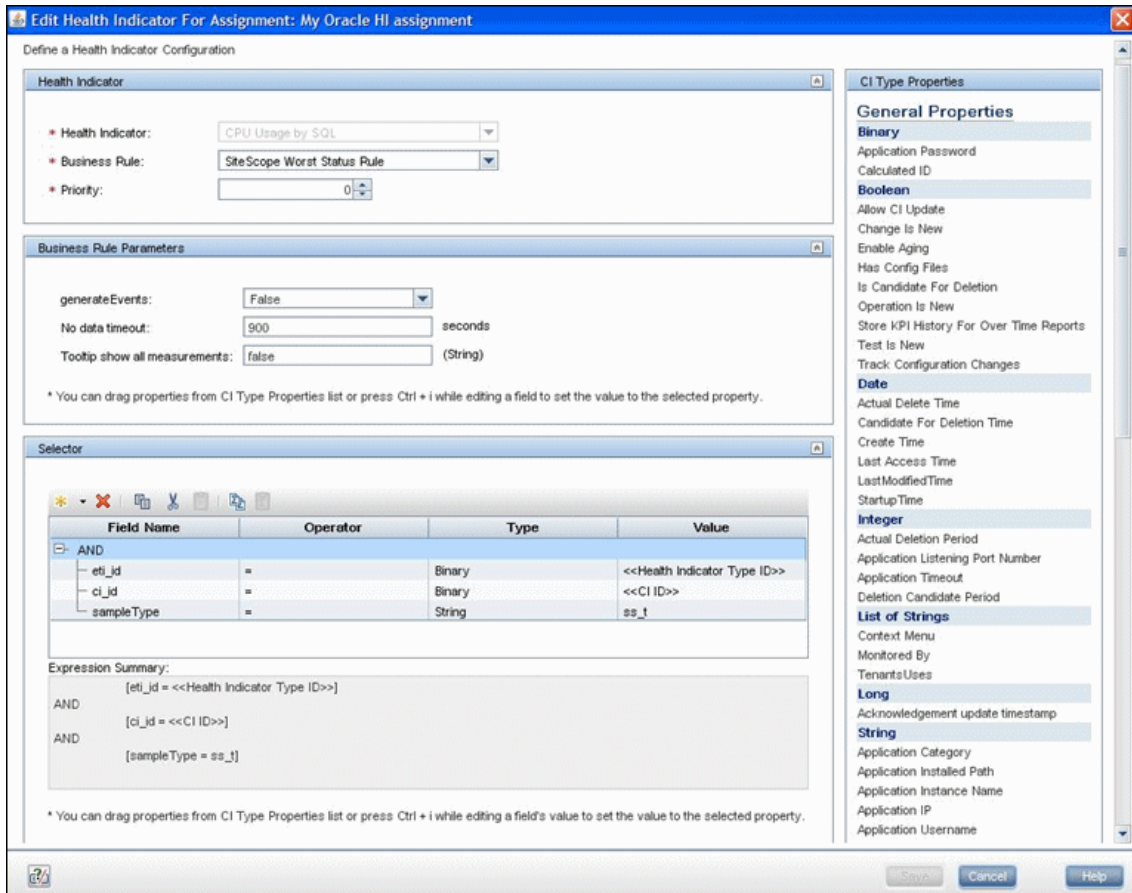


This indicator is defined on Oracle CI type and is appropriate for the measurement being read from the log. This measurement describes the amount of CPU that Oracle uses.

## 3 Define an HI Assignment

Next you create the indicator assignment in Service Health. The assignment condition should match the Oracle CIs on which you want to define the indicators (and not other Oracle CIs that do not belong to this integration).

In the indicator assignment, select the CPU Usage by SQL HI. If you edit the indicator in this assignment, you get this:



The CPU Usage by SQL indicator is calculated using the **SiteScope Worst Status Rule**. The selector defines that samples of type `ss_t` (the metrics sample type) with the same `ci_id` and `eti_id` as the current CI and ETI are captured by this indicator on this Oracle CI. You do not want other samples to be captured.

## 4 Define a KPI Assignment

Since you used a default indicator, you do not need to create a KPI assignment as there is an existing Service Health KPI assignment on Oracle CIs.

Define a KPI Assignment. When a condition is filled, KPIs and/or Context Menus are assigned to any CI that meets the condition.

**Assignment Settings**

ID: 796515e4-bcd2-4b10-9ee9-1c8e407f9414

Name: Oracle KPIs Assignment

Description: KPI Assignments for Oracle Health Indicators

**Condition**

Monitored by: [Dropdown]

Property Name	Operator	Value

**KPI Configurations**

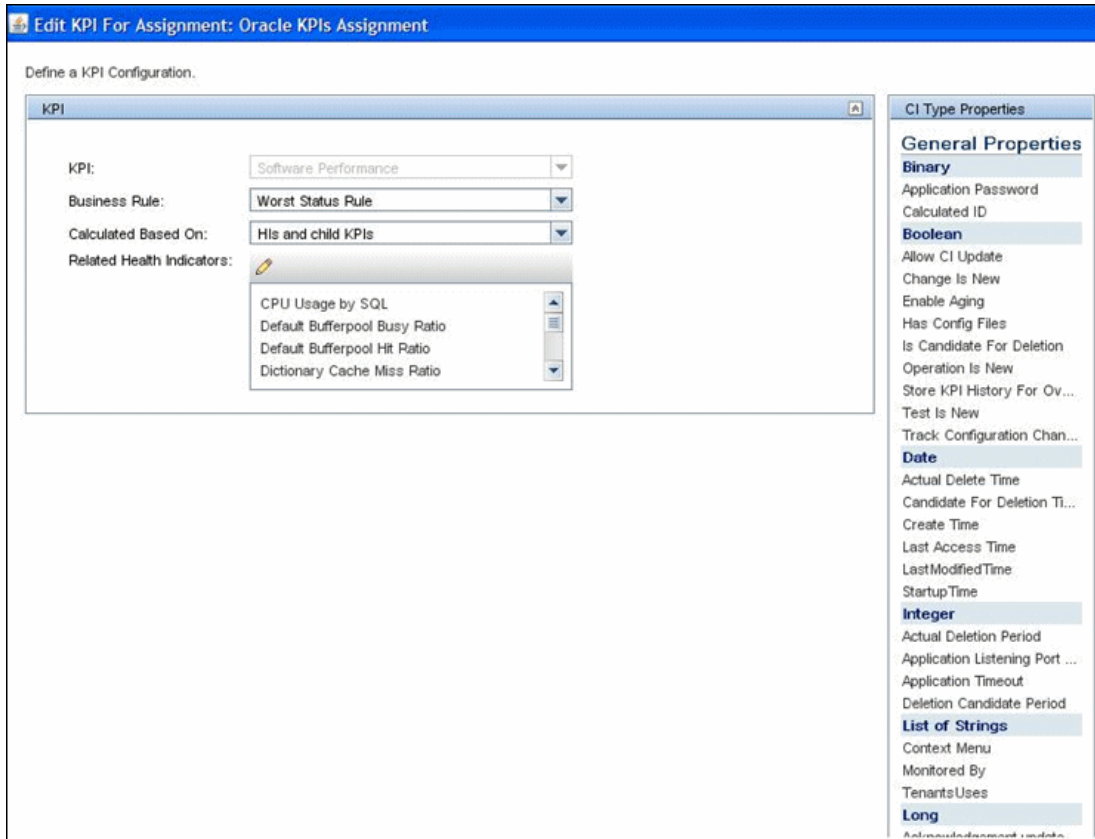
KPI	Calculated Based On	Related Health Indicators	Business Rule
Software Availability	Hls and child KPIs	Database Object Status, Database Segm...	Worst Status Rule
Software Performance	Hls and child KPIs	CPU Usage by SQL, Default Bufferpool B...	Worst Status Rule

**Context Menus**

Save Cancel Help



Select the Software Performance KPI:



You can see that one of the indicators related to this KPI is the CPU Usage by SQL indicator which you used.

## 5 Define the Field Mapping

This is the field mapping for the integration:

```
[${DEFAULT_PARAMETERS$}
# Time stamp in seconds since Jan 1st 1970 format.
# Use time() to get the sitescope host time or str_to_seconds() to read a value from
the input event
TimeStamp:DOUBLE=time()

# Quality in SiteScope terms: QUALITY_ERROR, QUALITY_WARNING,
QUALITY_GOOD
Quality:INT=$group3.equals("error") ? QUALITY_ERROR :
$group3.equals("warning") ? QUALITY_WARNING : QUALITY_GOOD

# Logical monitor name (e.g. "Whatsup Gold log integration")
MonitorName="My Oracle mon on " + $group0

# The name of the host / device that caused this event. If the name cannot be
determined an IP address can be used instead
TargetName=$group0

# The status string of the monitor (e.g. "Log file read, 3 matches found")
MonitorState="running..."

# The monitor type (e.g. "My Log Monitor", "Third Party CPU Monitor")
MonitorType="My Oracle"

# Measurement name (e.g. "matches per minute", "CPU Utilization")
MeasurementName(1)="oracle cpu usage"
# Value as double
Value(1):DOUBLE=parseDouble($group1)
# ETI name (optional, can be also configured in the BSM measurement-to-indicator
mapping if no custom topology script is defined)
MeasurementETI(1)="CPU Usage by SQL"
# CI resolution hint (optional, required only if "custom topology" or "no topology"
option is selected in monitor topology settings)
MeasurementCIHint(1)="mainInstance@@" + $group0
```

(continued)

```
#####
# In order to send more than one measurement #
# per DB row / Log file line add pairs #
# MeasurementName(*)= #
# Value(*):DOUBLE= #
# MeasurementETI(*)= #
# MeasurementCIHint(*)= #
# where * = 1,2,..,n #
#####

[allR]
$MATCH=true
$ACTION=SEND(ss_t)
```

You can see that a new monitor type was defined: My Oracle.

The monitor name is My Oracle mon on \$group0 where \$group 0 is also the target computer on which the Oracle database is running.

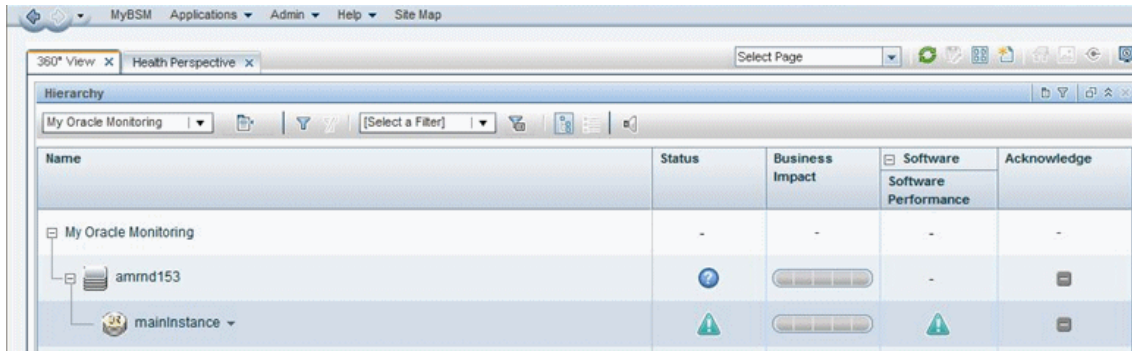
The measurement name is oracle cpu usage and its value is taken from the log file. The quality that is sent is conditional and depends on what is written in the log file.

The ETI to which the measurement is mapped is CPU Usage by SQL.

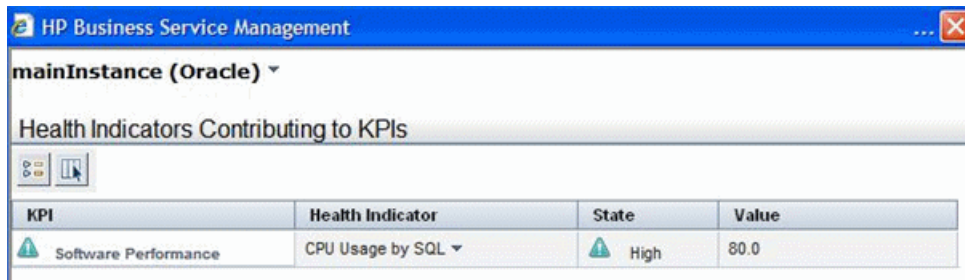
The CI hint is in the format <<oracle sid>>@@<<computer name>>. The CI hint helps the CI Resolver in BSM to find the CI to which this data sample should be attached.

## 6 View Integration Results

Finally, you created a view for the integration, and this is what is displayed in BSM's Service Health:



These are the results of the indicator status on the monitored machine:



The state and value are the same as you assigned in the field mapping.