

# **BSM CONNECTOR FOR AUTOPILOT®**

## **Version 1.0**

### **Installation and User's Guide**

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# Table of Contents

<b>CHAPTER 1: INTRODUCTION</b> .....	<b>1</b>
1.1 HOW THIS GUIDE IS ORGANIZED .....	1
1.2 HISTORY OF THIS DOCUMENT.....	1
1.2.1 <i>User Feedback</i> .....	1
1.3 RELATED DOCUMENTS .....	1
1.4 INTENDED AUDIENCE.....	1
1.5 SYSTEM REQUIREMENTS.....	1
1.5.1 <i>Platforms</i> .....	1
1.6 TECHNICAL SUPPORT.....	2
1.7 SYSTEM FLOW .....	2
<b>CHAPTER 2: INSTALLATION</b> .....	<b>3</b>
2.1 INSTALL PACKAGE.....	3
2.2 IMPORT CONFIGURATION ITEM TYPES.....	3
2.3 IMPORT NASTEL CONTENT PACK FOR AUTOPILOT .....	3
2.4 IMPORT AUTOPILOT TOPOLOGY VIEW.....	4
2.6 INSTALL PERL CLASSES .....	6
2.7 INSTALL BSMC POLICIES .....	6
2.8 CONFIGURE AUTOPILOT PROPERTIES .....	7
2.8.1 <i>Using File Editor</i> .....	7
2.8.2 <i>Using AutoPilot M6 Enterprise Manager</i> .....	8
2.8.3 <i>Modify Sensor Properties</i> .....	8
2.8.4 <i>Modify BSV File Types</i> .....	8
2.8.5 <i>Miscellaneous AutoPilot Policies Changes</i> .....	9
2.8.6 <i>Activate (Deploy) AutoPilot Policies</i> .....	9
2.8.7 <i>Monitor MQ</i> .....	10
2.9 CONFIGURE OMI INFRASTRUCTURE SETTINGS .....	12
<b>CHAPTER 3: ACTIVATE BSM POLICIES</b> .....	<b>13</b>
3.1 ACTIVATE BSM POLICIES.....	13
<b>CHAPTER 4: TROUBLESHOOTING</b> .....	<b>19</b>
4.1 TOPOLOGY DISCOVERY PROBLEMS .....	19
4.1.1 <i>Log Files to Check</i> .....	19
4.1.2 <i>Specific Error Messages</i> .....	21
4.2 USING SENDEVENT.BAT(.SH) TO SIMULATE EVENT MESSAGES .....	22
4.3 USEFUL COMMANDS .....	23
<b>APPENDIX A: REFERENCES</b> .....	<b>27</b>

## Figures

---

FIGURE 1-1. SYSTEM FLOW .....	2
FIGURE 2-1. CONTENT PACK PREVIEW .....	4
FIGURE 2-2. AUTOPILOT TOPOLOGY PART 1 .....	5
FIGURE 2-3. AUTOPILOT TOPOLOGY PART 2 .....	5
FIGURE 2-4. AUTOPILOT POLICIES .....	9
FIGURE 2-5. MONITOR MQ.....	10
FIGURE 2-6. POLICIES .....	11
FIGURE 2-7. QUEUE STATUS MONITOR BUSINESS VIEW.....	11
FIGURE 3-1. EVENT BROWSER .....	14
FIGURE 3-2. HEALTH PERSPECTIVE BROWSE VIEW .....	15
FIGURE 3-3. HEALTH PERSPECTIVE TOPOLOGY .....	15
FIGURE 3-4. HEALTH PERSPECTIVE EVENT BROWSER .....	16
FIGURE 3-5. HEALTH PERSPECTIVE FOR CI SLOWING DRAINING.....	16
FIGURE 3-6. PERFORMANCE GRAPHS FOR CI SLOWING DRAINING .....	17
FIGURE 4-1. EVENT MESSAGE DETAILS.....	22
FIGURE 4-2. MORE MESSAGE EVENT DETAILS .....	22
FIGURE 4-3. COMMANDS SHOWING OMI COMPONENT VERSIONS .....	23
FIGURE 4-4. OMI COMPONENTS .....	24
FIGURE 4-5. START/STOP OMI PROCESSES/COMPONENTS .....	25
FIGURE 4-6. STATUS OF OMI PROCESSES/COMPONENTS .....	25
FIGURE 4-7. ACHIEVE CLOSED EVENTS.....	26

## Tables

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TABLE 1-1. DOCUMENT HISTORY .....	1
TABLE A-1. NASTEL DOCUMENTATION.....	27

# Chapter 1: Introduction

Welcome to the Nastel BSM Connector (BMSC) for AutoPilot on OMi Installation and User's Guide. This guide describes installation and use of BSM Connector.

## 1.1 How This Guide is Organized

[Chapter 1:](#) Identifies the users and history of the document. System requirements are outlined and the flow of events from MQ to OMi is described.

[Chapter 2:](#) Provides instruction for new installations of BSMC for AutoPilot.

[Chapter 3:](#) Provides instruction for activating BSM policies.

[Chapter 4:](#) Provides troubleshooting information.

[Appendix A:](#) Provides a list of reference information.

## 1.2 History of This Document

Release Date	Document Number	For AutoPilot Version	Summary
June 2016	BSM 600.001	AP 6.0 or higher	Original Release
July 2017	BSM 600.002	AP 6.0 or higher	Update Nastel's phone number and street address
May 2018	BSM 600.003	AP 6.0 or higher	Errata

### 1.2.1 User Feedback

Nastel encourages all users and administrators of AutoPilot to submit comments, suggestions, corrections and recommendations for improvement for all AutoPilot documentation. Please send your comments via email to: [support@nastel.com](mailto:support@nastel.com). You will receive a written response, along with status of any proposed change, update, or correction.

## 1.3 Related Documents

The complete listing of related and referenced documents is listed in [Appendix A](#) of this guide.

## 1.4 Intended Audience

This guide is intended for use by installers and administrators of Nastel's AutoPilot and related streaming based products.

## 1.5 System Requirements

This section defines system and platform prerequisite support requirements for BSCM for AutoPilot.

### 1.5.1 Platforms

BMSC is compatible with the following platforms:

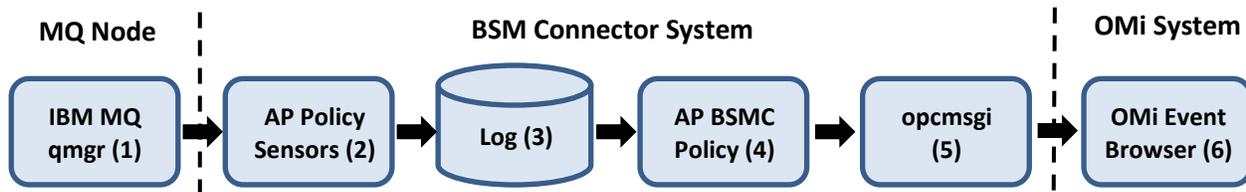
- Windows NT/2000 or later/XP
- Unix (Solaris, AIX, HP-UX, Linux).

## 1.6 Technical Support

If you need additional technical support, you can contact Nastel Technologies by telephone or by email. To contact Nastel technical support by telephone, call **800-963-9822 ext. 1**, if you are calling from outside the United States dial **001-516-801-2100**. To contact Nastel technical support by email, send a message to [support@nastel.com](mailto:support@nastel.com). To access the Nastel automated support system (user id and password required), go to <http://support.nastel.com/>. Contact your local AutoPilot Administrator for further information.

## 1.7 System Flow

The flow of events from an MQ node to OMi is easily explained with reference to Figure 1-1.



*Figure 1-1. System Flow*

An MQ object status changes (1). The combination of the AP WMQ agent on the MQ node (or using the agentless AP Connection Manager) and the AP policy sensors detect the event (2). The sensors, for policies of interest, are configured to write to a log file (3). A Nastel AP policy installed in the BSM Connector (4) named “AP Sensor Events (Linux)” is designed to detect patterns in the AP sensor log file (2) for all possible MQ events and generates an event message that the OpC message interceptor (5) processes and forwards to OMi, where it appears in the event browser (6).

---

## Chapter 2: Installation

---

### 2.1 Install Package

1. Copy the package **NASTEL\_BSMC\_AP\_1.0.zip** to a folder `install_dir`, for example, `C:\nastel\BSMC` for AP, on your Windows PC from where you will launch the web browser to connect to OMi and access the OMi GUI.
2. Right-click the package name in the Windows Explorer and select **Extract Here**.

### 2.2 Import Configuration Item Types

There are six configuration item (CI) types for the AutoPilot business views, sensors, sensor groups, events, policy managers and system.

1. Open the OMi GUI and navigate to **Administration > RTSM Administration > Modeling > CI Type Manager**.
2. Left-click the **Import from XML** icon on the menu bar.
3. Navigate to `install_dir\ImportPkg\CITypes`.
4. Select file `ap_bsv.xml` and click the **Import** button.
5. Repeat steps 2-4 for the remaining five XML files.

### 2.3 Import Nastel Content Pack for AutoPilot

The **Nastel Content Pack for AutoPilot** contains Business Rules, KPIs, Indicators, and Propagations.

1. Navigate to `install_dir\ ImportPkg`.
2. Select **OMi Content Pack - Nastel\_Content\_Pack\_for\_AutoPilot.zip**, right click and select **Extract Here**.
3. Open the OMi GUI and navigate to **Administration > Setup and Maintenance > Content Packs**.
4. Left-click the **Import Content Pack Definitions and Content** icon on the menu bar.
5. Click the **Browse** button in the *Import Content* dialog box, navigate to the directory in one and select **package.xml**.
6. Click the **Preview** button and expand the icons. You should see the following:

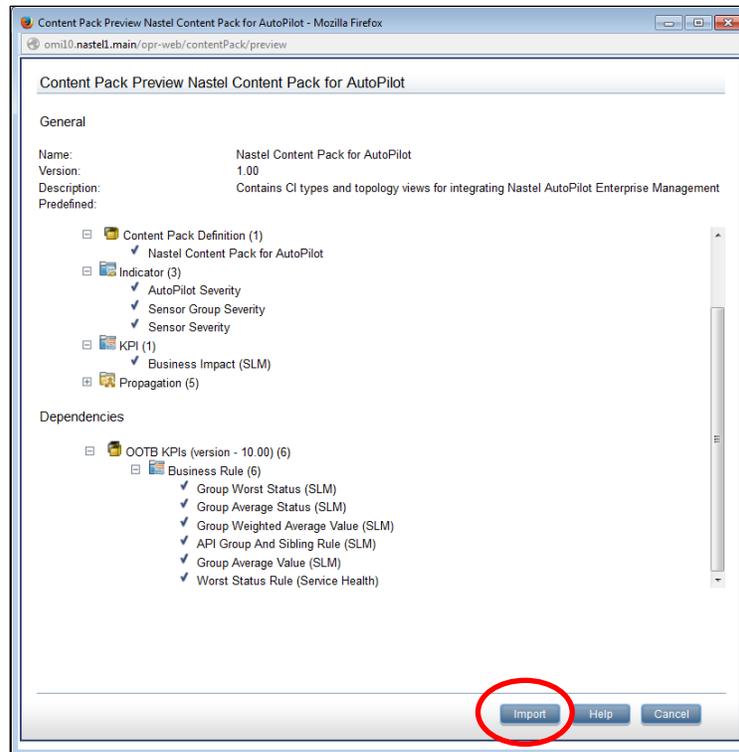


Figure 2-1. Content Pack Preview

7. Click on the **Import** button. You will see a message **Successfully imported**.

## 2.4 Import AutoPilot Topology View

1. Open OMi GUI and navigate to **Administration > RTSM Administration > Modeling > Modeling Studio**.
2. Select the **Resources** tab and Resource Type: **Views**.
3. Navigate down to **Root > Application**. If folder **Nastel AutoPilot** does not exist, right-click **Application** and select **New Folder**. Enter folder name **Nastel AutoPilot**.
4. Select folder **Nastel AutoPilot** and left-click the **Import from XML** icon (second from the right on the **Resources** menu bar).
5. In the *Import* dialog box, navigate to the *Install\_dir\importPkg\Views* folder and select **AutoPilot Topology\_query.xml**.
6. If a message box appears saying:  
A query with AutoPilot Topology name already exists. Do you want to overwrite it?  
then click **Overwrite**, because the file being imported may be an update to the existing one.
7. Select the **Resources** tab and Resource Type: **Views**.
8. Navigate down to **Root > Application**. If folder **Nastel AutoPilot** does not exist, right-click **Application** and select **New Folder**. Enter folder name **Nastel AutoPilot**.
9. Select folder **Nastel AutoPilot** and left-click the **Import from XML** icon (second from the right on the **Resources** menu bar).

10. In the *Import* dialog box, navigate to the *Install\_dir\importPkg\Views* folder and select **AutoPilot Topology\_view.xml**.
11. If a message box appears saying:  
 A view with AutoPilot Topology name already exists. Do you want to overwrite it?  
 Then click **Overwrite**, because the file being imported may be an update to the existing one.
12. After it loads, select Resource Type: **Views** and drag the **Root > Views > Application > Nastel AutoPilot > AutoPilot Topology** view to the canvas on the right. You should see a view like this, shown in two parts:

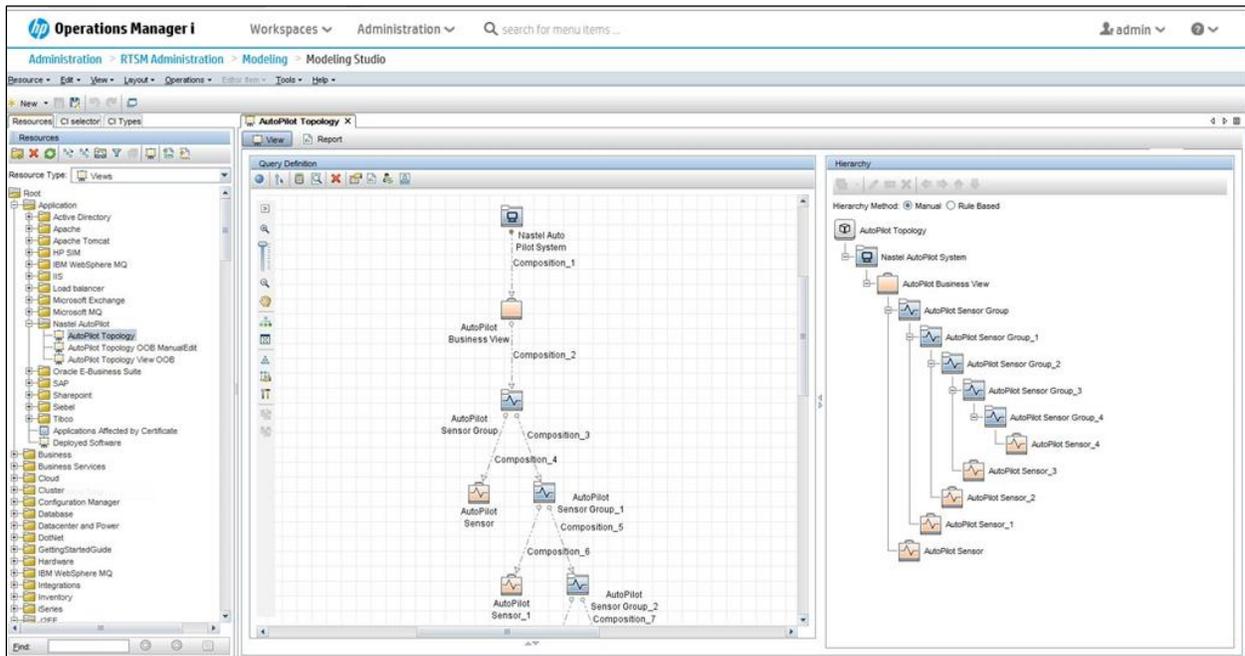


Figure 2-2. AutoPilot Topology Part 1

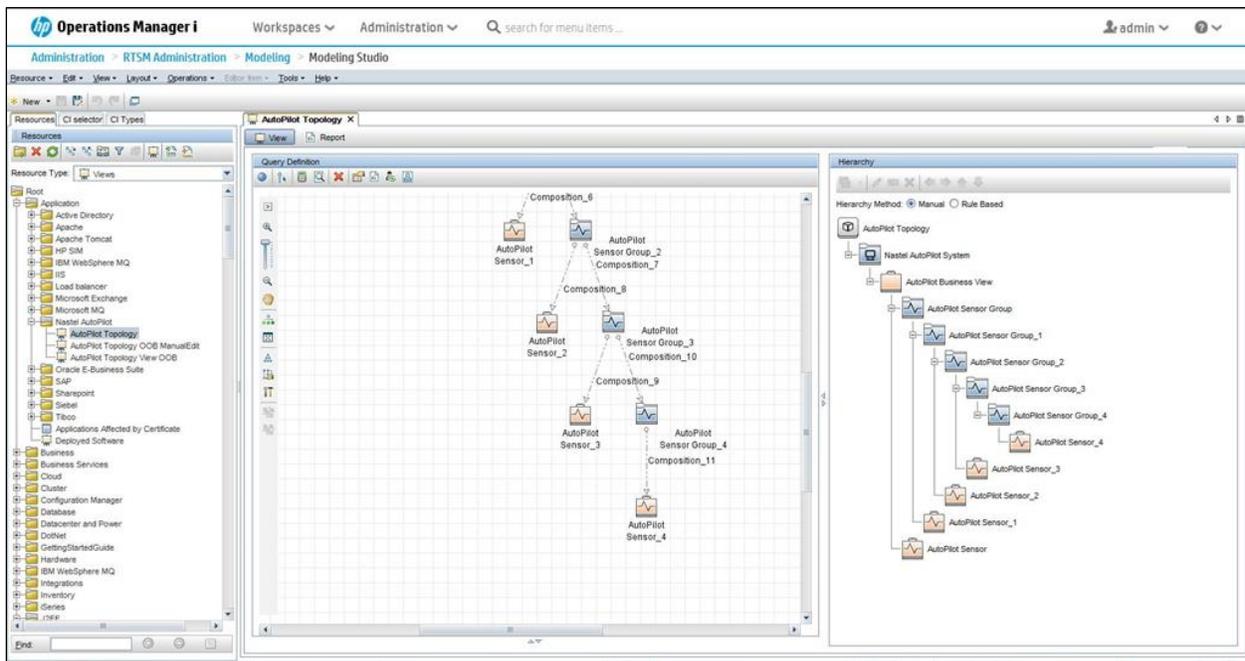


Figure 2-3. AutoPilot Topology Part 2

## 2.6 Install Perl Classes

The Perl script, `AutoPilot_Topology.pl`, requires some Perl classes (`XML::Simple`, `XML::Parser`) that may not exist on the AP/BSMC node. Check the BSMC installation for the existence of the XML directory, subdirectories and files:

**Windows:** `%OvInstallDir%\nonOV\perl\a\lib\5.16.0\XML`

Expat, Parser, Simple, and Simple.pm

**Linux:** `/opt/OV/nonOV/perl/a/lib/5.16.0/XML`

Expat, Parser, Simple, and Simple.pm

	<b>NOTE:</b>	Directory name <code>perl5.16.0</code> will vary with the installed Perl version.
---	--------------	---

If they do not exist, copy folder `install_dir\ImportPkg\Perl\XML` to the corresponding above directory.

## 2.7 Install BSMC Policies

1. On the computer where AutoPilot is installed, install the BSM Connector (BSMC), if it is not already installed.

2. On your Windows PC, open the BSM Connector GUI web interface using this URL:  
**`https://node_name:30000/bsmconnector/`**.

3. Left-click the **Import** icon on the menu bar, navigate to:

**`install_dir\ImportPkg\BSM Policies`**

Then to **ALL** or a specific policy folder. Select all policies or a pair of specific policy files (`xxx_header.xml`, `_data`) with the same policy ID, and click **Import:**

908 – pair is policy **AP Topology**

d4a – pair is scheduled task **AP Start Discovery**

86d – pair is policy **AP Sensor Events**

3b7 – pair is scheduled task **AP Recycle Sensors Log**

4. Repeat step 3 for each pair of policy files unless you used the ALL option.

5. If a message box appears saying:

Following polices already exist ... Would you like to overwrite these policies?

Then click **Yes** since the policy being imported may be an update to the existing one.

6. Create directory:

**Windows:** `%OvDataDir%\datafiles\HPBsmIntAutoPilot`

**Linux:** `/var/opt/OV/datafiles/HPBsmIntAutoPilot`

The Perl script `AutoPilot_Discovery.pl` will create its output file `ap_discovery.xml` in this directory, which will then be the input to the AP discovery policy, AP Topology.

7. Scheduled task **AP Start Discovery** is defined to run every 12 hours. Policy **AP Topology** runs at a slightly longer interval, every 12 hours and 10 minutes, so that the newer output file from the Perl script will be there. The intervals can be made more frequent if new AP policies/business views are created more frequently.

8. Copy the Perl Script from `install_dir\ImportPkg\Scripts\AutoPilot_Discovery.pl` to directory:

**Windows:** %OvDataDir%\datafiles\HPBsmIntAutoPilot

**Linux:** /var/opt/OV/datafiles/HPBsmIntAutoPilot

on the AP/BSM Connector computer.

9. Policy activation will be done after the AutoPilot policies and properties are modified in the next section.

## 2.8 Configure AutoPilot Properties

Make the following property additions. Use the correct BSM install path in the ProgramData path if it differs from the property lines shown. Use a file editor or the AP M6 Enterprise Manager to edit the properties, as follows.

### 2.8.1 Using File Editor

	<p><b>NOTE:</b> [AUTOPILOT_HOME] is the environment variable %AUTOPILOT_HOME% on Windows and \$AUTOPILOT_HOME on Linux. File names are shown with backward slash '\' Windows syntax. For Linux, use forward slash '/'.</p>
---	--

1. File: [AUTOPILOT\_HOME]\domain.properties

Edit these lines:

**# For OMi/BSM Connector** – add this comment line

**sensor.default.log.filename =**

**Windows:** C:\ProgramData\HP\HP BTO Software\datafiles\HPBsmIntAutoPilot\apsensors.log

**Linux:** /var/opt/OV/datafiles/HPBsmIntAutoPilot/apsensors.log

**sensor.default.log.mask =**

~~%from%~~%value%~~%sevstr%~~%objtype%~~%parent%~~%root%~~%health%~~%related%~~%sev%~~%srvcaty%~~%srvtype%~~%date%~~%time%~~%user%~~%id%~~%party%~~%ovosev%~~%tecsev%~~%account%~~%desc%~~%event%

2. File: [AUTOPILOT\_HOME]\naming\node.properties

Edit (or create) the same lines as in step 1, but having the extra preceding word **property**, that is

**property sensor.default.log.filename= ...**

**property sensor.default.log.mask= ...**

**For example:**

#These properties are for OMi/BSM Connector logging

#Uncomment these property lines to enable BSMC logging of all sensors

#**Windows:** property sensor.default.log.filename=C:\\ProgramData\\HP\\HP BTO Software\\datafiles\\HPBsmIntAutoPilot\\apsensors.log

#**Linux:** property

sensor.default.log.filename=/var/opt/OV/datafiles/HPBsmIntAutoPilot/apsensors.log

#property

sensor.default.log.mask=~~%from%~~%value%~~%sevstr%~~%objtype%~~%parent%~~%root%~~%health%~~%related%~~%sev%~~%srvcaty%~~%srvtype%~~%date%~~%time%~~%user%~~%id%~~%party%~~%ovosev%~~%tecsev%~~%account%~~%desc%~~%event%

#Uncomment these property lines to limit BSMC logging to the subset of sensors that reference

property sensor.hpbsm.log.filename

#**Windows:** property sensor.hpbsm.log.filename=C:\\ProgramData\\HP\\HP BTO Software\\datafiles\\HPBsmIntAutoPilot\\apsensors.log

```
#Linux: property
sensor.hpbsm.log.filename=/var/opt/OV/datafiles/HPBsmIntAutoPilot/apsensors.log
#property
sensor.hpbsm.log.mask=%% from%% value%% sevstr%% objtype%% parent%% root%%
%% health%% related%% sev%% srvcaty%% srvtype%% date%% time%% user%%
id%% party%% ovoice%% tecsev%% account%% desc%% event%
```

3. File: [AUTOPILOT\_HOME]\localhost\node.properties

Edit the same lines as in step 2.

## 2.8.2 Using AutoPilot M6 Enterprise Manager

1. Open the AP M6 Enterprise Manager console.
2. Click menu bar and navigate to **Tools > Deployment Tool > Domain Server > Domain Properties** and edit the lines shown in 2.8.1 step 1.
3. Click menu bar and navigate to **Tools > Deployment Tool > Domain Server > Node Properties** and edit the lines shown in 2.8.1 step 2.
4. Click menu bar and navigate to **Tools > Deployment Tool > cep\_node > Node Properties** and edit the lines shown in 2.8.1 step 3, where *cep\_node*, is the node where the CEP (complex event processor) is deployed, the node where your business views/policies are deployed.

## 2.8.3 Modify Sensor Properties

For each sensor of each policy to be discovered and whose events are to be monitored, set the following:

1. Select the policy in the AP M6 Enterprise Manager console.
2. Right-click and select **Open Source**.
3. For each sensor shown, right-click **Properties > Logging**.
4. Modify the Logging options:
  - Log sensor status to file:** select this checkbox.
5. Hover your mouse over **Log file** and **Log entry mask** values. The values from section 2.8.1, step 1 should be visible.
6. As you select the next sensor, when a popup appears saying:
  - Save changes to sensor xxx?
  - Then click **Yes**.

## 2.8.4 Modify BSV File Types

All business view (BSV) files (also known as policies) that are to be discovered by the BSMC for AP Perl script must have files of type `.bsv`. Therefore, all BSVs that have files with type `.pxml` must be opened in the AP M6 Enterprise Manager and “Saved as...” type `.bsv` (by using the “Save As...” icon on the tool bar) before the BSMC for AP M6 discovery policy runs. This is necessary because the two file types have different internal syntax. Check the policy files under [AUTOPILOT\_HOME]\naming\policies and take this action if the BSV is to be discovered. If the BSV with `.pxml` file type is not of interest to you, you can leave the file as is; the Perl script will ignore it.

## 2.8.5 Miscellaneous AutoPilot Policies Changes

Some policy changes are required to correct the problems shown.

Incorrect policy **Name** field causes incorrect Related CI name in SYS\_node\_health events.

1. On the AP M6 Enterprise Manager console, stop this policy if it is running  
`CEP_node > SYSTEM > DOMAIN_SERVER_Facts > Policies > SYS_node_health.bsv`
2. Change **Properties > Name** by removing the .bsv file type from the Name field. It should be `SYS_node_health`.
3. Click **Apply** and **Close**. The displayed policy should change similarly.
4. Right-click `CEP_node > Refresh Environment`. If you are using this policy, start it again.
5. In the OM event viewer, you should see Related CI values, such as:  
`Utilization-SYS_node_health` instead of `Utilization-SYS_node_health.bsv`

## 2.8.6 Activate (Deploy) AutoPilot Policies

Non-WMQ policies can be started by starting the policy group manager and then starting the desired managed policies. For example, start the Domain\_Manager policy manager and then domain server policy **DS\_AutoPilot\_Health\_Policy**.

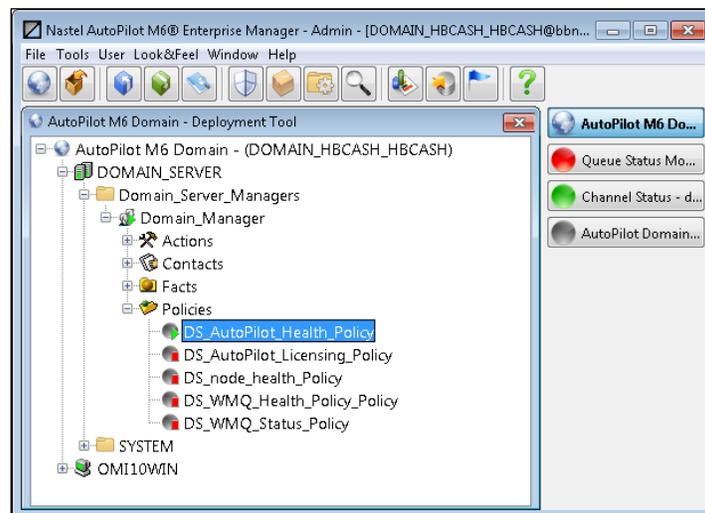


Figure 2-4. AutoPilot Policies

## 2.8.7 Monitor MQ

To monitor MQ, the following steps are required.

1. Edit the **WebSphere\_MQ\_Experts > WS\_Monitor > Properties**.
  - a. Select **Publish Events, Sort Events By Id, and Sort Events**.
  - b. Click **Apply** then **Close**.
2. Start the **WebSphere\_MQ\_Experts > WS\_Monitor**.
3. Start the desired MQ experts, for example, the queue status expert, **Que\_Monitor**, which publishes the queue monitoring facts.
4. Start the **Workgroup\_Policy\_Manager** under *CEP\_node > Policy Managers* before starting any policies under the **Workgroup\_Policy\_Manager**.
5. Start the desired policies under **Workgroup\_Policy\_Manager** corresponding to the experts that were started, for example, policy **WMQ\_Queues** for expert **Que\_Monitor**. The policy uses the facts generated by the expert.
6. Right-click these policies and select **Open** to see the business view with its sensors and sensor groups.

For example: The **Chl\_Status\_Monitor, Que\_Monitor, and WS\_Monitor** experts are selected and started (icon is green):

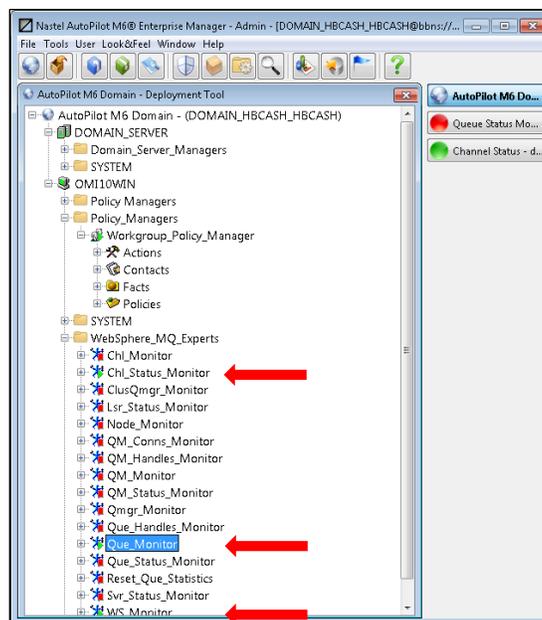


Figure 2-5. Monitor MQ

The corresponding **WMQ\_Queue**s and **WMQ\_Channel**s policies are started:

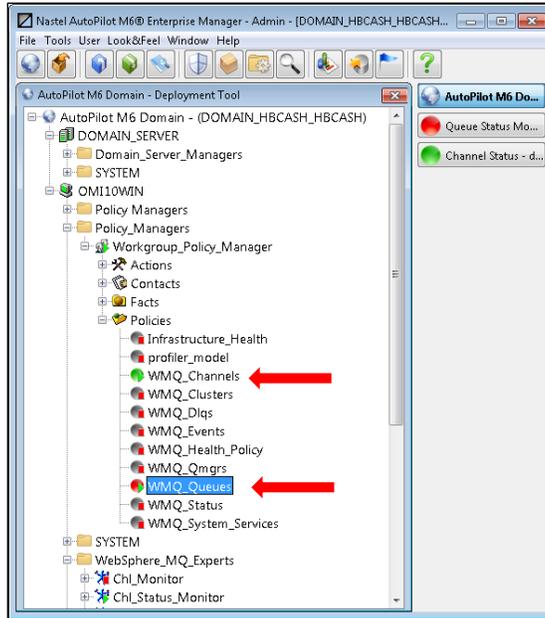


Figure 2-6. Policies

The **WMQ\_Queue**s policy **Open** is selected and the **Queue Status Monitor** business view appears:

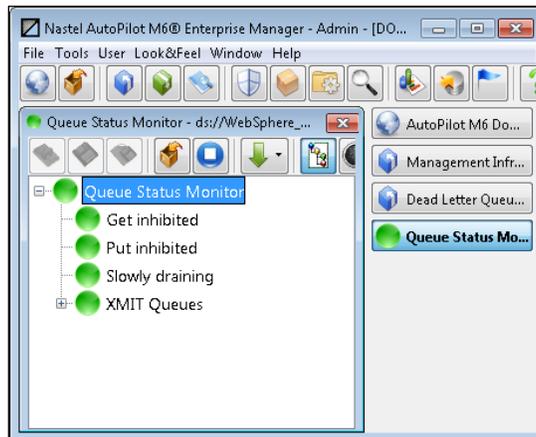


Figure 2-7. Queue Status Monitor Business View

## 2.9 Configure OMi Infrastructure Settings

1. Open the OMi GUI and navigate to **Administration > Setup and Maintenance > Infrastructure Settings**.
2. Select **Select Context > All**.
3. Press **Ctrl+F** and search for **Enable Changing State of Related Events**, which will be in the section **Operations Management - Change State of Related Events Settings**:  
Name: Enable Changing State of Related Events:  
Description: When enabled, for each newly received event, the existing events are inspected to find events related to the new event. The state of any events that are related to the new event will be changed.
4. Change the setting from true to false. This will prevent an event for a sensor group CI, such as Put Inhibited for queue A, qmgr X, from closing a similar event for the same CI, but for a different queue B, qmgr Y. Proper closing of open events is done by correlation rules defined in the BSMC for AP events policy.
5. Press **Ctrl+F** and search for **Send Event Settings**, which will be in the section **Operations Management - Change State of Related Events Settings**.

## Chapter 3: Activate BSM Policies

### 3.1 Activate BSM Policies

1. Test the AutoPilot topology discovery script from the command line before activating the policies:

**Linux:**

```
export perl5=/opt/OV/nonOV/perl/a/bin/perl5.16.0
```

	<b>NOTE:</b>	Directory name perl5.16.0 will vary with the installed Perl version. Run command <code>\$perl5 -v</code> to see the Perl version.
---	--------------	---

```
$perl5 AutoPilot_Discovery.pl > discovery.out [2>&1]
```

Use the redirect **stdout** option to view errors in the .out file; otherwise, they will appear on the console.

**Windows:**

```
perl -v
cd %OvDataDir%\datafiles\HPBsmIntAutoPilot
perl AutoPilot_Discovery.pl > discovery.out [2>&1]
```

- a. Check stdout file `discovery.out` for trace messages. Ignore Perl error messages such as these:
 

Not an ARRAY reference at AutoPilot\_Discovery.pl line 1307.
  - b. **Linux:** If the following Perl error message appears:
 

```
Could not find ParserDetails.ini in
/opt/OV/nonOV/perl/a/lib/5.16.0/x86_64-linux-thread-multi/XML/SAX
```

 then create file `ParserDetails.ini` in that directory with this two line content:
 

```
[XML::SAX::PurePerl]
http://xml.org/sax/features/namespaces = 1
```

 The error, however, is harmless and does not affect the creation of `ap_discovery.xml`.
  - c. Check local file **ap\_discovery.xml**, which contains the BSVs, sensors, and sensor groups in the OMi XML syntax, to be used for CI creation. Depending on how many BSVs are in your AutoPilot installation, the file could be about 70KB or more.
  - d. If there are unexpected errors or the output xml file does not seem correct, edit the script to set `$dbg_option=1`, run the script again, and email the output files to [support@nastel.com](mailto:support@nastel.com).
2. After the BSMC policies are installed, the AP properties edited and the discovery script tested from the command line, right-click each policy name listed in section 2.7, step 3 in the BSM Connector web GUI and select **Activate**.

#### Syntax Errors

If there are syntax errors in the `ap_discovery.xml` file that prevent CI discovery, do the following:

1. Deactivate policy **AP Start Discovery**
2. Copy file `install_dir\ImportPkg\Scripts\ap_discovery_edited.xml` to directory:
 

**Windows:** `%OvDataDir%\datafiles\HPBsmIntAutoPilot`

**Linux:** `/var/opt/OV/datafiles/HPBsmIntAutoPilot`
3. Copy it again to the same directory as file **ap\_discovery.xml**. This will be the file used by the policy AP Topology. If this file gets deleted or overwritten, re-copy it from **ap\_discovery\_edited.xml**.

4. Edit the file to change all appearances of the node name om10win to the local BSMC host name.
5. After a few minutes, check in the OMi GUI and navigate to **Administration > RTSM Administration > Modeling > CI Type Manager** for new instances of these CI types:
  - Data > Object > Managed Object > Configuration Item > Infrastructure Element > Application Resource > AutoPilot > AutoPilot xxx**, where xxx is Business View, Sensor, and Sensor Group,
  - Application System > Management System > Nastel AutoPilot System**
6. Click OMi GUI and navigate to **Workspaces > Operations Console > OMi Health Status**. In the upper-right **Top View** panel, select **AutoPilot Topology** from the drop-down menu. You should observe a screen similar to the following with AutoPilot events appearing in the **Event Browser** pane at the bottom:

The screenshot shows the HP Operations Manager i interface. The main area is titled 'Monitoring Dashboard - OMi Health Status'. It features a 'Top View' panel on the right displaying a hierarchical topology diagram for 'AutoPilot Topology 2'. The diagram shows nodes for 'omi10win', 'Nastel AutoPilot System on omi10win', 'AutoPilot Domain Health', 'Queue Status Monitor', and 'Queues'. Some nodes are highlighted in red, indicating issues. Below the topology diagram is an 'Event Browser' pane showing a list of events. The events are as follows:

Sev	Prio	C	N	I	A	U	D	Sta...	Time Received	Title	Related CI
									11/4/15 07:43:27 PM	WMQ_Queues:Put inhibited:Queue(q2) Qmgr(QM4CA)	Put inhibited
									11/4/15 07:43:27 PM	WMQ_Queues: Get inhibited:Queue(q2) Qmgr(QM4CA)	Get inhibited
									11/4/15 07:43:27 PM	WMQ_Queues:Put inhibited:Queue(Q12) Qmgr(QM4C)	Put inhibited
									11/4/15 07:40:57 PM	WMQ_Queues:Queue Status Monitor:Get inhibited:nu	Get inhibited
									11/4/15 07:39:57 PM	WMQ_Queues:Queue Status Monitor:Put inhibited:nu	Put inhibited
									11/4/15 07:39:57 PM	WMQ_Queues:Put inhibited:Queue(1ABC) Qmgr(QM4C)	Put inhibited
									11/4/15 07:36:56 PM	The file 'C:\ProgramData\HP\HP BTO Software\data\fil...	HP Operations Agent on 82160a92-95d2-757f-11a8-aa2d6b260472

Figure 3-1. Event Browser

## Health Perspective

1. Select **OMi GUI > Workspaces > Health Perspective**
2. Select **AutoPilot Topology** in the **Browse Views** panel. You should see a screen similar to this:

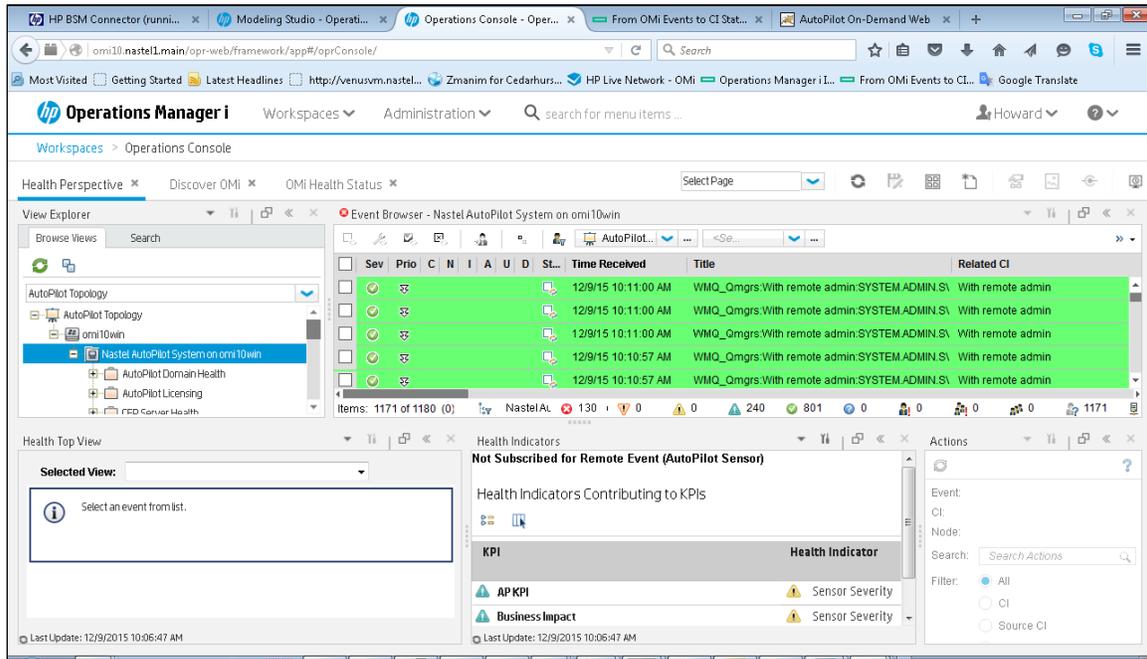


Figure 3-2. Health Perspective Browse View

3. In the **Health Top View** in the lower left of the screen, in the **Selected View** field, select an event and the related part of the topology tree will appear as shown:

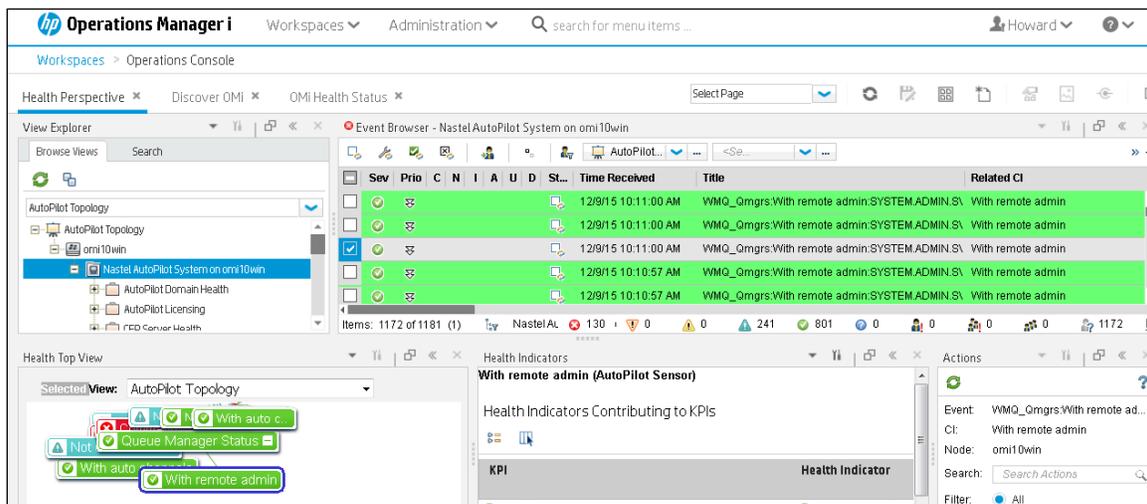


Figure 3-3. Health Perspective Topology

4. In the **Browse Views** panel, you can scroll down to a specific sensor condition, such as **Queue Manager Status > Not active**, click there, and the related event messages will appear in the **Event Browser** and the related top view will appear in the **Health Top View** as shown:

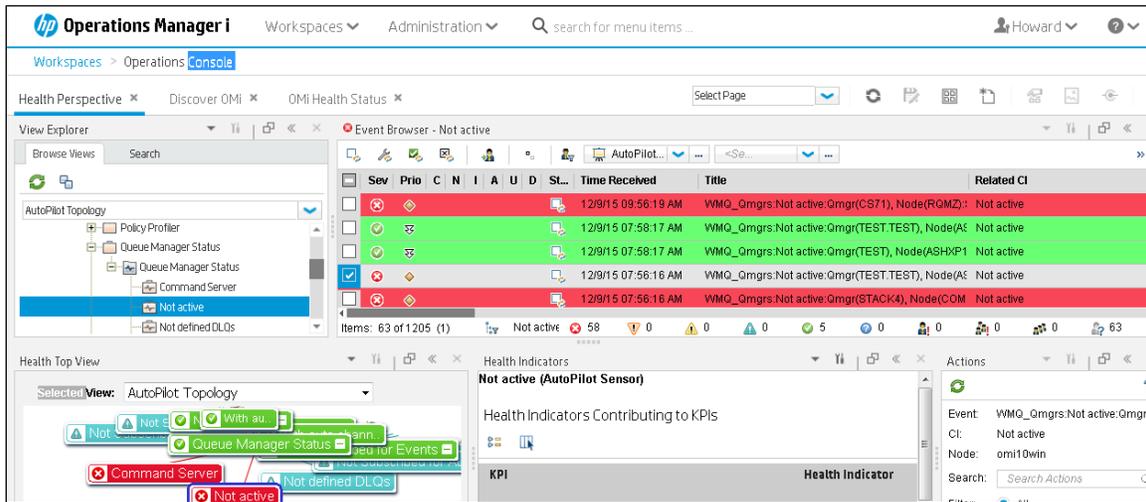


Figure 3-4. Health Perspective Event Browser

## Performance Graphs

The Queue Depth Monitor policy collects queue depth data for all MQ queues, which is stored in the OA (Operations Agent) data store on the BSMC system. In the Health Perspective (Figure 3-5), when a queue related event is selected, the associated sub-view of the AutoPilot Topology appears in the Health Top View panel and the related CI and node appears in the Actions panel. Click **Show Performance Graphs** to reveal a Performance Graphs screen (Figure 3-6) with a list of queue names as metrics. Select a metric and drag it to the panel on the right to get a graph of the queue depth. The metric name format is `QUEUE_<node>_<qmgr>_<queue>`.

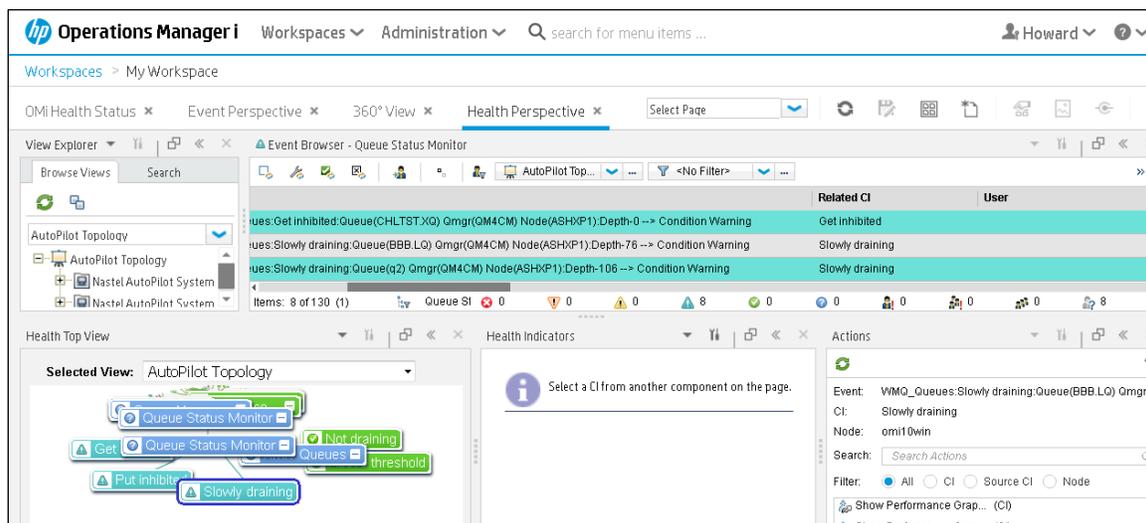


Figure 3-5. Health Perspective for CI Slowing Draining

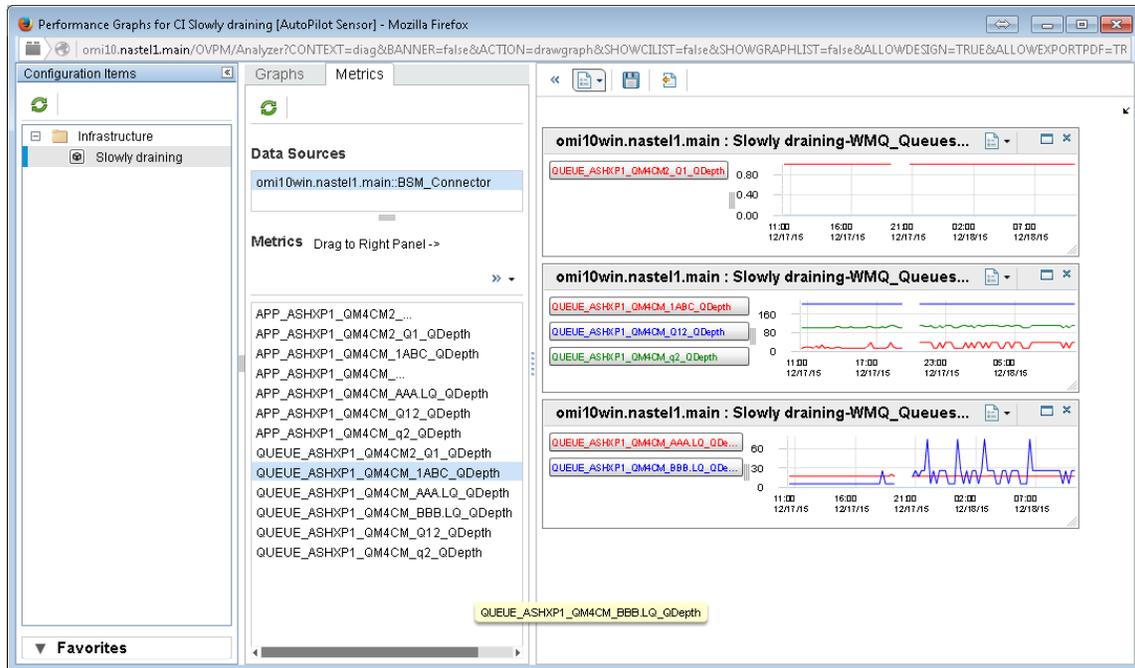


Figure 3-6. Performance Graphs for CI Slowing Draining

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## Chapter 4: Troubleshooting

### 4.1 Topology Discovery Problems

#### 4.1.1 Log Files to Check

The following log files on the OMi and BSMC systems will help to analyze problems with configuration item (CI) creation.

##### On Linux and Windows OMi

where TOPAZ\_HOME=/opt/HP/BSM

1. /opt/HP/BSM/log/wde/opr-svcdiscserver-citrace.log ← shows all CIs added  
**Windows:** %OvDataDir%\log\wde\ opr-svcdiscserver-citrace.log  
 This log has messages such as these:  
 2018-05-22 13:09:59,846 ERROR - OM CI skipped: [AUTOPILOT:node:Howard2-PC]  
 OM Type: DiscoveredElement Hosted on: <unknown> Origin: omi10.nastel1.main  
 2018-05-22 13:09:59,867 ERROR - [AUTOPILOT:node:Howard2-PC] - Caught an  
 exception from the uCMDB while trying to create the OM CI  
 '[AUTOPILOT:node:Howard2-PC]'. Error returned by uCMDB: Received exception  
 from uCMDB while saving an element. uCMDB exception: Class  
 autopilot\_system is not defined in the uCMDB class model  
 2018-05-22 13:09:59,868 INFO - OM CI added: [AUTOPILOT:bsv:AutoPilot  
 Domain Health] OM Type: DiscoveredElement Hosted on: <unknown> Origin:  
 omi10.nastel1.main uCMDB Type: ap\_bsv
2. /var/opt/OV/shared/server/log/OvSvcDiscServer.log ← shows received topology xml and  
 detail (added parent, update sync data)
3. /opt/HP/BSM/log/wde/opr-svcdiscserver.log  
**Windows:** %OvDataDir%\log\wde\ opr-svcdiscserver.log
4. /opt/HP/BSM/log/odb/odb/cmdb.reconciliation.log ← shows attribute errors in a topology xml  
**Windows:** %OvDataDir%\HPBSM\log\odb\odb\cmdb.reconciliation.log
5. /opt/HP/BSM/opr/tmp/datadump/creation\_post-enrichment/Root\_Root.xml \*
6. /opt/HP/BSM/opr/tmp/datadump/creation\_pre-enrichment/Root\_Root.xml \*
7. /opt/HP/BSM/opr/tmp/datadump/deletion\_pre-enrichment/Root\_Root.xml \*
8. /opt/HP/BSM/opr/tmp/datadump/deletion\_post-enrichment/Root\_Root.xml \*
9. /opt/HP/BSM/log/wde/opr-gateway-flowtrace.log ← shows topology discovery errors  
 messages such as these:  
 2018-05-25 10:51:32,198 INFO [FlowTrace] 205a03ee-602b-71e8-071d-  
 0b0000430000:: MsgHandler: New Event received by EventGateway: 'The file  
 '/var/opt/OV/datafiles/HPBsmIntAutoPilot/ap\_discovery.xml' used in policy  
 AP Topology Linux v1 (of type xmltopo) does not exist ! (OpC30-3910)'  
 2018-05-25 10:51:32,198 INFO [FlowTrace] 205a466a-602b-71e8-071d-  
 0b0000430000:: MsgHandler: New Event received by EventGateway: 'The XML  
 topology file '/var/opt/OV/datafiles/HPBsmIntAutoPilot/ap\_discovery.xml'  
 cannot be read'

10. /opt/HP/BSM/log/wde/wde.all.log ← shows same error messages as in 9 and some other logs.

-----

\* Files exist if “Dump Data” is true in Infrastructure Settings.

## On BSM Connector

1. %OvDataDir%\log\OpC\opcmsglg – gets updated whenever an opcmsg is sent to OMi, after a new event appears in the AP sensors event log (see 2 below).
2. %OvDataDir%\datafiles\HPBsmIntAutoPilot\apsensors.log – all AP events for OMi are logged here
3. Any policy execution related issues are saved to:  
**Windows:** %OvDataDir%\log\System.txt  
**Linux:** /var/opt/OV/log/System.txt
4. Events from the event policy are logged on the BSM Connector system in the log file:  
**Windows:** %OvDataDir%\log\OpC\opcmsglg  
**Linux:** /var/opt/OV/log/OpC/opcmsglg

## 4.1.2 Specific Error Messages

**Failed to calculate attribute** – error while importing CIs.

When importing CIs from RTSM to CMDB, sometimes the following errors are encountered (in log 4 above):

```
[ErrorCode [63000] Reconciliation DataIn general error.]
Error while trying to [addOrUpdate] on level [1]! Failed to calculate attribute
attribute: name [root_iconproperties] type [string] isFactory [true] isUserUpdated
[false] size limit [100]
```

```
Failed to calculate attribute attribute: name [root_iconproperties] type [string]
isFactory [true] isUserUpdated [false] size limit [100]
```

```
[ErrorCode [404] Attribute [{0}] contains calculated attribute qualifier without
items in it.{root_iconproperties}]
```

Workaround for this is:

1. Export the xml definition of sub class [the CI type].
2. Search for the word: **root\_iconproperties**

You should see the attribute definition as follows:

```
<Attribute-Override is-partially-override="true" name="root_iconproperties" is-
factory="false">
  <Attribute-Qualifiers>
    <Attribute-Qualifier name="APPLICATIVE_ATTRIBUTE" is-factory="false"
origin="basic-deployment" version="10"/>
    <Attribute-Qualifier name="CALCULATED_ATTRIBUTE" is-factory="false"/>
    <Attribute-Qualifier name="HIDDEN_ATTRIBUTE" is-factory="false"
origin="basic-deployment" version="10"/>
    <Attribute-Qualifier name="INTERNAL_ATTRIBUTE" is-factory="false"
origin="basic-deployment" version="10"/>
  </Attribute-Qualifiers>
</Attribute-Override>
```

3. Replace this with the following:

```
<Attribute-Override name="root_iconproperties" is-factory="false">
  <Attribute-Qualifiers/>
  <Empty-Default-Value/>
</Attribute-Override>
```

4. Save and import it back into uCMDB.
5. Log out of uCMDB and log back in.

The above was done for the **BSMC for AP** CI Types ap\_bsv, ap\_sensor, and ap\_sensorgroup.

## 4.2 Using sendEvent.bat(.sh) to Simulate Event Messages

It can be helpful sometimes for debugging event policies and event messages to be able to generate an event directly from the OMi command line.

Examples:

1. Show the usage:

**Linux:** /opt/HP/BSM/opr/support/sendEvent.sh

**Windows:** D:\HPBSM\opr\support\sendEvent.bat

2. Simulate an AP sensor event with an ETI hint (-eh or -etiHint), related CI hint (-rch or -relatedCiHin), event title (-t or -title) and severity (-s or -severity):

```
/opt/HP/BSM/opr/support/sendEvent.sh -eh "Sensor Severity":Critical-rch
"Slowly draining-WMQ_Queue" -t "Q xx is slowly draining" -s critical
```

The details of the event message as seen in the Event Perspective (event browser) are shown in the following screen shots.

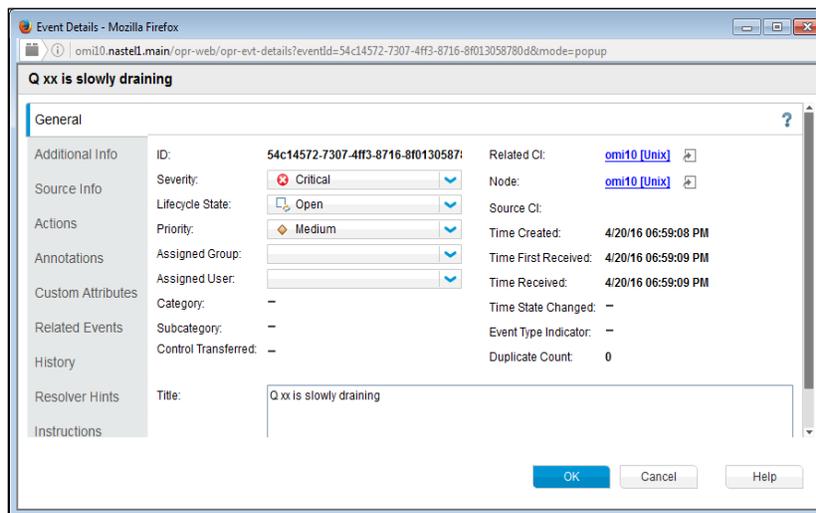


Figure 4-1. Event Message Details

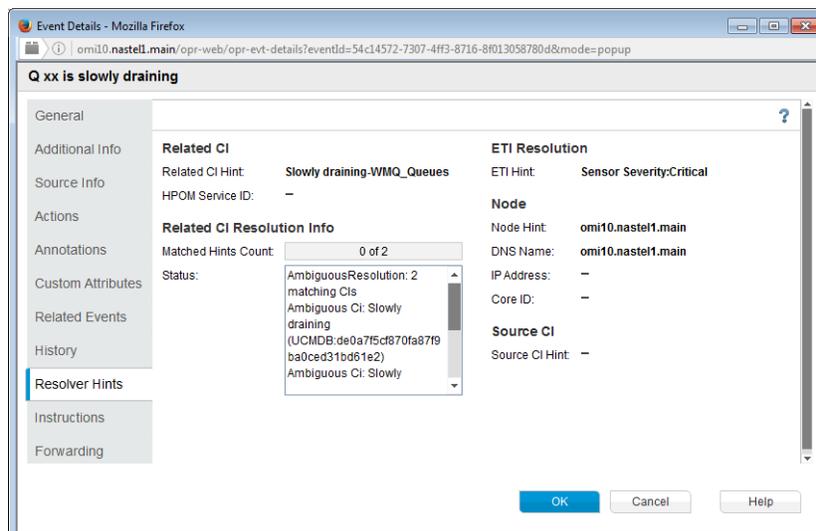
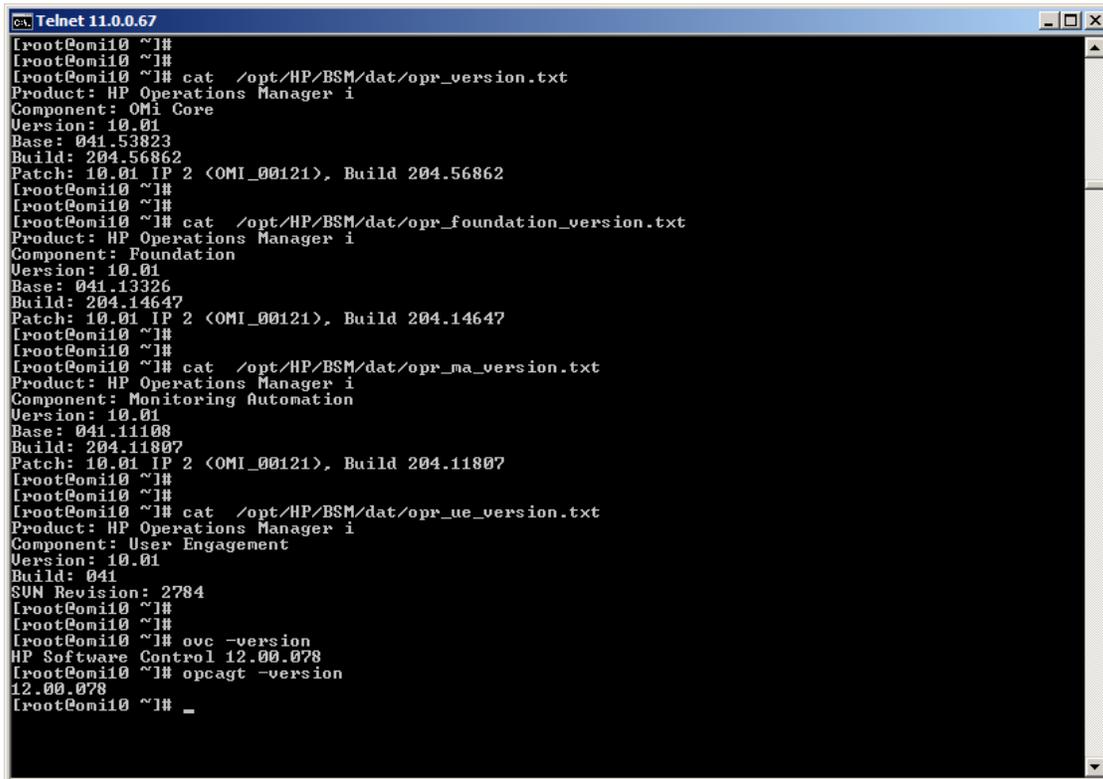


Figure 4-2. More Message Event Details

## 4.3 Useful Commands

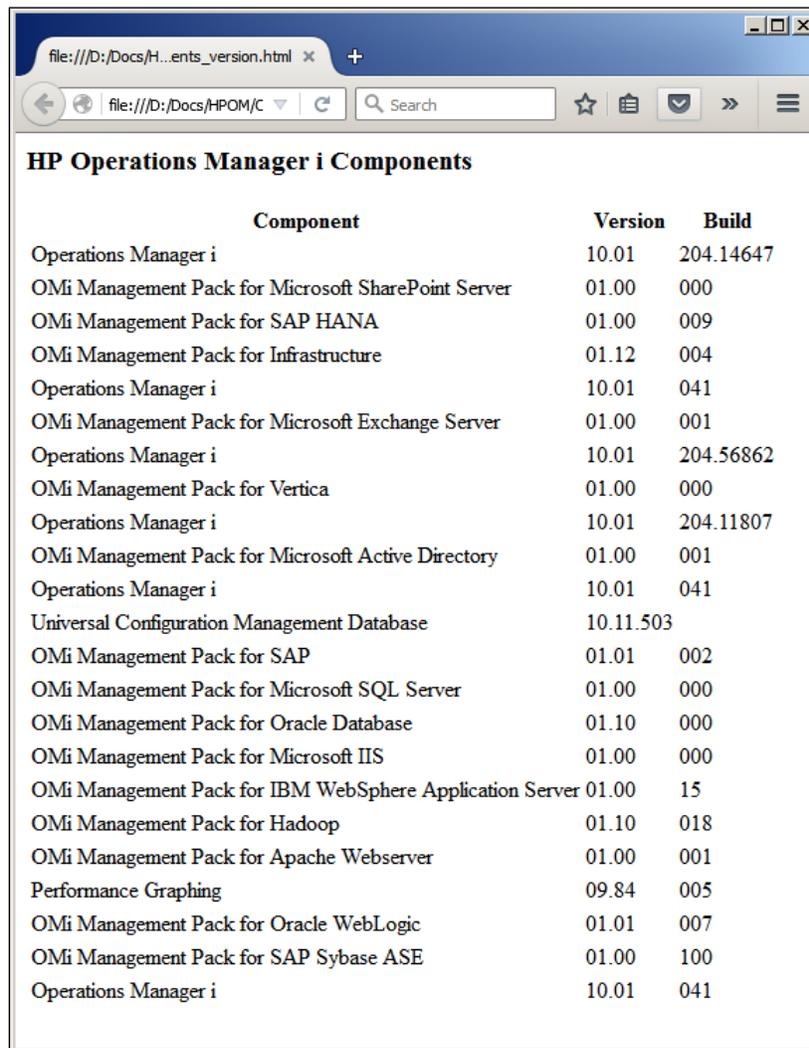
### Show OMi component versions

A screenshot of a Telnet window titled 'Telnet 11.0.0.67'. The window shows a series of commands and their outputs. The user is logged in as 'root@omi10'. The commands and their outputs are:

```
root@omi10 ~|#  
root@omi10 ~|#  
root@omi10 ~|# cat /opt/HP/BSM/dat/opr_version.txt  
Product: HP Operations Manager i  
Component: OMI Core  
Version: 10.01  
Base: 041.53823  
Build: 204.56862  
Patch: 10.01 IP 2 <OMI_00121>, Build 204.56862  
root@omi10 ~|#  
root@omi10 ~|#  
root@omi10 ~|# cat /opt/HP/BSM/dat/opr_foundation_version.txt  
Product: HP Operations Manager i  
Component: Foundation  
Version: 10.01  
Base: 041.13326  
Build: 204.14647  
Patch: 10.01 IP 2 <OMI_00121>, Build 204.14647  
root@omi10 ~|#  
root@omi10 ~|#  
root@omi10 ~|# cat /opt/HP/BSM/dat/opr_ma_version.txt  
Product: HP Operations Manager i  
Component: Monitoring Automation  
Version: 10.01  
Base: 041.11108  
Build: 204.11807  
Patch: 10.01 IP 2 <OMI_00121>, Build 204.11807  
root@omi10 ~|#  
root@omi10 ~|#  
root@omi10 ~|# cat /opt/HP/BSM/dat/opr_ue_version.txt  
Product: HP Operations Manager i  
Component: User Engagement  
Version: 10.01  
Build: 041  
SUN Revision: 2784  
root@omi10 ~|#  
root@omi10 ~|#  
root@omi10 ~|# ovc -version  
HP Software Control 12.00.078  
root@omi10 ~|# opcagt -version  
12.00.078  
root@omi10 ~|# _
```

Figure 4-3. Commands Showing OMi Component Versions

The file `/opt/HP/BSM/dat/bsm_components_version.html` can also be displayed to show the OMi components and their versions.

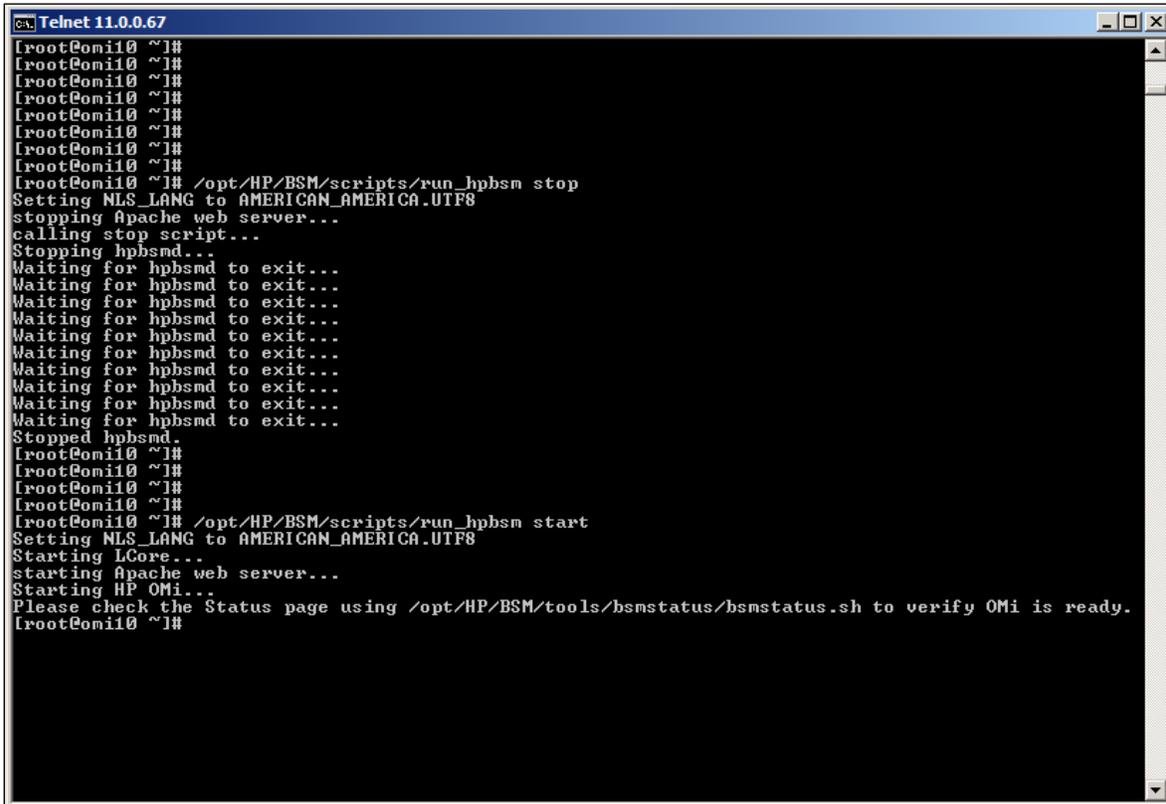


The screenshot shows a web browser window with the address bar containing `file:///D:/Docs/H...ents_version.html`. The page title is "HP Operations Manager i Components". Below the title is a table with three columns: "Component", "Version", and "Build". The table lists various components and their corresponding version and build numbers.

Component	Version	Build
Operations Manager i	10.01	204.14647
OMi Management Pack for Microsoft SharePoint Server	01.00	000
OMi Management Pack for SAP HANA	01.00	009
OMi Management Pack for Infrastructure	01.12	004
Operations Manager i	10.01	041
OMi Management Pack for Microsoft Exchange Server	01.00	001
Operations Manager i	10.01	204.56862
OMi Management Pack for Vertica	01.00	000
Operations Manager i	10.01	204.11807
OMi Management Pack for Microsoft Active Directory	01.00	001
Operations Manager i	10.01	041
Universal Configuration Management Database	10.11.503	
OMi Management Pack for SAP	01.01	002
OMi Management Pack for Microsoft SQL Server	01.00	000
OMi Management Pack for Oracle Database	01.10	000
OMi Management Pack for Microsoft IIS	01.00	000
OMi Management Pack for IBM WebSphere Application Server	01.00	15
OMi Management Pack for Hadoop	01.10	018
OMi Management Pack for Apache Webserver	01.00	001
Performance Graphing	09.84	005
OMi Management Pack for Oracle WebLogic	01.01	007
OMi Management Pack for SAP Sybase ASE	01.00	100
Operations Manager i	10.01	041

Figure 4-4. OMi Components

## Start/stop OMi processes/components



```

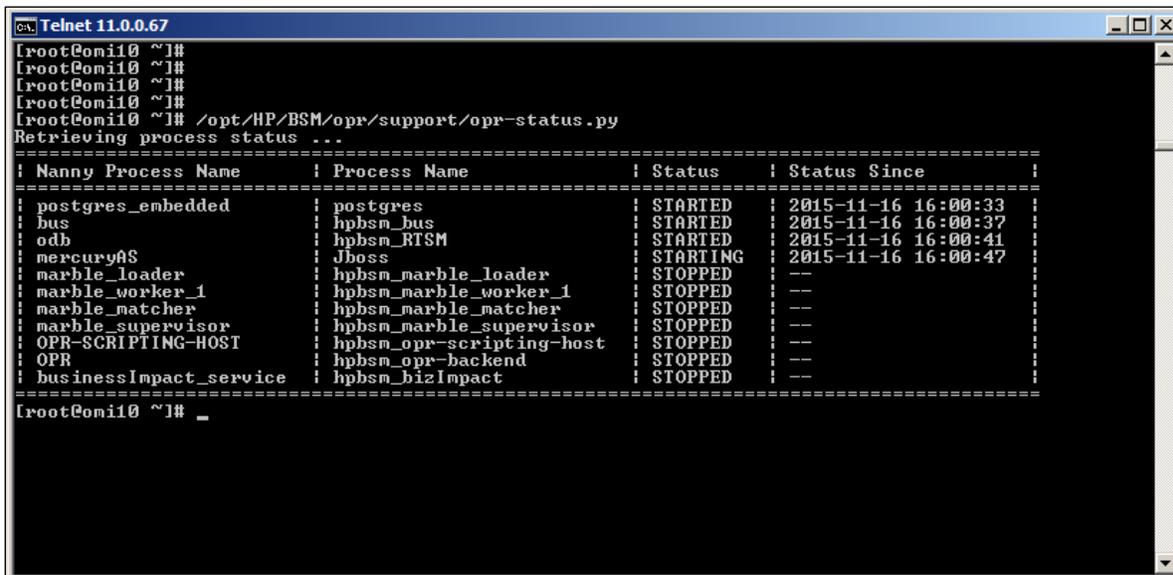
Telnet 11.0.0.67
[root@omi10 ~]#
[root@omi10 ~]# /opt/HP/BSM/scripts/run_hpbsm stop
Setting NLS_LANG to AMERICAN_AMERICA.UTF8
stopping Apache web server...
calling stop script...
Stopping hpbsmd...
Waiting for hpbsmd to exit...
Stopped hpbsmd.
[root@omi10 ~]#
[root@omi10 ~]#
[root@omi10 ~]#
[root@omi10 ~]#
[root@omi10 ~]# /opt/HP/BSM/scripts/run_hpbsm start
Setting NLS_LANG to AMERICAN_AMERICA.UTF8
Starting LCore...
starting Apache web server...
Starting HP OMi...
Please check the Status page using /opt/HP/BSM/tools/bsmstatus/bsmstatus.sh to verify OMi is ready.
[root@omi10 ~]#

```

Figure 4-5. Start/Stop OMi Processes/Components

## Status of OMi processes/components

	<b>NOTE:</b>	The component mercuryAS/Jboss took considerable time to start (about 5 minutes) on our system.
---	--------------	--



```

Telnet 11.0.0.67
[root@omi10 ~]#
[root@omi10 ~]#
[root@omi10 ~]#
[root@omi10 ~]#
[root@omi10 ~]# /opt/HP/BSM/opr/support/opr-status.py
Retrieving process status ...
-----
| Nanny Process Name | Process Name | Status | Status Since |
-----
| postgres_embedded | postgres | STARTED | 2015-11-16 16:00:33 |
| bus | hpbsm_bus | STARTED | 2015-11-16 16:00:37 |
| odb | hpbsm_RTSM | STARTED | 2015-11-16 16:00:41 |
| mercuryAS | Jboss | STARTING | 2015-11-16 16:00:47 |
| marble_loader | hpbsm_marble_loader | STOPPED | -- |
| marble_worker_1 | hpbsm_marble_worker_1 | STOPPED | -- |
| marble_matcher | hpbsm_marble_matcher | STOPPED | -- |
| marble_supervisor | hpbsm_marble_supervisor | STOPPED | -- |
| OPR-SCRIPTING-HOST | hpbsm_opr-scripting-host | STOPPED | -- |
| OPR | hpbsm_opr-backend | STOPPED | -- |
| businessImpact_service | hpbsm_bizImpact | STOPPED | -- |
-----
[root@omi10 ~]# _

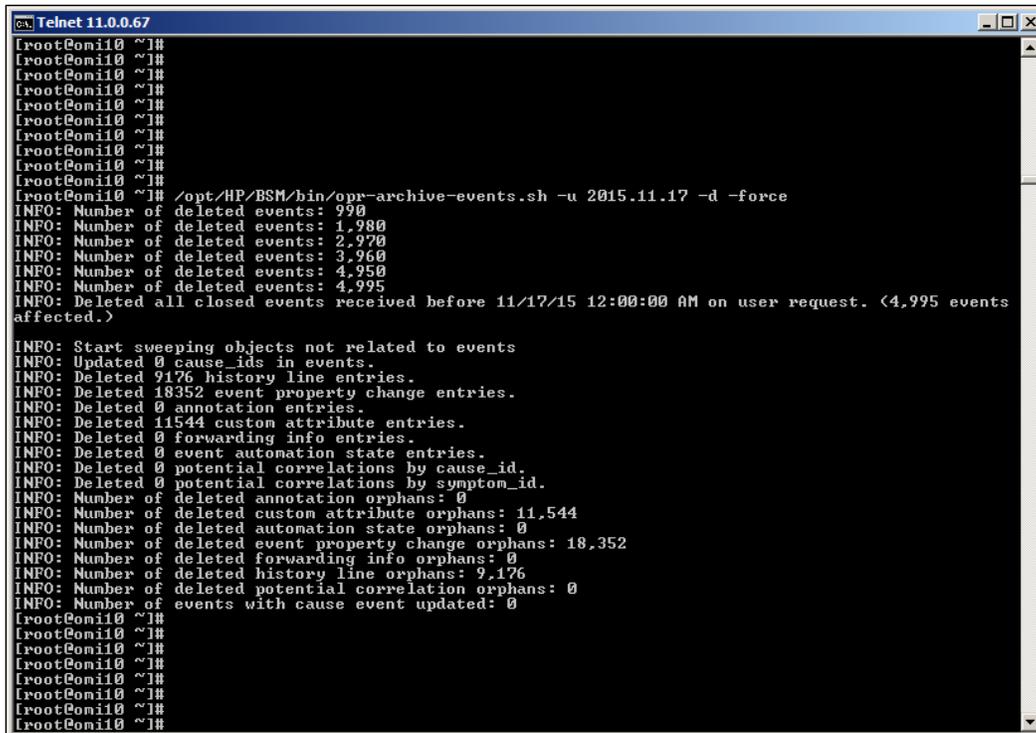
```

Figure 4-6. Status of OMi Processes/Components

## Archive (delete from OMi database) closed events

**Linux:** `/opt/HP/BSM/bin/opr-archive-events.sh -u 2015.11.17 -d -force`

This forces (-force) the deletion (-d) of all closed events whose modification date is older than November 17, 2015.



```

Telnet 11.0.0.67
root@omi10 ~]#
root@omi10 ~]# /opt/HP/BSM/bin/opr-archive-events.sh -u 2015.11.17 -d -force
INFO: Number of deleted events: 990
INFO: Number of deleted events: 1,980
INFO: Number of deleted events: 2,970
INFO: Number of deleted events: 3,960
INFO: Number of deleted events: 4,950
INFO: Number of deleted events: 4,995
INFO: Deleted all closed events received before 11/17/15 12:00:00 AM on user request. <4,995 events affected.>
INFO: Start sweeping objects not related to events
INFO: Updated 0 cause_ids in events.
INFO: Deleted 9176 history line entries.
INFO: Deleted 18352 event property change entries.
INFO: Deleted 0 annotation entries.
INFO: Deleted 11544 custom attribute entries.
INFO: Deleted 0 forwarding info entries.
INFO: Deleted 0 event automation state entries.
INFO: Deleted 0 potential correlations by cause_id.
INFO: Deleted 0 potential correlations by symptom_id.
INFO: Number of deleted annotation orphans: 0
INFO: Number of deleted custom attribute orphans: 11,544
INFO: Number of deleted automation state orphans: 0
INFO: Number of deleted event property change orphans: 18,352
INFO: Number of deleted forwarding info orphans: 0
INFO: Number of deleted history line orphans: 9,176
INFO: Number of deleted potential correlation orphans: 0
INFO: Number of events with cause event updated: 0
root@omi10 ~]#

```

Figure 4-7. Achieve Closed Events

### Close all open events

`/opt/HP/BSM/bin/opr-close-events.sh -all -force`

### Display service information about OMi

`/opt/HP/BSM/opr/support/opr-checker.pl -opr`

### Display CI information using opr-ci-list command-line interface

The `opr-ci-list` command line utility enables you to retrieve the type, ID, and label for a set of CIs of a certain CI type or that match a filter. The command is available in OMi 10.12 and later. It is useful when the OMi GUI is very slow to respond.

`<OMi_HOME>/opr/bin/opr-ci-list.[bat|sh]`

Reference:

[https://docs.microfocus.com/OMi/10.12/Content/OMi/AdminGuide/Monitoring/CLIs/om\\_uc\\_oprCiList.htm](https://docs.microfocus.com/OMi/10.12/Content/OMi/AdminGuide/Monitoring/CLIs/om_uc_oprCiList.htm)

## Appendix A: References

---

The following table provides a list of reference information required for using the BSM Connector (BMSC) for AutoPilot.

<b>Table A-1. Nastel Documentation</b>	
<b>Document Number (or higher)</b>	<b>Title</b>
M6/INS 623.001	<i>Nastel AutoPilot M6 Installation Guide</i>
M6/USR 624.001	<i>Nastel AutoPilot M6 User's Guide</i>

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