

# **HP Business Service Management**

For the Windows and Linux Operating Systems

Software Version: 9.24

## **BSM Upgrade Guide - 9.0x to 9.24**

Document Release Date: September 2014

Software Release Date: April 2014



## 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 Notice

© Copyright 2005-2014 Hewlett-Packard Development Company, L.P.

### Trademark Notices

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

AMD and the AMD Arrow symbol are trademarks of Advanced Micro Devices, Inc.

Google™ and Google Maps™ are trademarks of Google Inc.

Intel®, Itanium®, 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®, Windows® XP, and Windows Vista® 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 ([www.apache.org](http://www.apache.org)).

This product includes software developed by the JDOM Project ([www.jdom.org](http://www.jdom.org)).

This product includes software developed by the MX4J project ([mx4j.sourceforge.net](http://mx4j.sourceforge.net)).

## 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 Online web site at: <http://www.hp.com/go/hpsupportsupport>

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)**

**HP Software Solutions Now** accesses the HPSW Solution and Integration Portal Web site. This site enables you to explore HP Product Solutions to meet your business needs, includes a full list of Integrations between HP Products, as well as a listing of ITIL Processes. The URL for this Web site is

**<http://h20230.www2.hp.com/sc/solutions/index.jsp>**

# Contents

Contents .....	4
Introduction .....	8
Staging vs. Direct Upgrade Overview .....	9
Part I: Direct Upgrade .....	10
Chapter 1: Overview of BSM 9.0x to BSM 9.2x Direct Upgrade .....	11
Chapter 2: Prerequisites .....	12
General Prerequisites .....	13
Installation Prerequisites - Windows .....	16
Installation Prerequisites - Linux .....	18
OMi Pre-Upgrade Procedure .....	21
Configure HPOM Event Buffering .....	25
Chapter 3: Uninstall BSM 9.0x .....	27
Chapter 4: Install BSM 9.10 .....	29
Chapter 5: Install the Latest BSM 9.1x Minor-Minor Release and Patch .....	30
Chapter 6: 9.1x Upgrade Wizard .....	31
Chapter 7: Configuration Procedures .....	32
Restore Certificate Authority Configurations .....	33
Complete Content Pack Upload .....	36
OMi Post-Upgrade Procedure .....	37
General Configuration Procedures .....	41
Pre-Upgrade Tool .....	44
Chapter 8: Uninstall BSM 9.1x .....	46
Chapter 9: Migrate Database to MS SQL 2012 (optional) .....	48
Chapter 10: Install BSM 9.20 .....	49
Chapter 11: Install the Latest BSM 9.2x Minor Minor Release and Patch .....	50
Chapter 12: 9.2x Upgrade Wizard .....	52
Chapter 13: Post-Installation Procedures .....	53
General Post-Installation Procedures .....	54
Starting and Stopping BSM .....	59

Logging In and Out .....	60
Add Additional BSM Servers .....	61
<b>Part II: Staging Upgrade .....</b>	<b>63</b>
Chapter 14: Overview of BSM 9.0x to BSM 9.2x Staging Upgrade .....	64
Chapter 15: Prerequisites .....	65
General Prerequisites .....	66
Installation Prerequisites - Windows .....	70
Installation Prerequisites - Linux .....	72
OMi Pre-Upgrade Procedure .....	75
Chapter 16: Replicate the 9.01 Environment .....	79
Install the 9.01 Environment .....	80
Suspend Receiving of Events .....	81
Replicate Database .....	82
OMi Mid-Upgrade Procedure .....	83
Perform the disaster recovery procedures .....	84
Preparing the Disaster Recovery Environment .....	84
Cleanup Procedure .....	88
Configure the New Environment .....	94
Chapter 17: Uninstall BSM 9.0x .....	96
Chapter 18: Install BSM 9.10 .....	98
Chapter 19: Install the Latest BSM 9.1x Minor-Minor Release and Patch .....	99
Chapter 20: 9.1x Upgrade Wizard .....	100
Chapter 21: Start BSM Servers .....	101
Chapter 22: Configuration Procedures .....	102
Restore Certificate Authority Configurations .....	103
Complete Content Pack Upload .....	106
OMi Post-Upgrade Procedure .....	107
General Configuration Procedures .....	111
Pre-Upgrade Tool .....	114
Chapter 23: Uninstall BSM 9.1x .....	116
Chapter 24: Migrate Database to MS SQL 2012 (optional) .....	118

Chapter 25: Install BSM 9.20 .....	119
Chapter 26: Install the Latest BSM 9.2x Minor Minor Release and Patch .....	120
Chapter 27: 9.2x Upgrade Wizard .....	122
Chapter 28: Staging Mode .....	123
Chapter 29: Staging Data Replicator .....	125
Staging Data Replicator - Overview .....	126
Running the Staging Data Replicator (Embedded) .....	127
Running the Staging Data Replicator (Standalone) .....	128
Verifying that the SDR Server Can Communicate with the Production Server .....	130
Unsubscribing the Staging Data Replicator from the Source Server .....	131
Running the SDR with Basic Authentication .....	132
SSL Configuration for the Staging Data Replicator .....	133
Chapter 30: Post-Installation Procedures .....	134
General Post-Installation Procedures .....	135
Starting and Stopping BSM .....	140
Logging In and Out .....	141
Add Additional BSM Servers .....	142
Complete the Upgrade Process .....	144
Chapter 31: OMi Post-upgrade Procedure .....	147
<b>Part III: Appendixes .....</b>	<b>154</b>
Appendix A: Installing BSM on a Windows Platform .....	155
Prepare Information Required for Installation .....	156
Working with the Web Server .....	158
Installing BSM Servers on a Windows Platform .....	160
Appendix B: Installing BSM on a Linux Platform .....	163
Prepare Information Required for Installation .....	164
Working with the Web Server .....	165
Installing BSM Servers on a Linux Platform .....	166
Appendix C: Server Deployment and Setting Database Parameters .....	169
Setup and Database Configuration Utility Overview .....	170
Setting Database Parameters .....	171

Required Information for Setting Database Parameters .....	173
Running the Setup and Database Configuration Utility .....	176
Appendix D: Installing BSM Silently .....	180
How to Fully Install BSM 9.2x Silently .....	181
How to Generate a Response File to Rerun the Post-Installation Wizard and the Setup and Database Configuration Utility Silently .....	184
How to Configure Windows Authentication When Running the Setup and Database Configuration Utility Silently .....	185
How to Encrypt Passwords in the Response File .....	186
Appendix E: Upgrade Wizard .....	187
Upgrade Wizard Overview .....	188
Preparing Information for the Upgrade Wizard .....	189
Tracking the BSM 9.1x Configuration Upgrade Progress .....	190
Appendix F: Changing BSM Service Users .....	194
Switching the Windows User .....	194
Switching the Linux User .....	195
Appendix G: Upgrading SLAs from BSM 9.x to 9.2x to Work with Baselining .....	196
Appendix H: Troubleshooting .....	203
Troubleshooting Resources .....	204
Installation and Connectivity Troubleshooting .....	205
Troubleshooting the Upgrade Process .....	213
Troubleshooting the 9.1x Upgrade Wizard .....	214
We appreciate your feedback! .....	220

# Introduction

Welcome to the BSM Upgrade Guide. This guide provides a detailed workflow for how to upgrade BSM.

**Note:** If you have a RUM data collector, when upgrading BSM, RUM persists the data samples to send to BSM. Persistency is limited by the amount of unsent sample data and by time. To increase the amount of unsent sample data, see *Configuring the Amount of Unsent Sample Data to Store in RUM* in the *Real User Monitor Administration Guide*.

## *How This Guide is Organized*

This book is divided into three parts:

- Part I contains the workflow for upgrading using the direct method
- Part II contains the workflow for upgrading using the staging method
- Part III, the appendix, contains reference information that applies to both the staging and upgrade workflows

You should select either the staging or direct workflow. Whichever workflow is chosen should be read and executed in chronological order where relevant.



# Staging vs. Direct Upgrade Overview

**Note:** If your source and target environments are not running the same operating systems, you must upgrade using the staging method.

Using a **staging** environment to upgrade BSM refers to installing the new software on different machines and database schemas (referred to as the staging environment) to allow the original BSM servers to continue functioning while the upgrade is in process. The original machines are referred to as the production environment. This minimizes downtime and allows you to ensure that the new servers are functioning as required before disconnecting the original servers.

When upgrading using a staging environment, BSM is installed on the staging servers. Staging mode begins when both production and staging servers are installed. During staging mode, metric data is transferred from the production server to the staging server using the Staging Data Replicator (SDR). Event data is forwarded using a different method.

Only changes to the database are transferred during staging mode, configuration changes made to the production server are not transferred.

**Note:**

- Scheduled reports are not sent from the staging servers while in staging mode. For more details, see ["Troubleshooting the Upgrade Process" on page 213](#)
- All BSM machines in the staging environment must be set to the same time zone as the source environment. Incompatible time zone settings can lead to inaccuracies in reporting historical data.
- There are no BPI components or menus available within BSM or BPI menus until BSM is switched from staging to production environment mode. The Modeler, Process Repository, and the BPI Process Diagram are disabled as part of the upgrade to BSM to protect your BPI data.
- You must upgrade using a staging environment if you are switching operating systems. In BSM 9.2x, Windows Server 2003 is no longer supported, such users would have to perform a staging upgrade to a supported operating system.

Upgrading **directly** refers to installing the new version on the same servers and database schemas as the original version. This can only be performed after uninstalling the original version and therefore results in greater downtime.

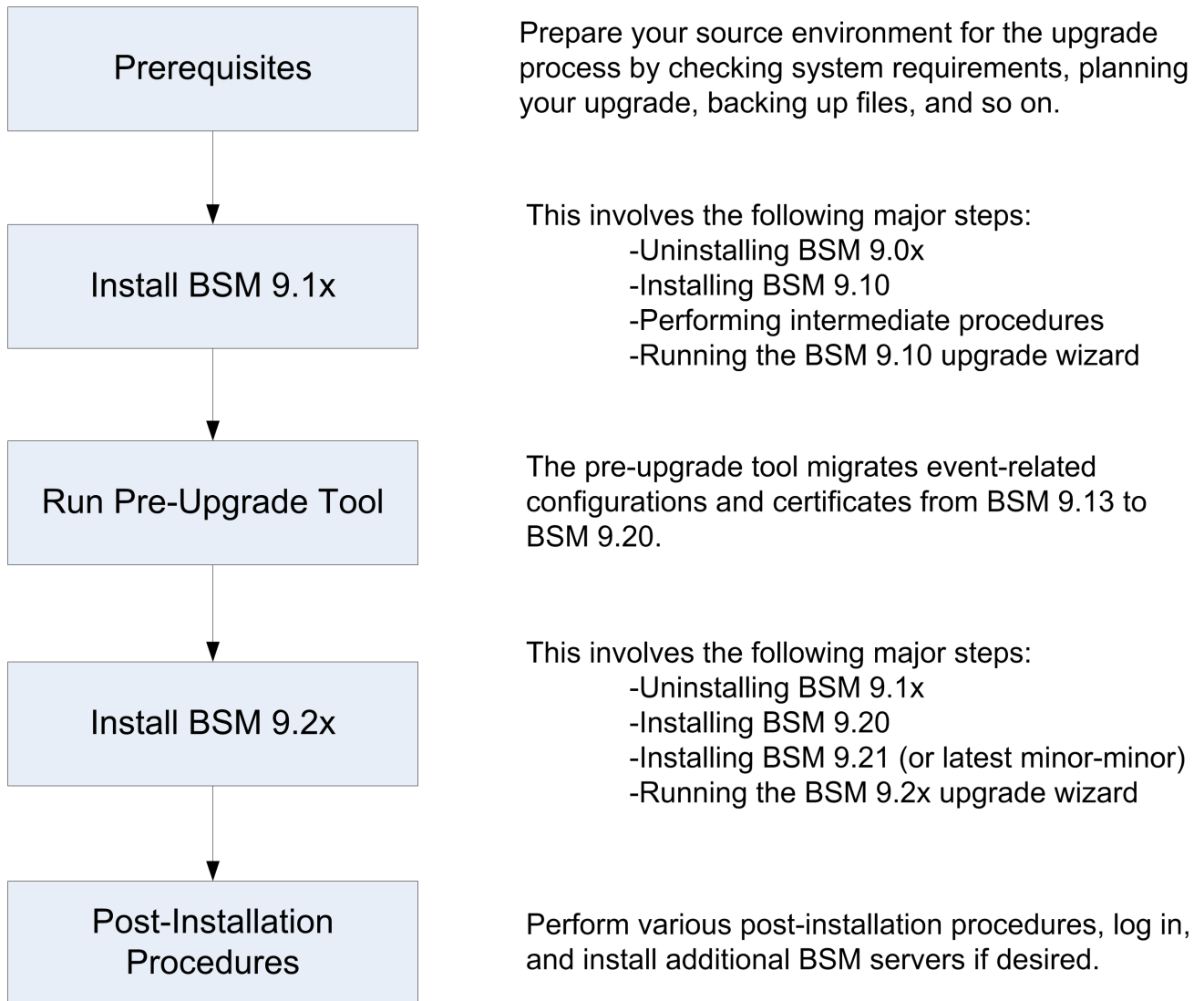
# Part I: Direct Upgrade

This section contains the workflow for upgrading BSM using the direct method.

# Chapter 1: Overview of BSM 9.0x to BSM 9.2x

## Direct Upgrade

The upgrade from BSM 9.0x to BSM 9.2x involves a number of milestones. The following diagram shows the major steps and how they affect your environment.



# Chapter 2: Prerequisites

Perform all steps specified in this chapter before continuing with the upgrade process.

- General Prerequisites ..... 13
- Installation Prerequisites - Windows ..... 16
- Installation Prerequisites - Linux ..... 18
- OMi Pre-Upgrade Procedure ..... 21
- Configure HPOM Event Buffering ..... 25

## General Prerequisites

Perform the following steps where relevant before continuing with the upgrade process.

### 1. **Create deployment plan**

Create a complete deployment plan including the required software, hardware, and components. For details, see the BSM Getting Started Guide and the BSM System Requirements and Support Matrixes.

### 2. **Create upgrade plan**

Create an upgrade plan, including such items as whether you will be performing a staging or direct upgrade, estimated down-time, and so on.

**Database Administrator.** During the upgrade process, the services of your Database Administrator may be required.

**Multiple servers.** If you are upgrading multiple BSM servers, perform the upgrade procedure on only one Gateway and one Data Processing server. When the upgrade process is complete, install any additional servers and connect them to the database schemas using Configuration Wizard as described in the BSM Installation Guide.

### 3. **Order and register licenses**

Order licenses with a sales representative based on your deployment plan. Register your copy of BSM to gain access to technical support and information on all HP products. You will also be eligible for updates and upgrades. You can register your copy of BSM on the HP Software Support site <http://www.hp.com/go/hpssoftwaresupport>.

### 4. **Set up database server**

**Note:** You cannot change the database type during the upgrade if you want to keep your configuration and runtime data. For example, if you currently run Oracle, you must also use Oracle with the new BSM environment.

In BSM 9.20, support for SQL Server 2005 was removed. In BSM 9.23, support for SQL Server 2012 was added. Make sure the compatibility parameter is up-to-date before starting the upgrade.

Verify that your database has the following settings:

- Oracle: The Oracle Partitioning option must be enabled. Make sure that the parameter **RECYCLEBIN** is set to **Off**, as specified in the BSM Database Guide.

For information about setting up your database server, see the BSM Database Guide.

## 5. ***Install the BSM 9.01 patch***

Install the latest BSM 9.0x patch. At the time of the BSM 9.20 release, this was BSM 9.01. The patch can be found on the SSO site: <http://support.openview.hp.com/selfsolve/patches>. Installation instructions can be found in the patch readme.

## 6. ***Migrate manual changes to conf directory***

If you made changes to any files in the **<HP BSM root directory>\WebServer\conf** directory, back up the changed files and, after the upgrade, reapply the changes to the new files (**do not copy the old files on top of the new ones**).

## 7. ***Back up database schema (recommended)***

We recommend backing up the database schema restore as close as possible to the uninstall to minimize the risk of data loss.

## 8. ***Back up files***

Back up the following files from your original BSM servers:

- <Gateway Server installation directory>\AppServer\webapps\site.war\openapi\excels directory
- <Data Processing Server installation directory>\cmdb\general directory
- <Data Processing Server installation directory>\BLE\rules\<custom rules jar> file(s)
- <Gateway Server installation directory>\JRE\lib\security\cacerts
- <Gateway Server installation directory>\JRE64\lib\security\cacerts

## 9. ***Disable RTSM integrations (optional)***

If integrations are configured in the RTSM Integration Studio (for example, topology synchronization integrations between central UCMDb and RTSM), after upgrading, the Data Flow Probe will run population jobs immediately for active integration points, even if the integration is not scheduled. If you do not want the integration to run, disable the integration before running the upgrade from any BSM 9.x version.

## 10. ***Back up certificate authority configurations***

In order to preserve your certificate authority configuration, you must back up the data before BSM 9.0x is uninstalled and restore it after the BSM 9.1x upgrade. This procedure is only required if you are using one or more of the following components:

- Diagnostics
- SiteScope
- Integration Adapter
- HPOM
- OMi
- NNMi

To save the certificate authority configurations, run the following commands on the Data Processing Server. Note that these are lists of commands that must be run one line at a time:

- For Windows:

```
ovcm -exportcacert -file %TEMP%\migration\oldservercert  
ovcert -exporttrusted -file %TEMP%\migration\oldtrusts  
ovcoreid > %TEMP%\migration\oldcoreid
```

- For Linux:

```
ovcm -exportcacert -file /tmp/migration/oldservercert  
ovcert -exporttrusted -file /tmp/migration/oldtrusts  
ovcoreid > /tmp/migration/oldcoreid
```

## Installation Prerequisites - Windows

Note the following before installing BSM servers on a Windows platform:

- It is recommended that you install BSM servers to a drive with at least 40 GB of free disk space. For more details on server system requirements, see the BSM System Requirements and Support Matrixes.
- If BSM servers, including the database servers, are installed on multiple network segments, it is highly recommended that the number of hops and the latency between the servers be minimal. Network-induced latency may cause adverse affects to the BSM application and can result in performance and stability issues. We recommend the network latency should be no more than 5 milliseconds, regardless of the number of hops. For more information, contact HP Software Support.
- BSM servers must be installed on dedicated machines and must not run other applications. Certain BSM components can coexist on BSM servers. For details on coexistence support, see the BSM System Requirements and Support Matrixes Guide.
- If you plan to use the IIS web server, install it prior to BSM installation and enable it after the installation is completed.
- BSM servers must not be installed on a drive that is mapped to a local or network resource.
- Due to certain web browser limitations, the names of server machines running the Gateway Server must consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). For example, if the names of the machines running the Gateway Server contain underscores, it may not be possible to log into the BSM site when using Microsoft Internet Explorer 7.0 or later.
- During BSM server installation, you can specify a different path for the BSM directory (default is **C:\HPBSM**), but note that the full path to the directory must not contain spaces, cannot contain more than 15 characters, and should end with **HPBSM**.
- User Access Control (UAC) must be disabled before installing BSM. UAC is enabled by default in some version of Windows Server (for example: 2008 SP2) and must be manually disabled.
- If you plan to run BSM servers on a hardened platform (including using HTTPS protocol), review the hardening procedures described in the BSM Hardening Guide.
- If you do not have a profile database on your source environment, please add one before starting the upgrade. The database should be marked as the default profile database. Most users already have a profile database, but in some scenarios where BSM is being used exclusively for OMi, a profile database may not have been previously created.
- You must have administrator privileges to install BSM on the server machine.
- In the BSM cluster, open port 21212 on the Data Processing Server.



**Note:** During installation, the value of the Windows Registry key HKLM\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\ReservedPorts is updated to include the following port ranges required by BSM: 1098-1099, 2506-2507, 8009-8009, 8080-8080, 4444-4444, 8083-8083, 8093-8093.

These ports ranges are not removed from the registry key at BSM uninstall. You should remove the ports from the registry key manually after uninstalling BSM if they are no longer needed by any other application.

## Installation Prerequisites - Linux

Note the following before installing BSM servers on a Linux platform:

- It is recommended that you install BSM servers to a drive with at least 40 GB of free disk space. The /tmp directory should have at least 500 MB of free disk space. For more details on server system requirements, see the BSM System Requirements and Support Matrixes.
- If BSM servers, including the database servers, are installed on multiple network segments, it is highly recommended that the number of hops and the latency between the servers be minimal. Network-induced latency may cause adverse affects to the BSM application and can result in performance and stability issues. We recommend the network latency should be no more than 5 milliseconds, regardless of the number of hops. For more information, contact HP Software Support.
- BSM servers must be installed on dedicated machines and must not run other applications. Certain BSM components can coexist on BSM servers. For details on coexistence support, see the BSM System Requirements and Support Matrixes Guide.
- Before installing BSM on a Linux machine, make sure that SELinux will not block it. You can do this by either disabling SELinux, or configuring it to enable java 32-bit to run.
  - To disable SELinux, open the **/etc/selinux/config** file, set the value of **SELINUX=disabled**, and reboot the machine.
  - To configure SELinux to enable java 32-bit to run, execute the command **setsebool -P allow\_execmod on**.
- BSM servers must not be installed on a drive that is mapped to a network resource.
- Due to certain Web browser limitations, the names of server machines running the Gateway Server must only consist of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). For example, if the names of the machines running the Gateway Server contain underscores, it may not be possible to log in to the BSM site. To access the BSM site in this case, use the machine's IP address instead of the machine name containing the underscore.
- If you plan to run BSM servers on a hardened platform (including using HTTPS protocol), review the hardening procedures described in the BSM Hardening Guide.
- You must be a root user to install BSM on the server machine.
- The **DISPLAY** environment variable must be properly configured on the BSM server machine. The machine from which you are installing must be running an X-Server as the upgrade process cannot be performed silently.
- If you do not have a profile database on your source environment, please add one before starting the upgrade. The database should be marked as the default profile database. Most users already have a profile database, but in some scenarios where BSM is being used exclusively for OMi, a

profile database may not have been previously created.

- In the BSM cluster, open port 21212 on the Data Processing Server.
- Before installing BSM 9.20 followed by BSM 9.24 on Oracle Linux (OEL) or Red Hat Enterprise Linux operating systems for supported 5.x versions and 6.x versions, you must install the following RPM packages on all machines running BSM:

■ glibc	■ libXext
■ glibc-common	■ libXtst
■ nss-softokn-freebl	■ compat-libstdc++-33
■ libXau	■ libXrender
■ libxcb	■ libgcc
■ libX11	■ openssl098e
■ compat-expat1	■ rpm-devel

For supported 5.x versions of Oracle Linux (OEL) or Red Hat Enterprise Linux operating systems, you must install the following additional RPM packages on all machines running BSM:

■ libXi	■ libuuid
■ alsa-lib	■ unixODBC
■ apr	■ expat
■ apr-util	

**To install the RPM packages listed in the upper table, run the RPM installation tool on all machines running BSM:**

**<BSM9.24\_install\_folder>/rhel\_oel\_installation\_fix/rpm\_installer.sh.**

- If the script fails to install any of the RPM packages, the following message appears:

```
!!! ERROR: package <package name> has not been installed successfully
In this case, refer the problem to your system administrator.
```

- If the script detects that an RPM package is already installed, it skips that package and continues with the next package.

However, you can force the tool to try to re-install any pre-installed packages by adding the **f** parameter to the command:

```
<BSM9.24_install_folder>/rhel_oel_installation_fix/rpm_installer.sh f
```

If the Yum Linux upgrade service is not functional on your machine, you will need to download and install the necessary RPM packages manually by running the following command:

```
yum install -y openssl098e glibc.i686 glibc-common.i686 nss-softokn-freebl.i686  
libXau.i686 libxcb.i686 libX11.i686 libXext.i686 libXtst.i686 compat-libstdc++-33.i686  
libXrender.i686 libgcc.i686 compat-expat1 rpm-devel
```

**Note:** The RPM installation tool does not install the additional RPM packages required for the supported 5.x versions of Oracle Linux (OEL) or Red Hat Enterprise Linux operating systems. To install these RPM packages, run the command:

```
yum install -y openssl098e libXi.i686 alsa-lib.i686 apr.i686 libXau.i686 apr-util.i686  
libX11.i686 libuuid.i686 unixODBC.i686 expat.i686
```

The version of these packages changes from system to system. You can download the packages from any RPM repository site that matches your system specifications. The following RPM search tool can assist you in this task (<http://rpm.pbone.net/>).

**To determine the package version you need to download, execute the following command in a terminal window:**

```
rpm -qa ${PACKAGE_NAME} (ex: rpm -qa glibc )
```

The command will return the following text:

```
# rpm -qa glibc  
glibc-2.12-1.132.el6.x86_64
```

This text indicates the package version required for your machine.

In this case, you would need to download the i686 architecture package with the same version - glibc-2.12-1.132.el6.i686 – and install it manually.

## OMi Pre-Upgrade Procedure

If you were using OMi with BSM 9.0x, perform the following steps:

### 1. *Back up OMi configuration files*

- a. If you have customized the OMi integration with HP Service Manager or any topology synchronization data, back up your customized files before starting the upgrade to BSM 9.1x:
- b. Back up the following directories. The second entry may be on the DPS or Gateway machine.

**<BSM Gateway Installation Directory>\conf\opr\integration**

**%TOPAZ\_HOME%\conf\opr\topology-sync**

- c. Save these files to a safe location on the BSM Data Processing Server host system, for example:
  - Windows: **%TEMP%\migration**
  - Linux: **/tmp/migration**

### 2. *Back up certificate configurations*

Back up your certificate configurations. You will need to import these configurations on the new BSM servers to ensure that trust is maintained with previously trusted servers.

Save the files created in the following steps in a safe location, for example:

- Windows: **%TEMP%\migration**
- Linux: **/tmp/migration**

- a. Backup coreid

From the command prompt, run **ovcoreid** and store the output in a file named **oldcoreid**.

- b. Export client certificate

Run the following command:

**ovcert -exportcert -file oldclientcert -pass <password> -alias <alias\_of\_client\_certificate> -ovrg server**

Save the **oldclientcert** file and note the password. You will need it later to restore the configurations.

- c. Export server certificate

Run the following command:

```
ovcert -exportcert -file oldservercert -pass <password> -alias <alias_of_server_certificate> -ovrg server
```

Save the **oldservercert** file and note the password. You will need it later to restore the configurations.

- d. Export trusts

From the command prompt, run **ovcert -exporttrusted -file oldtrusts**.

Save the **oldtrusts** file. You will need it later to restore the configurations.

### 3. *Clean up indicators with the same name*

In BSM 9.0x, it is possible to modify health indicators (HIs) that child configuration item types (CITs) inherit from their parent CITs. Modifications include, for example, changing the display name or description. When you modify an inherited HI its UUID changes but the name remains the same. Subsequent uploads of content packs in **overwrite** mode then lead to errors like the following:

**Indicator with id: <uuid>. Cause: Indicator already exists with the same name for this CI type hierarchy. Indicator name: <indicator>.**

The following procedure enables you to prevent similar upload problems:

- a. Before the upgrade, manually merge the changes applied to inherited indicators with the original indicator defined for the parent CIT.

Go to **Admin > Service Health > Repositories**. Select the child CIT and the health indicator that you have modified. Check your changes and then apply them to the HI of the parent CIT.

- b. Delete the modified HI.

Alternatively, before the upgrade, make a note of your HI modifications, and then delete the modified HIs. After the upgrade, create new HIs for the child CITs, based on your notes.

#### 4. **Delete TV content pack definitions**

You must delete the TV Content Pack and the TVDiag Shared Content Pack definitions (if their IDs start with a specific string) before beginning to upgrade to BSM 9.1x. Otherwise the upload fails with the following error in opr-admin.log:

**A Content Pack Definition with the name [TV\_Content\_Pack] and a different ID already exists.**

**To delete TV content pack definitions, complete the following steps:**

- a. Open the Content Packs Manager:

**Admin > Platform > Content Packs**

- b. In the Content Packs Definitions pane, select **TV Content Pack** and edit it. If the ID starts with **6f0**, delete the content pack definition.
- c. In the Content Packs Definitions pane, select TVDiag Shared Content Pack and edit it. If the ID starts with 045, delete the content pack definition.

#### 5. **Delete duplicate downtime categories**

The upgrade may fail if more than one downtime category with the same name exists. You must therefore delete all duplicate downtime categories before beginning the upgrade to BSM 9.1x.

**To delete duplicate Downtime Categories, complete the following steps:**

Navigate to the Downtime Behavior manager:

**Admin > Operations Management > Tune Operations Management > Downtime Behavior**

Refresh the list of categories.

If there is more than one entry per category, delete the duplicate categories. Access the Event Schema database using a database administration tool (for example, Microsoft SQL Server Management Studio).

Open the table DOWNTIME\_CONFIG.

Make sure there is only one line per DT\_CATEGORY\_ID.

Delete all other rows with that ID or change the ID to another existing Downtime Category.

## 6. **Delete graph family assignments in Blackberry content pack**

The 9.0x Content Pack for Blackberry Enterprise Server generates unique IDs for configuration item type to graph family assignments. Because the IDs are different in each BSM installation, the upload of the new 9.1x Blackberry content pack fails. To avoid upload problems after the upgrade, delete the graph family assignments before the upgrade. The upload of the 9.1x Blackberry content pack recreates the correct assignments.

**To delete graph family assignments, complete the following steps:**

- a. Navigate to the Performance Graphs manager:

**Admin > Operations Management > Design Operations Content > Performance Graphs**

- b. In the **CI Types** pane, select **ConfigurationItem > Infrastructure Element > Running Software > Application Server > BB Component**.
- c. In the **Performance Graphs** pane, click the **Delete Item** toolbar button to remove the performance graphs configuration from the selected CI type.

## 7. **Archive OMi events**

To avoid lengthy database upgrades, it is recommended that you archive your open and closed OMi events before starting the upgrade wizard. You should not keep more than 100,000 events in the database. To archive OMi events, use the archive tool opr-archive-events. For details about opr-archive-events, see the Operations Management online help.

## 8. **Delete database indices**

This procedure is relevant if you manually created indices on the HISTORY\_LINE, EVENT\_PROPERTY\_CHANGE, or EVENT\_ANNOTATIONS tables, in the 9.01 event schema. These indices may conflict with indices automatically created during the upgrade process and cause the upgrade to fail. To prevent this, you need to delete these indices before starting the upgrade.

Your Database Administrator should delete all indices on the above mentioned tables before you run the upgrade wizard.



## Configure HPOM Event Buffering

If you were using HPOM to forward events to BSM, perform this procedure:

During the migration, HPOM continues to attempt sending events to the BSM environment. If the OMi servers cannot be reached, HPOM starts to buffer the events until the servers are online again. Depending on the length of the outage and the number of events, adjust the maximum length of the delivery timeout and the maximum size of the buffer file so that HPOM does not discard any unsent events.

To configure HPOM for Windows event buffering, complete the following steps:

1. In the console tree, right-click **Operations Manager**, and then click **Configure > Server...**. The Server Configuration dialog box appears.
2. Click **Namespaces**, and then click **Server-based Flexible Management**.
3. Note the values of **Forwarding delivery timeout (in seconds)** and **Forwarding queue size maximum (in megabytes)**. Record these values to enable you to restore them after the upgrade.
4. Change the value of **Forwarding delivery timeout (in seconds)** (default 1 hour). For example, to set the timeout to 7 days, type **604800**.
5. Change the value of **Forwarding queue size maximum (in megabytes)** (default 50 MB). For example, to set the buffer size to 2 GB, type 2000.
6. *Optional:* Change the value of **Forwarding queue size warning threshold (in megabytes)** (default 40 MB). For example, to set the warning threshold to 2 GB, type 2000.
7. Click **OK** to save the new values and close the dialog box.

To configure HPOM for UNIX or Linux event buffering, complete the following steps:

1. *Optional:* Check the current values of the HTTPS-based forwarding parameters, type:

```
ovconfget -ovrg server opc.opcforwm
```

The command displays only the non-default values. Record these values to enable you to restore them after the upgrade.

2. Adjust the timeout. For example, to set the timeout to 2 days, type:

```
ovconfchg -ovrg server -ns opc.opcforwm -set REQUEST_TIMEOUT 604800
```

3. *Optional:* In HPOM for UNIX or Linux, the buffer size is by default set to 0 (unlimited). To change the buffer size, type

```
ovconfchg -ovrg server -ns opc.opcforwm -set MAX_FILE_BUFFER_SIZE < bytes>
```

**Note:** When the upgrade is complete, you can restore the original values of the buffer.

## Chapter 3: Uninstall BSM 9.0x

Disable BSM on all servers in the **staging environment** by selecting **Start > Programs > HP Business Service Management > Administration > Disable HP Business Service Management**.

Uninstall BSM 9.0x on all servers using one of the following procedures:

### *Uninstalling BSM servers in a Windows environment*

To completely uninstall HP Business Service Management servers in a Windows environment:

1. Uninstall BSM via the Windows user interface or silently.
  - a. Uninstall BSM Using the Windows user interface:
    - i. On the machine from which you are uninstalling HP Business Service Management, select **Start > Control Panel > Programs and Features**. Select **HP Business Service Management**.
    - ii. Click **Remove**, wait for the BSM uninstall script to remove any present updates, and follow the on-screen instructions when prompted.

**Note:** In some cases, this process may take a long time (more than 30 minutes).

**Note:** When a Minor-Minor BSM Release (for example, 9.01) is removed, any BSM Public Patches installed on top of the release are removed, as well.

- iii. If the **Show Updates** check box is selected, all the updates installed over BSM are displayed. When BSM is removed, all updates are also removed.
  - b. Uninstall BSM silently:
    - i. Stop all BSM servers.
    - ii. Run the command **<HPBSM Installation Directory>\installation\bin\uninstall.bat -i silent**
2. Restart the server machine.

## ***Uninstalling BSM servers in a Linux environment***

1. Log in to the server as user **root**.
2. To access the uninstall program, type: **cd /opt/HP/BSM/installation/bin**
3. Stop all BSM servers.
4. Run the following script to uninstall in UI mode: **./uninstall.sh**. To perform this step in silent mode, use the command **./uninstall.sh -i silent**.
5. The BSM uninstall program begins. Follow the on-screen instructions. When the uninstall program is complete, a success message is displayed.
6. Click **Finish**.
7. Check the **HPBsm\_<version>\_HPOvInstaller.txt** log file located in the **/tmp** directory for errors. Previous installation files can be found in the **/tmp/HPOvInstaller/HPBsm\_<version>** directory.

**Note:** If you encounter problems during the uninstall procedure, contact HP Software Support.

## Chapter 4: Install BSM 9.10

Install BSM 9.10 on a set of BSM servers. This set can be either one Gateway Server and one Data Processing Server or one one-machine server. In the first case, run the wizards on the Data Processing Server first. The wizard will direct you as to when to begin installation on the Gateway Server.

**Run the installation and post-installation wizards. Do not run the upgrade wizard yet. Exit the wizard on the last screen of the post-installation wizard without continuing.**

- For Windows:

**DVD1 > windows\_setup > HPBsm\_9.10\_setup.exe**

- For Linux:

**DVD2 > linux\_setup > HPBsm\_9.10\_setup.bin**

For more details, see the following sections:

["Installing BSM on a Windows Platform" on page 155](#)

["Installing BSM on a Linux Platform" on page 163](#)

# Chapter 5: Install the Latest BSM 9.1x Minor-Minor Release and Patch

Install the latest minor minor version of BSM 9.1x and patch (if available).

## 1. Prerequisites

- It is recommended that you back up all BSM databases and files you made custom changes to.
- Make sure that BSM has been fully stopped on all machines and that there are no open connections (for example, from Windows Explorer) from any machines to the BSM root directory or any of its subdirectories.

## 2. Download and install the latest patch and intermediate patch from the SSO site

- a. Go to the SSO site:

<http://support.openview.hp.com/selfsolve/patches>

- b. Select **Application Performance Management (BAC)** and select the most recent 9.1x minor minor version.
- c. Click **Search** to locate the installation files.
- d. Save the package locally and launch the relevant setup file to install the patch.
- e. Run the installation files on all BSM servers (Gateway and Data Processing).
- f. Run the post-installation wizard. This wizard follows the patch installation automatically.
- g. Repeat this procedure for the latest intermediate patch (if available).

## 3. Re-apply manual changes

If you have made changes in the HP BSM root directory to files that are updated during patch installation, for example, while performing hardening procedures on your system, you must reapply those changes after patch installation on all relevant BSM machines. You can access your modified files from the backup folder located at: <HP BSM root directory>\installation\<PATCH\_NAME>\backup\<PATH\_TO\_FILE>

## Chapter 6: 9.1x Upgrade Wizard

The upgrade wizard can be found on all Gateway, Data Processing, and One-machine servers in the following locations:

- Windows:

**<BSM Home Directory>\bin\upgrade\_wizard\_run\_from90.bat**

- Linux:

**/opt/HP/BSM/bin/upgrade\_wizard\_run\_from90.sh**

When the wizard is finished, start all BSM servers. For details, see ["Starting and Stopping BSM " on page 140.](#)

For details about the upgrade wizard, see ["Upgrade Wizard" on page 187.](#)

# Chapter 7: Configuration Procedures

Follow the procedures in this chapter. Note that some procedures depend on your specific BSM environment and are not required in all BSM upgrade scenarios.

- Restore Certificate Authority Configurations .....33
- Complete Content Pack Upload .....36
- OMi Post-Upgrade Procedure ..... 37
- General Configuration Procedures ..... 41
- Pre-Upgrade Tool .....44



## Restore Certificate Authority Configurations

If you backed up your certificate authority configurations, restore them now using one of the two procedures below depending on your operating system.

### ***For Windows users:***

To restore the certificate authority configurations that you backed up above, run the following commands on the Data Processing Server:

1. Type the command **ovcoreid**

This produces a value which is referred to below as **<newcoreid>**. Note this value for future use.

2. Type the command **type %TEMP%\migration\oldcoreid**

This produces a value which is referred to below as **<oldcoreid>**. Note this value for future use.

3. Type the command **ovcert -remove <newcoreid>**

4. Type the command **ovcert -remove <newcoreid> -ovrg server**

5. Type the command **ovcoreid -set <oldcoreid> -ovrg server -force**

6. Type the command **ovcert -remove CA\_<newcoreid>**

**Make sure there are no spaces between CA\_ and the value of the <newcoreid>.**

7. Type the command **ovcm -importcacert -file %TEMP%\migration\oldservercert**

8. Type the command **ovcert -remove CA\_<newcoreid> -ovrg server**

**Make sure there are no spaces between CA\_ and the value of the <newcoreid>.**

9. Type the command **ovcert -importcert -file %TEMP%\migration\oldservercert -ovrg server**

Ignore any warning message while running this command.

10. Type the command **ovcm -issue -file %TEMP%\migration\newclientcert -name <newcoreid> -coreid <newcoreid>**

11. Type the command **ovcert -importcert -file %TEMP%\migration\newclientcert**

12. Type the command **ovcert -importtrusted -file %TEMP%\migration\oldtrusts**

Ignore any warning message while running this command.

13. Type the command **ovcert -importtrusted -file %TEMP%\migration\oldtrusts -ovrg server**

Ignore any warning message while running this command.

14. Type the command **ovc -kill**
15. Type the command **ovc -start**

### ***For Linux users:***

To restore the certificate authority configurations that you backed up above, run the following commands on the Data Processing Server:

1. `cat /tmp/migration/oldcoreid`

This produces a value which is referred to below as **<oldcoreid>**. Note this value for future use.

2. `cat /tmp/migration/oldservercert`

This produces a value which is referred to below as **<oldservercert>**. Note this value for future use.

3. `cat /tmp/migration/oldtrusts`

This produces a value which is referred to below as **<oldtrusts>**. Note this value for future use.

4. `ovcert -remove ovcoreid`
5. `ovcert -remove ovcoreid -ovrg server`
6. `ovcoreid -set cat /tmp/migration/oldcoreid -ovrg server -force`
7. `ovcert -remove CA_ovcoreid`
8. `ovcm -importcacert -file /tmp/migration/oldservercert`
9. `ovcert -remove CA_ovcoreid -ovrg server`
10. `ovcert -importcert -file /tmp/migration/oldservercert -ovrg server`  
Ignore any warning message while running this command.
11. `ovcm -issue -file /tmp/migration/newclientcert -name ovcoreid -coreid ovcoreid`
12. `ovcert -importcert -file /tmp/migration/newclientcert`

13. `ovcert -importtrusted -file /tmp/migration/oldtrusts`

Ignore any warning message while running this command.

14. `ovcert -importtrusted -file /tmp/migration/oldtrusts -ovrg server`

Ignore any warning message while running this command.

15. `ovc -kill`

16. `ovc -start`

## Complete Content Pack Upload

After starting BSM, wait for the content pack upload to finish. Check the file **<HPBSM Install Directory>/log/EJBContainer/opr-admin.log** for an entry like the following:

```
2011-05-06 10:21:19,431 [BackgroundThreadManager Thread (BG#1)]  
INFO ContentPackImportService.invoke(?) - OOTB Content Packs  
import finished in 283.542 seconds.
```

## OMi Post-Upgrade Procedure


If you were using OMi with BSM 9.0x, perform the following steps:

### ***Update the Key Attribute of CI Collections Synchronized from HPOM***

With BSM 9.10 a new key attribute was introduced for the CI collection CI type.

If you have previously synchronized HPOM node groups with BSM 8.x or BSM 9.0x, create an enrichment rule that copies the value of the Name attribute to the CI Collection ID attribute.

**To update the CI Collection ID attribute, complete the following steps:**

1. In the RTSM Package Manager, deploy the **Basic\_Classes.zip** package. This package can be found in the following location <BSM Installation Directory>\odb\content\content\_packs\CP9.zip\packages.
2. In the Enrichment manager, create a new active enrichment rule based on a new TQL as follows:
  - a. Select **Admin > RTSM Administration > Enrichment manager**
  - b. Right-click in the **Enrichment Rules** pane and click **New**.
  - c. In the enrichment rule wizard, specify a name and description for the rule.
  - d. Select **Rule is active** and click **Next**.
  - e. For the Base Query Type, select **Base the Enrichment on a new query**.
  - f. Click **Finish** to save the enrichment rule.
3. Drag the CI type **CICollection** to the editing pane of the newly created enrichment rule. If this CI type is not available, the package may not have been deployed. Wait a few minutes and try again.
4. Right-click **CICollection** in the editing pane and select **Query Node Properties**.
5. In the **Query Node Properties** window, clear **Include subtypes**.
6. Add a new attribute condition (  ).
7. Select the new condition, and from the **Attribute name:** drop-down list select **Ci Collection ID - (string)**. If this attribute is not available, the package may not have been deployed. Wait a few minutes and try again.
8. From the **Operator:** drop-down list, select **Is null**. (The **Value** field remains empty.)
9. Add another new attribute condition (

). Check that this condition is linked with **AND** to the previous condition.

10. Select the new condition, and from the **Attribute name:** drop-down list select **Monitored By - (string\_list)**.
11. From the **Operator:** drop-down list, select **Contains**.
12. In the Value field, enter OM.
13. Click OK to save the query node properties.
14. *Optional:* Calculate the query results.
15. Change **Query Mode** to **Enrichment Mode** (first field, top-left corner of the editing pane).
16. Right-click the **CI Collection** icon in the editing pane and select **Update Query Node**.
17. In the Query Node Definition dialog, select the **CI Collection ID** attribute from the **Name** column.
18. Select the **By Attribute** radio button. The string name **CI Collection** appears in the first drop-down list next to the **By Attribute** button.

To specify the attribute to be taken, select the **Name** attribute in the dropdown list to the right of the CI Collection attribute field.


Click the **Save** icon.

19. Click **OK**.
20. Navigate to the Scheduler:

**Admin > RTSM Administration > Scheduler**

21. Add a new job condition (  ).

Specify a name and a definition in the Job Definition dialog box.

22. Add an action to the job (  under Actions in the Job Definition dialog box).
23. In the Action Definition dialog box, select **Run an Enrichment rule** and click **Next**.
24. Select the enrichment rule that you created in Step 1 and click **Finish**.
25. In the Job Definition dialog box, under **Scheduler**, select **Once** and specify the current time.
26. Click **OK** to save the job definition and close the dialog box.
27. Wait for the enrichment to finish. Check that the enrichment query created in Step 1 no longer

matches any hosts.

For more information about enrichment rules and scheduling, see the Model Management section in the BSM online help.

## ***Restore OMi Configuration Customizations***

The OMi integration and topology synchronization files have changed with BSM 9.1x. It is therefore recommended that you merge your saved OMi customizations with the BSM 9.1x configuration files rather than replacing them.

1. On the BSM 9.1x Data Processing Server host system, make a backup copy of all the files in the following directory and subdirectories:

Windows: %TOPAZ\_HOME%\conf\opr

Linux: /opt/HP/BSM/conf/opr

2. Merge the OMi integration and topology synchronization files that you saved from your BSM 9.0x installation with the BSM 9.1x configuration files.
3. Place the files in the same location and server type that they were backed up from. For example, if they were backed up from a Data Process Server, make sure they are restored to same location in the new Data Processing Server.

For example:

### **Windows:**

```
%TOPAZ_HOME%\conf\opr\integration  
%TOPAZ_HOME%\conf\opr\topology-sync
```

### **Linux:**

```
/opt/HP/BSM/conf/opr/integration  
/opt/HP/BSM/conf/opr/topology-sync
```

## ***Import Security Certificates to JRE Truststore***

*Secure environments only:* To re-enable the trust relationship between the Java Runtime Environment (JRE) and the LDAP server, you must import the LDAP trusted certificate to the JRE truststore. For details, see the HP Business Service Management Hardening Guide.

## ***Migrate Content from 9.0x to 9.1x***

Content is uploaded automatically on the first BSM startup using the create mode. The create mode ignores modified objects in the 9.1x content packs and uploads new and unchanged objects only.

New HI Values are not new objects, but a modification of the Health Indicator, which is a modification of the objects in your content pack.

If you have also modified the same objects, you can either redo your modifications manually after the migration has finished, or upload the upgrade content packs manually using the overwrite mode. See ["Importing Modified Upgrade Content Packs" below](#) for details.

The upgrade content pack packages are located in the following directory:

**<HPBSM Install Directory>/conf/opr/content/upgrade/<locale>**

The available upgrade content pack packages are:

MM-INF\_upgrade.xml — Content Pack for Infrastructure SPI

MM-JEE\_upgrade.xml — Content Pack for J2EE SPI

MM-MSS\_upgrade.xml — Content Pack for MS SQL SPI

MM-Ora\_upgrade.xml — Content Pack for Oracle SPI

### ***Importing Modified Upgrade Content Packs***

You can import individual upgrade content packs one by one or all content packs at once. Individual content packs can also be uploaded using the user interface.

**To upload individual upgrade content packs, complete the following steps:**

**<HPBSM Install Directory>/opr/bin/ContentManager -username admin -password admin -f -i <HPBSM Install Directory>/conf/opr/content/upgrade/<locale>/<Content Pack to Import>**

**To upload all upgrade content packs, complete the following steps:**

**<HPBSM Install Directory>/opr/bin/ContentManager -username admin -password admin -a -f -uploadFolder <HPBSM Install Directory>/conf/opr/content/upgrade/<locale>**



## General Configuration Procedures

Perform the following procedures:

- ***Upgrading Customized Service Health KPIs***

In BSM 9.2x, the internal format of the KPI parameter “KPI is critical if” was changed. As a result, this value may be incorrect following upgrade, if you have created or customized KPIs.

To fix this, perform the following:

- a. Access the JMX console on the Gateway Server via `http://<Gateway Server name>:8080/jmx-console`, and enter your user name and password.
- b. Click **service=repositories-manager** in the Topaz section.
- c. Locate the **upgradeCriticalIf()** operation.
- d. Click **Invoke**.

- ***Service Health and SLM repository post-upgrade procedure***

When you installed BSM 9.1x, content that was imported using out-of-the-box content packs was categorized in the Service Health and SLM repositories as **Custom** or **Predefined (Customized)**, rather than as **Predefined**.

After you install BSM 9.2x, run the Repository Data Transfer tool to automatically re-label this out-of-the-box content in the repositories as **Predefined**, using the following steps:

- a. Access the JMX console on the Gateway Server via `http://<Gateway Server name>:8080/jmx-console`, and enter your user name and password.
- b. Click **service=content-manager** in the Topaz section.
- c. Locate the **invokeRepositoryTool()** operation.
- d. Click **Invoke**.

**Note:** If you have customized any repository items, they are not affected by this procedure.

- ***Service Health Top View post-upgrade***

In BSM 9.2x, extensive improvements were made to the Top View component. For details, refer to the sections on Top View in the BSM User Guide and in the BSM Application Administration Guide.

As a result of the changes made to the underlying Top View infrastructure, the following infrastructure settings from earlier BSM versions are now deprecated in BSM 9.2x:

- **Top View Data Refresh Rate - For Legacy MyBSM**
- **Top View Font Name**
- **Top View Green Color Property**

These infrastructure settings were located in the Service Health Application - Top View Properties section of the Service Health Application infrastructure settings. If you customized these settings prior to upgrade, your customizations are removed.

In addition, if you used a custom background image for Top View, after upgrade save the image in `<Gateway Server root directory>/AppServer/webapps/site.war/images/topview`, and enter the image file name in the **Custom Background Image Name** infrastructure setting.

- ***SLM - Upgrading SLAs from BSM 9.x to 9.2x using Baselineing***

The following section is only relevant for users who have SLAs with BPM transaction CIs with the BPM Percentile Sample-Based rule defined on performance HIs, or Groovy rule (Rules API).

BSM 9.2x introduces the concept of baselining. In End User Management, Business Process Monitor performance metrics are analyzed over a period of time, and are used to provide a baseline comparison for establishing acceptable performance ranges.

Baselining influences the transaction thresholds, and will therefore have an impact on your SLA calculation. If you want to minimize this influence so that your SLA calculation results are similar to pre-baselining, perform the steps described in "[Upgrading SLAs from BSM 9.x to 9.2x to Work with Baselineing](#)" on page 196 .

- ***Upload content packs***

Wait for the BSM services to be started again and then upload the content packs again. Execute the following command on the Gateway Server:

```
<HPBSM Install Directory>/opr/bin/ContentManager -username admin -  
password admin -a -forceReload
```

- ***ETI display label***

If you have alerts configured with an Event Template, the ETI display label needs to be manually upgraded. To upgrade the display label, execute the following JMX command from the BSM 9.2x Data Processing Server:

`BAC.Alerts.Upgrade service=change Etl name to ID update()`

- ***Upgrade custom reports***

In some cases, custom reports are not migrated properly during the upgrade. If this is the case, execute the following command from the JMX console as follows:

- a. Open the JMX console from **`http://<FQDN of BSM Gateway server>:8080/jmx-console/`**
- b. In the Topaz section, select **EUM Custom report upgrader service**.
- c. Complete the fields and click **Invoke**.

- ***Delete temporary internet files***

When logging into BSM for the first time after upgrading, delete the browser's temporary Internet files. This should be done on each browser that accesses BSM.

- ***Back up files***

Back up the following files from the BSM 9.1x servers:

- `<Gateway Server installation directory>/AppServer/webapps/site.war/openapi/excels directory`
- `<Data Processing Server installation directory>/cmdb/general directory`
- `<Data Processing Server installation directory>/BLE/rules/<custom rules jar> file(s)`

- ***SHA baseline data***

The following note is relevant if you were using SHA with Performance or Operations Agents which include one of the following SPIs: WebLogic, WebSphere, Oracle, MSSQL.

The baseline may be inaccurate for at least one week after running the upgrade wizard. This is due to an improvement in the way instances in the SPIs are interpreted by SHA.

## Pre-Upgrade Tool

The pre-upgrade tool temporarily stores some configuration and certificates in the BSM database to help migrate them to 9.2x. It should be run on all BSM Gateway and the active DPS servers.

### 1. Run the Pre-Upgrade Tool on all BSM Gateway servers

On all BSM Gateway servers, run the PreUpgradeTool using the following command.

- **Linux:** <HPBSM Install Directory>/opr/bin/PreUpgradeTool.sh -d
- **Windows:** <HPBSM Install Directory>\opr\bin\PreUpgradeTool.bat -d

### 2. Run the Pre-Upgrade Tool on the Active Data Processing Server

On the active BSM Data Processing Server, run the PreUpgradeTool using the following command.

- **Linux:** <HPBSM Install Directory>/opr/bin/PreUpgradeTool.sh -d
- **Windows:** <HPBSM Install Directory>\opr\bin\PreUpgradeTool.bat -d

If there is a large number of closed events stored in the database, upgrading can take a long time. If recommended by the tool, and you want to archive closed events before upgrading starts, enter "Yes" (y) when prompted and specify the target location for the archive file.

## Additional Information

Install the latest patches to get the newest version of the Pre-upgrade tool. The tool should first be run on a Gateway Server and then on the active Data Processing Server.

The Pre-Upgrade Tool executes the following steps:

- Backs up files required by the upgraded 9.2x installation (event sync scripts, certificates, and so on)
- Ensures the Sonic Queue is emptied
- Gives the customer the ability to shorten the upgrade process by choosing to not upgrade closed events

**Note:** If you did not run the Pre-Upgrade Tool before shutting down or uninstalling BSM 9.1x, the following will not be migrated to the 9.2x installation:

- Certificate data including trust relationships for connected servers.
- If you have created Groovy scripts in your BSM 9.1x environment, these scripts are not imported to your BSM 9.2x installation.
- Events from your BSM 9.1x environment may be lost.

In this case, you should execute the following steps manually on your BSM 9.2x installation after the upgrade is successfully completed:

- Define trust relationships for connected servers. For details, see the OMi Setup section of the BSM Application Administration Guide.
- If you have any Groovy scripts that are used to forward events, import them from your production environment if possible.

## Chapter 8: Uninstall BSM 9.1x

Disable BSM on all 9.1x servers by selecting **Start > Programs > HP Business Service Management > Administration > Disable HP Business Service Management**.

Uninstall BSM 9.1x on all servers using one of the following procedures:

### *Uninstalling BSM servers in a Windows environment*

To completely uninstall HP Business Service Management servers in a Windows environment:

1. Uninstall BSM via the Windows user interface or silently.
  - a. Uninstall BSM Using the Windows user interface:
    - i. On the machine from which you are uninstalling HP Business Service Management, select **Start > Control Panel > Programs and Features**. Select **HP Business Service Management**.
    - ii. Click **Remove**, wait for the BSM uninstall script to remove any present updates, and follow the on-screen instructions when prompted.

**Note:** In some cases, this process may take a long time (more than 30 minutes).

**Note:** When a Minor-Minor BSM Release (for example, 9.01) is removed, any BSM Public Patches installed on top of the release are removed, as well.

- iii. If the **Show Updates** check box is selected, all the updates installed over BSM are displayed. When BSM is removed, all updates are also removed.
  - b. Uninstall BSM silently:
    - i. Stop all BSM servers.
    - ii. Run the command **<HPBSM Installation Directory>\installation\bin\uninstall.bat -i silent**
2. Restart the server machine.

## ***Uninstalling BSM servers in a Linux environment***

1. Log in to the server as user **root**.
2. To access the uninstall program, type: **cd /opt/HP/BSM/installation/bin**
3. Stop all BSM servers.
4. Run the following script to uninstall in UI mode: **./uninstall.sh**. To perform this step in silent mode, use the command **./uninstall.sh -i silent**.
5. The BSM uninstall program begins. Follow the on-screen instructions. When the uninstall program is complete, a success message is displayed.
6. Click **Finish**.
7. Check the **HPBsm\_<version>\_HPOvInstaller.txt** log file located in the **/tmp** directory for errors. Previous installation files can be found in the **/tmp/HPOvInstaller/HPBsm\_<version>** directory.

**Note:** If you encounter problems during the uninstall procedure, contact HP Software Support.

## **Chapter 9: Migrate Database to MS SQL 2012 (optional)**

If you would like to use MS SQL 2012, migrate your staging database to a new MS SQL 2012 database. For details, refer to MS SQL documentation.



## Chapter 10: Install BSM 9.20

Install BSM 9.20 on a set of BSM servers. This set can be either one Gateway Server and one Data Processing Server or a single one-machine server. In the first case, run the wizards on the Data Processing Server first. The wizard will direct you as to when to begin installation on the Gateway Server.

**Do not install additional servers at this time, you can install them towards the end of the workflow.**

**Run the installation and post-installation wizards. Do not run the upgrade wizard yet. Exit the wizard on the last screen of the post-installation wizard without continuing.**

- For Windows:

**DVD1 > Windows\_Setup > HPBsm\_9.20\_setup.exe**

- For Linux:

**DVD2 > Linux\_Setup > HPBsm\_9.20\_setup.bin**

Alternatively, you can run these wizards in silent mode. For details, see ["Installing BSM Silently" on page 180](#).

For more details, see the following sections:

- ["Installing BSM on a Linux Platform" on page 163](#)
- ["Installing BSM on a Windows Platform" on page 155](#)

# Chapter 11: Install the Latest BSM 9.2x Minor Minor Release and Patch

Install the latest minor minor version of BSM 9.2x and patch (if available).

## 1. Prerequisites

- It is recommended that you back up all BSM databases and files you made custom changes to.
- Make sure that BSM has been fully stopped on all machines and that there are no open connections (for example, from Windows Explorer) from any machines to the BSM root directory or any of its subdirectories.

## 2. Download and install the latest minor minor version from the SSO site

- a. Go to the SSO site:

<http://support.openview.hp.com/selfsolve/patches>

- b. Select **Application Performance Management (BAC)** and select the most recent minor minor 9.2x version.
- c. Click **Search** to locate the installation files.
- d. Save the package locally and launch the relevant setup file to install the patch.
- e. Run the installation files on all BSM servers (Gateway and Data Processing).
- f. The post-installation wizard is automatically run after the patch installation.
- g. If there was an HPOM agent on the system before installing BSM which was configured to run as a non-root user, you can reconfigure BSM to run as the same non-root user as the HPOM agent.

**Note:** Both products (BSM and HPOM Agent) must run as the same user. If you change BSM to run as a different user, you must also change HPOM Agent to the same non-root user. For details how to switch the HPOM Agent to a non-root user, please refer to the HPOM Agent manuals.

- h. Repeat this procedure for the latest intermediate patch (if available).

## 3. Log out and in

If you are installing BSM in a Linux environment, and you selected a non-root user in the post-installation wizard, log out and log in using the non-root user you selected.

#### **4. Re-apply manual changes**

If you have made changes in the HP BSM root directory to files that are updated during patch installation, for example, while performing hardening procedures on your system, you must reapply those changes after patch installation on all relevant BSM machines.

## Chapter 12: 9.2x Upgrade Wizard

Run the upgrade wizard on the 9.2x servers to transfer your data from the original 9.0x format to the 9.2x format.

You should only have one set of 9.2x servers installed at this time. Do not run the upgrade wizard on more than one set of 9.2x servers.

The upgrade wizard can be found on all Gateway, Data Processing, and One-machine servers in the following locations:

- Windows:

**<BSM Home Directory>\bin\upgrade\_wizard\_run\_from90.bat**

- Linux:

**/opt/HP/BSM/bin/upgrade\_wizard\_run\_from90.sh**

For details about the upgrade wizard, see ["Upgrade Wizard" on page 187](#).

# Chapter 13: Post-Installation Procedures

Perform these tasks to complete the upgrade process:

- General Post-Installation Procedures .....54
- Starting and Stopping BSM ..... 59
- Logging In and Out .....60
- Add Additional BSM Servers .....61

## General Post-Installation Procedures

Perform these tasks to complete the upgrade process:

**Note:** If you use the IIS web server, disable it before performing this procedure.

- ***Disable firewall between BSM servers***

In general, placing firewalls between BSM servers is not supported. If an operating system firewall is active on any BSM server machine (GW or DPS), a channel must be left open to allow all traffic between all BSM Gateway and DPS servers.

Additionally, to enable BSM users and data collectors to communicate with the BSM Gateway servers, you must leave open the relevant ports depending on your BSM configuration. The required ports are typically 443 or 80, and 383. For details, see "Port Usage" in the BSM Platform Administration Guide.

- ***Update Data Collectors***

See the System Requirements and Support Matrixes, available from **Help > Planning and Deployment** and the Updated Components section in the HP Business Service Management Release Notes to determine if you must upgrade your data collector to the latest supported version.

- ***Copy files from production server or restore them from backup***

Restore the following files to the BSM:

- <Gateway Server installation directory>/AppServer/webapps/site.war/openapi/excels directory
- <Data Processing Server installation directory>/cmdb/general directory
- <Data Processing Server installation directory>/BLE/rules/<custom rules jar> file(s)
- <Gateway Server installation directory>/JRE/lib/security/cacerts
- <Gateway Server installation directory>/JRE64/lib/security/cacerts

- ***Reconfigure Integration with HPOM***

This procedure is only required if you are performing a staging upgrade. If you had previously configured an integration with HPOM, repeat the following procedure that you performed when

configuring this connection for the first time: "How to Set Up a Forwarding Target in the HPOM for UNIX Node Bank" in the BSM - Operations Manager Integration Guide.

- ***Perform hardening procedures***

If your original environment was secured with SSL and you are upgrading using a staging environment, you need to repeat the hardening procedures described in the BSM Hardening Guide.

If your original environment was secured with SSL and you are upgrading directly, you need to repeat the following hardening procedures:

- a. If you had previously made changes to **<HP BSM root directory>\EJBContainer\server\mercury\deploy\jboss-web.deployer\server.xml** while performing hardening procedures on your system, repeat the "Securing JBOSS" procedure in the Hardening Guide after the patch installation on all relevant BSM machines.
- b. If you had previously configured SSL on an IIS web server used by BSM, you need to verify HTTPS port binding in IIS is set to the correct port (443).
- c. If you had previously configured SSL on the Apache web server used by BSM, you may need to reapply the changes to httpd.conf and httpd-ssl.conf files as follows:
  - In **<HP BSM root directory>\WebServer\conf\httpd.conf**, uncomment the following two lines:  
  
**LoadModule ssl\_module modules/mod\_ssl.so**  
  
**Include conf/extra/httpd-ssl.conf**
  - In **<HP BSM root directory>\WebServer\conf\extra\httpd-ssl.conf**, specify paths to **SSLCertificateFile** and **SSLCertificateKeyFile**
  - Restart the HP BSM Apache web service

- ***Ensure all processes started properly***

You can check to ensure that all processes started properly. For details, see "How to View the Status of Processes and Services" in the BSM Platform Administration Guide.

- ***Check installation log files***

You can see the installation log file by clicking the **View log file** link at the bottom of the installer window.

In a Windows environment, this log file, along with additional log files for separate installation packages, is located in the `%temp%\..\HPOvInstaller\<BSM version>` directory.

In a Linux environment, the logs files are located in the `/tmp/HPOvInstaller/<BSM version>` directory.

The installer log file name is in the following format:

**HPBsm\_<VERSION>\_<DATE>\_HPOvInstallerLog.html** or **HPBsm\_<VERSION>\_<DATE>\_HPOvInstallerLog.txt** (for example, **HPBsm\_9.10\_2010.10.21\_13\_34\_HPOvInstallerLog.html**).

Individual installation package log file names are in the following format:

**Package\_<PACKAGE\_TYPE>\_HPBSM\_<PACKAGE\_NAME>\_install.log** (for example, **Package\_msi\_HPBSM\_BPiPkg\_install.log**).

- **Overwrite custom changes (optional)**

BSM 9.2x comes with built in content packs. If any of the data in these content packs conflicts with a previously existing custom change, BSM keeps the custom change and does not overwrite it.

**To overwrite your custom changes with the new 9.2x data:**

- a. Open the Content Packs page from **Admin > Platform > Content Packs**.
- b. Select each content pack. In the content pack summary, there is a column indicating the origin of each artifact. For each item whose value is **predefined (customized)**, this indicates that the artifact was customized and is different from the one delivered with 9.2x.
- c. To overwrite a change, locate the artifact in the corresponding admin user interface and select **restore to default**.

- **Restore BSM service changes**

If you manually configured different users to run BSM services, these settings must be configured again. For details, see ["Changing BSM Service Users" on page 194](#).

- **Install component setup files**

The component setup files are used to install the components used by BSM. The component setup files are not installed as part of the basic BSM installation. They are located separately in the Web delivery package download area and in the **Data Collectors and Components\components** directory of the BSM DVDs and must be installed separately to the



BSM Downloads page. The component setup files can then be downloaded from BSM and used when required. For details on working with the BSM Downloads page, see "Downloads Overview" in the BSM Platform Administration Guide.

**Note:** The components on the Downloads page are updated for each major and minor release (for example: 9.00 and 9.20). To download updated components for minor minor releases and patches (for example, 9.22), use the Software Updates and Software Patches pages available from <http://www.hp.com/go/hpsupportsupport>.

You must run all DVDs provided for installation to enable downloading all the BSM data collectors and components.

**Note:** You can install a component by using the component's setup file directly from the network or DVD. For details on installing a component, refer to the individual documentation for the component you want to install. The relevant documentation is available from the Downloads page in BSM after the component's setup files are copied to the Downloads page.

The procedure for installing component setup files to the Downloads page differs, depending on whether you are installing a Web delivery version or DVD delivery version of BSM.

- Installing Component Setup Files Using a Web Delivery Version

Copy the component setup files that you want available in the Downloads page from the appropriate directory in the release download area to the **<BSM root directory>\AppServer\webapps\site.war\admin\install** directory on the BSM Gateway Server. If required, create the **admin\install** directory structure.

- Installing Component Setup Files Using a DVD Delivery Version

There is a setup utility in the **Data Collectors and Components** directory on the DVD that copies the component setup files from the DVD to the **<BSM root directory>\AppServer\webapps\site.war\admin\install** directory on the BSM Gateway Server.

During the setup process, you can choose which data collectors to copy by selecting the relevant checkboxes.

**Note:** You can install all or some of the component setup files on multiple Gateway Servers, with the files installed on a specific server being available on that server's Downloads page.

To install component setup files to the BSM Downloads page:

- i. Insert the BSM DVD into the drive of the BSM Gateway Server on which you want to copy the component setup files.
- ii. On the Setup window, click the **Data Collectors and Components Downloads Page Setup** link to open the Data Collector Wizard.

If the Setup window does not appear on your screen, navigate to the **Data Collectors and Components** directory on the DVD and run **copydc.bat**.

- iii. Follow the on-screen instructions to complete the wizard.

- ***Enable IPv6 Support (optional)***

BSM by default communicates using IPv4. If your environment uses IPv4 and IPv6, you can choose to use either IPv4 or IPv6, but not both. To enable IPv6, run the following commands on all BSM servers (GW and DPS):

```
ovconfchg -ns sec.cm.server -set IsIPv6Enabled TRUE
```

```
ovc -kill
```

```
ovc -start
```

## Starting and Stopping BSM

After completing the BSM server installation, restart your computer. It is recommended that you do this as soon as possible. Note that when the machine restarts, you must log in as the same user under which you were logged in before restarting the machine.

After installing the BSM servers (either together on one machine, or at least one instance of each server type in a distributed deployment) and connecting the server machines to the databases, you launch BSM on each server machine.

**Note:** You can check which BSM servers and features are installed on a BSM server machine by viewing the [INSTALLED\_SERVERS] section of the **<BSM server root directory>\conf\TopazSetup.ini** file. For example, Data\_Processing\_Server=1 indicates that the Data Processing Server is installed on the machine.

### To start or stop BSM in Windows:

Select **Start > Programs > HP Business Service Management > Administration > Enable | Disable Business Service Management**. When enabling a distributed environment, first enable the Data Processing Server and then enable the Gateway Server.

### To start or stop BSM in Linux:

```
/opt/HP/BSM/scripts/run_hpbsm {start | stop | restart}
```

### To start, stop, or restart BSM using a daemon script:

```
/etc/init.d/hpbsmd {start| stop | restart}
```

**Note:** When you stop BSM, the BSM service is not removed from Microsoft's Services window. The service is removed only after you uninstall BSM.

## Logging In and Out

You log in to BSM from a client machine's browser using the login page. LW-SSO is BSM's default authentication strategy. For details, see "Logging into BSM with LW-SSO" in the BSM Platform Administration Guide.

You can disable single sign-on authentication completely, or you can disable LW-SSO and use another supported authentication strategy. For details on selecting an authentication strategy, see "Set Up the Authentication Strategies" in the BSM Platform Administration Guide.

**Tip:** For complete login help, click the **Help** button on the login page.

**To access the BSM login page and log in for the first time:**

1. In the Web browser, enter the URL `http://<server_name>.<domain_name>/HPBSM` where **server\_name** and **domain\_name** represent the FQDN of the BSM server. If there are multiple servers, or if BSM is deployed in a distributed architecture, specify the load balancer or Gateway Server URL, as required.

**Note:** Users running previous versions of BSM can still use bookmarks set to access the URL `http://<server_name>.<domain_name>/mercuriam` and `http://<server_name>.<domain_name>/topaz`

2. Enter the default administrator user ("admin"), and the password specified in the Setup and Database Configuration utility, and click **Log In**. After logging in, the user name appears at the top right.
3. (Recommended) Create additional administrative users to enable BSM administrators to access the system. For details on creating users in the BSM system, see "User Management" in the BSM Platform Administration Guide.

**Note:**

- For login troubleshooting information, see "Troubleshooting and Limitations" in the BSM Platform Administration Guide.
- For details on login authentication strategies that can be used in BSM, see "Authentication Strategies — Overview" in the BSM Platform Administration Guide.
- For details on accessing BSM securely, see the BSM Hardening Guide.

When you have completed your session, it is recommended that you log out of the Web site to prevent unauthorized entry.

**To log out:**

Click **Logout** at the top of the page.

## Add Additional BSM Servers

Once you have a working BSM 9.2x environment, you can add new Gateway and Data Processing servers as desired.

**To add new BSM servers to an existing BSM environment:**

1. Run the installation and post-installation wizards. **Do not run the Setup and Configuration Utility when prompted.**

- Windows:

**DVD1 > Windows\_Setup > HPBsm\_9.20\_setup.exe**

For more details, see "[Installing BSM on a Windows Platform](#)" on page 155

- Linux:

**DVD2 > Linux\_Setup > HPBsm\_9.20\_setup.bin**

For more details, see "[Installing BSM on a Linux Platform](#)" on page 163

2. Install the latest minor minor version of BSM 9.2x and patch (if available)

- a. Go to the SSO site:

<http://support.openview.hp.com/selfsolve/patches>

- b. Select **Application Performance Management (BAC)** and select the most recent minor minor 9.2x version.
- c. Click **Search** to locate the installation files.
- d. Save the package locally and launch the relevant setup file to install the patch.
- e. Run the installation files on all BSM servers (Gateway and Data Processing).
- f. Run the post-installation wizard. This wizard follows the patch installation automatically.
- g. Repeat this procedure for the latest intermediate patch (if available).

3. ***Copy additional files***

Some additional files are needed to allow BSM to verify the validity of the database.

- a. Find the version of your BSM database by running the following query in the management database:

```
SELECT * FROM system where sys_name = 'dbpatchver'
```

This will return the version of your database (for example, 1085 for BSM 9.23).

- b. Go to **DVD root directory \packages\DBVerifyVersions\<version\_of\_your\_database>**.
  - c. Copy and overwrite the contents of the folder with the same version number as your database to your server's **HPBSM\dbverify** directory.
4. Run the Setup and Database Configuration utility
    - **Windows:** On the BSM server, select **Start > Programs > HP Business Service Management > Administration > Configure HP Business Service Management**. Alternatively, you can run the file directly from **<BSM\_Installation\_Directory>\bin\config-server-wizard.bat**.
    - **Linux:** On the BSM server machine, open a terminal command line and launch **/opt/HP/BSM/bin/config-server-wizard.sh**.

For more details about this utility, see ["Server Deployment and Setting Database Parameters" on page 169](#).

5. Restart all BSM servers

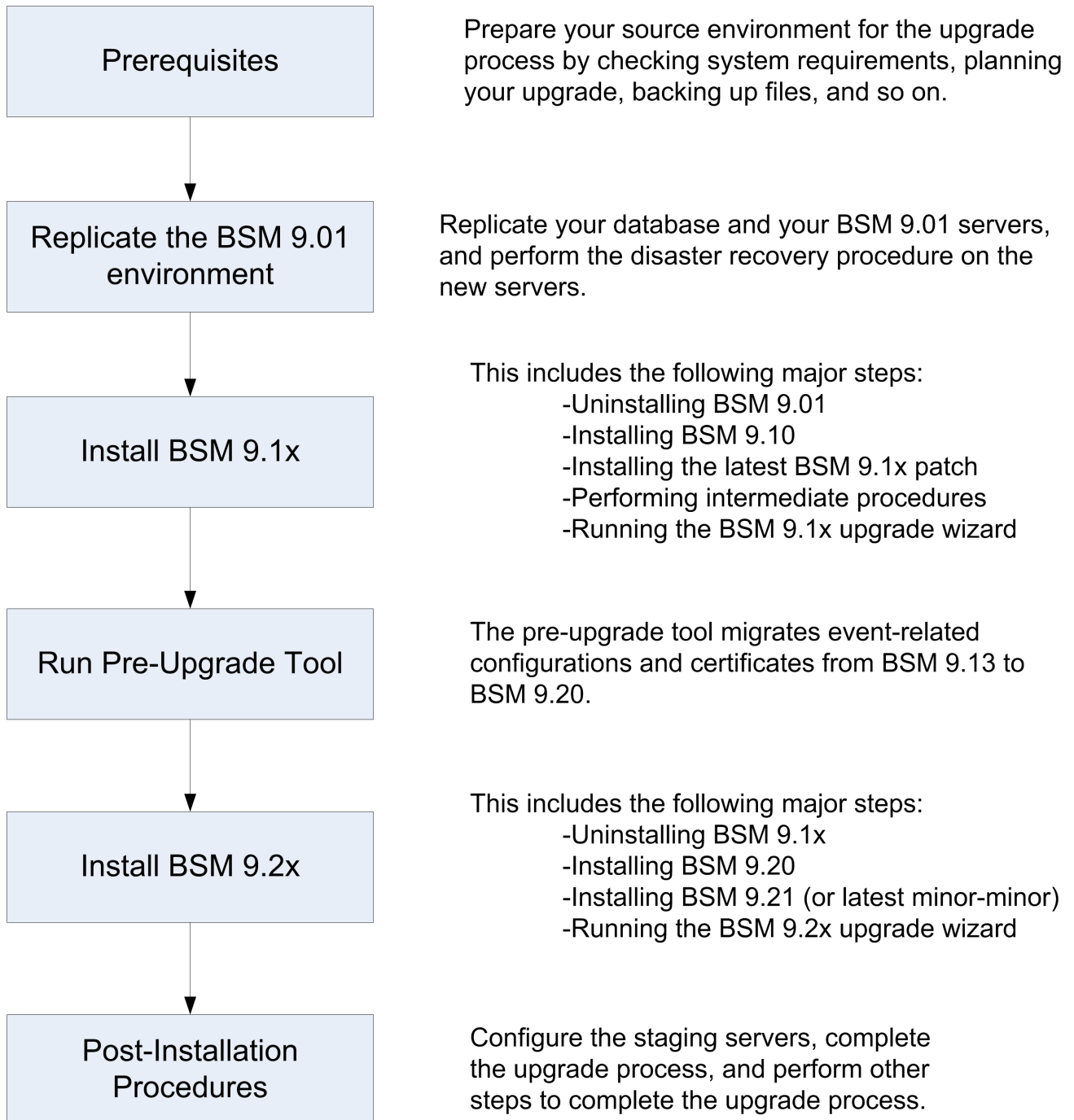
After you have installed all additional servers, restart all other BSM servers and data collectors to allow them to recognize the new servers.

## Part II: Staging Upgrade

This section contains the workflow for upgrading BSM using the staging method.

## Chapter 14: Overview of BSM 9.0x to BSM 9.2x Staging Upgrade

The upgrade from BSM 9.0x to BSM 9.2x involves a number of milestones. The following diagram shows the major steps and how they affect your environment.





# Chapter 15: Prerequisites

Perform all steps specified in this chapter before continuing with the upgrade process.

- General Prerequisites ..... 66
- Installation Prerequisites - Windows ..... 70
- Installation Prerequisites - Linux ..... 72
- OMi Pre-Upgrade Procedure ..... 75

## General Prerequisites

Perform the following steps where relevant before continuing with the upgrade process.

### 1. **Create deployment plan**

Create a complete deployment plan including the required software, hardware, and components. For details, see the BSM Getting Started Guide and the BSM System Requirements and Support Matrixes.

### 2. **Create upgrade plan**

Create an upgrade plan, including such items as whether you will be performing a staging or direct upgrade, estimated down-time, and so on.

**Allocate additional disk space.** The database replication requires 1.5 times the amount of disk space in your original (production) database. If you want to save original data by selecting this option in the upgrade wizard, you will need two times the amount of disk space in your original database.

**Staging Data Replicator.** If you need to run the Staging Data Replicator (SDR) on an external server, you will need an additional server to run the SDR during staging mode. For more information, see "[Staging Data Replicator](#)" on [page 125](#).

**Database Administrator.** During the upgrade process, the services of your Database Administrator may be required.

**Multiple servers.** If you are upgrading multiple BSM servers, perform the upgrade procedure on only one Gateway and one Data Processing server. When the upgrade process is complete, install any additional servers and connect them to the database schemas using Configuration Wizard as described in the BSM Installation Guide.

### 3. **Order and register licenses**

Order licenses with a sales representative based on your deployment plan. Register your copy of BSM to gain access to technical support and information on all HP products. You will also be eligible for updates and upgrades. You can register your copy of BSM on the HP Software Support site <http://www.hp.com/go/hpsupport>.

### 4. **Set up database server**

**Note:** You cannot change the database type during the upgrade if you want to keep your

configuration and runtime data. For example, if you currently run Oracle, you must also use Oracle with the new BSM environment.

In BSM 9.20, support for SQL Server 2005 was removed. In BSM 9.23, support for SQL Server 2012 was added. Make sure the compatibility parameter is up-to-date before starting the upgrade.

Verify that your database has the following settings:

- Oracle: The Oracle Partitioning option must be enabled. Make sure that the parameter **RECYCLEBIN** is set to **Off**, as specified in the BSM Database Guide.
- SQL: If you are upgrading with a staging environment, the collation must be identical in both the production and staging environments.

For information about setting up your database server, see the BSM Database Guide.

## 5. ***Migrate operating systems (optional)***

- BSM supports switching the operating systems of your Gateway and Data Processing servers if you are upgrading in staging mode (for example, from Windows to Linux).
- BSM supports switching the operating system of your database server during the upgrade (staging and direct) provided that this is also supported by your database vendor.
- BSM 9.2x no longer supports Windows Server 2003. Windows Server 2003 users upgrading to BSM 9.2x must perform a staging upgrade and must switch to a supported operating system.

## 6. ***Set up web server (optional)***

BSM installs the Apache web server on all BSM Gateway servers during the installation. If you would like to use the IIS web server, install it on all Gateway servers before installing BSM.

## 7. ***Install the BSM 9.01 patch***

Install the latest BSM 9.0x patch. At the time of the BSM 9.20 release, this was BSM 9.01. The patch can be found on the SSO site: <http://support.openview.hp.com/selfsolve/patches>. Installation instructions can be found in the patch readme.

## 8. ***Resolve time zone inconsistencies***

All BSM machines in the staging environment must be set to the same time zone, daylight savings time, and time as the source environment. This includes BSM Gateway, Data

Processing, and Database servers. Incompatible time zone settings can lead to inaccuracies in reporting historical data.

#### 9. ***Migrate manual changes to conf directory***

If you made changes to any files in the <HP BSM root directory>\WebServer\conf directory, back up the changed files and, after the upgrade, reapply the changes to the new files (**do not copy the old files on top of the new ones**).

#### 10. ***Back up database schema (recommended)***

We recommend backing up the database schema restore as close as possible to the uninstall to minimize the risk of data loss.

#### 11. ***Disable RTSM integrations (optional)***

If integrations are configured in the RTSM Integration Studio (for example, topology synchronization integrations between central UCMDB and RTSM), after upgrading, the Data Flow Probe will run population jobs immediately for active integration points, even if the integration is not scheduled. If you do not want the integration to run, disable the integration before running the upgrade from any BSM 9.x version.

#### 12. ***Back up certificate authority configurations***

In order to preserve your certificate authority configuration, you must back up the data before BSM 9.0x is uninstalled and restore it after the BSM 9.1x upgrade. This procedure is only required if you are using one or more of the following components:

- Diagnostics
- SiteScope
- Integration Adapter
- HPOM
- OMi
- NNMi

To save the certificate authority configurations, run the following commands on the Data Processing Server. Note that these are lists of commands that must be run one line at a time:

- For Windows:

```
ovcm -exportcacert -file %TEMP%\migration\oldservercert  
ovcert -exporttrusted -file %TEMP%\migration\oldtrusts  
ovcoreid > %TEMP%\migration\oldcoreid
```

- For Linux:

```
ovcm -exportcacert -file /tmp/migration/oldservercert  
ovcert -exporttrusted -file /tmp/migration/oldtrusts  
ovcoreid > /tmp/migration/oldcoreid
```

## Installation Prerequisites - Windows

Note the following before installing BSM servers on a Windows platform:

- It is recommended that you install BSM servers to a drive with at least 40 GB of free disk space. For more details on server system requirements, see the BSM System Requirements and Support Matrixes.
- If BSM servers, including the database servers, are installed on multiple network segments, it is highly recommended that the number of hops and the latency between the servers be minimal. Network-induced latency may cause adverse affects to the BSM application and can result in performance and stability issues. We recommend the network latency should be no more than 5 milliseconds, regardless of the number of hops. For more information, contact HP Software Support.
- BSM servers must be installed on dedicated machines and must not run other applications. Certain BSM components can coexist on BSM servers. For details on coexistence support, see the BSM System Requirements and Support Matrixes Guide.
- If you plan to use the IIS web server, install it prior to BSM installation and enable it after the installation is completed.
- BSM servers must not be installed on a drive that is mapped to a local or network resource.
- Due to certain web browser limitations, the names of server machines running the Gateway Server must consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). For example, if the names of the machines running the Gateway Server contain underscores, it may not be possible to log into the BSM site when using Microsoft Internet Explorer 7.0 or later.
- During BSM server installation, you can specify a different path for the BSM directory (default is **C:\HPBSM**), but note that the full path to the directory must not contain spaces, cannot contain more than 15 characters, and should end with **HPBSM**.
- User Access Control (UAC) must be disabled before installing BSM. UAC is enabled by default in some version of Windows Server (for example: 2008 SP2) and must be manually disabled.
- If you plan to run BSM servers on a hardened platform (including using HTTPS protocol), review the hardening procedures described in the BSM Hardening Guide.
- If you do not have a profile database on your source environment, please add one before starting the upgrade. The database should be marked as the default profile database. Most users already have a profile database, but in some scenarios where BSM is being used exclusively for OMi, a profile database may not have been previously created.
- You must have administrator privileges to install BSM on the server machine.
- In the BSM cluster, open port 21212 on the Data Processing Server.

**Note:** During installation, the value of the Windows Registry key HKLM\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\ReservedPorts is updated to include the following port ranges required by BSM: 1098-1099, 2506-2507, 8009-8009, 8080-8080, 4444-4444, 8083-8083, 8093-8093.

These ports ranges are not removed from the registry key at BSM uninstall. You should remove the ports from the registry key manually after uninstalling BSM if they are no longer needed by any other application.

## Installation Prerequisites - Linux

Note the following before installing BSM servers on a Linux platform:

- It is recommended that you install BSM servers to a drive with at least 40 GB of free disk space. The /tmp directory should have at least 500 MB of free disk space. For more details on server system requirements, see the BSM System Requirements and Support Matrixes.
- If BSM servers, including the database servers, are installed on multiple network segments, it is highly recommended that the number of hops and the latency between the servers be minimal. Network-induced latency may cause adverse affects to the BSM application and can result in performance and stability issues. We recommend the network latency should be no more than 5 milliseconds, regardless of the number of hops. For more information, contact HP Software Support.
- BSM servers must be installed on dedicated machines and must not run other applications. Certain BSM components can coexist on BSM servers. For details on coexistence support, see the BSM System Requirements and Support Matrixes Guide.
- Before installing BSM on a Linux machine, make sure that SELinux will not block it. You can do this by either disabling SELinux, or configuring it to enable java 32-bit to run.
  - To disable SELinux, open the **/etc/selinux/config** file, set the value of **SELINUX=disabled**, and reboot the machine.
  - To configure SELinux to enable java 32-bit to run, execute the command **setsebool -P allow\_execmod on**.
- BSM servers must not be installed on a drive that is mapped to a network resource.
- Due to certain Web browser limitations, the names of server machines running the Gateway Server must only consist of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). For example, if the names of the machines running the Gateway Server contain underscores, it may not be possible to log in to the BSM site. To access the BSM site in this case, use the machine's IP address instead of the machine name containing the underscore.
- If you plan to run BSM servers on a hardened platform (including using HTTPS protocol), review the hardening procedures described in the BSM Hardening Guide.
- You must be a root user to install BSM on the server machine.
- The **DISPLAY** environment variable must be properly configured on the BSM server machine. The machine from which you are installing must be running an X-Server as the upgrade process cannot be performed silently.
- If you do not have a profile database on your source environment, please add one before starting the upgrade. The database should be marked as the default profile database. Most users already have a profile database, but in some scenarios where BSM is being used exclusively for OMi, a



profile database may not have been previously created.

- In the BSM cluster, open port 21212 on the Data Processing Server.
- Before installing BSM 9.20 followed by BSM 9.24 on Oracle Linux (OEL) or Red Hat Enterprise Linux operating systems for supported 5.x versions and 6.x versions, you must install the following RPM packages on all machines running BSM:

■ glibc	■ libXext
■ glibc-common	■ libXtst
■ nss-softokn-freebl	■ compat-libstdc++-33
■ libXau	■ libXrender
■ libxcb	■ libgcc
■ libX11	■ openssl098e
■ compat-expat1	■ rpm-devel

For supported 5.x versions of Oracle Linux (OEL) or Red Hat Enterprise Linux operating systems, you must install the following additional RPM packages on all machines running BSM:

■ libXi	■ libuuid
■ alsa-lib	■ unixODBC
■ apr	■ expat
■ apr-util	

**To install the RPM packages listed in the upper table, run the RPM installation tool on all machines running BSM:**

**<BSM9.24\_install\_folder>/rhel\_oel\_installation\_fix/rpm\_installer.sh.**

- If the script fails to install any of the RPM packages, the following message appears:

```
!!! ERROR: package <package name> has not been installed successfully
In this case, refer the problem to your system administrator.
```

- If the script detects that an RPM package is already installed, it skips that package and continues with the next package.

However, you can force the tool to try to re-install any pre-installed packages by adding the **f** parameter to the command:

```
<BSM9.24_install_folder>/rhel_oel_installation_fix/rpm_installer.sh f
```

If the Yum Linux upgrade service is not functional on your machine, you will need to download and install the necessary RPM packages manually by running the following command:

```
yum install -y openssl098e glibc.i686 glibc-common.i686 nss-softokn-freebl.i686  
libXau.i686 libxcb.i686 libX11.i686 libXext.i686 libXtst.i686 compat-libstdc++-33.i686  
libXrender.i686 libgcc.i686 compat-expat1 rpm-devel
```

**Note:** The RPM installation tool does not install the additional RPM packages required for the supported 5.x versions of Oracle Linux (OEL) or Red Hat Enterprise Linux operating systems. To install these RPM packages, run the command:

```
yum install -y openssl098e libXi.i686 alsa-lib.i686 apr.i686 libXau.i686 apr-util.i686  
libX11.i686 libuuid.i686 unixODBC.i686 expat.i686
```

The version of these packages changes from system to system. You can download the packages from any RPM repository site that matches your system specifications. The following RPM search tool can assist you in this task (<http://rpm.pbone.net/>).

**To determine the package version you need to download, execute the following command in a terminal window:**

```
rpm -qa ${PACKAGE_NAME} (ex: rpm -qa glibc )
```

The command will return the following text:

```
# rpm -qa glibc  
glibc-2.12-1.132.el6.x86_64
```

This text indicates the package version required for your machine.

In this case, you would need to download the i686 architecture package with the same version - glibc-2.12-1.132.el6.i686 – and install it manually.

## OMi Pre-Upgrade Procedure

If you were using OMi with BSM 9.0x, perform the following steps:

### 1. *Back up OMi configuration files*

- a. If you have customized the OMi integration with HP Service Manager or any topology synchronization data, back up your customized files before starting the upgrade to BSM 9.1x:
- b. Back up the following directories. The second entry may be on the DPS or Gateway machine.

**<BSM Gateway Installation Directory>\conf\opr\integration**

**%TOPAZ\_HOME%\conf\opr\topology-sync**

- c. Save these files to a safe location on the BSM Data Processing Server host system, for example:
  - Windows: **%TEMP%\migration**
  - Linux: **/tmp/migration**

### 2. *Back up certificate configurations*

Back up your certificate configurations. You will need to import these configurations on the new BSM servers to ensure that trust is maintained with previously trusted servers.

Save the files created in the following steps in a safe location, for example:

- Windows: **%TEMP%\migration**
- Linux: **/tmp/migration**

- a. Backup coreid

From the command prompt, run **ovcoreid** and store the output in a file named **oldcoreid**.

- b. Export client certificate

Run the following command:

**ovcert -exportcert -file oldclientcert -pass <password> -alias <alias\_of\_client\_certificate> -ovrg server**

Save the **oldclientcert** file and note the password. You will need it later to restore the configurations.

- c. Export server certificate

Run the following command:

```
ovcert -exportcert -file oldservercert -pass <password> -alias <alias_of_server_certificate> -ovrg server
```

Save the **oldservercert** file and note the password. You will need it later to restore the configurations.

- d. Export trusts

From the command prompt, run **ovcert -exporttrusted -file oldtrusts**.

Save the **oldtrusts** file. You will need it later to restore the configurations.

### 3. *Clean up indicators with the same name*

In BSM 9.0x, it is possible to modify health indicators (HIs) that child configuration item types (CITs) inherit from their parent CITs. Modifications include, for example, changing the display name or description. When you modify an inherited HI its UUID changes but the name remains the same. Subsequent uploads of content packs in **overwrite** mode then lead to errors like the following:

**Indicator with id: <uuid>. Cause: Indicator already exists with the same name for this CI type hierarchy. Indicator name: <indicator>.**

The following procedure enables you to prevent similar upload problems:

- a. Before the upgrade, manually merge the changes applied to inherited indicators with the original indicator defined for the parent CIT.

Go to **Admin > Service Health > Repositories**. Select the child CIT and the health indicator that you have modified. Check your changes and then apply them to the HI of the parent CIT.

- b. Delete the modified HI.

Alternatively, before the upgrade, make a note of your HI modifications, and then delete the modified HIs. After the upgrade, create new HIs for the child CITs, based on your notes.

#### 4. **Delete TV content pack definitions**

You must delete the TV Content Pack and the TVDiag Shared Content Pack definitions (if their IDs start with a specific string) before beginning to upgrade to BSM 9.1x. Otherwise the upload fails with the following error in opr-admin.log:

**A Content Pack Definition with the name [TV\_Content\_Pack] and a different ID already exists.**

**To delete TV content pack definitions, complete the following steps:**

- a. Open the Content Packs Manager:

**Admin > Platform > Content Packs**

- b. In the Content Packs Definitions pane, select **TV Content Pack** and edit it. If the ID starts with **6f0**, delete the content pack definition.
- c. In the Content Packs Definitions pane, select TVDiag Shared Content Pack and edit it. If the ID starts with 045, delete the content pack definition.

#### 5. **Delete duplicate downtime categories**

The upgrade may fail if more than one downtime category with the same name exists. You must therefore delete all duplicate downtime categories before beginning the upgrade to BSM 9.1x.

**To delete duplicate Downtime Categories, complete the following steps:**

Navigate to the Downtime Behavior manager:

**Admin > Operations Management > Tune Operations Management > Downtime Behavior**

Refresh the list of categories.

If there is more than one entry per category, delete the duplicate categories. Access the Event Schema database using a database administration tool (for example, Microsoft SQL Server Management Studio).

Open the table DOWNTIME\_CONFIG.

Make sure there is only one line per DT\_CATEGORY\_ID.

Delete all other rows with that ID or change the ID to another existing Downtime Category.

## 6. **Delete graph family assignments in Blackberry content pack**

The 9.0x Content Pack for Blackberry Enterprise Server generates unique IDs for configuration item type to graph family assignments. Because the IDs are different in each BSM installation, the upload of the new 9.1x Blackberry content pack fails. To avoid upload problems after the upgrade, delete the graph family assignments before the upgrade. The upload of the 9.1x Blackberry content pack recreates the correct assignments.

**To delete graph family assignments, complete the following steps:**

- a. Navigate to the Performance Graphs manager:

**Admin > Operations Management > Design Operations Content > Performance Graphs**

- b. In the **CI Types** pane, select **ConfigurationItem > Infrastructure Element > Running Software > Application Server > BB Component**.
- c. In the **Performance Graphs** pane, click the **Delete Item** toolbar button to remove the performance graphs configuration from the selected CI type.

## 7. **Archive OMi events**

To avoid lengthy database upgrades, it is recommended that you archive your open and closed OMi events before starting the upgrade wizard. You should not keep more than 100,000 events in the database. To archive OMi events, use the archive tool opr-archive-events. For details about opr-archive-events, see the Operations Management online help.

## 8. **Delete database indices**

This procedure is relevant if you manually created indices on the HISTORY\_LINE, EVENT\_PROPERTY\_CHANGE, or EVENT\_ANNOTATIONS tables, in the 9.01 event schema. These indices may conflict with indices automatically created during the upgrade process and cause the upgrade to fail. To prevent this, you need to delete these indices before starting the upgrade.

Your Database Administrator should delete all indices on the above mentioned tables before you run the upgrade wizard.

# Chapter 16: Replicate the 9.01 Environment

This chapter describes how to replicate your 9.01 environment by using the disaster recovery procedures. This is necessary in order to support the staging upgrade method for BSM 9.01 users.

- Install the 9.01 Environment ..... 80
- Suspend Receiving of Events ..... 81
- Replicate Database ..... 82
- OMi Mid-Upgrade Procedure ..... 83
- Perform the disaster recovery procedures ..... 84

## Install the 9.01 Environment

Install a new set of BSM servers and replicate the database schemas.

### 1. *Install a set of 9.00 BSM servers*

Install an additional set of BSM 9.00 servers. Run the installation and post-installation wizards, **but do not run the setup and database configuration utility at the end of the post-installation wizard yet.**

To run the installation wizards, execute the following files depending on your operating system:

- For Windows:

**DVD1 > windows\_setup > HPBsm\_9.00\_setup.exe**

- For Linux:

**DVD2 > linux\_setup > HPBsm\_9.00\_setup.bin**

The post-installation wizard start automatically at the end of the installation wizard.

### 2. *Install the BSM 9.01 patch*

Install the latest BSM 9.0x patch. At the time of release, this was BSM 9.01. The patch can be found on the SSO site: <http://support.openview.hp.com/selfsolve/patches>. Installation instructions can be found in the patch readme.

If you are using OMi event functionality, contact customer support to download and install a hotfix containing additional functionality required for the staging upgrade. Refer to item QCCR1A157725. This hotfix must be installed on both the production and staging servers.



## Suspend Receiving of Events

If you were using OMi with BSM 9.0x, perform the following steps on the production server:

1. In the production server, go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**
2. In the **applications** field, select **Operations Management** and locate the **Event Pipeline Receiver Settings** table
3. Set **Disable Receiving of Events** to **true**.
4. Wait until the buffers are empty before proceeding to the next step. You can check this by running the following tool on any production server. The tool will indicate when the buffers are empty. Should any of the target servers be offline, then the buffers will not empty. You may still proceed to the next step, but will lose some forwarding status information for the events waiting to be forwarded during the upgrade process:

```
%TOPAZ_HOME%\opr\bin\opr-event-sync.bat -monitor
```

5. When the buffers are empty type **control-c** to stop the monitor.

## Replicate Database

Replicate your original database onto a new database server. The new database will be used by the staging environment, upgraded, and eventually used as your BSM 9.2x database.

Make sure that your database version is supported in both the original and new BSM environments.

1. On the production server, disable event receiving as follows:

Go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.

In the **applications** field, select **Operations Management** and locate the **Event Pipeline Receiver Settings** table. Set **Disable receiving of Events** to **true**.

2. Replicate your original database schema onto a new database server.

## OMi Mid-Upgrade Procedure

If you were using OMi with BSM 9.0x, perform the following steps on the production server:

**Note:** This procedure may be performed during the database replication if an online backup tool is being used. There is no need to wait until the backup is complete.

### *Configure the BSM production server to forward events to the staging server*

Events coming into the production environment should also be forwarded to the new staging environment. The events will be queued in the Operations Management EVENT\_SYNC\_BUFFER DB table until the BSM 9.20 staging server is up and running.

**Note:** Make sure the Operations Management Database has enough disk space available to hold the events until the staging server is ready to receive them. A general estimate the required space is 2 KB per event that will occur during this time period.

1. In the production server, go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.
2. In the **applications** field, select **Operations Management** and locate the **Event Forwarding Settings** table
3. In the **Forward All Target Server** setting, enter the DNS of the staging BSM Gateway server.
4. In the **Forward All** setting, set the value to **true**.
5. Re-enable receipt of events as follows:
  - a. In the production server, go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.
  - b. In the **applications** field, select **Operations Management** and locate the **Event Pipeline Receiver Settings** table.
  - c. Set **Disable Receiving of Events** to **false**.
6. In the **Event Synchronization Settings > Forwarding Expiration Time** settings, set the value to **336**.

### *Enable event receiving on the production system as follows*

1. Go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.
2. In the **applications** field, select **Operations Management** and locate the **Event Pipeline Receiver Settings** table. Set **Disable receiving of Events** to **false**.

## Perform the disaster recovery procedures

### *Preparing the Disaster Recovery Environment*

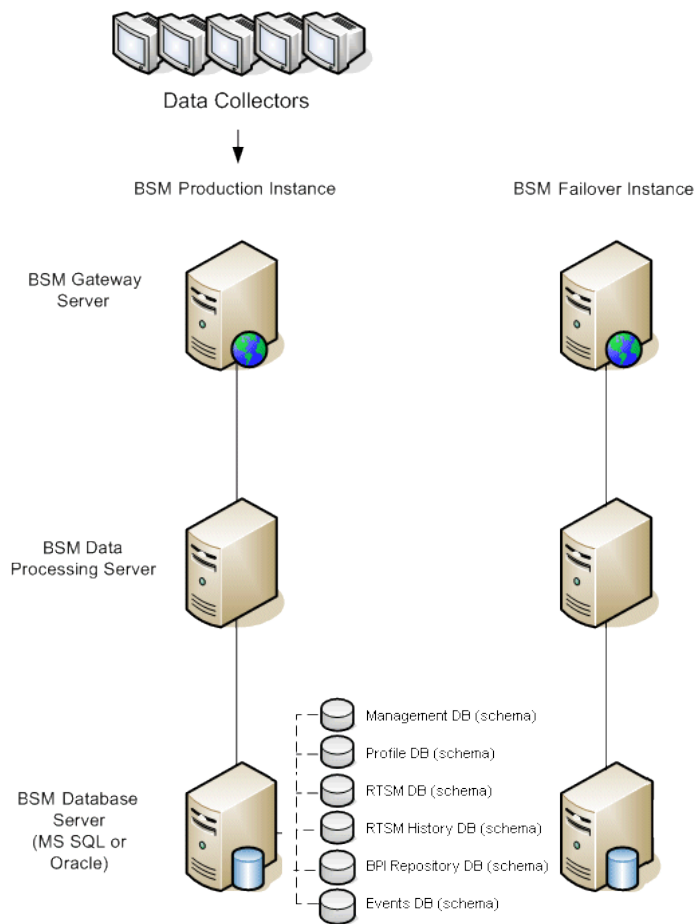
Preparing the Disaster Recovery environment by performing the following steps:

#### 1. ***Install a set of BSM servers***

Install a second instance of BSM that matches your current production environment.

- Install exactly the same version of BSM in your backup environment as that used in your production environment.
- The backup environment should be the same as your production environment (for example, one- or two-machine deployment, similar hardware), unless you have more than one GW or DPS in your production environment. In that case, you only need to create one set of BSM servers (one GW and one DPS or one one-machine) as your disaster recovery environment.
- The backup environment must use the same operating system and installation directory as the original environment.
- Do not run the Server and Database Configuration utility and do not create any databases or enable the servers.

The following diagram shows a typical BSM environment with a Failover system also installed:



## 2. *Copy configuration files from the original system*

Copy files you manually modified in any of the following directories from the BSM Production instance to the same server type in the Failover instance:

- conf
- odb/conf
- odb/content/
- BLE/rules/<custom rules>.jar

If you used User Reports to create Excel reports, you must manually copy these to the Failover Instance. The reports are stored in the **<Gateway Server>\HPBSM\AppServer\webapps\site.war\openapi\excels\** directory in folders for each customer ID.

Also copy any other files or directories in the system that you have customized.

**Note:** It is recommended to have at least daily backups of BSM servers. Depending on the amount and interval of configuration changes, it may be necessary to incorporate a faster interval to prevent a large loss of configuration changes in the event of losing the Production instance.

### 3. *Copy additional files*

Some additional files are needed to allow BSM to verify the validity of the database.

- a. Find the version of your BSM database by running the following query in the management database:

```
SELECT * FROM system where sys_name = 'dbpatchver'
```

This will return the version of your database (for example, 1085 for BSM 9.23).

- b. Go to **DVD root directory\packages\DBVerifyVersions\<version\_of\_your\_database>**.
- c. Copy and overwrite the contents of the folder with the same version number as your database to your server's **HPBSM\dbverify** directory.

### 4. *Configure the Backup database*

Replicate the original database. The original database can now be used as a backup, and the replicated database will be used as the primary database.

**Note:** HP recommends that only an experienced database administrator perform this phase of the Disaster Recovery scenario.

#### ■ **Microsoft SQL—configure database logfile shipping**

To provide the most up to date monitoring and configuration data, it is critical to enable log file shipping to minimize the time in data gaps. By using log file shipping you can create an exact duplicate of the original database; out of date only by the delay in the copy-and-load process. You then have the ability to make the standby database server a new primary database server, if the original primary database server becomes unavailable. When the original primary server becomes available again, you can make it a new standby server, effectively reversing the servers roles.

The log file shipping needs to be configured for the following BSM databases:

- Management
- RTSM
- RTSM History
- Business Process Insight (BPI) repository
- Event
- User Engagement Schema (if it exists)
- Profile (all databases)
- Analytic (if it exists)

**Note:** When Business Process Insight is installed on its own server as a full installation, refer to the Business Process Insight Server Administration Guide for information regarding disaster recovery.

For details about how to configure log file shipping for Microsoft SQL, refer to the appropriate Microsoft SQL documentation.

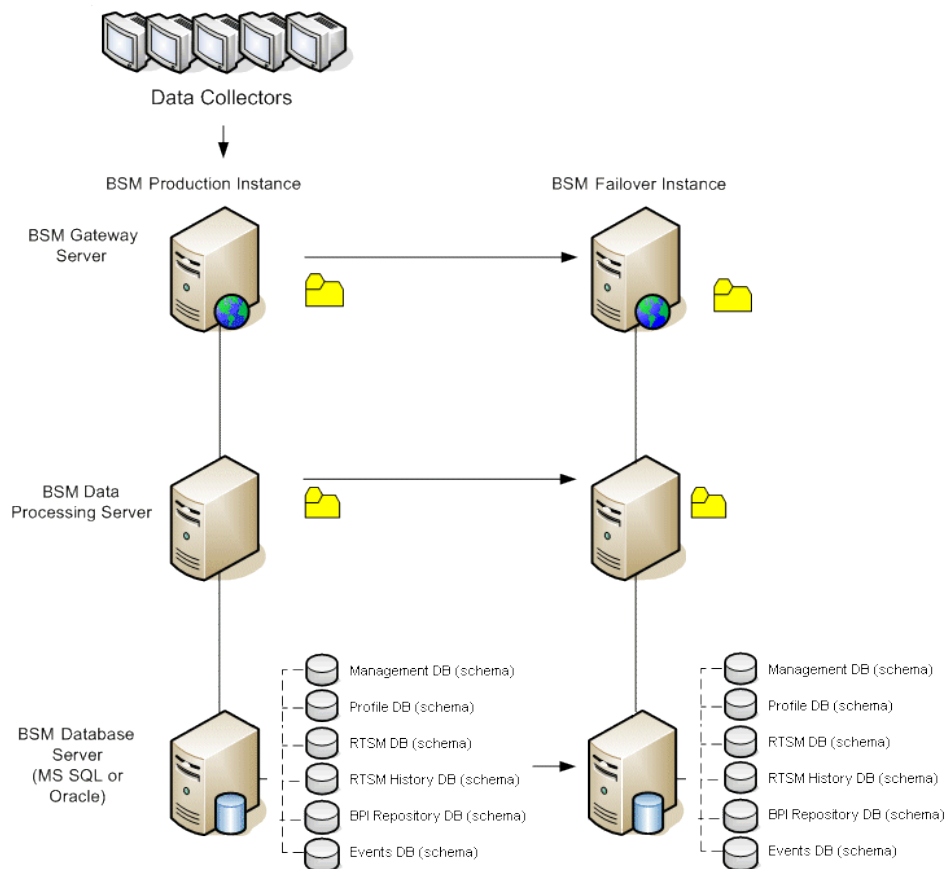
#### ■ **Oracle—configure the Standby database (Data Guard)**

Oracle does not have logs for each schema, but only on a database level, which means that you cannot make a standby database on the schema level and must create copies of the production system databases on your backup system.

For details about how to configure a Standby database, refer to the appropriate Oracle documentation.

Upon successful completion of the Backup database configuration, the BSM Failover Database should be in sync with the BSM Production Database.

The following diagram shows the production and Failover systems with database logfile shipping enabled:



## Cleanup Procedure

Now that you have replicated the original environment, certain settings must be manually modified to avoid confusion between the original environment and the new environment. This procedure cleans up all the machine-specific references in the configurations from the Production instance.

### Note:

- Before starting the activation procedures, the BSM Administrator should ensure that the appropriate license has been applied to the Failover instance and that all the available data collectors can communicate with the Failover instance.
- HP recommends that an experienced database administrator perform the SQL statements included in this procedure.
- The SQL statements below to be run against the management database except for the last 2 steps. The SQL statements in the last 2 steps needs to be run against the RTSM database and the Event database respectively.



1. Delete old information from High Availability (HA) tables.

Run the following queries on the management database of the disaster recovery environment:

- **delete from HA\_ACTIVE\_SESS**
- **delete from HA\_BACKUP\_PROCESSES**
- **delete from HA\_PROC\_ALLWD\_SERVICES**
- **delete from HA\_PROCESSES**
- **delete from HA\_SRV\_ALLWD\_GRP**
- **delete from HA\_SERVICES\_DEP**
- **delete from HA\_SERVICES**
- **delete from HA\_SERVICE\_GRP**
- **delete from HA\_TASKS**
- **delete from HA\_SERVERS**

2. Run the following query on the management database of the DR environment:

**Delete from PROPERTIES where NAME = 'HAServiceControllerUpgrade'**

3. Switch references in the Sessions table on the management database of the DR environment to the backup databases.

- a. Run the following query to retrieve all database names:

**SELECT \* FROM SESSIONS**

**where SESSION\_NAME like '%Unassigned%'**

- b. Update the following columns in each received row with the following values:

- **SESSION\_NAME:** Replace with the new restored database name (only where SESSION\_NAME is like '%Unassigned%'). Use the following script:

```
UPDATE SESSIONS set SESSION_NAME='Unassigned<NEW_DB_Server_
name><NEW_schema_name><DB_User_name>'
```

```
WHERE SESSION_NAME='Unassigned<OLD_DB_Server_name><OLD_schema_
name><old_DB_User_name>'
```

- **SESSION\_DB\_NAME:** Replace with the new restored schema name. Use the following script:

```
UPDATE SESSIONS set SESSION_DB_NAME='<<NEW_schema_name>'
WHERE SESSION_DB_NAME='<OLD_schema_name>'
```

- **SESSION\_DB\_HOST:** Replace with the new restored database host name. Use the following script:

```
UPDATE SESSIONS set SESSION_DB_HOST='<<NEW_host_name>'
WHERE SESSION_DB_HOST='<OLD_host_name>'
```

- **SESSION\_DB\_PORT:** Replace with the new restored port name. Use the following script:

```
UPDATE SESSIONS set SESSION_DB_PORT='<NEW_port_name>'
WHERE SESSION_DB_PORT='<OLD_port_name>'
```

- **SESSION\_DB\_SID:** Replace with the new restored session ID name. Use the following script:

```
UPDATE SESSIONS set SESSION_DB_SID='<<<NEW_SID_name>>>'
WHERE SESSION_DB_SID='<<<OLD_SID_name>>>'
```

- **SESSION\_DB\_UID:** Replace with the new restored name. Use the following script:

```
UPDATE SESSIONS set SESSION_DB_UID='<NEW_UID_name>'
WHERE SESSION_DB_UID='<OLD_UID_name>'
```

- **SESSION\_DB\_SERVER:** Replace with the new restored server name. Use the following script:

```
UPDATE SESSIONS set SESSION_DB_SERVER='<NEW_server_name>'
WHERE SESSION_DB_SERVER='<OLD_server_name>'
```

4. Switch references in the Analytics table on the management database to the backup databases.

- a. Run the following query to retrieve all database names:

```
SELECT * FROM ANALYTICS_DATABASES
```

- b. Update the following columns in each received row with the following values:

- **DB\_HOST:** Replace with the new restored database host name. Use the following script:

```
update ANALYTICS_DATABASES set DB_HOST='NEWDatabasehostname' where
DB_HOST='OLDDatabasehostname';
```

- **DB\_SERVER:** Replace with the new restored server name. Use the following script:

```
update ANALYTICS_DATABASES set DB_SERVER=' NEWDatabaseServerName'
where DB_SERVER=' OLDDatabaseServerName''
```

- **DB\_SID:** Replace with the new restored session ID name. Use the following script:

```
update ANALYTICS_DATABASES set DB_SID ='NEWSID'' where DB_
SID='OLDSID';
```

- **DB\_PORT:** Replace with the new restored port name. Use the following script:

```
update ANALYTICS_DATABASES set DB_PORT= NewPort where DB_
PORT=OldPort
```

5. Delete bus cluster info from PROPERTIES table on the management database.

Run the following query:

**Delete from PROPERTIES where**

**NAMESPACE='MessageBroker' or NAMESPACE='SonicMQ\_Namespace' or  
NAMESPACE='BrokerName'**

6. Delete machines from Deployment table on the management database.

Run the following query:

**DELETE from DEPLOY\_HW**

7. Setting Manager Values of **SETTING\_PARAMETERS** table on the management database.

Update the URLs and LDAP Server in the SETTING\_PARAMETERS table.

The following table shows the keys in the Setting Manager table that need to be updated if they are present:

SP_CONTEXT	SP_NAME	Description
opr	opr.cs.host	IP address of the new primary Data Processing server (used to handle certificate requests)

SP_CONTEXT	SP_NAME	Description
platform	settings.smtp.server	Name of the SMTP server used for the alert engine
scheduledreports	settings.smtp.server	Name of the SMTP server used for scheduled reports
platform	default.core.server.url	The URL used by data collectors to access the Gateway server in BSM
platform	default.centers.server.url	The URL used by users to access BSM
platform	virtual.centers.server.url	
platform	virtual.core.server.url	

For each key in the table, modify and run the following query:

**update SETTING\_PARAMETERS set SP\_VALUE='<new value>'**

**where SP\_CONTEXT='<context value>' and SP\_NAME='<name value>'**

As follows:

- update SETTING\_PARAMETERS set SP\_VALUE='<IP of new primary DPS>' where SP\_CONTEXT='opr' and SP\_NAME='opr.cs.host'
- update SETTING\_PARAMETERS set SP\_VALUE='<newmachinename>' where SP\_CONTEXT='platform' and SP\_NAME='settings.smtp.server'
- update SETTING\_PARAMETERS set SP\_VALUE='<newmachinename>' where SP\_CONTEXT='scheduledreports' and SP\_NAME='settings.smtp.server'
- update SETTING\_PARAMETERS set SP\_VALUE='http://<newmachinename>:80' where SP\_CONTEXT='platform' and SP\_NAME='default.core.server.url'
- update SETTING\_PARAMETERS set SP\_VALUE='http://<newmachinename>:80' where SP\_CONTEXT='platform' and SP\_NAME='default.centers.server.url'

The last two settings in the table above do not need to be updated unless you are using a load balancer or a reverse proxy. In that case, update the settings as follows:

- update SETTING\_PARAMETERS set SP\_VALUE='http://<Load Balancer or Reverse Proxy>:80' where SP\_CONTEXT='platform' and SP\_NAME='virtual.centers.server.url'
- update SETTING\_PARAMETERS set SP\_VALUE='http://<Load Balancer or Reverse Proxy>:80' where SP\_CONTEXT='platform' and SP\_NAME='virtual.core.server.url'

## 8. Update SYSTEM Keys.

Update the following keys in the SYSTEM table on the management database:

AdminServerURL	new gateway machine
GraphServerURL	new gateway machine
GraphServerURL4.5.0.0	new gateway machine
application.tac.path	new gateway machine
application.flipper.path	new gateway machine

For each value in the table, modify and run the following query:

**update SYSTEM set SYS\_VALUE='<new value>' where SYS\_NAME='<key>'**

where **<new value>** is the new URL in the format of the original URL.

For example:

```
update SYSTEM set SYS_VALUE='http://<newmachine>:port' where SYS_
NAME='AdminServerURL'
```

**Note:** The default port number is 80.

## 9. Empty and update tables on the RTSM database.

This procedure cleans up all the machine-specific references in the RTSM configuration tables.

Run the following SQL statements against the RTSM database:

- **update CUSTOMER\_REGISTRATION set CLUSTER\_ID=null**
- **truncate table CLUSTER\_SERVER**
- **truncate table SERVER**
- **truncate table CLUSTERS**

## 10. Delete old server information from the Certificate Server Authority tables.

Run the following query on the Event database:

- **delete from CSA\_SERVERS**

## ***Configure the New Environment***

### ***1. Run the Server and Database Configuration utility***

Run the Server and Database Configuration utility on each machine to re-initialize the needed tables in the database. To run the Server and Database Configuration utility, select **Start > Programs > HP Business Service Management > Administration > Configure HP Business Service Management**.

**Note:** When running the Server and Database Configuration utility, make sure to reconnect to the same databases that were created for the Failover environment (that is, the one to which the backup data was shipped). Possible complete loss of configuration data will result if trying to run this on the Production instance.

Run the Server and Database Configuration utility on the machines in the same order that BSM was originally installed in the failover environment.

### ***2. Enable BSM***

Enable BSM on the new servers.

### ***3. Run the Post Startup Cleanup procedure to disable any obsolete hosts that are not part of the Failover instance***

To disable obsolete hosts:

- a. In BSM, go to **Admin > Platform > Setup and Maintenance > Server Deployment** and select **To Disable Machine**.
- b. Disable any obsolete hosts.

### ***4. Update the RTSM front-end URL setting***

- a. Open the JMX console as follows: **<BSM Gateway Server>:21212/jmx-console**.
- b. Locate the **UCMDB-UI** section and select **UCMDB-UI:name=UI Server frontend settings**.
- c. In the **setUseFrontendURLBySettings** section, set the value to the new BSM Gateway

server including the port. For example <http://bsm-gateway-example.hp.net:80>.

- d. Click **Invoke**.

## 5. ***Repeat Portions of High Availability Procedure (optional)***

If you had previously configured high availability and you want to keep those settings on the disaster recovery environment repeat the "Defining a Backup Server" part of the High Availability procedure in the *BSM Installation Guide*.

## 6. ***Repeat Hardening Procedures (optional)***

If your original environment was hardened, you need to repeat the hardening procedures on the new environment.

The reverse proxy procedures do not have to be repeated.

For details, see the BSM Hardening Guide.

## Chapter 17: Uninstall BSM 9.0x

Disable BSM on all servers in the **staging environment** by selecting **Start > Programs > HP Business Service Management > Administration > Disable HP Business Service Management**.

Uninstall BSM 9.0x on all servers using one of the following procedures:

### *Uninstalling BSM servers in a Windows environment*

To completely uninstall HP Business Service Management servers in a Windows environment:

1. Uninstall BSM via the Windows user interface or silently.
  - a. Uninstall BSM Using the Windows user interface:
    - i. On the machine from which you are uninstalling HP Business Service Management, select **Start > Control Panel > Programs and Features**. Select **HP Business Service Management**.
    - ii. Click **Remove**, wait for the BSM uninstall script to remove any present updates, and follow the on-screen instructions when prompted.

**Note:** In some cases, this process may take a long time (more than 30 minutes).

**Note:** When a Minor-Minor BSM Release (for example, 9.01) is removed, any BSM Public Patches installed on top of the release are removed, as well.

- iii. If the **Show Updates** check box is selected, all the updates installed over BSM are displayed. When BSM is removed, all updates are also removed.
  - b. Uninstall BSM silently:
    - i. Stop all BSM servers.
    - ii. Run the command **<HPBSM Installation Directory>\installation\bin\uninstall.bat -i silent**
2. Restart the server machine.



## ***Uninstalling BSM servers in a Linux environment***

1. Log in to the server as user **root**.
2. To access the uninstall program, type: **cd /opt/HP/BSM/installation/bin**
3. Stop all BSM servers.
4. Run the following script to uninstall in UI mode: **./uninstall.sh**. To perform this step in silent mode, use the command **./uninstall.sh -i silent**.
5. The BSM uninstall program begins. Follow the on-screen instructions. When the uninstall program is complete, a success message is displayed.
6. Click **Finish**.
7. Check the **HPBsm\_<version>\_HPOvInstaller.txt** log file located in the **/tmp** directory for errors. Previous installation files can be found in the **/tmp/HPOvInstaller/HPBsm\_<version>** directory.

**Note:** If you encounter problems during the uninstall procedure, contact HP Software Support.

## Chapter 18: Install BSM 9.10

Install BSM 9.10 on one set of staging servers. This set can be either one Gateway Server and one Data Processing Server or one one-machine server. In the first case, run the wizards on the Data Processing Server first. The wizard will direct you as to when to begin installation on the Gateway Server.

**Note:** Do not install more than one set of BSM servers. The upgrade process will use one set of servers to upgrade the database, and you will be directed to install any additional servers towards the end of the upgrade procedure

**Run the installation and post-installation wizards. Do not run the upgrade wizard yet. Exit the wizard on the last screen of the post-installation wizard without continuing.**

- For Windows:

**DVD1 > windows\_setup > HPBsm\_9.10\_setup.exe**

- For Linux:

**DVD2 > linux\_setup > HPBsm\_9.10\_setup.bin**

For more details, see the following sections:

["Installing BSM on a Windows Platform" on page 155](#)

["Installing BSM on a Linux Platform" on page 163](#)

# Chapter 19: Install the Latest BSM 9.1x Minor-Minor Release and Patch

Install the latest minor minor version of BSM 9.1x and patch (if available).

## 1. Prerequisites

- It is recommended that you back up all BSM databases and files you made custom changes to.
- Make sure that BSM has been fully stopped on all machines and that there are no open connections (for example, from Windows Explorer) from any machines to the BSM root directory or any of its subdirectories.

## 2. Download and install the latest patch and intermediate patch from the SSO site

- a. Go to the SSO site:

<http://support.openview.hp.com/selfsolve/patches>

- b. Select **Application Performance Management (BAC)** and select the most recent 9.1x minor minor version.
- c. Click **Search** to locate the installation files.
- d. Save the package locally and launch the relevant setup file to install the patch.
- e. Run the installation files on all BSM servers (Gateway and Data Processing).
- f. Run the post-installation wizard. This wizard follows the patch installation automatically.
- g. Repeat this procedure for the latest intermediate patch (if available).

## 3. Re-apply manual changes

If you have made changes in the HP BSM root directory to files that are updated during patch installation, for example, while performing hardening procedures on your system, you must reapply those changes after patch installation on all relevant BSM machines. You can access your modified files from the backup folder located at: <HP BSM root directory>\installation\<PATCH\_NAME>\backup\<PATH\_TO\_FILE>

## Chapter 20: 9.1x Upgrade Wizard

The upgrade wizard can be found on all Gateway, Data Processing, and One-machine servers in the following locations:

- Windows:

**<BSM Home Directory>\bin\upgrade\_wizard\_run\_from90.bat**

- Linux:

**/opt/HP/BSM/bin/upgrade\_wizard\_run\_from90.sh**

When the wizard is finished, start all BSM servers. For details, see ["Starting and Stopping BSM " on page 140](#).

For details about the upgrade wizard, see ["Upgrade Wizard" on page 187](#).

## Chapter 21: Start BSM Servers

1. Start the BSM Servers
2. Enable BSM to function in staging mode (required) as follows:
  - a. Go to **Admin > Setup and Maintenance > Platform > Infrastructure Settings**.
  - b. Select **Platform Administration** in the **Foundations** list.
  - c. Change **Enable evaluation (staging) mode** to **true**.
  - d. Change **Enable evaluation (staging) mode for customer** to **true**.

# Chapter 22: Configuration Procedures

Follow the procedures in this chapter. Note that some procedures depend on your specific BSM environment and are not required in all BSM upgrade scenarios.

- Restore Certificate Authority Configurations .....103
- Complete Content Pack Upload ..... 106
- OMi Post-Upgrade Procedure ..... 107
- General Configuration Procedures ..... 111
- Pre-Upgrade Tool .....114

## Restore Certificate Authority Configurations

If you backed up your certificate authority configurations, restore them now using one of the two procedures below depending on your operating system.

### ***For Windows users:***

To restore the certificate authority configurations that you backed up above, run the following commands on the staging Data Processing Server:

1. Copy the following files from the production system to the same locations on the staging system.

- %TEMP%\migration\oldcoreid
- %TEMP%\migration\oldservercert
- %TEMP%\migration\oldtrusts

2. Type the command **type %TEMP%\migration\oldcoreid**

This produces a value which is referred to below as **<oldcoreid>**. Note this value for future use.

3. Type the command **ovcoreid**

This produces a value which is referred to below as **<newcoreid>**. Note this value for future use.

4. Type the command **ovcert -remove <newcoreid> -ovrg server**
5. Type the command **ovcoreid -set <oldcoreid> -ovrg server -force**
6. Type the command **ovcert -remove CA\_<newcoreid>**

**Make sure there are no spaces between CA\_ and the value of the <newcoreid>.**

7. Type the command **ovcm -importcert -file %TEMP%\migration\cacertificate**
8. Type the command **ovcert -remove CA\_<newcoreid> -ovrg server**

**Make sure there are no spaces between CA\_ and the value of the <newcoreid>.**

9. Type the command **ovcert -importcert -file %TEMP%\migration\oldservercert -ovrg server**

Ignore any warning message while running this command.

10. Type the command **ovcm -issue -file %TEMP%\migration\newclientcert -name <newcoreid> -coreid <newcoreid>**
11. Type the command **ovcert -importcert -file %TEMP%\migration\newclientcert**
12. Type the command **ovcert -importtrusted -file %TEMP%\migration\oldtrusts**  
Ignore any warning message while running this command.
13. Type the command **ovcert -importtrusted -file %TEMP%\migration\oldtrusts -ovrg server**  
Ignore any warning message while running this command.
14. Type the command **ovc -kill**
15. Type the command **ovc -start**

***For Linux users:***

To restore the certificate authority configurations that you backed up above, run the following commands on the staging Data Processing Server:

1. Copy the following files from the production system to the same locations on the staging system.
  - tmp/migration/oldcoreid
  - tmp/migration/oldservercert
  - tmp/migration/oldtrusts
2. **cat /tmp/migration/oldcoreid**  
  
This produces a value which is referred to below as **<oldcoreid>**. Note this value for future use.
3. **ovcert -remove ovcoreid**
4. **ovcert -remove ovcoreid -ovrg server**
5. **ovcoreid -set cat /tmp/migration/oldcoreid -ovrg server -force**
6. **ovcert -remove CA\_ovcoreid**
7. **ovcm -importcacert -file /tmp/migration/cacertificate**
8. **ovcert -remove CA\_ovcoreid -ovrg server**
9. **ovcert -importcert -file /tmp/migration/oldservercert -ovrg server**



Ignore any warning message while running this command.

10. `ovcm -issue -file /tmp/migration/newclientcert -name ovcoreid -coreid ovcoreid`

11. `ovcert -importcert -file /tmp/migration/newclientcert`

12. `ovcert -importtrusted -file /tmp/migration/oldtrusts`

Ignore any warning message while running this command.

13. `ovcert -importtrusted -file /tmp/migration/oldtrusts -ovrg server`

Ignore any warning message while running this command.

14. `ovc -kill`

15. `ovc -start`

## Complete Content Pack Upload

After starting BSM, wait for the content pack upload to finish. Check the file **<HPBSM Install Directory>/log/EJBContainer/opr-admin.log** for an entry like the following:

```
2011-05-06 10:21:19,431 [BackgroundThreadManager Thread (BG#1)]  
INFO ContentPackImportService.invoke(?) - OOTB Content Packs  
import finished in 283.542 seconds.
```

## OMi Post-Upgrade Procedure


If you were using OMi with BSM 9.0x, perform the following steps:

### ***Update the Key Attribute of CI Collections Synchronized from HPOM***

With BSM 9.10 a new key attribute was introduced for the CI collection CI type.

If you have previously synchronized HPOM node groups with BSM 8.x or BSM 9.0x, create an enrichment rule that copies the value of the Name attribute to the CI Collection ID attribute.

**To update the CI Collection ID attribute, complete the following steps:**

1. In the RTSM Package Manager, deploy the **Basic\_Classes.zip** package. This package can be found in the following location <BSM Installation Directory>\odb\content\content\_packs\CP9.zip\packages.
2. In the Enrichment manager, create a new active enrichment rule based on a new TQL as follows:
  - a. Select **Admin > RTSM Administration > Enrichment manager**
  - b. Right-click in the **Enrichment Rules** pane and click **New**.
  - c. In the enrichment rule wizard, specify a name and description for the rule.
  - d. Select **Rule is active** and click **Next**.
  - e. For the Base Query Type, select **Base the Enrichment on a new query**.
  - f. Click **Finish** to save the enrichment rule.
3. Drag the CI type **CICollection** to the editing pane of the newly created enrichment rule. If this CI type is not available, the package may not have been deployed. Wait a few minutes and try again.
4. Right-click **CICollection** in the editing pane and select **Query Node Properties**.
5. In the **Query Node Properties** window, clear **Include subtypes**.
6. Add a new attribute condition (  ).
7. Select the new condition, and from the **Attribute name:** drop-down list select **Ci Collection ID - (string)**. If this attribute is not available, the package may not have been deployed. Wait a few minutes and try again.
8. From the **Operator:** drop-down list, select **Is null**. (The **Value** field remains empty.)
9. Add another new attribute condition (

). Check that this condition is linked with **AND** to the previous condition.


10. Select the new condition, and from the **Attribute name:** drop-down list select **Monitored By - (string\_list)**.
11. From the **Operator:** drop-down list, select **Contains**.
12. In the Value field, enter OM.
13. Click OK to save the query node properties.
14. *Optional:* Calculate the query results.
15. Change **Query Mode** to **Enrichment Mode** (first field, top-left corner of the editing pane).
16. Right-click the **CI Collection** icon in the editing pane and select **Update Query Node**.
17. In the Query Node Definition dialog, select the **CI Collection ID** attribute from the **Name** column.
18. Select the **By Attribute** radio button. The string name **CI Collection** appears in the first drop-down list next to the **By Attribute** button.

To specify the attribute to be taken, select the **Name** attribute in the dropdown list to the right of the CI Collection attribute field.


Click the **Save** icon.

19. Click **OK**.
20. Navigate to the Scheduler:

**Admin > RTSM Administration > Scheduler**

21. Add a new job condition (  ).

Specify a name and a definition in the Job Definition dialog box.

22. Add an action to the job (  under Actions in the Job Definition dialog box).
23. In the Action Definition dialog box, select **Run an Enrichment rule** and click **Next**.
24. Select the enrichment rule that you created in Step 1 and click **Finish**.
25. In the Job Definition dialog box, under **Scheduler**, select **Once** and specify the current time.
26. Click **OK** to save the job definition and close the dialog box.
27. Wait for the enrichment to finish. Check that the enrichment query created in Step 1 no longer

matches any hosts.

For more information about enrichment rules and scheduling, see the Model Management section in the BSM online help.

## ***Restore OMi Configuration Customizations***

The OMi integration and topology synchronization files have changed with BSM 9.1x. It is therefore recommended that you merge your saved OMi customizations with the BSM 9.1x configuration files rather than replacing them.

1. On the BSM 9.1x Data Processing Server host system, make a backup copy of all the files in the following directory and subdirectories:

Windows: %TOPAZ\_HOME%\conf\opr

Linux: /opt/HP/BSM/conf/opr

2. Merge the OMi integration and topology synchronization files that you saved from your BSM 9.0x installation with the BSM 9.1x configuration files.
3. Place the files in the same location and server type that they were backed up from. For example, if they were backed up from a Data Process Server, make sure they are restored to same location in the new Data Processing Server.

For example:

### **Windows:**

```
%TOPAZ_HOME%\conf\opr\integration  
%TOPAZ_HOME%\conf\opr\topology-sync
```

### **Linux:**

```
/opt/HP/BSM/conf/opr/integration  
/opt/HP/BSM/conf/opr/topology-sync
```

## ***Import Security Certificates to JRE Truststore***

*Secure environments only:* To re-enable the trust relationship between the Java Runtime Environment (JRE) and the LDAP server, you must import the LDAP trusted certificate to the JRE truststore. For details, see the HP Business Service Management Hardening Guide.

## ***Migrate Content from 9.0x to 9.1x***

Content is uploaded automatically on the first BSM startup using the create mode. The create mode ignores modified objects in the 9.1x content packs and uploads new and unchanged objects only.

New HI Values are not new objects, but a modification of the Health Indicator, which is a modification of the objects in your content pack.

If you have also modified the same objects, you can either redo your modifications manually after the migration has finished, or upload the upgrade content packs manually using the overwrite mode. See ["Importing Modified Upgrade Content Packs" below](#) for details.

The upgrade content pack packages are located in the following directory:

**<HPBSM Install Directory>/conf/opr/content/upgrade/<locale>**

The available upgrade content pack packages are:

MM-INF\_upgrade.xml — Content Pack for Infrastructure SPI

MM-JEE\_upgrade.xml — Content Pack for J2EE SPI

MM-MSS\_upgrade.xml — Content Pack for MS SQL SPI

MM-Ora\_upgrade.xml — Content Pack for Oracle SPI

### ***Importing Modified Upgrade Content Packs***

You can import individual upgrade content packs one by one or all content packs at once. Individual content packs can also be uploaded using the user interface.

**To upload individual upgrade content packs, complete the following steps:**

**<HPBSM Install Directory>/opr/bin/ContentManager -username admin -password admin -f -i <HPBSM Install Directory>/conf/opr/content/upgrade/<locale>/<Content Pack to Import>**

**To upload all upgrade content packs, complete the following steps:**

**<HPBSM Install Directory>/opr/bin/ContentManager -username admin -password admin -a -f -uploadFolder <HPBSM Install Directory>/conf/opr/content/upgrade/<locale>**

## General Configuration Procedures

Perform the following procedures:

- ***Upgrading Customized Service Health KPIs***

In BSM 9.2x, the internal format of the KPI parameter “KPI is critical if” was changed. As a result, this value may be incorrect following upgrade, if you have created or customized KPIs.

To fix this, perform the following:

- a. Access the JMX console on the Gateway Server via `http://<Gateway Server name>:8080/jmx-console`, and enter your user name and password.
- b. Click **service=repositories-manager** in the Topaz section.
- c. Locate the **upgradeCriticalIf()** operation.
- d. Click **Invoke**.

- ***Service Health and SLM repository post-upgrade procedure***

When you installed BSM 9.1x, content that was imported using out-of-the-box content packs was categorized in the Service Health and SLM repositories as **Custom** or **Predefined (Customized)**, rather than as **Predefined**.

After you install BSM 9.2x, run the Repository Data Transfer tool to automatically re-label this out-of-the-box content in the repositories as **Predefined**, using the following steps:

- a. Access the JMX console on the Gateway Server via `http://<Gateway Server name>:8080/jmx-console`, and enter your user name and password.
- b. Click **service=content-manager** in the Topaz section.
- c. Locate the **invokeRepositoryTool()** operation.
- d. Click **Invoke**.

**Note:** If you have customized any repository items, they are not affected by this procedure.

- ***Service Health Top View post-upgrade***

In BSM 9.2x, extensive improvements were made to the Top View component. For details, refer to the sections on Top View in the BSM User Guide and in the BSM Application Administration Guide.

As a result of the changes made to the underlying Top View infrastructure, the following infrastructure settings from earlier BSM versions are now deprecated in BSM 9.2x:

- **Top View Data Refresh Rate - For Legacy MyBSM**
- **Top View Font Name**
- **Top View Green Color Property**

These infrastructure settings were located in the Service Health Application - Top View Properties section of the Service Health Application infrastructure settings. If you customized these settings prior to upgrade, your customizations are removed.

In addition, if you used a custom background image for Top View, after upgrade save the image in `<Gateway Server root directory>/AppServer/webapps/site.war/images/topview`, and enter the image file name in the **Custom Background Image Name** infrastructure setting.

- ***SLM - Upgrading SLAs from BSM 9.x to 9.2x using Baselining***

The following section is only relevant for users who have SLAs with BPM transaction CIs with the BPM Percentile Sample-Based rule defined on performance HIs, or Groovy rule (Rules API).

BSM 9.2x introduces the concept of baselining. In End User Management, Business Process Monitor performance metrics are analyzed over a period of time, and are used to provide a baseline comparison for establishing acceptable performance ranges.

Baselining influences the transaction thresholds, and will therefore have an impact on your SLA calculation. If you want to minimize this influence so that your SLA calculation results are similar to pre-baselining, perform the steps described in "[Upgrading SLAs from BSM 9.x to 9.2x to Work with Baselining](#)" on page 196 .

- ***Upload content packs***

Wait for the BSM services to be started again and then upload the content packs again. Execute the following command on the Gateway Server:

```
<HPBSM Install Directory>/opr/bin/ContentManager -username admin -  
password admin -a -forceReload
```



- ***ETI display label***

If you have alerts configured with an Event Template, the ETI display label needs to be manually upgraded. To upgrade the display label, execute the following JMX command from the BSM 9.2x Data Processing Server:

`BAC.Alerts.Upgrade service=change Etl name to ID update()`

- ***Upgrade custom reports***

In some cases, custom reports are not migrated properly during the upgrade. If this is the case, execute the following command from the JMX console as follows:

- a. Open the JMX console from **`http://<FQDN of BSM Gateway server>:8080/jmx-console/`**
- b. In the Topaz section, select **EUM Custom report upgrader service**.
- c. Complete the fields and click **Invoke**.

- ***Delete temporary internet files***

When logging into BSM for the first time after upgrading, delete the browser's temporary Internet files. This should be done on each browser that accesses BSM.

- ***Back up files***

Back up the following files from the BSM 9.1x servers:

- `<Gateway Server installation directory>/AppServer/webapps/site.war/openapi/excels directory`
- `<Data Processing Server installation directory>/cmdb/general directory`
- `<Data Processing Server installation directory>/BLE/rules/<custom rules jar> file(s)`

- ***SHA baseline data***

The following note is relevant if you were using SHA with Performance or Operations Agents which include one of the following SPIs: WebLogic, WebSphere, Oracle, MSSQL.

The baseline may be inaccurate for at least one week after running the upgrade wizard. This is due to an improvement in the way instances in the SPIs are interpreted by SHA.

## Pre-Upgrade Tool

The pre-upgrade tool temporarily stores some configuration and certificates in the BSM database to help migrate them to 9.2x. It should be run on all BSM Gateway and the active DPS servers.

### 1. Run the Pre-Upgrade Tool on all BSM Gateway servers

On all BSM Gateway servers, run the PreUpgradeTool using the following command.

- **Linux:** <HPBSM Install Directory>/opr/bin/PreUpgradeTool.sh -s
- **Windows:** <HPBSM Install Directory>\opr\bin\PreUpgradeTool.bat -s

### 2. Run the Pre-Upgrade Tool on the Active Data Processing Server

On the active BSM Data Processing Server, run the PreUpgradeTool using the following command.

- **Linux:** <HPBSM Install Directory>/opr/bin/PreUpgradeTool.sh -s
- **Windows:** <HPBSM Install Directory>\opr\bin\PreUpgradeTool.bat -s

If there is a large number of closed events stored in the database, upgrading can take a long time. If recommended by the tool, and you want to archive closed events before upgrading starts, enter "Yes" (y) when prompted and specify the target location for the archive file.

## Additional Information

Install the latest patches to get the newest version of the Pre-upgrade tool. The tool should first be run on a Gateway Server and then on the active Data Processing Server.

The Pre-Upgrade Tool executes the following steps:

- Backs up files required by the upgraded 9.2x installation (event sync scripts, certificates, and so on)
- Ensures the Sonic Queue is emptied
- Gives the customer the ability to shorten the upgrade process by choosing to not upgrade closed events

**Note:** If you did not run the Pre-Upgrade Tool before shutting down or uninstalling BSM 9.1x, the following will not be migrated to the 9.2x installation:

- Certificate data including trust relationships for connected servers.
- If you have created Groovy scripts in your BSM 9.1x environment, these scripts are not imported to your BSM 9.2x installation.
- Events from your BSM 9.1x environment may be lost.

In this case, you should execute the following steps manually on your BSM 9.2x installation after the upgrade is successfully completed:

- Define trust relationships for connected servers. For details, see the OMi Setup section of the BSM Application Administration Guide.
- If you have any Groovy scripts that are used to forward events, import them from your production environment if possible.

## Chapter 23: Uninstall BSM 9.1x

Disable BSM on all 9.1x servers by selecting **Start > Programs > HP Business Service Management > Administration > Disable HP Business Service Management**.

Uninstall BSM 9.1x on all servers using one of the following procedures:

### *Uninstalling BSM servers in a Windows environment*

To completely uninstall HP Business Service Management servers in a Windows environment:

1. Uninstall BSM via the Windows user interface or silently.
  - a. Uninstall BSM Using the Windows user interface:
    - i. On the machine from which you are uninstalling HP Business Service Management, select **Start > Control Panel > Programs and Features**. Select **HP Business Service Management**.
    - ii. Click **Remove**, wait for the BSM uninstall script to remove any present updates, and follow the on-screen instructions when prompted.

**Note:** In some cases, this process may take a long time (more than 30 minutes).

**Note:** When a Minor-Minor BSM Release (for example, 9.01) is removed, any BSM Public Patches installed on top of the release are removed, as well.

- iii. If the **Show Updates** check box is selected, all the updates installed over BSM are displayed. When BSM is removed, all updates are also removed.
  - b. Uninstall BSM silently:
    - i. Stop all BSM servers.
    - ii. Run the command **<HPBSM Installation Directory>\installation\bin\uninstall.bat -i silent**
2. Restart the server machine.

## ***Uninstalling BSM servers in a Linux environment***

1. Log in to the server as user **root**.
2. To access the uninstall program, type: **cd /opt/HP/BSM/installation/bin**
3. Stop all BSM servers.
4. Run the following script to uninstall in UI mode: **./uninstall.sh**. To perform this step in silent mode, use the command **./uninstall.sh -i silent**.
5. The BSM uninstall program begins. Follow the on-screen instructions. When the uninstall program is complete, a success message is displayed.
6. Click **Finish**.
7. Check the **HPBsm\_<version>\_HPOvInstaller.txt** log file located in the **/tmp** directory for errors. Previous installation files can be found in the **/tmp/HPOvInstaller/HPBsm\_<version>** directory.

**Note:** If you encounter problems during the uninstall procedure, contact HP Software Support.

## **Chapter 24: Migrate Database to MS SQL 2012 (optional)**

If you would like to use MS SQL 2012, migrate your staging database to a new MS SQL 2012 database. For details, refer to MS SQL documentation.

## Chapter 25: Install BSM 9.20

Install BSM 9.20 on one set of staging servers. This set can be either one Gateway Server and one Data Processing Server, or one one-machine server. In the first case, run the wizards on the Data Processing Server first. The wizard will direct you as to when to begin installation on the Gateway Server.

**Note:** Do not install more than one set of BSM servers. The upgrade process will use one set of servers to upgrade the database, and you will be directed to install any additional servers towards the end of the upgrade procedure

**Run the installation and post-installation wizards. Do not run the upgrade wizard yet. Exit the wizard on the last screen of the post-installation wizard without continuing.**

- For Windows:

**DVD1 > Windows\_Setup > HPBsm\_9.20\_setup.exe**

- For Linux:

**DVD2 > Linux\_Setup > HPBsm\_9.20\_setup.bin**

Alternatively, you can run these wizards in silent mode. For details, see ["Installing BSM Silently" on page 180](#).

For more details, see the following sections:

- ["Installing BSM on a Linux Platform" on page 163](#)
- ["Installing BSM on a Windows Platform" on page 155](#)

# Chapter 26: Install the Latest BSM 9.2x Minor Minor Release and Patch

Install the latest minor minor version of BSM 9.2x and patch (if available).

## 1. Prerequisites

- It is recommended that you back up all BSM databases and files you made custom changes to.
- Make sure that BSM has been fully stopped on all machines and that there are no open connections (for example, from Windows Explorer) from any machines to the BSM root directory or any of its subdirectories.

## 2. Download and install the latest minor minor version from the SSO site

- a. Go to the SSO site:

<http://support.openview.hp.com/selfsolve/patches>

- b. Select **Application Performance Management (BAC)** and select the most recent minor minor 9.2x version.
- c. Click **Search** to locate the installation files.
- d. Save the package locally and launch the relevant setup file to install the patch.
- e. Run the installation files on all BSM servers (Gateway and Data Processing).
- f. The post-installation wizard is automatically run after the patch installation.
- g. If there was an HPOM agent on the system before installing BSM which was configured to run as a non-root user, you can reconfigure BSM to run as the same non-root user as the HPOM agent.

**Note:** Both products (BSM and HPOM Agent) must run as the same user. If you change BSM to run as a different user, you must also change HPOM Agent to the same non-root user. For details how to switch the HPOM Agent to a non-root user, please refer to the HPOM Agent manuals.

- h. Repeat this procedure for the latest intermediate patch (if available).

## 3. Log out and in

If you are installing BSM in a Linux environment, and you selected a non-root user in the post-installation wizard, log out and log in using the non-root user you selected.



#### **4. Re-apply manual changes**

If you have made changes in the HP BSM root directory to files that are updated during patch installation, for example, while performing hardening procedures on your system, you must reapply those changes after patch installation on all relevant BSM machines.

## Chapter 27: 9.2x Upgrade Wizard

Run the upgrade wizard on the 9.2x servers to transfer your data from the original 9.0x format to the 9.2x format.

You should only have one set of 9.2x servers installed at this time. Do not run the upgrade wizard on more than one set of 9.2x servers.

The upgrade wizard can be found on all Gateway, Data Processing, and One-machine servers in the following locations:

- Windows:

**<BSM Home Directory>\bin\upgrade\_wizard\_run\_from90.bat**

- Linux:

**/opt/HP/BSM/bin/upgrade\_wizard\_run\_from90.sh**

For details about the upgrade wizard, see ["Upgrade Wizard" on page 187](#).

## Chapter 28: Staging Mode

At the end of the upgrade wizard, the Staging Data Replicator (SDR) is run. This tool takes the data coming into your source environment and copies it to the staging environment. The SDR does not transfer event data.

### To transfer event data to the staging servers:

1. Verify that trust relationship between the production and staging environments is working. This was configured automatically by the upgrade wizard, but should be verified as follows:

On a Gateway server in the production environment, run the following command:

**ovbbccb -ping https://<DNS of a Gateway server in the staging environment>/com.hp.ov.opc.msgr**

If this ping fails, you must establish a trust relationship as follows. Run the following command on a gateway server in the staging environment:

Linux: **BBCTrustServer.sh <DNS of a Gateway server in the production environment> -o**

Windows: **BBCTrustServer.bat <DNS of a Gateway server in the production environment> -o**

2. Locate the Default Server for Data Collectors URL on the production server from **Admin > Platform > Setup and Maintenance > Infrastructure Settings > Foundations > Platform Administration > Default Virtual Gateway Server for Data Collectors URL** and copy the URL to your clipboard or a temporary location.
3. In the staging environment create a new Connected Server that refers to the current production server.
  - a. Go to **Admin > Operations Management > Setup**
  - b. In **Connected Servers** select the new icon to create a new Connected Server.
  - c. Enter a Display Name and Name and select **Next**.
  - d. Select server type Operations Manager i and select **Next**.
  - e. Enter the DNS of the **Default Virtual Gateway Server for Data Collectors URL** (saved above) in the **Fully Qualified DNS Name** field.
  - f. Click **Finish**.
4. On the staging server enable the processing of incoming events as follows.

- a. Go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.
  - b. In the **Applications** field, select **Operations Management** and locate the **Staging Upgrade Settings** table.
  - c. Set **Forward All** to **false**.
  - d. Set **Forward All Target Server** to **<empty>**.
  - e. Set **Staging Mode Enable** to **true**.
5. In the staging environment, go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**. In the **Event Pipeline Receiver Settings** table, in the **Disable receiving of Events**, set the value to **false**.
6. Synchronize the events and changes from the production server.
- a. Allow the events and changes to synchronize. This process is complete when the event sync buffer is empty. To check if the buffer is empty, run the following command on a Data Processing Server in the production environment:  
  
Windows: **%TOPAZ\_HOME%\opr\bin\opr-event-sync.bat -monitor**  
  
Linux: **%TOPAZ\_HOME%/opr/bin/opr-event-sync.sh -monitor**
  - b. When the buffers are empty type **control-c** to stop the monitor.

During this phase, you should verify and configure your staging environment. The following chapters describe a few steps which should be completed before ending staging mode and turning your staging environment into your production environment.

# Chapter 29: Staging Data Replicator

- Staging Data Replicator - Overview ..... 126
- Running the Staging Data Replicator (Embedded) ..... 127
- Running the Staging Data Replicator (Standalone) ..... 128
- Verifying that the SDR Server Can Communicate with the Production Server ..... 130
- Unsubscribing the Staging Data Replicator from the Source Server ..... 131
- Running the SDR with Basic Authentication ..... 132
- SSL Configuration for the Staging Data Replicator ..... 133

## Staging Data Replicator - Overview

The Staging Data Replicator (SDR) is a tool that transfers data from the production environment to the staging environment during staging mode. The purpose of this tool is to create a window of time in which the same data can be viewed in both environments, allowing you to verify functionality and configuration settings in the staging environment.

While the SDR is running, any configuration changes made to the original BSM servers are not transferred to the staging servers. Only data samples are transferred.

Samples related to new configurations performed on the source environment may not be transferred by the SDR. To view the samples that were not transferred, view the ignored samples log at **log\sdrreplicator\sdrIgnoredSamples.log** and the general SDR log at **log\sdrreplicator\sdrreplicator\_all.log**.

You can change the log level of these files through the following files:

1. Embedded SDR: **HPBSM\SDR\conf\core\Tools\log4j\sdrreplicator\sdrreplicator.properties**
2. Standalone SDR: **HPBSMSDR\conf\core\Tools\log4j\sdrreplicator\sdrreplicator.properties**

This tool is only supported in staging mode. For more information about staging mode, see ["Staging vs. Direct Upgrade Overview" on page 9](#).

The SDR must be installed on a machine in the same network as the production environment, with the ability to access the staging environment. If the staging server cannot communicate with the production server, the SDR must be installed as a standalone utility on a different machine.

For task details, see:

- ["Running the Staging Data Replicator \(Embedded\)" on the next page](#).
- ["Running the Staging Data Replicator \(Standalone\)" on page 128](#).

## Running the Staging Data Replicator (Embedded)

The SDR typically runs embedded in the staging server as part of the upgrade wizard. However, it can also be run as a standalone utility on a different server. For details, see ["Running the Staging Data Replicator \(Standalone\)" on the next page](#).

**Note:** The SDR must be installed on a machine in the same network as the production environment, with the ability to access the staging environment. If the staging server cannot communicate with the production server, the SDR must be installed as a standalone utility on a different machine. For details, see ["Running the Staging Data Replicator \(Standalone\)" on the next page](#).

### To run the SDR (embedded)

1. If the staging server uses basic authentication, the SDR cannot communicate with the staging server unless you run the **basicauth** tool. For details, see ["Running the SDR with Basic Authentication" on page 132](#).
2. If the staging server uses SSL, you will need to perform custom configurations to allow the SDR to communicate with the staging server. For details, see ["SSL Configuration for the Staging Data Replicator" on page 133](#).
3. Verify that the SDR embedded in the staging server can communicate with the production server. For details, see ["Verifying that the SDR Server Can Communicate with the Production Server" on page 130](#).
4. After you have completed the staging process and are prepared to move your staging environment to a production environment, stop the SDR by rerunning the upgrade wizard and selecting the appropriate option to stop the SDR.
5. Unsubscribe the staging data replicator from the source server. For details, see ["Unsubscribing the Staging Data Replicator from the Source Server" on page 131](#).

## Running the Staging Data Replicator (Standalone)

Typically, the SDR is run embedded in the staging server. It must be installed on a machine in the same network as the production environment, with the ability to access the staging environment. If the staging server cannot communicate with the production server, the SDR must be installed as a standalone utility on a different machine that does meet those requirements.

### To use the Staging Data Replicator standalone utility:

1. To use the Staging Data Replicator as a standalone utility, you must install it on a separate machine with access to both your production and staging servers.
  - To check that the SDR server can connect to the staging server, enter the following url in an any internet browser from the standalone server:

```
http://<_DESTINATION_/ext/mod_mdrv_wrap.dll?type=test
```

Where **\_DESTINATION** is the name of the Gateway Server or Load Balancer, depending on your configuration.

- Check that the SDR server can connect to the production server. For details, see ["Verifying that the SDR Server Can Communicate with the Production Server" on page 130](#).
2. Run the appropriate replicator file. The files are located on the SDR DVD:
    - **Windows\_Setup\HPBsmSDR\_9.23\_setup.exe**
    - **Linux\_Setup\HPBsmSDR\_9.23\_setup.bin**
  3. Follow the on-screen instructions to install the Staging Data Replicator. Select the type of deployment based on the version of your source environment.
  4. After you have completed the Staging Data Replicator installation, open the **<Staging Data Replicator root directory>\conf\b2G\_translator.xml** file and modify the following:
    - **\_SOURCE\_HOST\_NAME\_**. Replace this with the host name of the source (production) BSM Gateway Server. If you have more than one Gateway Server, you can use the name of any of them for this value.
    - **\_DESTINATION\_HOST\_NAME\_**. Replace this with the host name of the destination (staging) BSM Gateway Server or Load Balancer, depending on your configuration. This string appears twice within this file in the following line:

```
<ForwardURL url="http://__DESTINATION_HOST_NAME_/ext/mod_mdrv_wrap.dll?type=md_sample_array&acceptor_name=__DESTINATION_HOST_NAME__&message_subject=topaz_report/samples&request_timeout=30&force_keep_alive=true&send_gd=true"/>
```



- **clientid=""**. If you do not require guaranteed delivery of data when the Staging Data Replicator stops running, delete the value for this parameter. It is generally recommended that you do not modify this parameter.
5. If the web server on the staging server uses basic authentication, the SDR cannot communicate with the staging server unless you run the **basicauth** tool. For details, see ["Running the SDR with Basic Authentication" on page 132](#).
  6. If the web server on the staging server uses SSL, you will need to perform custom configurations to allow the SDR to communicate with the staging server. For details, see ["SSL Configuration for the Staging Data Replicator" on page 133](#).
  7. Begin running the Staging Data Replicator.
    - Windows: Select **Start > HP BSM Staging Data Replicator > Administration > Enable HP BSM Staging Data Replicator**.  
  
Verify that the SDR is running by looking for **hpbsmsdr** in the Windows Task Manager.
    - Linux: Run the following command:  
**/opt/HP/BsmSDR/scripts/run\_hpbsmsdr.sh start**  
  
Verify that the SDR is running searching for the hpbsmsdr process (for example: **ps -ef | grep hpbsmsdr**)
  8. After starting the SDR, copy the **<SDR installation directory>/dat/sdr/SDRBusConnectionStartTime.properties** file from the SDR server to the staging Gateway server in the **<BSM home directory>/dat/sdr** directory. This informs the upgrade wizard of the SDR initiation time which is needed for the Data Transfer Tool.
  9. After you have completed the staging process and are prepared to move your staging environment to a production environment, stop the Staging Data Replicator.
    - Windows: Select **Start > HP BSM Staging Data Replicator > Administration > Disable HP BSM Staging Data Replicator**.
    - Linux: Run the following command:  
**/opt/HP/BsmSDR/scripts/run\_hpbsmsdr.sh stop**
  10. Unsubscribe the staging data replicator from the source server. For details, see ["Unsubscribing the Staging Data Replicator from the Source Server" on page 131](#).

## Verifying that the SDR Server Can Communicate with the Production Server

1. Ping the production server.
  - a. Ping the production Gateway Server from the SDR server using the Gateway Server's short name. If this works, continue to step 2. If it does not work, continue with step 1 b.
  - b. Ping the production Gateway Server from the SDR server using the Gateway Server's fully qualified domain name. If this works, open the relevant **hosts** file for your operating system and add the mapping between the production Gateway Server name and its IP address.
2. Verify connection.
  - a. **Production Gateway Server runs Windows:** Run **ipconfig** on the production Gateway Server.  
  
**Production Gateway Server runs Solaris/Linux:** Run **ifconfig -a** on the production Gateway Server.
  - b. Verify all the listed IP addresses are open to connection to and from the server running the SDR.  
  
If this is not feasible, contact HP Software Support.
  - c. Verify that the ports 383, 1098, 1099, 2506, and 2507 are open on the SDR server.

## Unsubscribing the Staging Data Replicator from the Source Server

This procedure unsubscribes the SDR from the source server's bus, preventing data from accumulating in the source server. It is performed after you have completed the staging process and disabled the SDR.

**Note:** You do not have to perform this procedure if you are immediately uninstalling the previous version of BSM from the source server.

### To unsubscribe the SDR:

1. Stop the SDR.
  - a. Open the Nanny Manager jmx console from **http://<machine name>:11021**, where **<machine name>** for an embedded SDR is the name of the Load Balancer (if it exists) or destination BSM Gateway Server. For a Standalone SDR, **<machine name>** is **localhost**.
  - b. Select **Foundations: type=NannyManager**
  - c. Open **showServiceInfoAsHTML**
  - d. Stop the **HPBSMSDR-x.x** process.
2. Open the **<Staging Data Replicator root directory>\conf\b2G\_translator.xml** file and locate the **<Message Selector>** element(s).
3. Within the **<Message Selector>** element(s), replace the attribute value of **enabled** to 0 (the default is **enabled="1"**) in the following line:  
  
**<MessageSelector name="customer\_name" value="Default Client" enabled="0" />**
4. Start the SDR.
  - a. Open the Nanny Manager jmx console from **http://<machine name>:11021**, where **<machine name>** for an embedded SDR is the name of the Load Balancer (if it exists) or destination BSM Gateway Server. For a Standalone SDR, **<machine name>** is **localhost**.
  - b. Select **Foundations: type=NannyManager**
  - c. Open **showServiceInfoAsHTML**
  - d. Start the **HPBSMSDR-x.x** process.
5. Wait several minutes, and then stop the SDR as described in step 1.

## Running the SDR with Basic Authentication

If the staging server is using basic authentication, the SDR cannot communicate with the staging server without a user name and password. The **basicauth** tool allows you to enter this data into the BSM in an encrypted format, thereby enabling the SDR to communicate with servers that use basic authentication.

### To configure SDR to work with basic authentication:

From the command prompt, run the **basicauth** file using the following syntax:

```
<Staging Data Replicator root directory>\bin basicauth [-embedded | -  
standalone] [enabled username password | disabled]
```

Where:

**-embedded** is for an SDR that is embedded in the destination environment.

**-standalone** is for a standalone SDR

**enabled** is to enable basic authentication. Specify a valid username and password. This tool encrypts the password before it is saved in the configuration file.

**disabled** is to disable basic authentication.

## SSL Configuration for the Staging Data Replicator

If the staging server uses SSL, you need to perform the following procedure to allow the SDR to communicate with the staging server.

### To configure the SDR to support SSL:

1. Configure SDR to use SSL.

In the **<SDR root directory>\conf\b2g\_translator.xml** file, locate ForwardURL and change **http** to **https**.

2. Configure the SDR to trust the BSM certificate.
  - a. Obtain a copy of the certificate used by the web server on the BSM Gateway Server or certificate of Certificate Authority that issued BSM web server certificate. This file must be a DER encoded binary X.509 (.CER) file.
  - b. Import the above-mentioned certificate into SDR's truststore. For details, see the BSM Hardening Guide.

Default truststore for SDR is **<SDR root directory>\JRE\lib\security\cacerts**.

Example:

```
<SDR root directory>\JRE\bin>keytool -import -trustcacerts -alias <your CA  
certificate alias name> -keystore ..\lib\security\cacerts -file <CA certificate file>
```

- c. **<SDR root directory>\JRE\bin>keytool -import -trustcacerts -alias <your CA  
certificate alias name> -keystore ..\lib\security\cacerts -file <CA certificate file>**
- d. If you are not using the default truststore with SDR, configure the SDR to use a non-default truststore, and add additional options in the file **<SDR root directory>\bin\sdrreplicator\_run.bat**, as follows:

Locate the following line:

```
SET PROCESS_OPTS=%PROCESS_OPTS% -Dconf.file=%PRODUCT_  
HOME_PATH%\conf\b2g_translator.xml -Dprop.file=%PRODUCT_HOME_  
PATH%\conf\b2g_translator.properties -Dmsg.filter.file=%PRODUCT_HOME_  
PATH%\conf\includedSamples
```

At the end of this line, add the following:

```
-Dnet.ssl.trustStore=<keystore path>  
  
-Dnet.ssl.trustStorePassword=passphrase
```

# Chapter 30: Post-Installation Procedures

Perform these tasks to complete the upgrade process:

- General Post-Installation Procedures .....135
- Starting and Stopping BSM .....140
- Logging In and Out ..... 141
- Add Additional BSM Servers ..... 142
- Complete the Upgrade Process .....144

## General Post-Installation Procedures

Perform these tasks to complete the upgrade process:

**Note:** If you use the IIS web server, disable it before performing this procedure.

- ***Disable firewall between BSM servers***

In general, placing firewalls between BSM servers is not supported. If an operating system firewall is active on any BSM server machine (GW or DPS), a channel must be left open to allow all traffic between all BSM Gateway and DPS servers.

Additionally, to enable BSM users and data collectors to communicate with the BSM Gateway servers, you must leave open the relevant ports depending on your BSM configuration. The required ports are typically 443 or 80, and 383. For details, see "Port Usage" in the BSM Platform Administration Guide.

- ***Update Data Collectors***

See the System Requirements and Support Matrixes, available from **Help > Planning and Deployment** and the Updated Components section in the HP Business Service Management Release Notes to determine if you must upgrade your data collector to the latest supported version.

- ***Copy files from production server or restore them from backup***

Restore the following files to the BSM:

- <Gateway Server installation directory>/AppServer/webapps/site.war/openapi/excels directory
- <Data Processing Server installation directory>/cmdb/general directory
- <Data Processing Server installation directory>/BLE/rules/<custom rules jar> file(s)
- <Gateway Server installation directory>/JRE/lib/security/cacerts
- <Gateway Server installation directory>/JRE64/lib/security/cacerts

- ***Reconfigure Integration with HPOM***

This procedure is only required if you are performing a staging upgrade. If you had previously configured an integration with HPOM, repeat the following procedure that you performed when

configuring this connection for the first time: "How to Set Up a Forwarding Target in the HPOM for UNIX Node Bank" in the BSM - Operations Manager Integration Guide.

- ***Perform hardening procedures***

If your original environment was secured with SSL and you are upgrading using a staging environment, you need to repeat the hardening procedures described in the BSM Hardening Guide.

If your original environment was secured with SSL and you are upgrading directly, you need to repeat the following hardening procedures:

- a. If you had previously made changes to **<HP BSM root directory>\EJBContainer\server\mercury\deploy\jboss-web.deployer\server.xml** while performing hardening procedures on your system, repeat the "Securing JBOSS" procedure in the Hardening Guide after the patch installation on all relevant BSM machines.
- b. If you had previously configured SSL on an IIS web server used by BSM, you need to verify HTTPS port binding in IIS is set to the correct port (443).
- c. If you had previously configured SSL on the Apache web server used by BSM, you may need to reapply the changes to httpd.conf and httpd-ssl.conf files as follows:
  - In **<HP BSM root directory>\WebServer\conf\httpd.conf**, uncomment the following two lines:  
  
**LoadModule ssl\_module modules/mod\_ssl.so**  
  
**Include conf/extra/httpd-ssl.conf**
  - In **<HP BSM root directory>\WebServer\conf\extra\httpd-ssl.conf**, specify paths to **SSLCertificateFile** and **SSLCertificateKeyFile**
  - Restart the HP BSM Apache web service

- ***Ensure all processes started properly***

You can check to ensure that all processes started properly. For details, see "How to View the Status of Processes and Services" in the BSM Platform Administration Guide.

- ***Check installation log files***

You can see the installation log file by clicking the **View log file** link at the bottom of the installer window.



In a Windows environment, this log file, along with additional log files for separate installation packages, is located in the `%temp%\..\HPOvInstaller\<BSM version>` directory.

In a Linux environment, the logs files are located in the `/tmp/HPOvInstaller/<BSM version>` directory.

The installer log file name is in the following format:

**HPBsm\_<VERSION>\_<DATE>\_HPOvInstallerLog.html** or **HPBsm\_<VERSION>\_<DATE>\_HPOvInstallerLog.txt** (for example, **HPBsm\_9.10\_2010.10.21\_13\_34\_HPOvInstallerLog.html**).

Individual installation package log file names are in the following format:

**Package\_<PACKAGE\_TYPE>\_HPBSM\_<PACKAGE\_NAME>\_install.log** (for example, **Package\_msi\_HPBSM\_BPiPkg\_install.log**).

- **Overwrite custom changes (optional)**

BSM 9.2x comes with built in content packs. If any of the data in these content packs conflicts with a previously existing custom change, BSM keeps the custom change and does not overwrite it.

**To overwrite your custom changes with the new 9.2x data:**

- a. Open the Content Packs page from **Admin > Platform > Content Packs**.
- b. Select each content pack. In the content pack summary, there is a column indicating the origin of each artifact. For each item whose value is **predefined (customized)**, this indicates that the artifact was customized and is different from the one delivered with 9.2x.
- c. To overwrite a change, locate the artifact in the corresponding admin user interface and select **restore to default**.

- **Restore BSM service changes**

If you manually configured different users to run BSM services, these settings must be configured again. For details, see ["Changing BSM Service Users" on page 194](#).

- **Install component setup files**

The component setup files are used to install the components used by BSM. The component setup files are not installed as part of the basic BSM installation. They are located separately in the Web delivery package download area and in the **Data Collectors and Components\components** directory of the BSM DVDs and must be installed separately to the

BSM Downloads page. The component setup files can then be downloaded from BSM and used when required. For details on working with the BSM Downloads page, see "Downloads Overview" in the BSM Platform Administration Guide.

**Note:** The components on the Downloads page are updated for each major and minor release (for example: 9.00 and 9.20). To download updated components for minor minor releases and patches (for example, 9.22), use the Software Updates and Software Patches pages available from <http://www.hp.com/go/hpsupportsupport>.

You must run all DVDs provided for installation to enable downloading all the BSM data collectors and components.

**Note:** You can install a component by using the component's setup file directly from the network or DVD. For details on installing a component, refer to the individual documentation for the component you want to install. The relevant documentation is available from the Downloads page in BSM after the component's setup files are copied to the Downloads page.

The procedure for installing component setup files to the Downloads page differs, depending on whether you are installing a Web delivery version or DVD delivery version of BSM.

- Installing Component Setup Files Using a Web Delivery Version

Copy the component setup files that you want available in the Downloads page from the appropriate directory in the release download area to the **<BSM root directory>\AppServer\webapps\site.war\admin\install** directory on the BSM Gateway Server. If required, create the **admin\install** directory structure.

- Installing Component Setup Files Using a DVD Delivery Version

There is a setup utility in the **Data Collectors and Components** directory on the DVD that copies the component setup files from the DVD to the **<BSM root directory>\AppServer\webapps\site.war\admin\install** directory on the BSM Gateway Server.

During the setup process, you can choose which data collectors to copy by selecting the relevant checkboxes.

**Note:** You can install all or some of the component setup files on multiple Gateway Servers, with the files installed on a specific server being available on that server's Downloads page.

To install component setup files to the BSM Downloads page:

- i. Insert the BSM DVD into the drive of the BSM Gateway Server on which you want to copy the component setup files.
- ii. On the Setup window, click the **Data Collectors and Components Downloads Page Setup** link to open the Data Collector Wizard.

If the Setup window does not appear on your screen, navigate to the **Data Collectors and Components** directory on the DVD and run **copydc.bat**.

- iii. Follow the on-screen instructions to complete the wizard.

- ***Enable IPv6 Support (optional)***

BSM by default communicates using IPv4. If your environment uses IPv4 and IPv6, you can choose to use either IPv4 or IPv6, but not both. To enable IPv6, run the following commands on all BSM servers (GW and DPS):

```
ovconfchg -ns sec.cm.server -set IsIPv6Enabled TRUE
```

```
ovc -kill
```

```
ovc -start
```

## Starting and Stopping BSM

After completing the BSM server installation, restart your computer. It is recommended that you do this as soon as possible. Note that when the machine restarts, you must log in as the same user under which you were logged in before restarting the machine.

After installing the BSM servers (either together on one machine, or at least one instance of each server type in a distributed deployment) and connecting the server machines to the databases, you launch BSM on each server machine.

**Note:** You can check which BSM servers and features are installed on a BSM server machine by viewing the [INSTALLED\_SERVERS] section of the **<BSM server root directory>\conf\TopazSetup.ini** file. For example, Data\_Processing\_Server=1 indicates that the Data Processing Server is installed on the machine.

### To start or stop BSM in Windows:

Select **Start > Programs > HP Business Service Management > Administration > Enable | Disable Business Service Management**. When enabling a distributed environment, first enable the Data Processing Server and then enable the Gateway Server.

### To start or stop BSM in Linux:

```
/opt/HP/BSM/scripts/run_hpbsm {start | stop | restart}
```

### To start, stop, or restart BSM using a daemon script:

```
/etc/init.d/hpbsmd {start| stop | restart}
```

**Note:** When you stop BSM, the BSM service is not removed from Microsoft's Services window. The service is removed only after you uninstall BSM.

## Logging In and Out

You log in to BSM from a client machine's browser using the login page. LW-SSO is BSM's default authentication strategy. For details, see "Logging into BSM with LW-SSO" in the BSM Platform Administration Guide.

You can disable single sign-on authentication completely, or you can disable LW-SSO and use another supported authentication strategy. For details on selecting an authentication strategy, see "Set Up the Authentication Strategies" in the BSM Platform Administration Guide.

**Tip:** For complete login help, click the **Help** button on the login page.

### To access the BSM login page and log in for the first time:

1. In the Web browser, enter the URL `http://<server_name>.<domain_name>/HPBSM` where **server\_name** and **domain\_name** represent the FQDN of the BSM server. If there are multiple servers, or if BSM is deployed in a distributed architecture, specify the load balancer or Gateway Server URL, as required.

**Note:** Users running previous versions of BSM can still use bookmarks set to access the URL `http://<server_name>.<domain_name>/mercuriam` and `http://<server_name>.<domain_name>/topaz`

2. Enter the default administrator user ("admin"), and the password specified in the Setup and Database Configuration utility, and click **Log In**. After logging in, the user name appears at the top right.
3. (Recommended) Create additional administrative users to enable BSM administrators to access the system. For details on creating users in the BSM system, see "User Management" in the BSM Platform Administration Guide.

### Note:

- For login troubleshooting information, see "Troubleshooting and Limitations" in the BSM Platform Administration Guide.
- For details on login authentication strategies that can be used in BSM, see "Authentication Strategies — Overview" in the BSM Platform Administration Guide.
- For details on accessing BSM securely, see the BSM Hardening Guide.

When you have completed your session, it is recommended that you log out of the Web site to prevent unauthorized entry.

### To log out:

Click **Logout** at the top of the page.

## Add Additional BSM Servers

Once you have a working BSM 9.2x environment, you can add new Gateway and Data Processing servers as desired.

**To add new BSM servers to an existing BSM environment:**

1. Run the installation and post-installation wizards. **Do not run the Setup and Configuration Utility when prompted.**

- Windows:

**DVD1 > Windows\_Setup > HPBsm\_9.20\_setup.exe**

For more details, see "[Installing BSM on a Windows Platform](#)" on page 155

- Linux:

**DVD2 > Linux\_Setup > HPBsm\_9.20\_setup.bin**

For more details, see "[Installing BSM on a Linux Platform](#)" on page 163

2. Install the latest minor minor version of BSM 9.2x and patch (if available)

- a. Go to the SSO site:

<http://support.openview.hp.com/selfsolve/patches>

- b. Select **Application Performance Management (BAC)** and select the most recent minor minor 9.2x version.
- c. Click **Search** to locate the installation files.
- d. Save the package locally and launch the relevant setup file to install the patch.
- e. Run the installation files on all BSM servers (Gateway and Data Processing).
- f. Run the post-installation wizard. This wizard follows the patch installation automatically.
- g. Repeat this procedure for the latest intermediate patch (if available).

3. ***Copy additional files***

Some additional files are needed to allow BSM to verify the validity of the database.

- a. Find the version of your BSM database by running the following query in the management database:

```
SELECT * FROM system where sys_name = 'dbpatchver'
```

This will return the version of your database (for example, 1085 for BSM 9.23).

- b. Go to **DVD root directory \packages\DBVerifyVersions\<version\_of\_your\_database>**.
  - c. Copy and overwrite the contents of the folder with the same version number as your database to your server's **HPBSM\dbverify** directory.
4. Run the Setup and Database Configuration utility
    - **Windows:** On the BSM server, select **Start > Programs > HP Business Service Management > Administration > Configure HP Business Service Management**. Alternatively, you can run the file directly from **<BSM\_Installation\_Directory>\bin\config-server-wizard.bat**.
    - **Linux:** On the BSM server machine, open a terminal command line and launch **/opt/HP/BSM/bin/config-server-wizard.sh**.

For more details about this utility, see ["Server Deployment and Setting Database Parameters" on page 169](#).

5. Restart all BSM servers

After you have installed all additional servers, restart all other BSM servers and data collectors to allow them to recognize the new servers.

## Complete the Upgrade Process

When you are confident that you are ready to use your new servers as your production environment, perform the following tasks:

1. If you were using OMi, perform the following procedure to move the processing of events from the production server to the staging server:

- a. **On the production server** disable receiving of events and changes as follows:

- i. Go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**
- ii. In the **applications** field, select **Operations Management** and locate the **Event Pipeline Receiver Settings** table.
- iii. Set **Disable receiving of Events** to **true**.

- b. On the production server ensure incoming data connections are all closed by restarting the ovc processes. From the command line execute the following commands:

```
ovc -kill
```

```
ovc -start
```

- c. Now that new events will no longer be coming into the production server, enable the remaining events and changes to synchronize with the staging server. This process is complete when the event sync buffer is empty. To check if the buffer is empty, run the following command on a Data Processing Server in the production environment:

```
%TOPAZ_HOME%\opr\bin\opr-event-sync.bat -monitor
```

When the buffers are empty type **control-c** to stop the monitor.

- d. On the production server disable further processing of incoming events as follows:
  - i. Go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.
  - ii. In the **Applications** field, select **Operations Management** and locate the **Event Synchronization Settings** table. Set **Forward Events** to **true**.
  - iii. In the **Duplicate Events Suppression Settings** table, set **Enable duplicate events suppression** to **false**.
  - iv. In the **Event Forwarding Settings** table, reset the value of **Event Forwarding Expiration** to the default or any desired value (the current value was temporarily set very high for the purposes of the upgrade).
  - v. Go to **Admin > Operations Management > Tune Operations Management > Event Forwarding**. Select and disable each active Forwarding Rule.



- vi. Go to **Tune Operations Management > Notifications**. Select and disable each active Notification Rule.
- vii. Go to **Tune Operations Management > Event Processing Customizations**. Select and disable each active EPI step.
- e. If you were using multiple OMi environments reporting to one central OMi environment (manager of managers), you need to update the central OMi environment (the receiver) with the locations of the new servers as follows:

On the Data Processing Server, run the following command:

Windows: `\hpbsm\bin\opr-switch-forwarding-info.bat --oldServerHost <DNS of production Gateway server> --newServerIp <DNS of staging Gateway server>`

Linux: `\hpbsm\bin\opr-switch-forwarding-info.sh --oldServerHost <DNS of production Gateway server> --newServerIp <DNS of staging Gateway server>`

- f. On the staging server enable processing of incoming events as follows:
    - i. Go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.
    - ii. In the **applications** field, select **Operations Management** and locate the **Staging Upgrade Settings** table. Set **Staging Mode Enable** to **false**.
  - g. Restore the flow of events to the BSM servers to process the events in the data collector queues.
    - i. On the staging server enable event receiving as follows:

Go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.

In the **applications** field, select **Operations Management** and locate the **Event Pipeline Receiver Settings** table. Set **Disable receiving of Events** to **false**.
    - ii. On the production server enable event receiving as follows:

Go to **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.

In the **applications** field, select **Operations Management** and locate the **Event Pipeline Receiver Settings** table. Set **Disable receiving of Events** to **false**.
2. Update the data collectors to communicate with the new servers.
- a. If you have a Load Balancer or Reverse Proxy, set it to communicate with the new servers.
  - b. If you do not have a Load Balancer or Reverse Proxy, you must configure each data collector individually to communicate with the new BSM Gateway servers. For details, see the documentation of each data collector. We recommend upgrading each data collector to

the latest supported version. For details, see the System Requirements and Support Matrixes, available from **Help > Planning and Deployment**.

For the HPOM integration, see ["OMi Post-upgrade Procedure" on page 147](#).

3. End the SDR and unsubscribe it from the source server. For details, see ["Staging Data Replicator" on page 125](#)
4. Exit staging mode
  - a. Go to **Admin > Platform > Infrastructure Settings > Foundation – Platform Administration > Platform Administration – HP BSM Evaluation**.
  - b. Set **Enable evaluation (staging) mode** to **false**.
  - c. Set **Enable evaluation (staging) mode for customer** to **false**.
5. Keep production server alive

Even though no new events are sent to the production server, there is still a need to keep this server online. Any active events that were forwarded from HPOM to the production server will continue to send updates this server. These updates will be forwarded to the staging server. If receiving these updates is not important to you, you can decommission the production server immediately. Otherwise, you should wait until all or most of the events previously sent to the production server are closed. HP estimates that most events are typically closed within 1-2 weeks.

The upgrade process is now complete. If you experience any problems during the upgrade process, see ["Troubleshooting" on page 203](#).

## Chapter 31: OMi Post-upgrade Procedure

If you were using OMi with BSM in your production environment, and have not configured event synchronization through a Load Balancer or Reverse Proxy, perform this procedure:

### 1. *Configure HPOM to Forward Events to BSM 9.20*

By default, when using a staging environment to upgrade BSM, only the original OMi servers receive events from HPOM. To allow event forwarding to the new staging servers, update the HPOM message forwarding policies as appropriate. As soon as the staging servers are online, both the original OMi servers and the new BSM 9.20 environments receive events from HPOM. Until then only the original servers receive the events.

Perform the appropriate procedure below on each HPOM management server, depending on your operating system.

#### *Configuring the HPOM Forwarding Policy - Windows*

- a. Start the HPOM console as follows:

**Start > Programs (or All Programs) > HP > HP Operations Manager.**

- b. In the left pane of the HPOM console, select the following:

**Policy management > Server policies grouped by type > Server-based Flexible Management.**

- c. In the right pane of the HPOM console, double-click the existing policy that you want to edit. The Server-based Flexible Management Editor dialog opens.
- d. Replace the existing message target server to point to the new 9.20 BSM Gateway server (or Reverse Proxy or Load Balancer) as shown in the following example policy text:

CONTEMPLATES

# none

RESPMGRCONFIGS

RESPMGRCONFIG DESCRIPTION "Forward all messages to OMi"

SECONDARYMANAGERS

ACTIONALLOWMANAGERS

## MSGTARGETRULES

MSGTARGETRULE DESCRIPTION "Forward all messages rule"

## MSGTARGETRULECONDS

MSGTARGETRULECOND DESCRIPTION "Forward all messages"

## MSGTARGETMANAGERS

### MSGTARGETMANAGER

TIMETEMPLATE "\$OPC\_ALWAYS"

OPCMGR IP 0.0.0.0 "<First Target Manager>"

## MSGTARGETMANAGER

TIMETEMPLATE "\$OPC\_ALWAYS"

OPCMGR IP 0.0.0.0 "<fully qualified host name>"

**Note:** This forwards all messages to OMi. If you want to reduce the number of messages to be sent, see "Server-based Flexible Management" in the HPOM documentation and modify the text of the policy, so that only a selected subset of messages is sent to OMi.

- e. Replace <fully qualified host name> in the text with the fully qualified hostname of the new Gateway Server that should receive HPOM messages (for example, HPGwSrv.example.com).

In deployments involving a load balancer, a NAT device, or a reverse proxy, use the fully qualified hostname of the system used to access the Gateway Server (for example, VirtualSrv.example.com).

For details about load balancing and high availability, see the section "High Availability for HP Business Service Management" in the *BSM Installation Guide*.

- f. Click **Check Syntax** to check for syntax errors in the new policy text.
- g. After correcting any syntax errors, click **Save and Close**.
- h. Redeploy the server-based flexible management policy on the HPOM management server.

## ***Configuring the HPOM Forwarding Policy - Linux and UNIX***

- a. Change to the work\_respmgrs directory as follows:

```
cd /etc/opt/OV/share/conf/OpC/mgmt_sv/work_respmgrs/
```

- b. Policy template files can be found in:

```
/etc/opt/OV/share/conf/OpC/mgmt_sv/tmpl_respmgrs/
```

- c. Edit the existing policy to which you want to add the OMi system as a target as follows:

```
vi <policy file name>
```

- d. Replace the existing message target server to point to the new 9.20 BSM Gateway server (or Reverse Proxy or Load Balancer) as shown in the following example policy text:

```
TIMETEMPLATES
```

```
# none
```

```
RESPMGRCONFIGS
```

```
RESPMGRCONFIG DESCRIPTION "Forward all messages to OMi"
```

```
SECONDARYMANAGERS
```

```
ACTIONALLOWMANAGERS
```

```
MSGTARGETRULES
```

```
MSGTARGETRULE DESCRIPTION "Forward all messages rule"
```

```
MSGTARGETRULECONDS
```

```
MSGTARGETRULECOND DESCRIPTION "Forward all messages"
```

```
MSGTARGETMANAGERS
```

```
MSGTARGETMANAGER
```

```
TIMETEMPLATE "$OPC_ALWAYS"
```

OPCMGR IP 0.0.0.0 "<First Target Manager>"

**MSGTARGETMANAGER**

**TIMETEMPLATE "\$OPC\_ALWAYS"**

**OPCMGR IP 0.0.0.0 "<fully qualified host name>"**

**Note:** This forwards all messages to OMi. If you want to reduce the number of messages to be sent, see "Server-based Flexible Management" in the HPOM documentation and modify the text of the policy, so that only a selected subset of messages is sent to OMi.

- e. Replace <fully qualified host name> in the text with the fully qualified hostname of the Gateway Server that should receive HPOM messages (for example, HPGwSrv.example.com).

In deployments involving a load balancer, a NAT device, or a reverse proxy, use the fully qualified hostname of the system used to access the Gateway Server (for example, VirtualSrv.example.com).

For details about load balancing and high availability, see the section "High Availability for HP Business Service Management" in the *BSM Installation Guide*.

- f. Enter the following command to check for syntax errors in the new policy text:

**/opt/OV/bin/OpC/opcmomchk -msgforw <policy file name>**

- g. After correcting any syntax errors, copy the policy to the respmgrs directory as follows:

**cp <policy file name> /etc/opt/OV/share/conf/OpC/mgmt\_sv/respmgrs/**

- h. Restart the server processes as follows:

**/opt/OV/bin/OpC/opcsv -stop**

**/opt/OV/bin/OpC/opcsv -start**

- i. Set Up a Forwarding Target in the HPOM for UNIX Node Bank

**Note:** Make sure that the SNMP agent is running before adding a managed node to the HPOM database.

The forwarding target (BSM Gateway Server, Reverse Proxy, or Load Balancer) must be set up in the node bank as a managed node. You must add the managed node by using the `opcnode` command line tool, for example:

```
/opt/OV/bin/OpC/Utils/opcnode -add_node node_name=<node_name> net_type=NETWORK_IP mach_type=<machine_type> group_name=<group_name> node_label=<node_name>
```

<machine\_type> relates to the operating system of the BSM host system:

- Linux: MACH\_BBC\_LX26RPM\_X64
- Windows: MACH\_BBC\_WIN2K3\_X64

<group\_name> relates to the operating system of the HPOM management server host system and is one of the following:

- linux
- hp\_ux
- solaris

## 2. *Replace the 9.2x Servers as Target Servers for Topology Synchronization*

If topology synchronization was configured between BSM 9.1x and HPOM, add the fully qualified domain name (FQDN) of the new BSM 9.2x staging servers to the list of target servers to forward discovery data. Follow the appropriate procedure below depending on your operating system.

**Note:** Make sure that certificates are exchanged between new BSM server system and the HPOM server system.

**To add a server to the list of target servers in Windows:**

- a. In the console tree, right-click **Operations Manager**, and then click **Configure\_`Server...**. The Server Configuration dialog box opens.
- b. Click **Namespaces**, and then click **Discovery Server**. A list of values appears.
- c. Add the hostname of the BSM 9.2x staging servers to **List of target servers to forward discovery data**.

If there is more than one target server, separate the hostnames with semicolons, for example:

**server1.example.com;server2.example.com**

If the target server uses a port other than port 383, append the port number to the hostname, for example:

**server1.example.com:65530;server2.example.com:65531**

- d. Make sure that the value of **Enable discovery WMI listener** is **true**. This is the default value.
- e. Click **OK** to save your changes and close the Server Configuration dialog box.
- f. Restart the **OvAutoDiscovery Server** process for your changes to take effect.
- g. Start the initial synchronization of topology data:
  - i. In the console tree, select **Tools > HP Operations Manager Tools**.
  - ii. Right-click **Synchronize Topology** and select **All Tasks > Launch Tool....**

The tool **startInitialSync.bat** is started and begins to send all the topology data to the configured target management servers.

**To add a server to the list of target servers in Linux:**

- a. Type the following command to enable topology synchronization:

```
/opt/OV/contrib/OpC/enableToposync.sh -online -target <comma_separated_  
server_list>
```

Replace **<comma\_separated\_server\_list>** with the fully qualified domain name of the target management server. If you have more than one target management server, separate each server name with a comma (.). Do not include spaces in the server list, for example:

**server1.example.com;server2.example.com**

If the target server uses a port other than port 383, append the port number to the hostname, for example:

**server1.example.com:65530;server2.example.com:65531**

This command restarts the service discovery server. The source management server begins to send any topology data changes immediately.

- b. Type the following command to start the initial synchronization of topology data:

```
/opt/OV/bin/OpC/startInitialSync.sh
```

- c. Make sure that the value of **Enable discovery WMI listener** is **true**. This is the default value.



- d. Restart the **OvAutoDiscovery Server** process for your changes to take effect.
- e. Start the initial synchronization of topology data:
- f. The tool **startInitialSync.xxx** is started and begins to send all the topology data to the configured target management servers.

## **Part III: Appendixes**

# Appendix A: Installing BSM on a Windows Platform

This appendix contains the following topics:

Prepare Information Required for Installation .....	156
Working with the Web Server .....	158
Installing BSM Servers on a Windows Platform .....	160

## Prepare Information Required for Installation

Have the following information ready before installation:

- **Target directory names.** During installation BSM installs the HP Software L-Core packages. If a lower version of these packages is already installed, the packages are automatically upgraded. Otherwise, the currently installed version is not overwritten. This change cannot be reversed.
- During the installation, you must select directories for installing these shared packages. They include:
  - HP Software Cross Platform Component
  - HP Software Cross Platform Component Java
  - HP Software Security Core
  - HP Software HTTP Communication
  - HP Software Certificate Management Client
  - HP Software Security Core Java
  - HP Software HTTP Communication Java
  - HP Software Performance Access Java
  - HP Software Graphing Component
  - HP Software Process Control
  - HP Software Certificate Management Server
- **License key.** You have the option to use an evaluation license (60 days) or import your permanent license. You can browse to a local or network location to locate your license .DAT file.

If at a later stage you need to update the license key (for example, if you acquire a license for one or more new BSM components), you can do so within the BSM site: Select **Admin > Platform > Setup and Maintenance > License Management** and click the **Add License from File** button. For information on updating the license key, see "Licenses" in the BSM Platform Administration Guide.

- **Maintenance number.** This is the maintenance number you received with your BSM package.
- **Administrator's e-mail address.**
- **Port number used by the Web server.** This is the port for access to BSM. The default is port

80.

- **Name of the Gateway Server machine.** This name must also include the domain name.
- **Name of the load balancer** (if applicable). This is the load balancer used to access the BSM site.
- **SMTP mail server name.**
- **SMTP sender name.** This name appears on notifications sent from BSM. This name cannot contain spaces. If a name is entered with spaces the reports will not be delivered.

**Note:** After BSM is started, you can configure an alternative SMTP server via **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.

## Working with the Web Server

BSM installed on a Windows platform works with Apache HTTP Server or Microsoft Internet Information Server (IIS). You specify the web server type in the post-installation wizard. You can re-run the post-installation wizard to modify these settings.

**Note:** There must be only one running Web server on a server machine that uses the same port that BSM uses. For example, if you select to use Apache HTTP Server during BSM server installation, and you are installing on a machine on which IIS is already running, make sure to stop the IIS service and set its startup status to **Manual** before you begin the installation process.

### *Apache HTTP Server*

BSM uses an Apache HTTP Server version that has been adapted by HP for use with BSM. It is installed during the server installation.

By default, the Apache HTTP Server is not enabled for SSL use. For details on configuring the Web server to use SSL, see <http://httpd.apache.org/docs/2.2/ssl/>. SSL should be enabled for all the directories in use by BSM, as configured in the Apache configuration file (**httpd.conf** and **httpd-ssl.conf**).

### *Microsoft Internet Information Server (IIS)*

- For Microsoft Windows Server 2008 using IIS 7.x Web server, see "[Microsoft Windows Server 2008 using IIS 7.x Web Server](#)" below.
- For Microsoft Windows Server 2012 using IIS 8 Web server, see "[Microsoft Windows Server 2012 using IIS 8 Web Server](#)" on the next page.

#### **Microsoft Windows Server 2008 using IIS 7.x Web Server**

If you are installing on a Microsoft Windows Server 2008 and using the IIS 7.X Web server, perform the following procedure:

1. In the **Control Panel**, select **Administrative Tools > Server Manager**.
2. Right-click **Roles** and select **Add server role** to launch the Add Roles wizard.
3. On the Select Role Services page, select **Web Server (IIS) role** to install.

If a popup opens with the question **Add features required for Web Server (IIS)?**, click the **Add required features** button.

4. Click **Next** twice.

5. In the Select Role Services panel, select the following roles:
  - a. **Common HTTP Features** section: **Static Content** (usually enabled by default)
  - b. **Application Development** section: **ISAPI Extensions** and **ISAPI Filters**.
  - c. **Management Tools** section: **IIS Management Scripts and Tools**
6. Click **Install**.

#### **Microsoft Windows Server 2012 using IIS 8 Web Server**

If you are installing on a Microsoft Windows Server 2012 and using the IIS 8 Web server, perform the following procedure:

1. In the **Control Panel**, select **Administrative Tools > Server Manager**.
2. Click **Manage > Add Roles and Features**.
3. Click **Next**.
4. Select **Role-based or future-based installation**.
5. Click **Next**.
6. Select **Select a server from the server pool**.
7. Click **Next**.
8. On the Select Role Services page, select **Web Server (IIS) role** to install.

If a popup opens with the question **Add features required for Web Server (IIS)?**, click the **Add required features** button.
9. Click **Next** twice.
10. In the Select Role Services panel, select the following roles:
  - a. **Common HTTP Features** section:
    - **Static Content** (usually enabled by default)
    - **HTTP Redirection**
  - b. **Application Development** section: **ISAPI Extensions** and **ISAPI Filters**.
  - c. **Management Tools** section: **IIS Management Scripts and Tools**
11. Click **Next**.
12. Click **Install**.

## Installing BSM Servers on a Windows Platform

You install BSM servers—the Gateway Server and Data Processing Server—from the DVD provided with the BSM distribution package. Unless you install on a machine running IIS, BSM installs Apache HTTP Server during the installation process.

You need administrative privileges for the machines on which you are installing BSM servers. If HP Operations Agent is installed on the system and configured to run as non-root user, switch the user under which the agent is running to the user with administrative privileges that is being used to install BSM.

**Note:** Make sure that there are no other installations or processes that may be using the Windows Installer. If there are, the BSM installation hangs and cannot continue running. You must stop the other installation, stop the BSM installation by clicking the **Cancel** button in the installation wizard, and re-run the BSM installation.

The first installation wizard copies the files and packages onto your machine. The post-installation wizard enables registration, and configuring connection, Web server, and SMTP settings.

You can also install BSM in silent mode. For details, see ["Installing BSM Silently" on page 180](#).

### To install BSM servers:

1. Insert the BSM DVD into the drive from which you want to install. A splash screen opens if Autorun is enabled on the machine.

If you are installing from a network drive:

- a. Connect to the DVD.
- b. From the **Start** menu, select **Run**.
- c. Enter the location from which you are installing, followed by HPBsm\_9.20\_setup.exe. The setup file for BSM servers is located in the **Windows\_Setup** directory of the DVD. For example, enter d:\Windows\_Setup\HPBsm\_9.20\_setup.exe

**Note:** If you are installing on a virtual machine, you must copy the .exe file, as well as the packages directory, locally. If you attempt to run the installation over the network onto a virtual machine, the installation fails.

- d. Click **OK**. Setup begins.
2. Follow the on-screen instructions for server installation.



- **Language.** If your installer has been localized to offer additional languages, select one from the options available.

You may receive an anti-virus warning. You can proceed with the installation without taking any action and with the anti-virus software running on the machine.

- **Setup type:**
  - Select **Gateway** setup type to install the Gateway Server on the current machine.
  - Select **Data Processing** setup type to install the Data Processing Server on the current machine.
  - Select **Typical** setup type to install the Gateway Server and Data Processing Server on the same machine.

**Note:** If you are installing onto a machine running Windows 2008 R2 Server, you may get the following message: The installation folder for shared content is not valid. The problem may in fact be that you do not have the necessary administrator permissions to install BSM on the machine. Check with your system administrator.

- **Installation directories.** You must select the following directories for installation.
  - Select the installation directory for HP shared content. Note that there is additional shared data in **%ALLUSERSPROFILE%\HP\BSM\**
  - Select the installation directory for product specific content. In Microsoft Windows environments, this path must be 15 characters or less, and must not contain blank spaces. If the name exceeds 15 characters or does not end with **HPBSM**, during the next step, the installation prompts you to give a different name.

**Note:** During installation you may get the following message:

The necessary ports are in use. If the installation indicates that there are ports in use, the installation does not fail but it is recommended that you free the necessary ports. Otherwise, you will have to re-configure BSM to use a different set of ports.

This phase of the installation can take approximately 30-60 minutes in a virtual environment.

After the process completes, you see check marks next to each of the packages and applications successfully deployed. If there are errors, an Error window opens indicating which installation scripts may have failed.

3. The post-installation wizard opens. Do the following:

- **Register the product.**
- **Configure connection settings:**
  - i. **Apache HTTP Server.** If port 80, the default port, is already in use by the existing Web server, BSM notifies you to resolve the conflict. If you select Apache, you must also enter the email address of the BSM administrator.
  - ii. **Microsoft IIS.** If IIS is using a port other than port 80, enter the IIS port. If you select IIS, you must also select the IIS Web site address to be used by BSM.
- **Select the Web server type:**
  - **For Windows 2008:** If BSM does not detect an installation of Microsoft IIS on the machine, you are offered the **Apache HTTP Server** option only. If you want to run BSM with Microsoft IIS, click **Cancel** to exit the wizard. Install IIS and rerun the BSM installation.
  - **For Windows 2012:** Install BSM 9.20 with Apache Web Server. After BSM 9.24 installation, you will be able to re-run Post Install and select IIS Web server.

**Note:** Before re-running Post Install, install and enable IIS Web Server.

- **Specify the SMTP mail server:**
  - It is recommended that you specify the complete Internet address of your SMTP server. Use only alphanumeric characters.
  - In the **Sender name** box, specify the name to appear in scheduled reports and on alert notices that BSM sends. If BSM was ever installed on the same machine, a default name, **HP\_BSM\_Notification\_Manager**, may appear. You can accept this default or enter a different name.
  - After BSM is started you can configure an alternative SMTP server via **Platform Administration > Admin > Platform > Setup and Maintenance > Infrastructure Settings**.

If deploying on more than one server, install additional BSM servers using the above steps.

**Note:** You can rerun the post-installation wizard to modify the settings. The post-installation wizard can be run from the following location: **<HPBSM root directory>\bin\postinstall.bat**. However, if you are running the post-installation wizard for the first time or it was closed before completion, use the following file instead **<HPBSM root directory>\bin\ovii-postinstall.bat**.

# Appendix B: Installing BSM on a Linux Platform

This appendix contains the following topics:

Prepare Information Required for Installation .....	164
Working with the Web Server .....	165
Installing BSM Servers on a Linux Platform .....	166

## Prepare Information Required for Installation

Have the following information ready before installation:

- **Maintenance number.** This is the number you received with your BSM package.
- **Web server name.** This name must also include the domain name.

**Note:** When installing on Linux, the domain name must be entered manually.

- **Administrator's e-mail address.**
- **SMTP mail server name.**
- **SMTP sender name.** This name appears on notifications sent from BSM.
- **Name of the Gateway Server machine.**
- **Name of the load balancer** (if any). This is the load balancer used to access the BSM site.
- **Port number used by the Web server.** The default port is 80.

## Working with the Web Server

BSM installed on a Linux platform works with Apache HTTP Server.

**Note:** There must only be one running Web server on a BSM server machine.

### *Apache HTTP Server*

BSM uses a version of the Apache HTTP Server that has been adapted by HP for BSM. It is installed during the server installation.

BSM runs its Apache HTTP Server, by default, through port 80. If port 80 is already in use, there are two ways to resolve the port conflict:

- Before beginning BSM installation, reconfigure the service using that port to use a different port.
- During BSM installation, select a different port for the Apache HTTP Server.

By default, the Apache HTTP Server is not enabled for SSL use. For details on configuring the Web server to use SSL, see <http://httpd.apache.org/docs/2.2/ssl/>. SSL should be enabled for all the directories in use by BSM, as configured in the Apache configuration file (**httpd.conf** and **httpd-ssl.conf**).

## Installing BSM Servers on a Linux Platform

You install BSM servers—the Gateway Server and Data Processing Server—from the BSM DVD provided with the BSM distribution package.

To verify that the installation files are original HP-provided code and have not been manipulated by a third-party, you can use the HP Public Key and verification instructions provided on this HP web site: <https://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=HPLinuxCodeSigning>.

You can also install BSM in silent mode. For details, see "Installing BSM Silently" on page 180.

**Note:** It is recommended that you do not use an emulator application, for example Exceed, to install BSM. Installing via an emulator may slow the pace of the installation and may adversely affect the appearance and functionality of the user interface.

BSM and HP Operations Agent must always run as the same user. If the host system for the BSM installation is preinstalled with an HP Operations Agent and the HP Operations Agent is configured to run as a non-root user, you must first switch the HP Operations Agent to a root user before calling the BSM installer. At the end of the installation, you can choose if BSM runs as a root user or non-root user. If you choose to run BSM as a non-root user, you must switch the HP Operations Agent to the same non-root user.

### To install BSM servers:

1. Log in to the server as user **root**.
2. Insert the BSM DVD into the drive from which you want to install. If you are installing from a network drive, mount the DVD.
3. Go to the installation root directory.
4. (Optional) You can verify that the installation files are original HP-provided code and have not been manipulated by a third-party by using the HP Public Key and verification instructions on the following website:  
<https://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=HPLinuxCodeSigning>.
5. Run the following script:

```
/HPBsm_9.20_setup.bin
```

6. Follow the on-screen instructions for server installation.

**Note:** If BSM detects a previous installation on the machine, a message is displayed

warning that any customized configuration data will be overwritten.

- Select the setup type:
  - Select **Gateway** setup type to install the Gateway Server on the current machine.
  - Select **Data Processing** setup type to install the Data Processing Server on the current machine.
  - Select **Typical** setup type to install the Gateway Server and Data Processing Server on the same machine.
- The directory where the BSM files are copied is **/opt/HP/BSM**.
- The installation directory for HP shared content is **/opt/OV**.
- The data directory for HP shared content is **/var/opt/OV**.

**Note:** During installation you may get the following message:

The necessary ports are in use. If the installation indicates that there are ports in use, the installation does not fail but it is recommended that you free the necessary ports.

This phase of the installation can take approximately 30-60 minutes in a virtual environment.

After the process completes, you see check marks next to each of the packages and applications successfully deployed. If there are errors, an **Errors** tab opens detailing what errors may have occurred.

7. The post-installation wizard opens. Do the following:

- **Register the product.** Enter **Name**, **Company**, and **Maintenance number**.
- **Configure connection settings:**
  - **Host.** Must be the fully qualified domain name (FQDN). The name of the server may appear by default but you must add the domain manually. If you use a load balancer, here you must enter the machine name for the load balancer.
  - **Port.** If port 80, the default port, is already in use by the existing Web server, BSM notifies you to resolve the conflict.
- **View the Web server type and enter the BSM administrator email address.** BSM installs the Apache HTTP Server. This is the web server that must be used in Linux environments.
- **Specify the SMTP mail server:**

- It is recommended that you specify the complete Internet address of your SMTP server. Use only alphanumeric characters.
- In the Sender name box, specify the name to appear in scheduled reports and on alert notices that BSM sends.

**Note:** You can rerun the post-installation wizard to modify the settings. The post-installation wizard can be run from the following location: **<HPBSM root directory>/bin/postinstall.sh**. However, if you are running the post-installation wizard for the first time or it was closed before completion, use the following file instead **<HP BSM root directory>/bin/ovii-postinstall.sh <TOPAZ\_HOME>**, where **<TOPAZ\_HOME>** is the BSM installation directory (typically /opt/HP/BSM).



# Appendix C: Server Deployment and Setting Database Parameters

This appendix contains the following topics:

- Setup and Database Configuration Utility Overview ..... 170
- Setting Database Parameters ..... 171
- Required Information for Setting Database Parameters ..... 173
- Running the Setup and Database Configuration Utility ..... 176

**Note:** If you work with Oracle Server, substitute the term **user schema** for the term **database** below.

## Setup and Database Configuration Utility Overview

You configure your server deployment and create and connect to the databases/user schemas by using the Setup and Database Configuration utility.

You can run the Setup and Database Configuration utility as part of the BSM server installation by selecting it in the last page of the post-installation wizard. Alternatively, you can run the Setup and Database Configuration utility independently after server installation. The steps involved are the same for both procedures.

When installing in a distributed environment, run the utility first on the Data Processing Server and then on the Gateway Server.

If, at a later time, you want to modify any of the database types or connection parameters, you can run the Setup and Database Configuration utility again. BSM must be disabled when running this utility. For details, see ["Starting and Stopping BSM " on page 140](#).

After modifying database type or connection parameters, restart all BSM servers and data collectors.

**Note:** Modifying connection parameters for the management, RTSM, RTSM history, Business Process Insight, and Event databases after BSM is up and running may cause serious data loss and integrity problems.

Before beginning this procedure, it is recommended that you review ["Setting Database Parameters" on the next page](#) and ["Required Information for Setting Database Parameters" on page 173](#).

For detailed information on preparing either MS SQL Server or Oracle Server in your system for use with BSM, see the BSM Database Guide.

## Setting Database Parameters

You can set connection parameters for the following databases:

- Management
- RTSM
- RTSM History
- Business Process Insight (BPI)
- Event
- User Engagement Schema

To configure the connections for these databases, you must:

- Select the type of database you plan to use— MS SQL Server or Oracle Server
- Select to create or re-use the database on MS SQL Server, or user schema on Oracle Server. See ["Creating Databases" below](#).
- Specify the connection parameters to the database or user schema. See ["Connecting to Existing Databases" on the next page](#).

**Note:** If you need to change an active management database for BSM, contact HP Software Support.

### *Creating Databases*

You can either use the Setup and Database Configuration utility to create the databases for you on MS SQL Server or Oracle Server, or you can create these databases manually, directly in the relevant database server (for example, if your organization does not allow the use of administrator credentials during Setup). If you created the databases manually, you must still run the Setup and Database Configuration utility to connect to them.

For instructions on creating databases manually on MS SQL Server, see "Creating and Configuring Microsoft SQL Server Databases" in the BSM Database Guide. For instructions on creating user schemas manually on Oracle Server, see "Manually Creating the Oracle Server Database Schemas" in the BSM Database Guide.

**Note:** Each database/user schema created in BSM(whether on the same database server or on different database servers) must have a unique name.

## ***Connecting to Existing Databases***

When running the Setup and Database Configuration utility, you select whether you want to create a new database/user schema or connect to an existing one.

You generally use the **Connect to an existing schema** option in the following scenarios:

- When connecting to a database/user schema you manually created directly on MS SQL Server/Oracle Server.
- When installing BSM in a distributed environment and running the utility on servers subsequent to the first server. In this case, you should have run the wizard on the Data Processing Server first and then on the Gateway servers.

You connect to the databases/user schemas that you created during the installation of the first Data Processing Server. After you have connected to the management database, by specifying the same connection parameters that you set during the installation of the first server, the connection parameters for the other databases appear by default in the appropriate screens. Not all databases appear when running on the Gateway Server.

For information on implementing a distributed deployment of BSM, see "Deployment Configurations" in the BSM Getting Started Guide.

## Required Information for Setting Database Parameters

Before setting database parameters, you should prepare the information described in the following sections.

### *Configuring Connection Parameters for MS SQL Server*

You need the following information for both creating new databases and connecting to existing ones:

- **Host name.** The name of the machine on which MS SQL Server is installed. If you are connecting to a non-default MS SQL Server instance in dynamic mode, enter the following:  
<host\_name>\<instance\_name>

**Caution:** There is a twenty six (26) character limit for the **Host name** field while running the utility. If using a host name without a domain name is not appropriate in your environment, perform one of these workarounds:

- Use the IP instead of the host name in the **Host name** field.
  - Map the host name to the IP in the Windows Hosts file. Use the host name you mapped in the **Host name** field.
- **Port.** The MS SQL Server's TCP/IP port. BSM automatically displays the default port, **1433**.
    - If you connect to a named instance in static mode, enter the port number.
    - If you connect to a named instance in dynamic mode, change the port number to **1434**. This port can dynamically listen to the correct database port.
  - **Database name.** The name of the existing database that has been manually created, or the name that you will give your new database (for example, BSM\_Management).

**Note:** Database names starting with numbers are not supported.

- **User name and Password.** (if you use MS SQL Server authentication) The user name and password of a user with administrative rights on MS SQL Server. Note that a password must be supplied.

**Tip:** We recommend not using the default **sa** user for security reasons.

You can create and connect to a database using Windows authentication instead of MS SQL Server authentication. To do so, you must ensure that the Windows user running the BSM service has the necessary permissions to access the MS SQL Server database. For information on assigning a Windows user to run the BSM service, see ["Changing BSM Service Users " on page 194](#). For information on adding a Windows user to MS SQL Server, see "Using Windows Authentication to Access Microsoft SQL Server Databases" in the BSM Database Guide.

**Note:** In Linux environments, Windows authentication is not supported.

## ***Configuring Connection Parameters for Oracle Server***

**Note:** If your Oracle Server is on a Real Application Cluster (Oracle RAC), some of the parameters in this section should be assigned different values. For details, see the section about Support for Oracle Real Application Cluster in the BSM Database Guide.

Before setting database parameters, ensure that you have created at least one tablespace for each user schema for application data persistency purposes, and that you have set at least one temporary tablespace according to the requirements. For details on creating and sizing the tablespaces for BSM user schemas, see "Oracle Server Configuration and Sizing Guidelines" in the BSM Database Guide.

You need the following information for both creating a new user schema and for connecting to an existing one:

- **Host name.** The name of the host machine on which Oracle Server is installed.

**Caution:** There is a twenty six (26) character limit for the **Host name** field while running the utility. If using a host name without a domain name is not appropriate in your environment, perform one of these workarounds:

- Use the IP instead of the host name in the **Host name** field.
- Map the host name to the IP in the Windows Hosts file. Use the host name you mapped in the **Host name** field.

- **Port.** The Oracle listener port. BSM automatically displays the default port, **1521**.
- **SID.** The Oracle instance name that uniquely identifies the Oracle database instance being used by BSM.
- **Schema name and password.** The name and password of the existing user schema, or the name that you will give the new user schema (for example, BSM\_MANAGEMENT).

If you are creating a new user schema, you need the following additional information:

- **Admin user name and password.** (to connect as an administrator) The name and password of a user with administrative permissions on Oracle Server (for example, a System user).
- **Default tablespace.** The name of the dedicated default tablespace you created for the user schema.
- **Temporary tablespace.** The name of the temporary tablespace you assigned to the user schema. The default Oracle temporary tablespace is **temp**.

**Note:** To create a new user BSM user schema, you must have administrative permissions and CREATE USER, CONNECT, CREATE SEQUENCE, CREATE TABLE, CREATE TRIGGER, UNLIMITED TABLESPACE, CREATE VIEW, and CREATE PROCEDURE privileges on the Oracle Server.

## Running the Setup and Database Configuration Utility

You can run the Setup and Database Configuration utility either as part of the BSM Installation process or separately. If you run the Setup and Database Configuration utility separately from BSM Installation process, note the following important points:

- If the command prompt window is open on the BSM server machine, you must close it before continuing with the Setup and Database Configuration utility.
- If running this wizard after installation to modify existing configuration and not during initial installation, you must disable BSM before running the Setup and Database Configuration utility (select **Start > Programs > HP Business Service Management > Administration > Disable HP Business Service Management**).
- Use only English characters when entering database parameters.

**Note:** You can also run this utility in silent mode. For details, see ["Installing BSM Silently" on page 180](#).

### To set database parameters and configure server deployment:

1. Launch the Setup and Database Configuration utility in one of the following ways:
  - At the end of the post-installation wizard, select the option to run the Setup and Database Configuration utility.
  - **Windows:** On the BSM server, select **Start > Programs > HP Business Service Management > Administration > Configure HP Business Service Management**. BSM launches the Setup and Database Configuration utility. Alternatively, you can run the file directly from `<BSM_Installation_Directory>\bin\config-server-wizard.bat`.
  - **Linux:** On the BSM server machine, open a terminal command line and launch `/opt/HP/BSM/bin/config-server-wizard.sh`.
2. Follow the on-screen instructions for configuring the databases.
  - a. **License.** If you are running this utility for the first time, you can select to use the evaluation license or download your new licenses. If this is not the first time you are running this utility, you can select to skip this step or download additional licenses. The license file has a .DAT suffix and must be in a local or network location accessible to the server running the utility.

You can update your licenses after BSM is installed in the Licenses Management page of Platform Administration. For details, see "Licenses" in the BSM Platform Administration Guide.

- b. **Server Deployment.** The recommended workflow is to enter your deployment information



in the capacity calculator to determine the scope of your deployment and which applications and features you will be running. You can upload the saved capacity calculator Excel file into this page of the utility. The required fields are automatically populated with the data from the capacity calculator, based on your entries in the Excel sheet. For details, see the BSM Getting Started Guide.

- **Users.** The number of logged in users determines whether your user load is **small**, **medium**, or **large**.
- **Model.** The number of configuration items in your model determines whether your model is **small**, **medium**, **large**, or **extra-large**.
- **Metric Data.** The number of monitored applications, transactions, locations, and hosts determines whether your metric data load is **small**, **medium**, or **large**.
- **<List of Applications>.** Select or clear the applications to activate or deactivate for this deployment. Clear those applications you are not using to free memory and processor speed for those applications that you are using.

**Note:** If you do not enable functionality while running this utility, it is not available to any users. For example, if you do not select Custom Rules (used in OMi and labelled Custom Event Handling in the capacity calculator), users are not able to customize event processing. For details on the application options, see the tooltips in the capacity calculator.

After the installation is complete and you want to change your deployment, you can adjust capacity levels and enable or disable applications and functionality in the Server Deployment page in Platform Administration.

You can also manually enter the information in this page, but it is highly recommended that you use the capacity calculator to determine the scope and capacity of your deployment.

- c. **Login Settings.** Enter passwords for the administrator user ("admin") to access BSM and the JMX console.

Optionally, set an **Access to RTSM password** to secure communication to the Run-time Service Model from RUM, BPI, and TransactionVision.

**Note:** If you change the **Access to RTSM** password during the BSM installation, you must similarly change the password in BPI, Diagnostics, RUM, and TV.

- d. **IIS Configuration.** If you are using Microsoft Internet Information Server (IIS) version 7.X on Microsoft Windows Server 2008, BSM requires that the following IIS roles are enabled:

- ISAPI Extensions
- ISAPI Filters
- IIS Management Scripts and Tools
- Static Content

If they are already enabled, the IIS Configuration screen is not displayed.

If any of the roles are not enabled, you can request that they are automatically configured now by selecting **Automatically enable IIS roles** and clicking **Next**.

If you want to configure them manually, select **Manually enable IIS roles** and click **Next**.

- e. **Firewall Configuration.** If you are running BSM behind a firewall, when running the utility on a Gateway Server, you have the option of configuring the firewall either automatically or manually.

- If you choose to configure automatically, **only port 383** (the event system default port) is configured. When the user decides to configure the firewall automatically we check which port is configured for BBC in XPL config and open this port. 383 is the default BBC port but if the user changed this in XPL config we open that port in the firewall instead of port 383.

You must then manually configure the same port when running the utility on the Data Processing Server because the certificate server is hosted there. You may need to open additional ports if a firewall is enabled on this server. For details, see "Port Usage" in the BSM Platform Administration Guide

- If you choose to configure manually, no port configuration is executed and you must manually configure on both the Gateway Server and the Data Processing Server.

- f. To enable the database connections, you must click **Finish** at the end of the utility.

3. If you ran the Setup and Database Configuration utility as part of the BSM server installation, you must start BSM on all servers only after successfully setting the parameters for all the databases. For details, see ["Starting and Stopping BSM " on page 140](#).

If you ran the Setup and Database Configuration utility to add a new Gateway Server or modify the previously defined database types or connection parameters, restart all BSM servers and data collectors after successfully completing the parameter modification process.

**Note:** If you used this utility to modify any databases on a running BSM deployment, MyBSM and Service Health will no longer contain any pages and components, and OMi perspectives are removed. To restore MyBSM and Service Health pages and components and OMi perspectives:

- Open the following directory: **<Gateway Server root directory>\conflumashup\import**. This contains two directories: **\loaded**, and **\toload**.
- Copy the contents of the **\loaded** directory into the **\toload** directory. Restart BSM.

# Appendix D: Installing BSM Silently

The wizards used to install and configure BSM can be run in silent mode. Silent mode runs the wizards from a command line, without viewing the wizard interface. This allows Linux users without X-windows to run these wizards, however it can be used in windows environments as well.

The instructions have been written for Linux. To run the files for windows environments, replace all .bin file types with .exe and .sh file types with .bat.

**Note:** Silent mode is not supported for upgrade wizards.

This appendix contains the following topics:

How to Fully Install BSM 9.2x Silently .....	181
How to Generate a Response File to Rerun the Post-Installation Wizard and the Setup and Database Configuration Utility Silently .....	184
How to Configure Windows Authentication When Running the Setup and Database Configuration Utility Silently .....	185
How to Encrypt Passwords in the Response File .....	186

## How to Fully Install BSM 9.2x Silently

This procedure describes how to perform a complete installation of BSM silently, including the installation wizard, post-installation wizard, latest minor-minor release, and setup and database configuration utility.

1. Run the BSM 9.20 Installation Wizard silently by running the installation file from the command line with a **-i silent** parameter. The installation file can be found in **<BSM Installation Media>** root folder.

- To install the Gateway and Data Processing servers on one-machine (typical installation) using the default installation directory, run the following command:

**setup.bin -i silent**

To change the default installation directory perform the following procedure before running the installation command:

- i. Create an empty file called **ovinstallparams.ini** in the same directory as the installation executable file on all BSM servers.
- ii. Copy the following section to the .ini file on the BSM Servers.

[installer.properties]

setup=HPBsm

prodInstallDir=<installation directory>

- To install the Gateway and Data Processing Servers on different machines use the following procedure:

- i. Create an empty file called **ovinstallparams.ini** in the same directory as the installation executable file on both servers.
- ii. Copy the following section to the .ini file on the Gateway Server:

[installer.properties]

setup=HPBsm

group=**gateway**

If you want to change the default installation directory, add the following line as well:

prodInstallDir=<installation directory>

- iii. Run the Installation Wizard in silent mode on the Gateway Server as follows:

**setup.bin -i silent**

- iv. Copy the following section to the .ini file on the Data Processing Server:

[installer.properties]

setup=HPBsm

group=**process**

If you want to change the default installation directory, add the following line as well:

prodInstallDir=<installation directory>

- v. Run the Installation Wizard in silent mode on the Data Processing Server as follows:

**setup.bin -i silent**

2. Install the latest minor-minor release silently (for example, 9.24) as follows:

- a. Download the latest minor minor from the SSO site:  
<http://support.openview.hp.com/selfsolve/patches>
- b. Select **Application Performance Management (BAC)** and select the most recent minor minor 9.2x version.
- c. Click **Search** to locate the installation files.
- d. Save the package locally and run the installation file silently using the following syntax:

**HPBsm924\_9.24\_setup.bin -i silent**

3. Open the response file in **<BSM Installation Directory>\TemplemptyRspFile.xml** and complete the values.

4. Run the post-installation wizard

**silentConfigureBSM.sh <BSM Installation Directory>\templemptyRspFile.xml  
postinstall**

5. Log out of and in to Linux (optional). If you are installing BSM in a Linux environment, and you specified a non-root user in the post-installation wizard, log out and log in using the non-root user you selected.

6. Run the Setup and Database Configuration Utility

**silentConfigureBSM.sh <BSM Installation Directory>\templemptyRspFile.xml  
configserver**

7. Enable BSM. For details, see ["Starting and Stopping BSM " on page 140.](#)
8. Enabling BSM for the first time may take up to an hour. To check the status of BSM, use the following URL:

**`http://<BSM DPS URL>:11021/invoke?operation=showServiceInfoAsHTML&objectname=Foundations%3Atype%3DNannyManager`**

9. In BSM, go to **Platform Administration > Setup and Maintenance > Server Deployment** to enable BSM applications.

## How to Generate a Response File to Rerun the Post-Installation Wizard and the Setup and Database Configuration Utility Silently

You can create an xml file with the value entries you used when running the Setup and Database Configuration Utility. This file can be used to run the wizard on different machines.

1. Run the Setup and Database Configuration Utility normally on an existing BSM system.
2. The response file is generated and stored in the **<BSM Installation Directory>/temp** directory or in a location you specified. It is automatically filled in with the values you specified when running the Post-Installation Wizard and the Setup and Database Configuration Utility.
3. You can now run the Post-Installation Wizard and the Setup and Database Configuration Utility on any machine silently with the response file using the following syntax:

**silentConfigureBSM.sh <path to response file>/<response file name>.xml**

**Note:** You can run the two wizards separately by appending the appropriate command as follows:

**silentConfigureBSM.sh <path to response file>/<response file name>.xml  
[postinstall | configserver]**

The silentConfigureBSM.sh file can be found in the **<BSM Installation Directory>/bin** directory.



## How to Configure Windows Authentication When Running the Setup and Database Configuration Utility Silently

The Setup and Database Configuration Utility allows you to configure BSM to take the database schema credentials directly from the windows authentication credentials. To enable this feature when manually creating a response file, leave the UserName and Password keys for each relevant schema blank. The following example shows the BPI schema section of the response file formatted to use windows authentication:

```
<database name="bpi">
  <!--Enter 'create' to create a new database or 'connect' to connect
to an existing database-->
  <property key="operation" value="connect"/>
  <property key="dbName" value="dbname"/>
  <property key="hostName" value="<hosturl>"/>
  <property isEncrypted="false" key="password" value=""/>
  <property key="server" value="<serverurl>"/>
  <property key="sid" value="<sidvalue>"/>
  <property key="UserName" value=""/>
  <property key="port" value="1521"/>
  <!--Please enter your BPI Database Server Type in value attribute-->
  <property key="dbType" value="Oracle"/>
  <!--The following four items are only relevant if you are using an O
racle database-->
  <property key="adminUserName" value=" "/>
  <property isEncrypted="true" key="adminPassword" value=" "/>
  <property key="defaultTablespace" value=" "/>
  <property key="temporaryTablespace" value=" "/>
</database>
```

## How to Encrypt Passwords in the Response File

The passwords that are stored in the response file can be encrypted for added security. To do this, run the password encryption tool located in:

**<BSM Installation Directory>/bin/encrypt-password.sh**

You enter your password and the encryption tool returns a string. Copy the string to the response file where you would have entered your password.

**Limitation:** encrypted passwords are valid on the machine that ran the encryption tool.

To remove password encryption, enter the passwords in the response file normally and set the value of **IsEncrypted="false"**.

# Appendix E: Upgrade Wizard

This appendix provides information about the BSM upgrade wizard and contains the following topics:

- Upgrade Wizard Overview .....188
- Preparing Information for the Upgrade Wizard ..... 189
- Tracking the BSM 9.1x Configuration Upgrade Progress ..... 190

## Upgrade Wizard Overview

The upgrade wizard is run after the post-installation wizard. It replaces the setup and database configuration utility which is run in a regular deployment. The upgrade wizard performs the following tasks:

- Migrates data from original databases
- Migrates BSM configurations
- Guides you through manual procedures necessary for the upgrade process

The upgrade wizard gives you the option of skipping some steps and running them later by restarting the wizard manually. This can be done as many times as is necessary. For example, if you do not have time to complete the data upgrade, you can skip it and complete the rest of the wizard. When you manually restart the wizard, your previous progress is saved. Make sure that you run the entire upgrade wizard from start to finish at least once.

The upgrade wizard runs the database schema verify program on your database schemas to verify that they have been configured properly. For details, see the BSM Database Guide.

The wizards are located in the HPBSM\bin directory as follows:

- **Windows:** upgrade\_wizard\_run\_from90.bat
- **Linux:** upgrade\_wizard\_run\_from90.sh

## Preparing Information for the Upgrade Wizard

To speed up the upgrade process, we recommend that you have the following information prepared before starting the upgrade wizard:

- **Data collectors / components.** Access to all data collectors and components integrated with the original BAC servers.
- **BAC / BSM Architecture.** Knowledge of your original BAC or BSM architecture including data collectors / components / servers.
- **BAC/BSM Servers.** Location, credentials, and access to files for all original and new BAC or BSM servers.
- **Database Information.** Locations, credentials, CMDB / RTSM configuration (for example: internal RTSM, external CMDB, both).
  - **SQL server:** Credentials for a member of the sysadmin group or a user with select permissions for the syslogins system view.
  - **Oracle server:** Credentials for a user with the DBA or SELECT\_CATALOG\_ROLE role.

## Tracking the BSM 9.1x Configuration Upgrade Progress

The configuration upgrade step of the 9.1x upgrade wizard displays the status of the configuration upgraders as they are executed.

The following is an explanation for the meanings of the different statuses:

- **Failed.** When an upgrader fails, the upgrade process cannot continue. Review the log tool and resolve any open issues. For further assistance, contact HP Software Support.
- **Partially Failed.** This status indicates that the items that failed are not critical to the upgrade process itself. Therefore, the user is asked to decide whether to ignore it and continue with the upgrade or to resolve the issue before continuing. If you decide to continue, you will not be able to rerun the failed upgrader and any data that was not upgraded will be lost. Do not continue unless you understand the implications of each partial failure. For details, see the log tool. For a list of what the partially failed status means for each upgrader, see ["Partially Failed Status" below](#).
- **Passed.** When an upgrader passes, this does not necessarily mean that there were no errors at all. It may mean that there were minor errors. Users are encouraged to use the log tool and carefully review any errors that occurred during the upgrade.

To view a summary of errors that occurred during the configuration upgrade, run the upgrade log tool located at **<HP Business Service Management server root directory>\tools\logTool\logTool.bat**. This generates a report in the same directory with the name **logTool.txt**.

### ***Partially Failed Status***

The following table lists the upgraders and what the partially failed status means for each one.

Upgrader	Meaning of Partially Failed Status
SampleEnrichmentUpgrade	<p>A partially failed status may happen when an unexpected error occurred in the upgrader while trying to upgrade one of the following entities:</p> <ul style="list-style-type: none"> <li>• Metrics configuration in profile database</li> <li>• SiteScope monitor CIs in RTSM</li> <li>• Related CIs in RTSM monitored by SiteScope monitors</li> </ul> <p>Some possible reasons for failure are:</p> <ul style="list-style-type: none"> <li>• Database error</li> <li>• CI resolution error</li> <li>• RTSM error</li> <li>• Problems in mapping of measurements to indicators due to missing or corrupted content.</li> </ul> <p>When this happens the upgrader will mark the entity as partially failed in the corresponding upgrader log. (i.e sampleEnrich.upgrade.log)</p> <p>If there is at least one entity that was marked as partially failed the final upgrader status will be <b>Partially Failed</b>. In this case the user has the option to stop the upgrade or to instruct the wizard to continue.</p> <p>If the user decides to continue with the upgrade it means that <b>any configuration or data associated with this entity will not be upgraded to the new system</b>.</p> <p>For example, if a monitor was marked as partially failed and the user decided to continue it means that in the upgraded system this monitor and its related data will not exist - HIs/KPIs will not be assigned to CIs which have failed monitors associated with them.</p>
OprContentUpgrader	<p>At least one content pack failed and at least one succeeded.</p> <p>This could happen if you have customized content. We recommend that you continue with the upgrade.</p> <p>In some cases the SiS Upgrader will fail if a required out-of-the-Box-Contentpack conflicted with a custom content. In this case you will have to resolve the conflict manually and upload the OOTB-Contentpacks manually again.</p>

Upgrader	Meaning of Partially Failed Status
RuleTooltipUpgrader	<p>This happens when you have a Service Health rule that does not have a corresponding tooltip.</p> <p>If you decide to continue it means that the rule will not have a tooltip. A new tooltip can be assigned to the rule in repository 9.1x user interface by editing the rule.</p>
CustomMapViewNameUpgrader	<p>The upgrade updates two tables, one with data regarding the image set to the view, and one with data of CIs set to the image. If only one table upgrade succeeded and the second failed a partially failed status is returned.</p> <p>If you decide to continue it means that the view will not have an image or the view will have an image but with no CIs on the image. A customer can set new image/CIs in the Custom Image user interface in <b>Admin &gt; Service Health &gt; Custom Image</b>.</p>



Upgrader	Meaning of Partially Failed Status
BPM Model and RUM Model Upgraders	<p>A partially failed status in the EUM Admin upgraders may happen when an unexpected error occurred in the upgrader while trying to upgrade one of the following entities:</p> <ul style="list-style-type: none"><li>• BPM profile</li><li>• RUM Application</li><li>• RUM End User Group</li><li>• RUM Page</li><li>• RUM Transaction</li><li>• RUM event</li></ul> <p>When this happens the upgrader will mark the entity as partially failed in the corresponding upgrader log.</p> <p>In each EUM Admin upgrader, if there is at least one entity that was marked as partially failed the final upgrader status will be <b>Partially Failed</b>. In this case, you have the option to stop the upgrade or to instruct the wizard to continue.</p> <p>If you decide to continue with the upgrade, it means that any configuration or data associated with this entity will not be upgraded to the new system.</p> <p>For example, if a profile was marked as partially failed and the user decided to continue it means that in the upgraded system this profile and its related data will not exist. Additionally, any other entity that relates to this profile (E.g. Alerts, SLM, report filters, linked CI, etc) will be detached from this profile or removed completely if it cannot exist by its own.</p>

## Appendix F: Changing BSM Service Users

This appendix provides the procedure for how to switch the Windows and Linux users associated with BSM and contains the following topics:

["Switching the Windows User" below](#)

["Switching the Linux User" on the next page](#)

### Switching the Windows User

The BSM service, which runs all BSM services and processes, is installed when you run the Setup and Database Configuration utility. By default, this service runs under the local system user. However, you may need to assign a different user to run the service (for example, if you use NTLM authentication).

The user you assign to run the service must have the following permissions:

- Sufficient database permissions (as defined by the database administrator)
- Sufficient network permissions
- Administrator permissions on the local server

**Note:** When the BSM service is installed, it is installed as a manual service. When you enable BSM for the first time, it becomes an automatic service.

**To change the BSM service user:**

1. Disable BSM (**Start > Programs > HP Business Service Management > Administration > Disable HP Business Service Management**).
2. In Microsoft's Services window, double-click **HP Business Service Management**. The HP Business Service Management Properties (Local Computer) dialog box opens.
3. Click the **Log On** tab.
4. Select **This account** and browse to choose another user from the list of valid users on the machine.
5. Enter the selected user's Windows password and confirm this password.
6. Click **Apply** to save your settings and **OK** to close the dialog box.
7. Enable BSM (**Start > Programs > HP Business Service Management > Administration > Enable HP Business Service Management**).

**Note:** This procedure must be repeated if BSM is uninstalled or upgraded.

## Switching the Linux User

BSM must be configured to run on linux using a specific user. This user can be either the root or any other user. BSM supports only one user at a time. The user is defined in the post-installation wizard.

**To switch the user after BSM is installed:**

1. Stop BSM.
2. Rerun the post-installation wizard and specify the new user. The post-installation wizard can be run from the following location: **<HPBSM root directory>\bin\postinstall.bat**.
3. Log out of Linux and log in with the new user.
4. **Run the Setup and Database Configuration Utility**

Run the Setup and Database Configuration Utility on the Gateway and Data Processing Servers. You do not have to change any settings. The Setup and Database Configuration Utility can be run from the following location **<BSM\_Installation\_Directory>\bin\config-server-wizard.bat**.

5. Start BSM.

## Appendix G: Upgrading SLAs from BSM 9.x to 9.2x to Work with Baselining

BSM 9.20 introduced the concept of **baselining**. In End User Management, Business Process Monitor performance metrics are analyzed over a period of time, and are used to provide a baseline comparison for establishing acceptable performance ranges. When a transaction's performance exceeds that range by some value, the transaction can signal a performance problem. The acceptable performance range of a transaction is determined by how far the current performance is from the baseline. For details, refer to the Baselines for BPM section in the BSM Application Administration Guide.

The following section is *only* relevant if you are upgrading from BSM 9.x to 9.2x and you want to add baselining to your existing SLAs, and your 9.x SLAs contain one of the following:

- BPM transaction CIs with the BPM Percentile Sample-Based rule defined on performance HIs.
- Groovy rule (Rules API) that use the tot\_ok, tot\_minor, or tot\_critical fields from the trans\_t sample in their rule calculation.

Baselining influences the transaction thresholds, and will therefore have an impact on your SLA calculation. If you want to minimize this influence so that your SLA calculation results are similar to pre-baselining, perform the steps described in the following section.

**Note:** If you have Groovy rules that use the above fields, you may prefer to change your rule script to use a different field from the sample, instead of performing the following procedure.

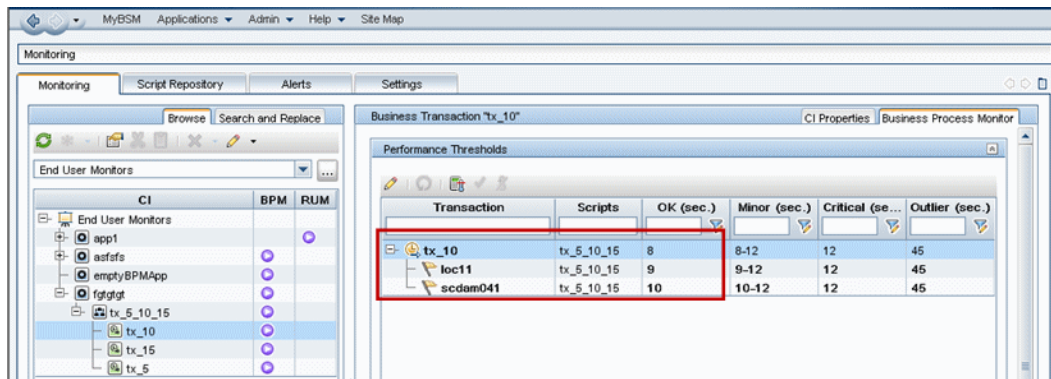
In this procedure you will clone your original SLA (before enabling baselining) to save calculation results; change rules on the cloned SLA to rules that are not influenced by baselining; stop the original SLA; and then configure baselining without it influencing SLA calculation.

Depending on your SLA, proceed with one of the following procedures:

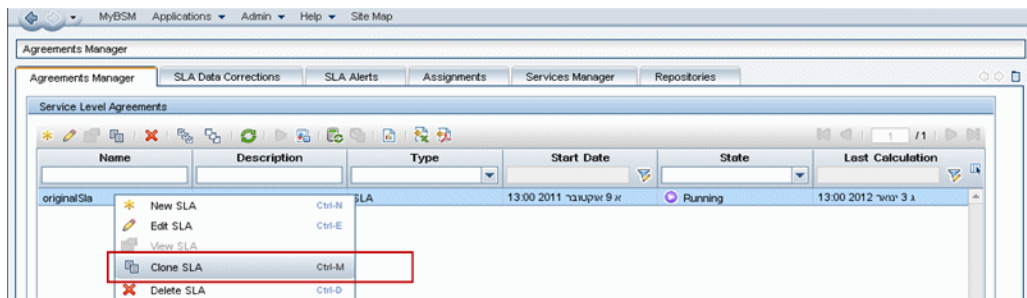
- ["To update SLAs with different thresholds in each location:" below.](#)
- ["To update SLAs with the same thresholds in each location:" on page 200.](#)

### To update SLAs with different thresholds in each location:

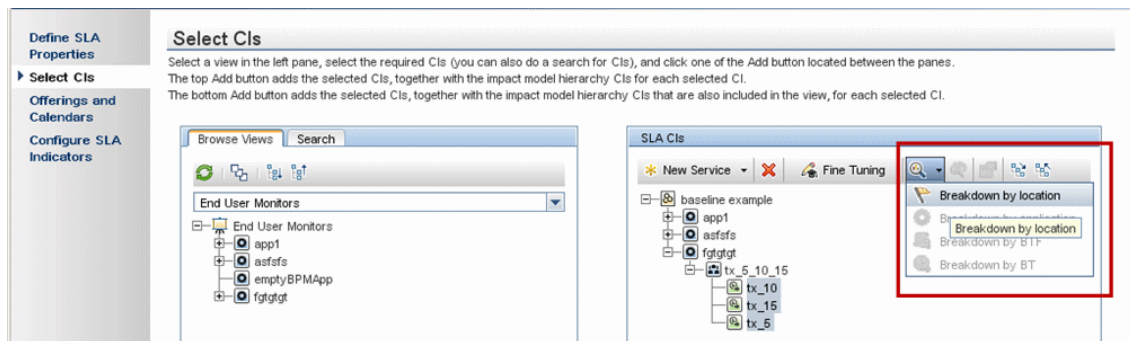
If you have different thresholds for a transaction in each BPM location perform the following procedure:



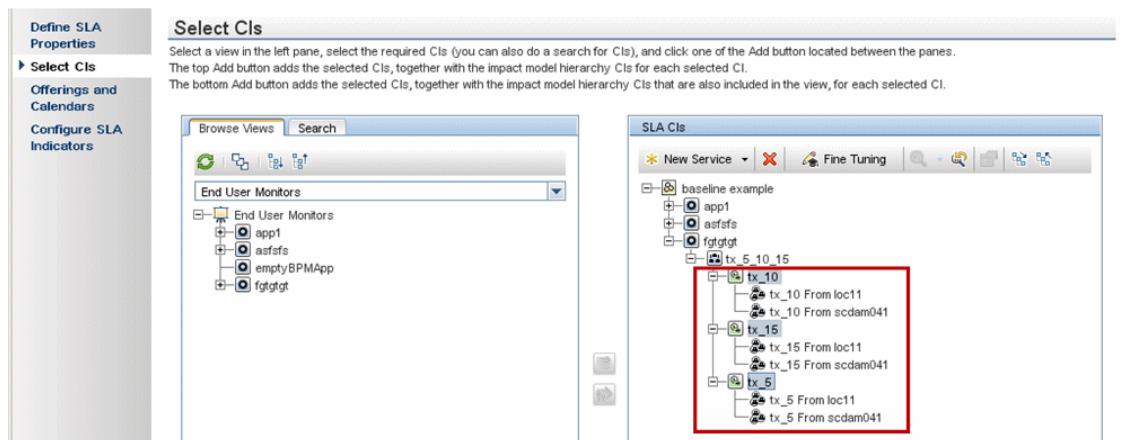
1. Within **Admin > Service Level Management**, clone your SLA; this saves your original SLA with its old calculation results.



2. Within **Admin > Service Level Management**, edit the duplicated SLA. In the SLA wizard, open the **Select CIs** page. Select all the BPM transaction CIs in the SLA, and perform a breakdown for all locations.



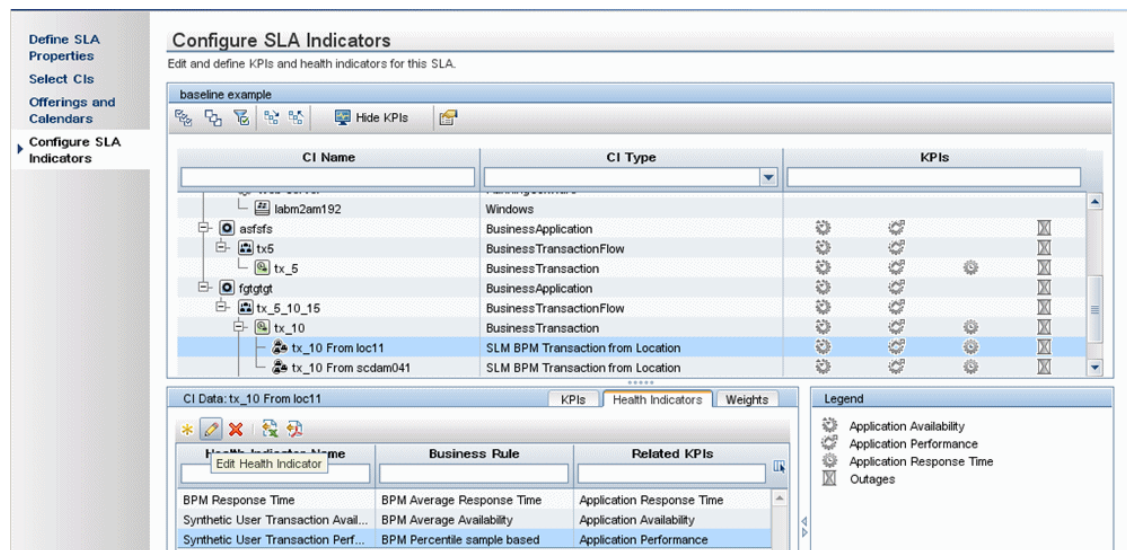
The result is as follows:

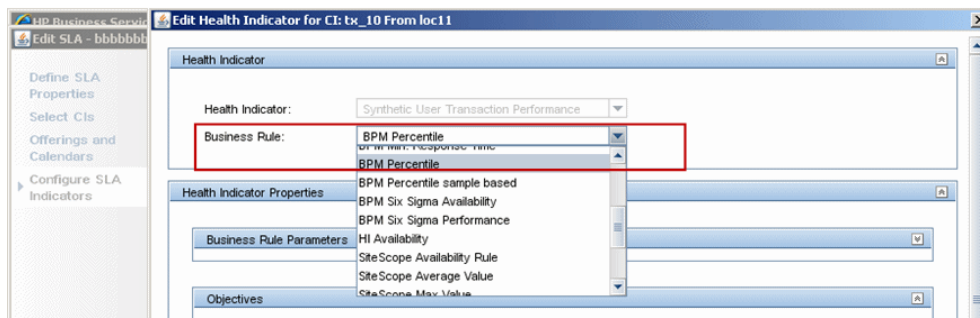


**Note:** If a new location was added to the application inside the SLA, to add the location to the breakdown you must disable the breakdown for the selected transaction using the **Undo Breakdown** button, and then enable it again.

3. Within **Admin > Service Level Management**, edit the duplicated SLA. In the SLA wizard, open the **Configure SLA Indicators** page. On each of the performance HIs under the transaction from location CIs, change the percentile rule from BPM Percentile Sample-Based to BPM Percentile.

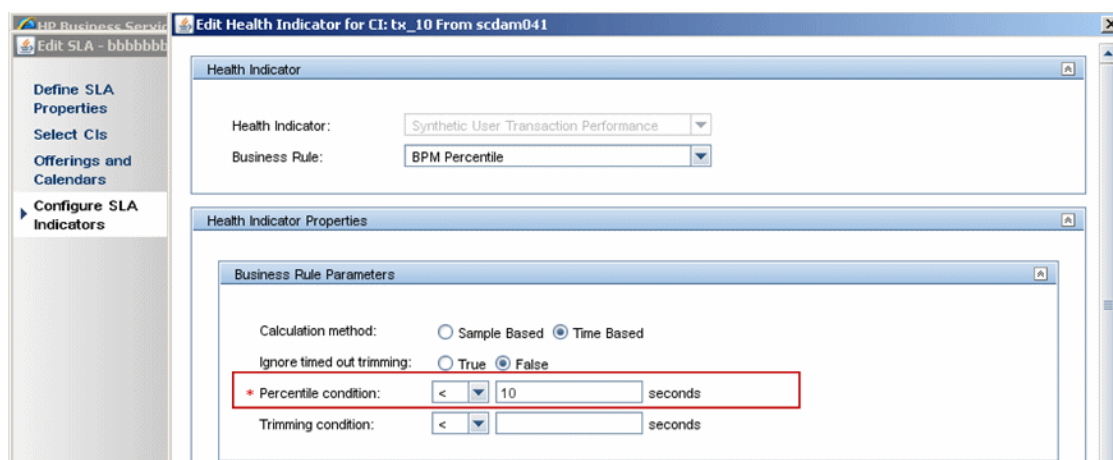
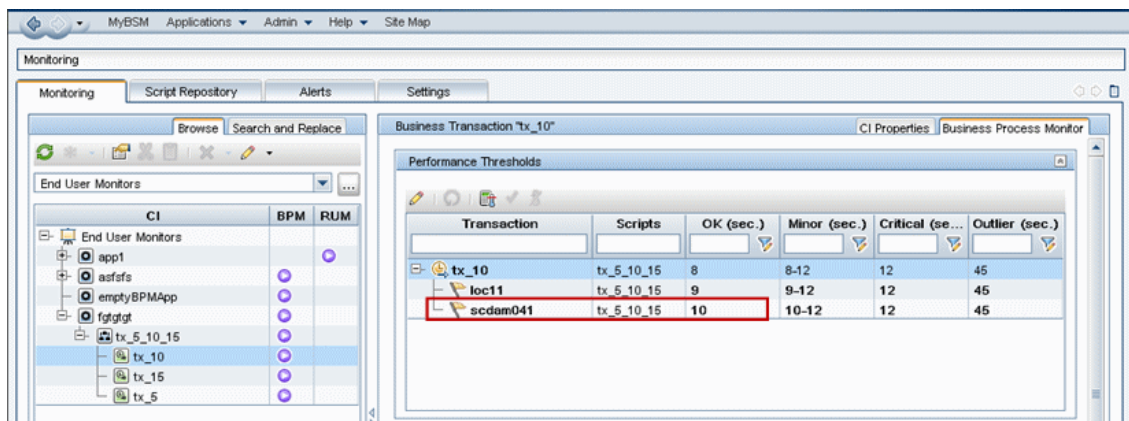
For details on these rules, refer to the list of SLM calculation rules in the the BSM Application Administration Guide.





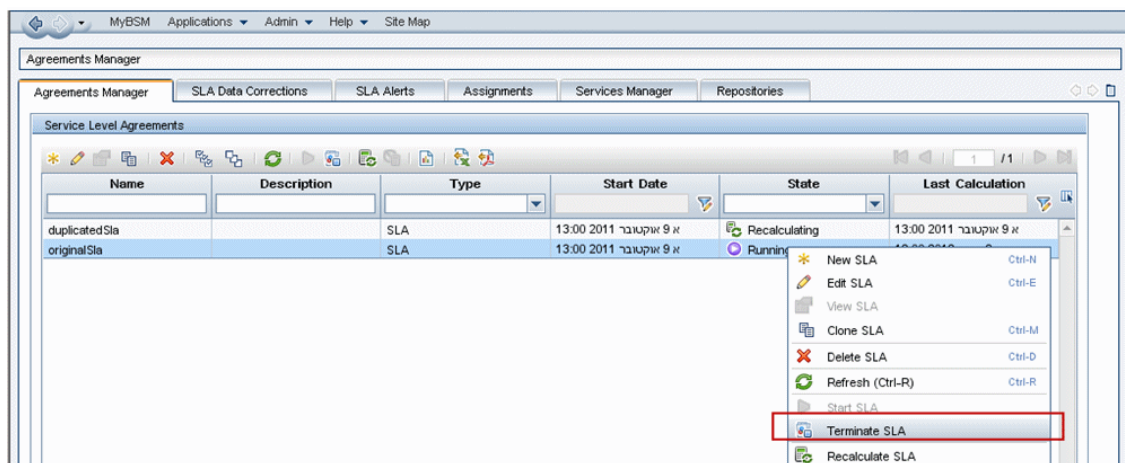
4. For each of the transaction from location CIs whose rule you changed, copy the OK performance threshold defined for the CI in EUM Admin, and use it to define the Percentile Condition rule parameter.

For example, for transaction tx\_10 and location scdam041 the threshold is 10:



5. When you finish creating and editing the duplicated SLA, stop the original SLA.



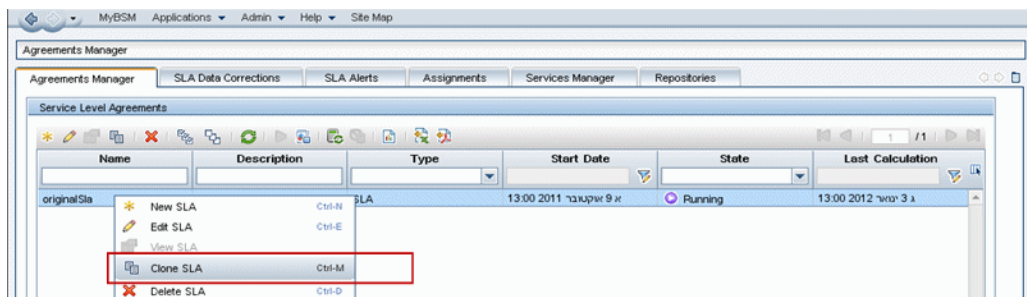


You can now configure baselining without influencing the SLA's calculation.

**To update SLAs with the same thresholds in each location:**

If you have the same threshold for all locations, perform the following procedure:

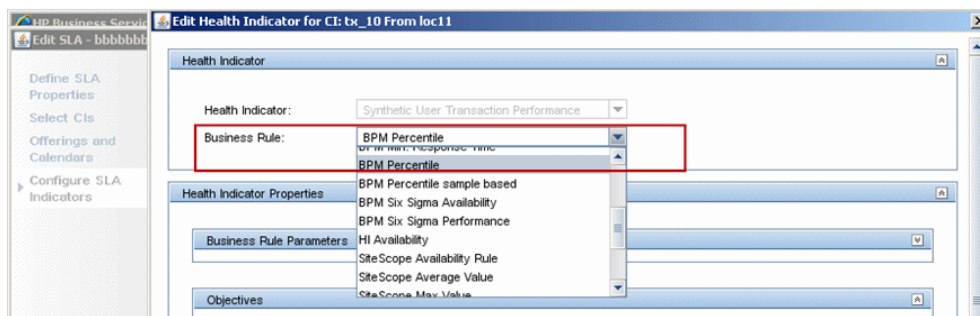
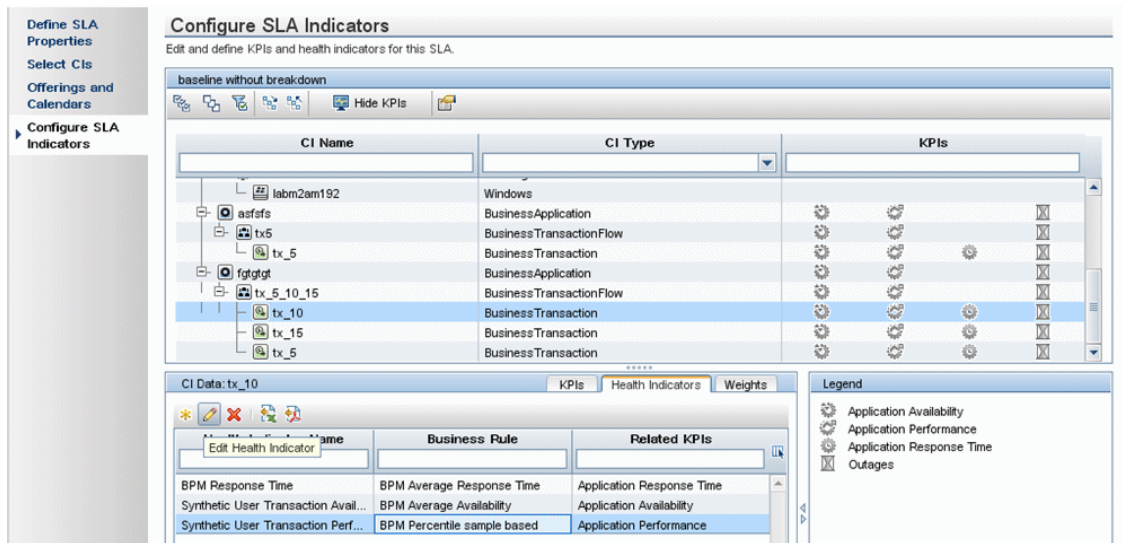
1. Within **Admin > Service Level Management**, clone your SLA; this saves your original SLA with its old calculation results.



2. Within **Admin > Service Level Management**, edit the duplicated SLA. In the SLA wizard, open the **Configure SLA Indicators** page. On each of the performance HIs under the BPM transaction CIs, change the percentile rule from BPM Percentile Sample-Based to BPM Percentile.

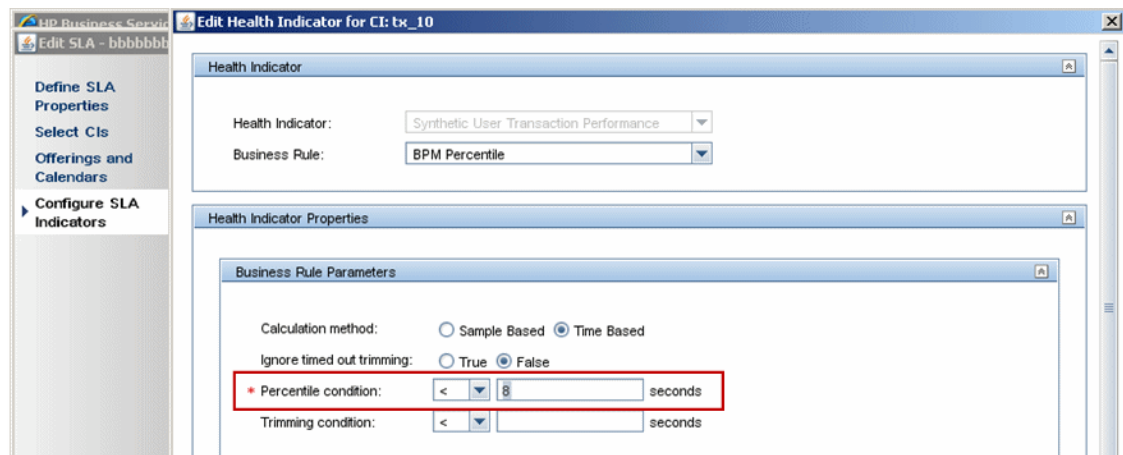
For details on these rules, refer to the list of SLM calculation rules in the the BSM Application Administration Guide.



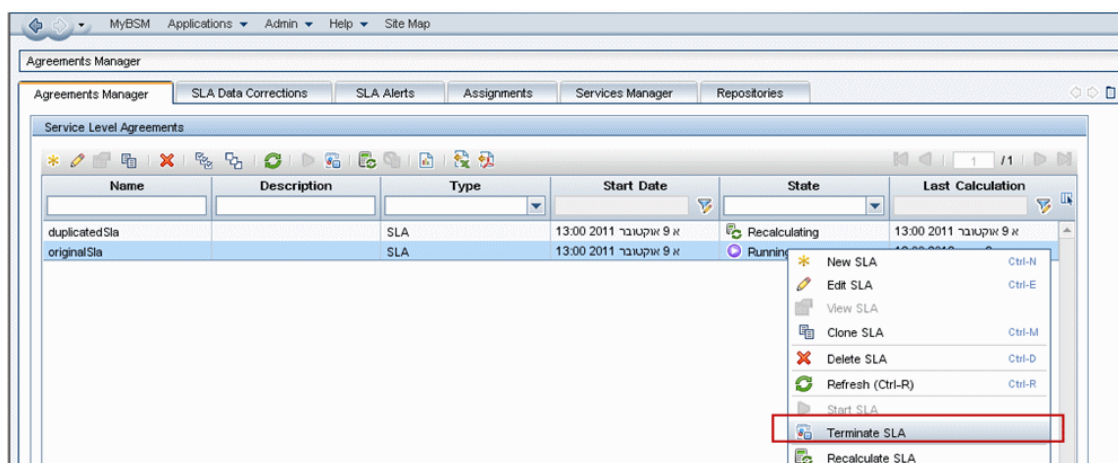


3. For each of the transaction CIs whose rule you changed, copy the OK performance threshold defined for the CI in EUM Admin, and use it to define the Percentile Condition rule parameter.

For example, for transaction tx\_10 the threshold is 8:



4. When you finish creating and editing the duplicated SLA, stop the original SLA.



You can now configure baselining without influencing the SLA's calculation.

# Appendix H: Troubleshooting

This appendix contains the following topics:

Troubleshooting Resources .....	204
Installation and Connectivity Troubleshooting .....	205
Troubleshooting the Upgrade Process .....	213

## Troubleshooting Resources

- **Installation log files.** For details, see "[Check installation log files](#)" on page 136.
- **Upgrade log tool.** To view a summary of errors that occurred during the configuration upgrade portion of the upgrade wizard, run the upgrade log tool located at **<HP Business Service Management server root directory>\tools\logTool\logTool.bat**. This generates a report in the same directory with the name **logTool.txt**.
- **HP Software Self-solve knowledge base.** For additional troubleshooting information, see the HP Software Self-solve knowledge base (<http://www.hp.com/go/hpsupport>).
- **BSM Tools.** You can use BSM tools to assist in troubleshooting the HP Business Service Management environment. You access the tools from **<HP Business Service Management server root directory>\tools** directory. Most of the tools should only be used in coordination with HP personnel. The Database Schema Verification utility (dbverify) and Data Marking utility should be used according to documented instructions.
- **BSM Logging Administrator.** This tool allows you to temporarily modify the level of details displayed in BSM logs, as well as create custom logs. To open the BSM Logging Administrator Tool, open the following URL:

**<http://<BSM Gateway Server>/topaz/logAdminBsm.jsp>**

## Installation and Connectivity Troubleshooting

This section describes common problems that you may encounter when installing BSM or connecting to BSM following installation, and the solutions to these problems.

### ***The Setup and Database Configuration Utility does not allow you to enter a password***

When running this utility on a Linux machine, in some cases the password field will not allow any entries. This was discovered on a Japanese RHEL5 64 machine.

#### **Workaround:**

Execute the wizard using a terminal emulator application, such as PuTTY or GNOME.

### ***Receive error message: not enough space on the drive to extract the installation files***

This happens during component installation. If you enter a new path for a different drive with sufficient space, the same error message is displayed.

#### **Possible Cause:**

During the file extraction process, certain data is always saved to the TEMP directory on the system drive, even if you choose to save the installation files to a different location from the default path.

#### **Solution:**

- Free up sufficient disk space on the system drive (as specified in the error message), then continue with the installation procedure.
- If it is not possible to free up sufficient disk space on the system drive, change the path for the system's TEMP variable. To do this, select **Start > Settings > Control Panel > System > Advanced tab > Environment Variables**, and edit the path for the **TEMP** variable in the User variables area.

### ***Connection to a Microsoft SQL Server database fails when running the Setup and Database Configuration Utility***

Verify that the user under whom the SQL Server service is running has permissions to write to the disk on which you are creating the database.

### ***A network login prompt appears when completing the BSM server installation***

#### **Possible Cause:**

This can occur if the IIS server's authentication method is not set to the default setting, **Allow Anonymous Access**.

**Solution:**

Reset the IIS server's authentication method to the default setting, **Allow Anonymous Access**, and ensure that the default user account **IUSR\_XXX** (where "XXX" represents the name of the machine) is selected (the user account **IUSR\_XXX** is generated during IIS installation). Then uninstall and reinstall BSM.

### ***Tomcat servlet engine does not start and gives an error***

The error message is as follows:

```
java.lang.reflect.InvocationTargetException: org.apache.tomcat.core.TomcatException: Root  
cause - Address in use: JVM_Bind
```

**Possible Cause:**

Running Oracle HTTP Server, installed with a typical Oracle installation, on the same machine as BSM servers causes a conflict with the Tomcat servlet engine.

**Solution:**

Stop the Oracle HTTP Server service, disable and then enable BSM.

To prevent the problem from recurring after the machine is restarted, change the Oracle HTTP Server service's startup setting to **manual**.

### ***Inability to install BSM components due to administrative restrictions***

**Possible Cause:**

The machine on which you are installing has policy management software that restricts access to files, directories, the Windows registry, and so forth.

**Solution:**

If this type of software is running, contact your organization's network administration staff to obtain the permissions required to install and save files on the machine.

### ***After installing, receive http error 404 on the page when attempting to access BSM***

Perform the following tasks:

1. Verify that all BSM processes were started by accessing the status page. For details, see "How to View the Status of Processes and Services" in the BSM Platform Administration Guide.

2. If all the services appear green in the status page, browse to BSM using port 8080 ([http://MACHINE\\_NAME:8080](http://MACHINE_NAME:8080)).  
  
Try to access the JMX console. If you can access the console, continue with step 3 trying to discover the problem.
3. Check if the Web server is started ([http://MACHINE\\_NAME](http://MACHINE_NAME)). If the Web server is started, you probably have a problem with the ISAPI filter.
4. If the problem is with the ISAPI filter and you are running on a Microsoft Windows 2008 server, check that you followed the procedure for creating a role. For details, see ["Working with the Web Server" on page 158](#).
5. The Apache server may not be successfully starting because of a port collision.

### ***After uninstalling BSM and reinstalling to a different directory, BSM does not work***

**Possible Cause:** When uninstalling and reinstalling to a different location, the IIS ISAPI filter did not get updated to the new path.

**Solution:**

**To update the IIS ISAPI filter to the new path:**

1. Open the IIS Internet Services Manager.
2. Right-click the machine name in the tree and select **Properties**.
3. With **WWW Service** displayed in the Master Properties list, click **Edit**.
4. Select the **ISAPI Filter** tab.
5. Ensure that **jakartaFilter** is pointing to the correct BSM directory.
6. Apply your changes and quit the Internet Services Manager.
7. Restart the IIS service.

### ***Business Process Monitor or SiteScope data are not being reported to BSM***

There are various conditions that may cause this problem. For details on causes and possible solutions, refer to the HP Software Self-solve Knowledge Base, and search for article number KM438393 (<http://h20230.www2.hp.com/selfsolve/document/KM438393>).

## ***Business Process Monitors fail to report to the Gateway Server running on IIS***

### **Symptoms/Possible Causes:**

- No data reported to loaders
- No data in Web site reports
- An error in the **data\_deport.txt** log on the Business Process Monitor machine similar to the following:

```
Topaz returned an error (<html><head><title>Error Dispatching
URL</title></head>

<body>

The URI:<br><b>api_reporttransactions_ex.asp</b><br> is <b>not</b>
mapped to an API Adapter.<br>Either the URI is misspelled or the mapping file
is incorrect (the mapping file is located at:
D:\HPBAC/AppServer/TMC/resources/ServletDispatcher.xml)

</body>

</html>)
```

The problem can be confirmed by opening the page `http://<machine name>/ext/mod_mdrv_wrap.dll?type=report_transaction`. If there is a problem, a Service Temporarily Unavailable message is displayed.

You can also submit the following URL to verify Web Data Entry status: `http://<machine name>/ext/mod_mdrv_wrap.dll?type=test`

This problem may be caused by the existence of **MercRedirectFilter**, which is a deprecated filter that is no longer needed for BSM and may be left over from previous versions of BSM.

### **Solution:**

Delete the **MercRedirectFilter** filter and ensure that the **jakartaFilter** is the only IIS ISAPI filter running.

## ***Business Process Monitor is unable to connect via the Internet to the Gateway Server installed on an Apache Web server***

### **Possible Cause:**

The Business Process Monitor machine is unable to resolve the Gateway Server name correctly.



**Solution:**

- Add the Gateway Server name to the Business Process Monitor machine's **<Windows system root directory>\system32\drivers\etc\hosts** file.
- Change the Gateway Server name in the **<Business Service Management root directory>\WebServer\conf\httpd.conf** file on the Gateway Server to a recognized name in the DNS.

## ***Post-Installation Wizard fails during BSM installation on Linux machine***

This may be due to a Linux bug. Open the **/etc/sysctl.conf** file and remove the line **vm.swappiness = 0**. Restart the post installation wizard.

## ***Failed to install Adobe Flash Player***

Adobe Flash Player is installed using the Adobe Download Manager which cannot handle automatic proxy configuration scripts. If Internet Explorer is configured to use an automatic proxy configuration, the download manager fails and hangs with no visual response. Try configuring a proxy host manually or see the Flash Player documentation.

## ***BSM fails to start or BSM configuration wizard does not open***

Check the supervisorwrapper.log file for the following error:

```
C:\HPBSM\conf\supervisor\manager\nannyManager.wrapper wrapper |  
OpenService failed - Access is denied.
```

If this error is present, the issue may be due to having User Access Control (UAC) enabled on a Windows system. Disable UAC on all BSM servers running Windows.

## ***Failure to log in based on FQDN***

If you see the following error in the login screen: **The HP Business Service Management URL must include the Fully Qualified Domain Name (FQDN). Please retype HP Business Service Management URL in the address bar**, but you are connecting via FQDN, check if there is a DNS resolution for Load Balanced virtual IPs from the BSM gateways. You may need to add LB virtual IPs (for application users and for data collectors if needed) to the hosts file on BSM gateway.

## ***After pressing Login, nothing happens. Or user logs in, but Sitemap is empty.***

### **Possible Cause:**

You are trying to login to BSM from the Windows Server instead of the client machine. On Windows Server, the Internet Explorer Enhanced Security Configuration is typically enabled. With this configuration, several BSM UI features including BSM login page, may not work.

### **Resolution:**

Check if the Internet Explorer Enhanced Security Configuration is enabled. If it is enabled, use a regular client for login, and not the Windows server.

If you must login from the server, either disable Internet Explorer Enhanced Security Configuration (**Control Panel > Add/remove Windows components**) or add the BSM URL to the trusted sites in the IE Security Settings.

## ***Java applets not opening***

- If you use Internet Explorer, select **Tools > Internet Options > Connections > Local Area Network (LAN) Settings**. Clear the following options: **Automatically detect settings** and **Use automatic configuration script**.
- Select **Control Panel > Java > General tab > Network Settings > select Direct connection** option (and not the default option to **Use browser settings**).

## ***Uninstalling BSM results in errors***

If you receive a few errors that look like the following:

The package HPOv....can not be uninstalled.

You can ignore these errors. BSM has been uninstalled correctly.

## ***Unreadable Eastern Asian Characters***

On some RHEL6.x distributions, when choosing to install BSM in an Eastern Asian locale (Korean, Japanese or Simplified Chinese), the installation UI displays unreadable characters.

### **Workaround:**

Launch the installer with a JRE that supports Eastern Asian Languages.

```
setup.bin LAX_VM ${PATH_TO_JAVA}
```

## ***Message Broker on Gateway does not start after upgrade to 9.24***

### **Possible Cause:**

Insufficient disk space on the C drive.

Sonic 8.6 uses temporary system folders during its installation. By default, these temporary system folders are located on the C drive. If there is not a minimum of 10GB free disk space, Sonic 8.6 cannot be installed – even if you are installing BSM on another drive.

**Solution:** Obtain more free space on the system's C drive (and on the BSM drive if it is not the same as the system drive), and then re-install Sonic. If you are unable to obtain enough free disk space on your C drive, create a temporary folder on another drive.

**(Optional) Create a temporary folder**

1. Create a temporary folder on a drive that has enough free space (for example, D:\TEMP)
2. Open a cmd window and run the following commands:

```
SET TEMP=D:\TEMP
```

```
SET TMP=D:\TEMP
```

3. Install Sonic using the procedure below. Be sure to run all commands in the **Installing Sonic** procedure in a cmd window. The Sonic installer will access the newly created temporary folder on the drive you designated (for example, drive D).

**Install Sonic**

1. On the Data Processing Server, go to **HPBSM\Sonic\**.
2. Remove all files and folders except the following:
  - bin
  - input
  - installation
3. Go to **HPBSM\Sonic\bin\**.
4. Run **install.bat**. It will take several minutes. This creates new folders under **HPBSM\Sonic\** such as MQ8.6, Launcher, Archives, and others.
5. Open the **HPBSM\conf\bus\jms.configuration.status.properties** file.
6. Delete the contents of the **HPBSM\conf\bus\jms.configuration.status.properties** file leaving just the **domain.manager.status** and **message.broker.status** lines. Edit these lines as follows:

```
domain.manager.status=nonconfigured
```

```
message.broker.status=nonconfigured
```

7. Go to **HPBSM\Sonic\bin\**.

8. Run the following command:

**jmsProviderConfig.bat install.domain**

9. On the Data Processing Server, open the **HPBSM\conf\bus\jms.configuration.status.properties** file and verify that `domain.manager.status=configured`.
10. Start BSM.

## Troubleshooting the Upgrade Process

This section describes problems that you may encounter when upgrading BSM, and the solutions to these problems.

### *General issues*

- If you are using remote desktop and the upgrade wizard is not displayed properly, try reconnecting with remote desktop at a different resolution, or from a different machine.
- Within the wizard, if the **Next** button or **Back** button do not work, check the upgrade Framework.log for the cause of the error. In most cases, restarting the upgrade wizard resolves the problem.
- RUM Engine permissions may be reset during the BSM upgrade. Therefore, it is recommend to ensure that the RUM Engine View permission is selected after upgrading BSM.
  - a. In BSM, click **Admin > Platform**.
  - b. Click the **Users and Permissions** tab.
  - c. Click **User Management**.
  - d. In the tree, select an EUM context and click the **Permissions** tab.
  - e. Select the RUM Engine instance(s) and click the **Operations** tab.
  - f. Enable the **View** option if it is not already selected and if it is not inherited or granted from Group/Roles/Parent.

### *Limitation*

- Search queries defined in **EUM Admin > Search and Replace** for BSM version 9.01 do not work in BSM 9.13 or later .

**Workaround:** Recreate the queries in the later BSM version.

- In the staging environment, you cannot retrieve any data for reports that query RUM when RUM is pointing to the BAC side.

### *Sending Scheduled Reports*

Scheduled reports are not sent from the staging servers while they are in staging mode. This prevents multiple reports from being sent. Non-scheduled reports can be sent by opening the **Report Manager**, selecting the report, and clicking the **Email This Report** button.

You can manually modify this setting so that BSM does send scheduled reports from the staging servers. To do so, enter an email address in the **Platform > Setup and Management > Infrastructure Settings > HP BSM Evaluation > Alerts mail address** setting.

## ***SISConfigurationEnrichmentUpgrader failure***

**Description:** During BSM upgrade, if the SISConfigurationEnrichmentUpgrader reports FAILED, PARTIALLY FAILED, or NOT REQUIRED status, the BSM content packs may not automatically upload upon restart.

**Workaround:** Delete the blockAutoUpload file located in the <HPBSM root directory>\conf\opn\content folder after SISConfigurationEnrichmentUpgrader finished and before BSM restart.

## ***Troubleshooting the 9.1x Upgrade Wizard***

### ***Introduction screen***

If the introduction screen opens without **Next** or **Back** buttons, close the wizard and reopen it. If repeating this action does not help, restart the wizard.

### ***Upgrade Settings screen***

If the server type shown in the upgrade settings screen is not the type you expect, you must reinstall BSM on this machine.

### ***Copying Files screen***

- Make sure you copy DPS files to the DPS, and Gateway files to the Gateway. Do not accidentally copy Gateway files to the DPS.
- If you forget to copy the **excels** folder (or you copy it to the wrong location), you can copy it later without consequence. If you have not yet installed the Gateway, save the **excels** folder to a temporary location, and copy it to the correct location after you install the Gateway.
- If you forget to copy the **cmdb/adapters** folder (or you copy it to the wrong location), the EUM configuration upgrade will fail. You can then copy the files and re-run the configuration upgrade with no consequence.
- If you have Service Health custom rule jars and you did not copy them (or copied them to the wrong location), after you start BSM the online engine fails when calculating HIs or KPIs with the custom rule. The log files contain errors, and the HIs or KPIs are shown without status. To resolve this, copy the custom rule jars at any stage and then continue with the upgrade.
- If you have SLM custom rule jars and you did not copy them (or copied them to the wrong location), the offline engine fails when calculating HIs or KPIs with the custom rule. The log files contain errors, and the HIs or KPIs are shown without status. To resolve this, copy the custom

rule jars and run recalculation of all your SLAs, before the relevant data is purged from the database.

## ***Database Connection - Profile Schema Settings***

If you enter the details of the wrong profile database and you run the schema upgrade, the upgrade fails and the following message appears: **The current schema is not compatible with version 8.0**. The differences between your database and the schema will be greater than expected. Restore the Databases, and restart the upgrade.

## ***Schema Upgrade***

- If the schema upgrade step fails, follow the on-screen instructions. In most cases, an SQL script is generated that resolves the problems that caused the failure of the schema upgrade.
- If the schema upgrade fails because you have users connected to the database, but the user shown is the current machine, click **Next** and re-run the schema upgrade. If this happens more than a reasonable number of times, you can ask your DBA to kill the connections, and then click **Next**.

## ***Update Environment***

- Use the export tool log to verify that the LDAP Database Export/Import tool worked properly, or to see details of problems encountered.
- Server Deployment: If you select the wrong applications, you may fail with memory issues at any point in the upgrade. To fix the incorrect configuration, change the server deployment and restart BSM.
- Server Deployment: If you receive a message stating that the machine is not aligned with the current deployment and a restart of BSM is required, disregard this message. BSM will be restarted as part of the upgrade process at a later stage.
- Login Settings: If you are using a non-default password for RTSM, update all data collectors with the new password when you finish upgrading to the new servers.
- Login Settings: If you re-run the upgrade wizard and enter a different password for RTSM than the one you used the first time, the configuration upgrade (Geo Attributes upgrader) will fail. The logs will contain the following message: **Failed to connect to RTSM**. Re-run the upgrade wizard, and enter the password for RTSM which you used the first time you ran the upgrade.
- Content Pack Import: If the user is not an administrative user, the oprContentUpgrader will fail. In this case, delete the file OprUpload, and re-run the upgrade wizard using administrative credentials.
- Content Pack Import: If an LDAP was configured in the production environment and is not

accessible, you will fail on the oprContentUpgrader. In this case, disable the LDAP and re-run the upgrade wizard.

## ***CMDB Upgrade***

- If an upgrader fails, review the following log file:  
HPBSM\odb\runtime\log\upgrade\upgrade.short.log.
- If the CMDB upgrade fails, and the failure requires restoring the database, you only need to restore the CMDB schemas. You do not need to re-run all previous steps of the wizard. Additionally, you need to delete the following directory from the Data Processing Server running the upgrade wizard: HPBSM\odb\runtime.

## ***Start BSM***

- At this point in the upgrade wizard, when you start BSM not all processes are up, and the UI is not available. This is because BSM is temporarily in Upgrade mode; at a later stage you will restart BSM in Full Mode.
- When the upgrade wizard reaches the Start BSM step, certain steps are marked as successful and will not run again. If you want to rerun these steps (for example, if the DB is restored to the backup) remove all files under **<BSM installation directory>\Temp** that start with **opr**.

## ***Configuration Upgrade***

- If you passed the Start BSM step and ran the configuration upgrade, but the second upgrader (Geo Attributes) has failed, you may have run the configuration upgrade without BSM being completely ready - all processes and all services must be up. Check that BSM is up, and click the Upgrade button to re-run the configuration upgrade.
- If an optional upgrader fails, do not continue to the next step, but rather investigate the problem. You should then fix the problem and re-run the upgrade, or, if you decide that the problem does not prevent you from declaring the upgrade successful, finish the upgrade.
- If an optional upgrader fails and you proceed with the upgrade anyway, you can return to the configuration upgrade at a later stage. In this case, before you re-run the upgrader you must perform the following procedure:
  - a. Run the setVersion JMX with the value 8.0.0.0. The setVersion JMX is under port 8080, Topaz service=Upgrade Framework.
  - b. Disable BSM and restart the upgrade wizard.
  - c. Re-run the configuration upgrade.
- When all upgraders have passed, check the logs for minor errors by running the upgrade log tool



located at **<HP Business Service Management server root directory>\tools\logTool**. The log tool is also useful when an upgrader fails.

- If a mandatory upgrader partially failed and you accidentally selected **Pass Upgrade**, the status is set to PASSED and the upgrader cannot be re-run. To re-run, use the jmx setUpgraderStatus and set the upgrader to failed.

## ***Data Upgrade***

If the failures column contains an entry greater than 0, check the logs for errors; this may be a database problem that is easily resolved. Otherwise, contact HP Support.

## ***Staging Data Replicator (SDR)***

To verify that SDR is working:

1. Open **<SDRroot directory>\conf\core\Tools\log4j\sdrreplicator\sdrreplicator.properties**. Modify the **loglevel** to **debug**.
2. Open **<BSM Directory>\>\conf\core\Tools\log4j\sdrreplicator\wde.properties**. Modify the **loglevel** to **debug**.
3. Find the most recent sample in **<SDR root directory>/log/sdrPublishedSamples.log** and make sure that you can locate it in **<BSM destination>/log/wde/wdePublishedSamples.log**. If samples are appearing in both logs, the SDR is working.
4. Modify the **loglevel** settings to **INFO** in the **sdrreplicator.properties** and **wde.properties** files.

## ***Data Transfer Tool***

- Verify that the SDR is working before running the Data Transfer Tool; you can check the SDR log to see that the SDR is working. If you ran the Data Transfer Tool and the SDR did not run, a message will appear when you click Next (SDR initiation Date warning).
- If you exit the wizard (or the wizard crashes) during the data transfer tool sequence of steps, re-run the tool on the same dates it ran earlier (see upgrade\_all.log for the exact times).
- If you decide not to run the Data Transfer Tool, you will have missing data. Take this into account when looking at reports.
- If you did not record the time of the database backup, choose a date prior to the date of backup. You will have no data missing, but the Data Transfer Tool will take longer than necessary.
- When you run the Data Transfer Tool for a second time, you must choose a different path for the temporary folder than the one chosen for the first run.

- If you accidentally enter the credentials of the staging DB and not the production DB, you will receive the following error message: **Operation Failed ... FileNotFoundExceptionException**. Enter the correct details, and continue.
- The UI allows you to pause the Transferred data upgrade, but actually this does not have any effect.

## ***Verifying Digitally Signed HP Files***

All HP installation files that are in the format listed below are digitally signed:

- **Windows:** MSI, EXE, DLL, VBS, JS, CPL.
- **Linux:** RPM files only.

To verify that the installation files are original HP-provided code and have not been manipulated by a third party, you can do the following:

### **For Windows files:**

1. Right-click the file and select **Properties**.
2. Select the **Digital Signatures** tab and verify that the name of the signer is Hewlett-Packard.

### **For Linux files:**

Open a command line, and run the following commands:

```
# rpm -v -checksig ${RPM_FILE_NAME}# rpm -v -qi -p ${RPM_FILE_NAME}
```

For example:

```
# rpm -v --checksig HPBsmFndCom1-9.10.320-Linux2.6_64.rpm
HPBsmFndCom1-9.10.320-Linux2.6_64.rpm:
Header V3 DSA signature: OK, key ID 2689b887
Header SHA1 digest: OK (a4b436a86ca52dde34113c964866d5838b50bbc5)
MD5 digest: OK (59def5f6719a78eac778324bdb0f6f05)
V3 DSA signature: OK, key ID 2689b887

# rpm -v -qi -p HPBsmFndCom1-9.10.320-Linux2.6_64.rpm
Name : HPBsmFndCom1 Relocations: (not relocatable)
Version : 9.10.320 Vendor: Hewlett-Packard Company
Release : 1 Build Date: Sun 27 Mar 2011 06:15:37 PM IST
Install Date: (not installed) Build Host: LABM1AMRND02.devlab.ad
Group : Applications/System Source RPM: HPBsmFndCom1-9.10.320-
1.src.rpm
Size : 298420659 License: Hewlett-Packard Development Company, L.P.
Signature : DSA/SHA1, Sun 27 Mar 2011 07:04:03 PM IST, Key ID
527bc53a2689b887
Summary : HP BSM Foundations Common Components Pack_1
Description :
HP BSM Foundations Common Components Pack_1
```

## We appreciate your feedback!

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

**Feedback on BSM Upgrade Guide - 9.0x to 9.24 (Business Service Management 9.24)**

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to [Sw-doc@hp.com](mailto:Sw-doc@hp.com).