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for the Windows operating system

Software Version 9.00

BlackBerry SPI Content Pack

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1 Introduction

This chapter includes the following topics:

- About the BlackBerry SPI
- Operations Manager
- Architecture

About the BlackBerry SPI

The HP Operations Smart Plug-in for BlackBerry Enterprise Server Software (BlackBerry SPI) maximizes the value of BlackBerry Enterprise Servers by providing management services.

The BlackBerry SPI is a complete HP Operations Manager integration, implementing distributed monitoring of the BlackBerry Enterprise Server (BES) deployed in Microsoft Exchange environments. The BlackBerry SPI further leverages your investment in HP Operations Manager by integrating management of yet another mission-critical application into HP Operations Manager.

The BlackBerry SPI provides extensive log file monitoring, performance thresholding, and handheld device monitoring which improves the overall availability and performance of the BlackBerry Enterprise Server (BES).

Operations Manager

The most important task of availability management is to monitor information processing systems and applications residing on the network. HP OM uses local HP OM agents to monitor elements and resources such as:

- Servers and clients
- Operating systems
- Middleware applications and databases
- User applications
- Networks

HP OM transforms the event stream coming from the BlackBerry Enterprise Servers into a meaningful message stream by sorting through the events and forwarding only relevant messages to the central HP Operations Management Server. Operators use the HP OM console to check these messages for problems and solve them by launching corrective actions and preconfigured tools using the Operations Manager agent. Examples of corrective actions and preconfigured tools are:

- Automatic actions to restart processes or gather diagnostic information
- Predefined operator-initiated actions to correct a problem
- Context sensitive, problem-specific help and instruction text
- Pre configured tools and applications

HP OM can solve problems by taking any or all of the following steps:

- **Collect information:** HP OM collects information on the status of devices, applications, and systems present in the computing environment
- **Process information:** HP OM makes important or critical status information available on the central console in a consolidated fashion through filtering and event correlation
- **Present the problem:** HP OM displays the problem in the operator desktop, highlights the problem, and shows the resolution strategy
- **Act:** HP OM performs predefined actions (automatic or operator-initiated) to solve and correct the problem. HP OM is an open system with a published set of APIs that let you create complete solutions

Architecture

This section provides detailed information about the architecture of the BlackBerry SPI and Content Pack.

Figure 1 High Level Architecture

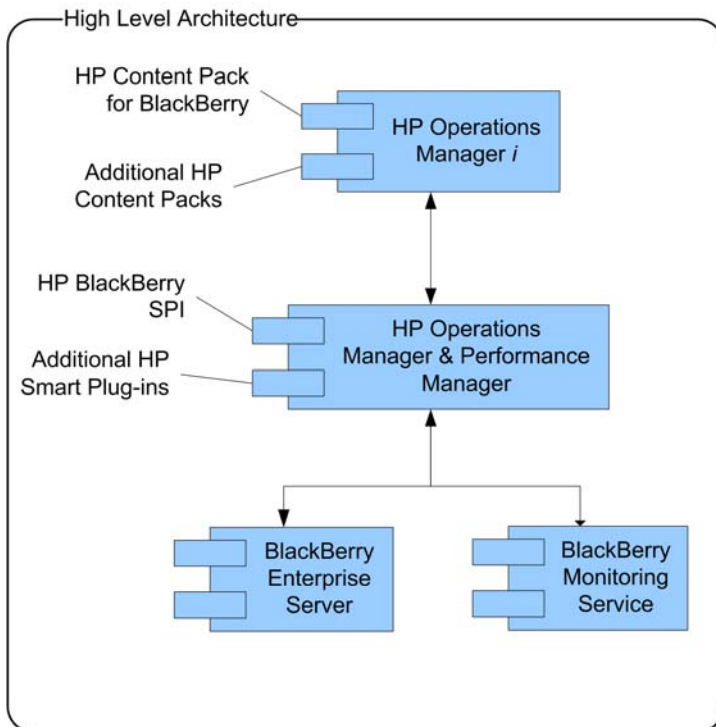
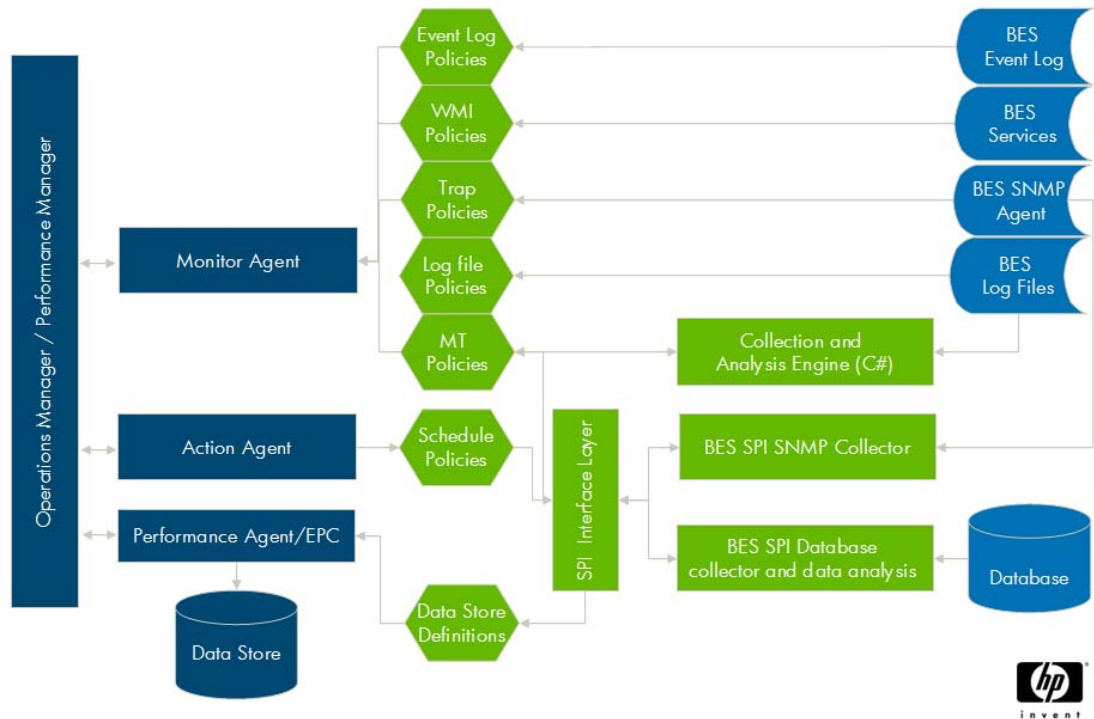


Figure 2 BlackBerry SPI Integration and Data Flow



Legend:

Dark blue elements are part of the HP Operations Manager.

Green objects depict the BlackBerry SPI components.

Mid blue elements mark BES integration points.

BlackBerry SPI software components

The BlackBerry SPI has the following software components:

- BlackBerry SPI instrumentation files
- BlackBerry SPI policies
- BlackBerry SPI tools

The location of the software components depends on the choice of Management Server platform and the particular BlackBerry Enterprise Server management requirements.

BlackBerry SPI License

The BlackBerry SPI requires one software license for each managed BlackBerry server or server partition. Licenses are not required to install the BlackBerry SPI on the Management Server. With the BlackBerry SPI installed on the Management Server, you can review the BlackBerry SPI policies, policy groups, node groups, and tools.

Evaluation license

For evaluation an **instant-on license** is created during the SPI installation. This license is not node-specific and **expires 60 days after installation** of BlackBerry SPI of the OM management server.

Permanent licenses

If you have purchased the BlackBerry SPI, please go to <https://webware.hp.com/> to request your license. The license key will be sent you by mail. There will be one key per BES.

The instant-on license may be replaced at any time with node-specific licenses following the installation process below. Note that it will stay in the list of licenses but SPI operation will be ensured for all nodes with a node-specific license, even though the instant-on license may be expired.

► **Note**

To update evaluation licenses to permanent licenses is a simple process. It does not require a reinstallation of the BlackBerry SPI.

2 Installation of the BlackBerry Content Pack for HP BSM

This chapter contains instructions on how to install the HP Operations Content Pack for BlackBerry Enterprise Server on the HP BSM Deployment Server .

The installation of the BlackBerry SPI Content Pack is done in several steps:

- Step 1 – Install the software on the
- Step 2 – Deploy the ODB package
- Step 3 – Import the Content Pack
- Step 4 – Configure the Topology Synchronization

Software Requirements

The BlackBerry Content Pack builds relationships between BlackBerry component CIs and CIs which are created by other HP BSM Content Packs:

- Exchange Content Pack (HPOprExc)
- MSSQL Server Content Pack (HPOprMss)
- Content Pack for Infrastructure Management (HPOprInf)

In addition, there are correlation rules which use these relationships to deliver more accurate messages.

This functionality requires the use and proper configuration of the Exchange and MSSQL Server Content Packs for HP Operations Manager i.

Please see the appropriate documentation for details.

Step 1 – Install the software on the HP BSM Deployment Server

Using the installation file for the HP BSM Deployment Server on which you are installing the BlackBerry Content Pack, perform the following tasks:

Task 1 Log on to the HP BSM Deployment Server using an account that has local administrative rights.

Task 2 Download the software from or insert the according SPI-DVD, (Please see Release Notes for further details)

Task 3 Start Windows Explorer and navigate to the appropriate directory.

Task 4 Double-click the following file to start the installation or select the SPI during SPI DVD installation:

`HP0prMMBes.msi`

Task 5 When you see the BlackBerry Content Pack Installation Wizard, follow the on-screen instructions.

► **Note**

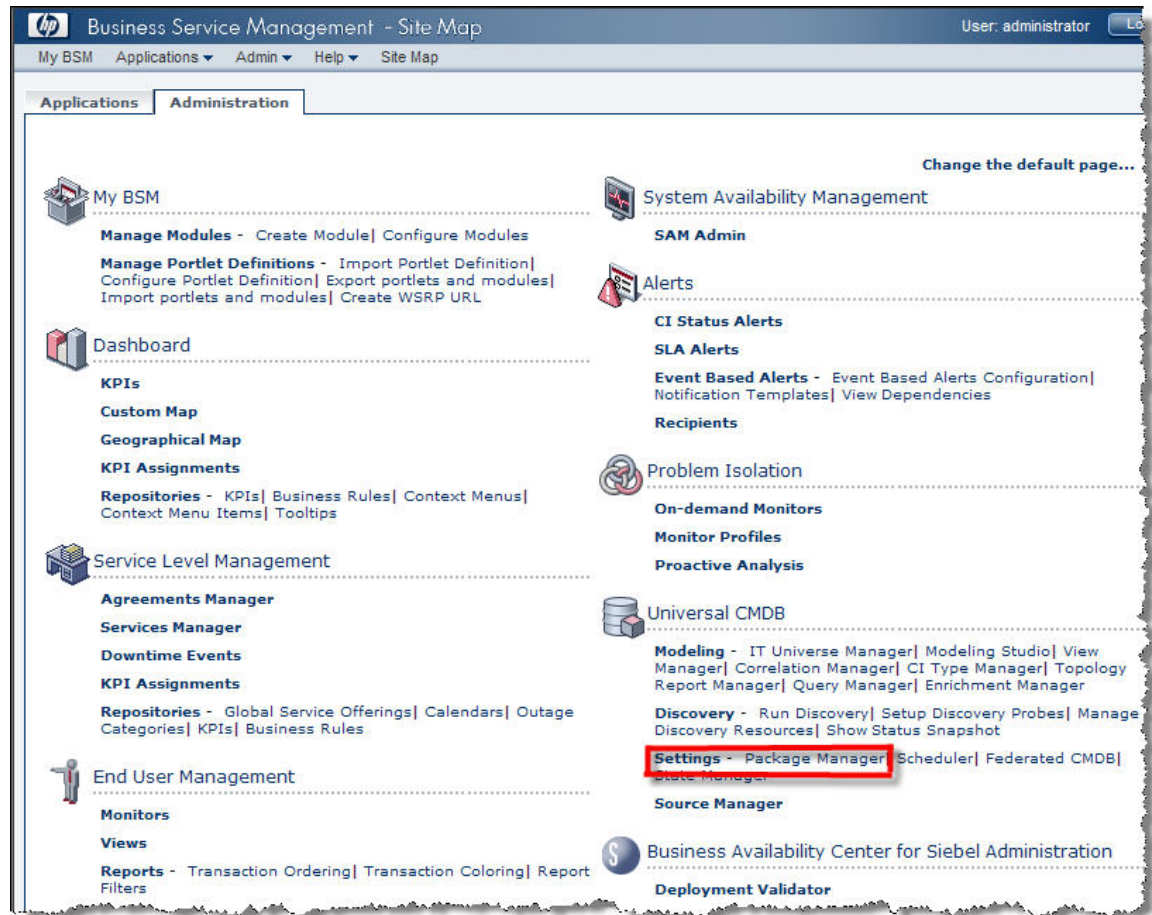
You must install from a local hard drive or CD ROM drive. The installation fails if you attempt to install from a mapped share.

Step 2 – Deploy the ODB package

The next steps have to be performed using the HP BSM Administration. Please log into HP OMi as an administrative user.

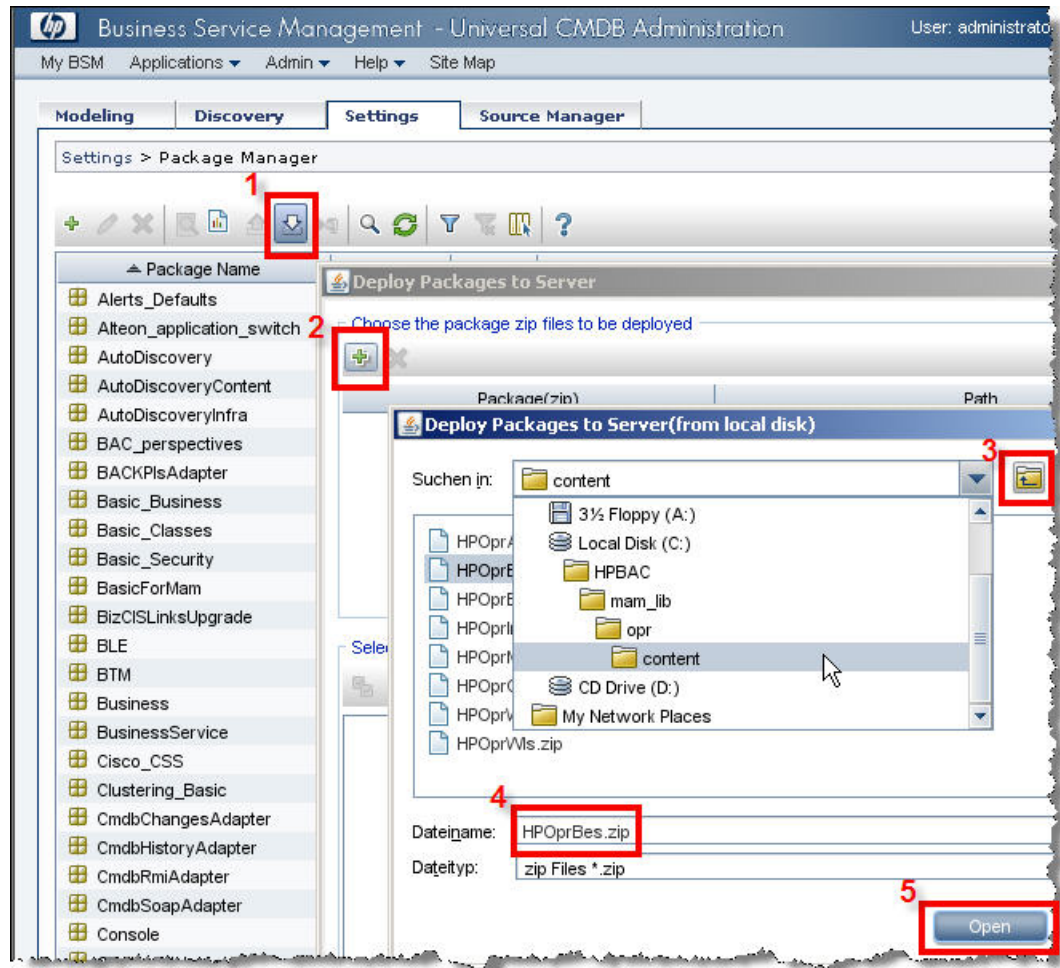
Task 1 Open the Package Manager in the ODB Administration section.

Figure 3 Open the ODB Package Manager



Task 2 Locate the HP Operations Content Pack for BlackBerry Enterprise Server (HPOprMMBes).

Figure 4 Locate the file HPOprMMBes.zip



Task 3 Deploy the HP Operations Content Pack for BlackBerry Enterprise Server.

Figure 5 Deploy the file HPOprMMBes.zip

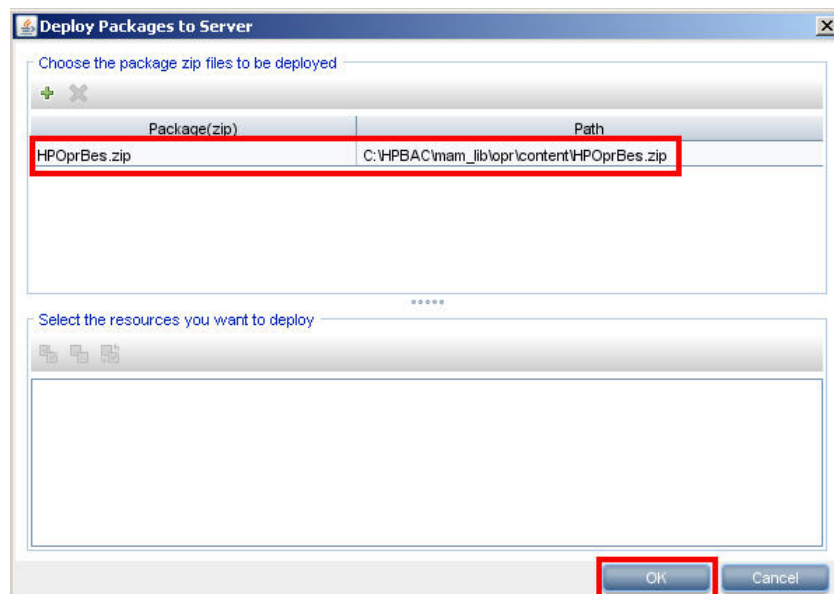
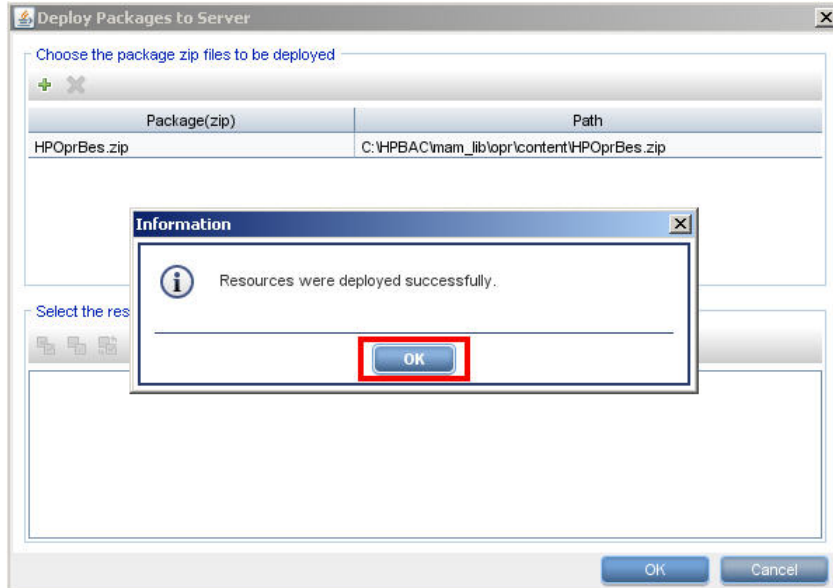
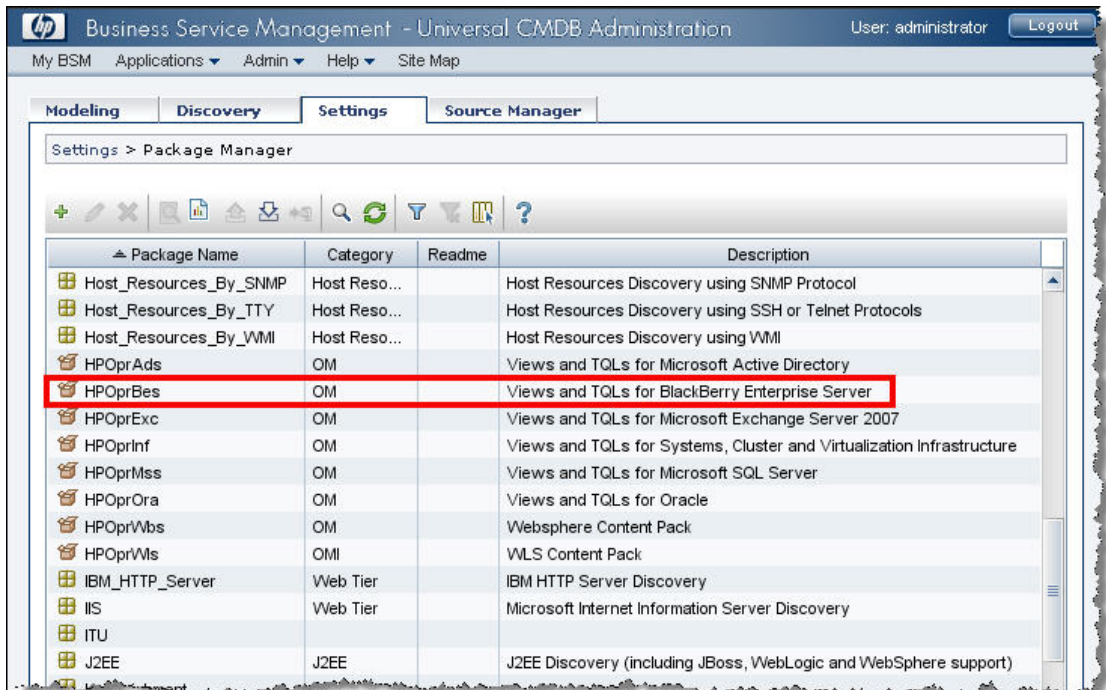


Figure 6 Check the deployment results



Task 4 Verify that the HPOprMMBes Content Pack has been loaded and is shown in the inventory.

Figure 7 Verify the Package Manager inventory

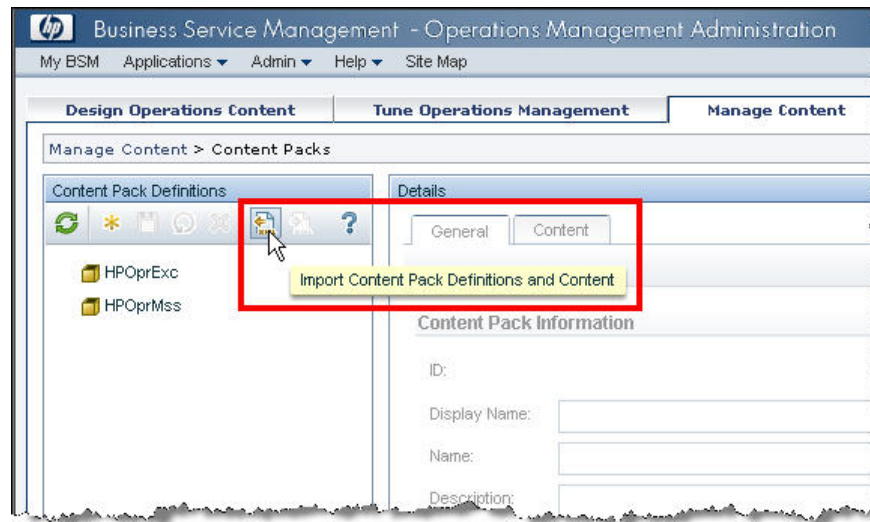


Step 3 – Import the Content Pack

The next step is to import the actual definition of the Content Pack. This step is similar for all HP Operations Content Packs and is described in detail in the HP BSM online help.

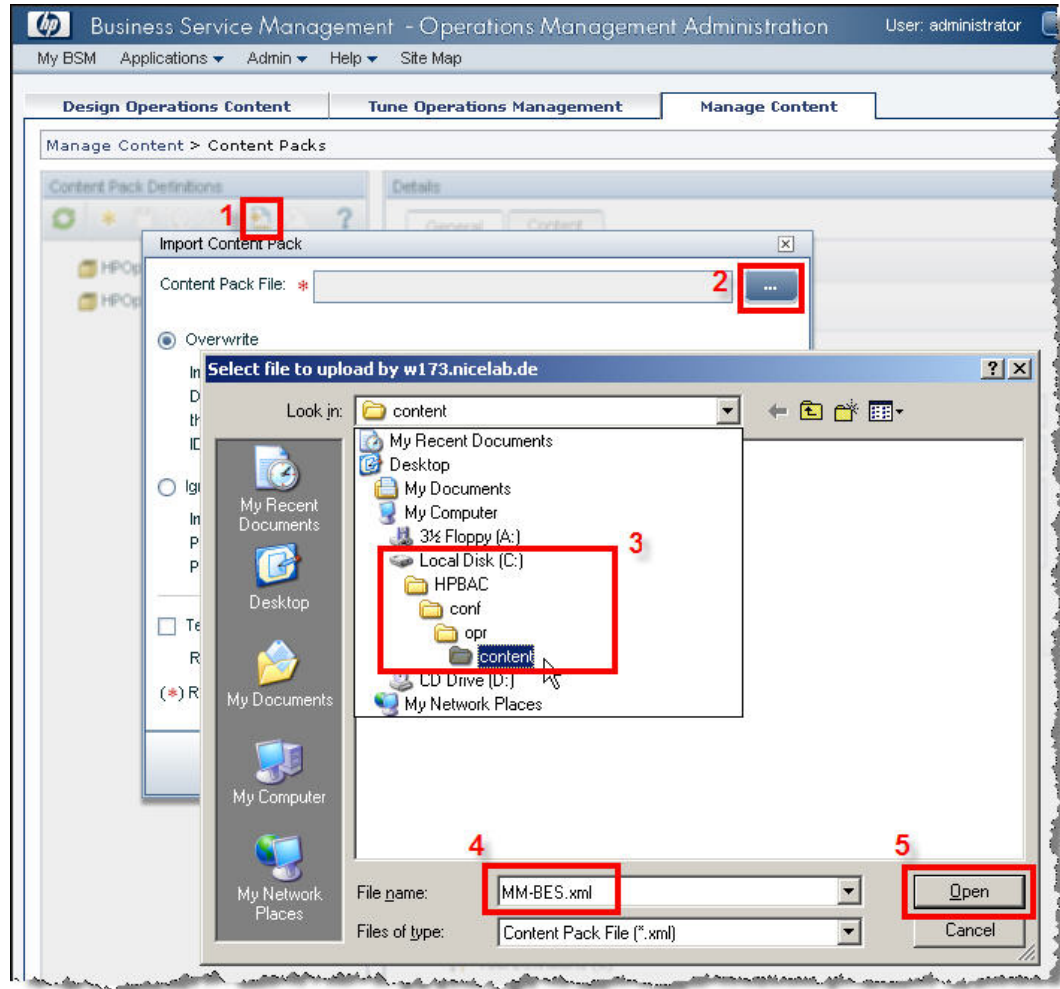
Task 1 Open the Content Pack Manager in the Operations Management section.

Figure 8 Open the Content Pack Manager



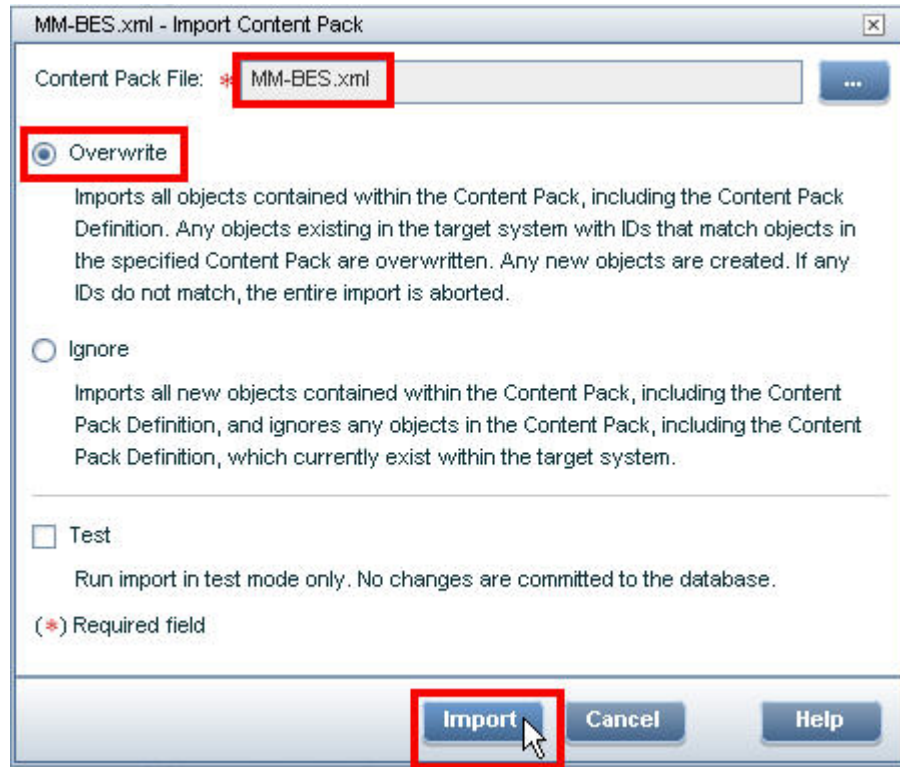
Task 2 Locate the Content Pack definition file

Figure 9 Locate the Content Pack



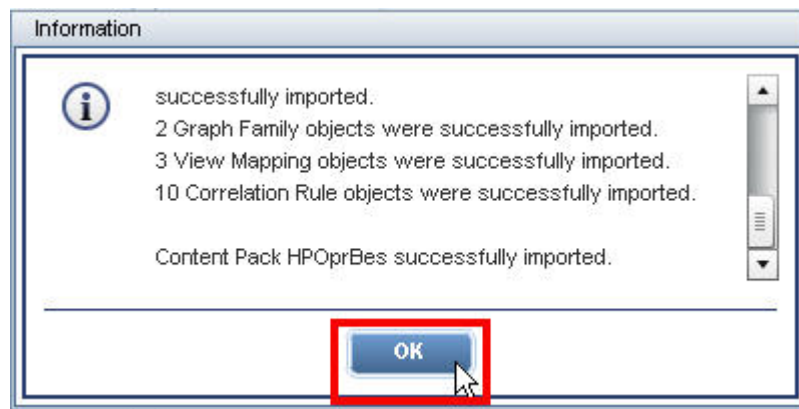
Task 3 Import the Content Pack

Figure 10 Import the Content Pack



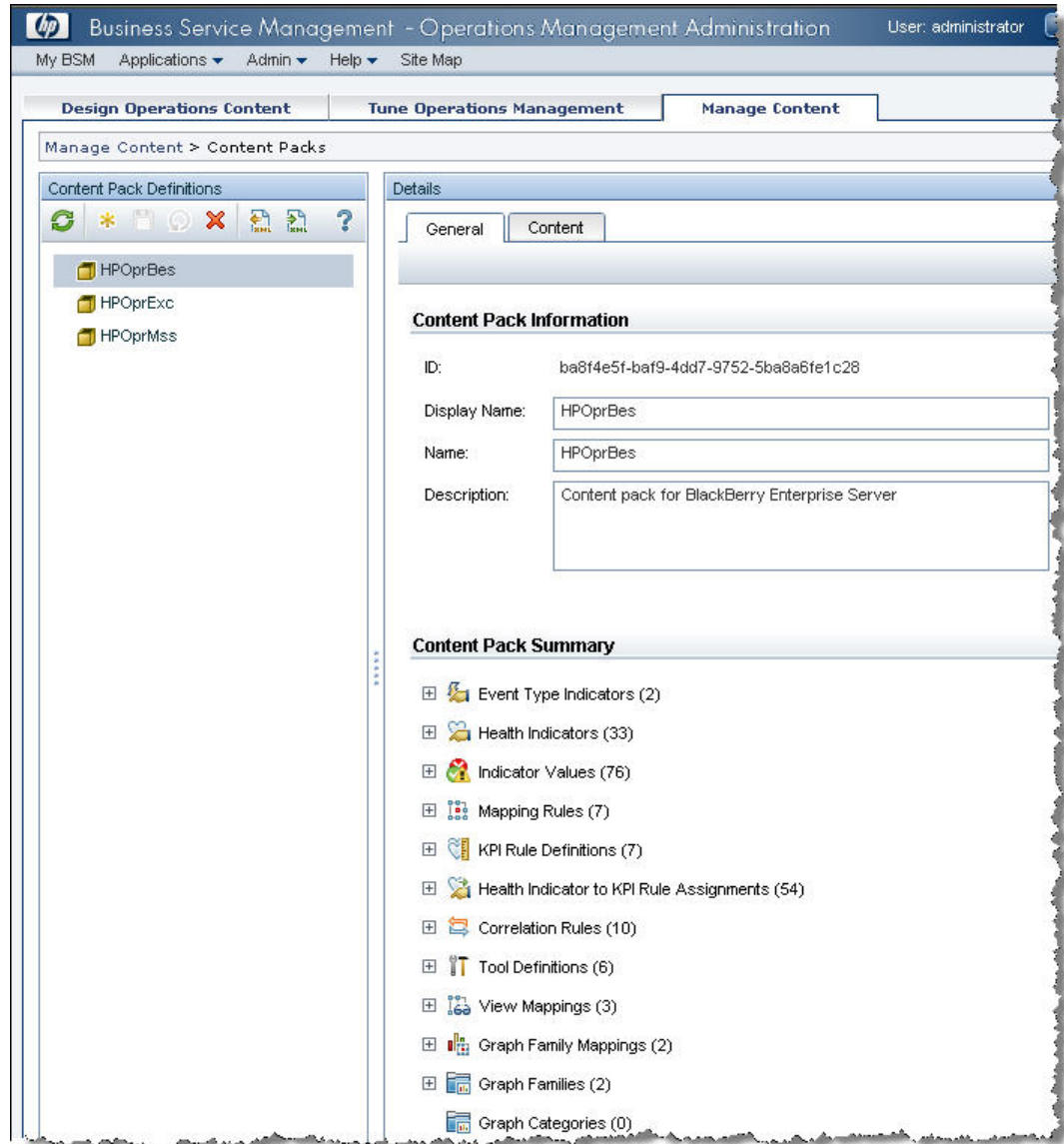
Task 4 Check the results of the import

Figure 11 Check the results of the import



Task 5 Verify the Content Pack

Figure 12 Verify the Content Pack



Step 4 – Configure the Topology Synchronization

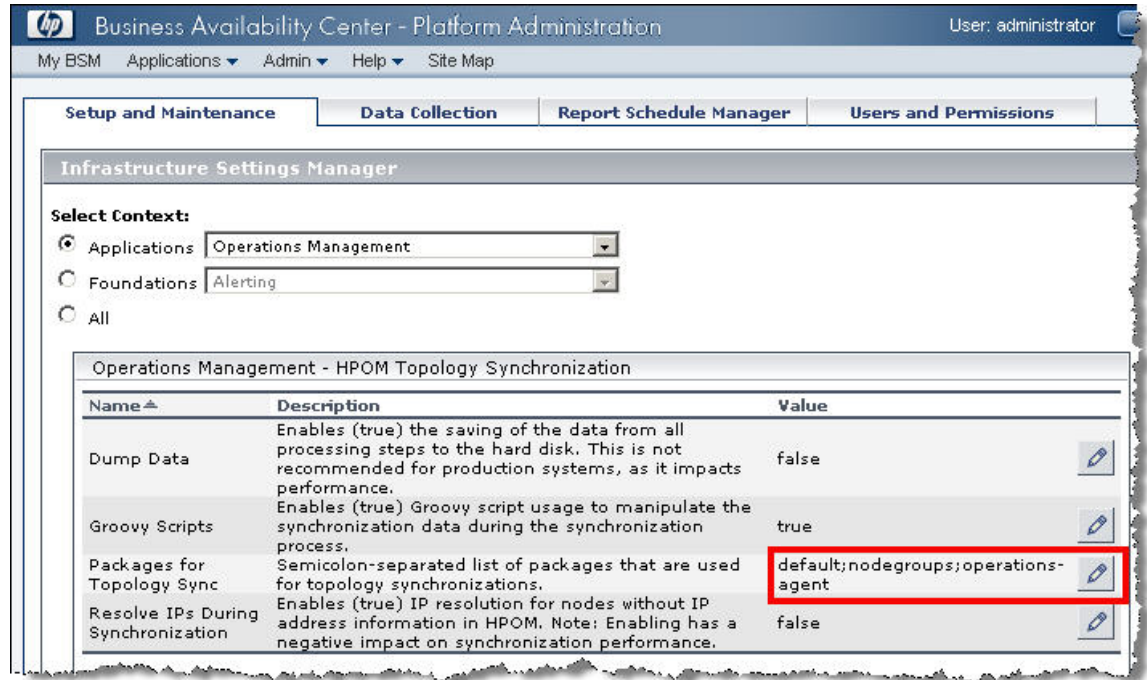
The HP BSM Topology Synchronization tool reads configuration item (CI) data from HPOM and writes it into the ODB.

This process has to be configured for the Content Pack related CIs and is described in detail in the HP BSM online help.

Here are the tasks which have to be performed in order to activate the Topology Synchronization for the Content Pack for BlackBerry Enterprise Server.

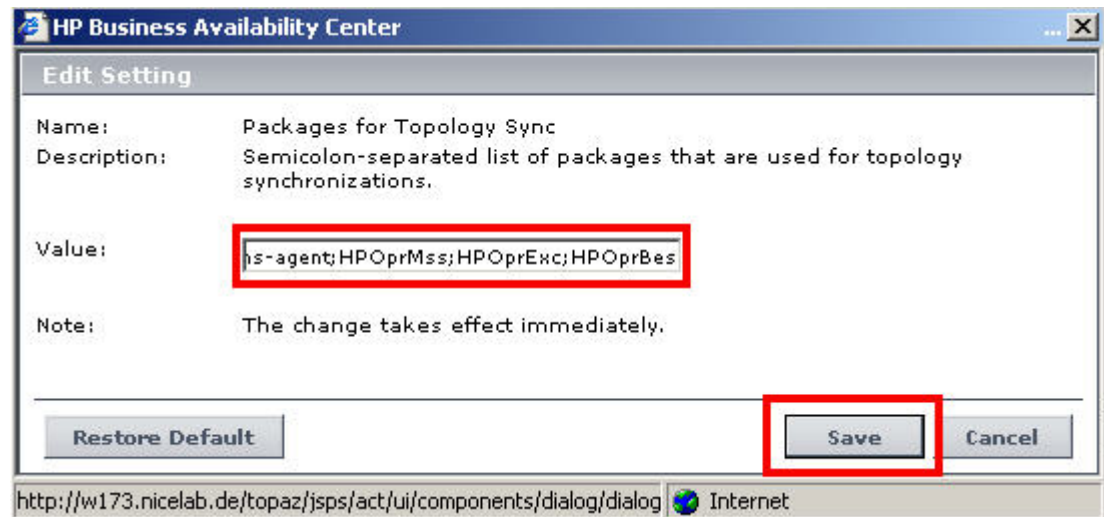
Task 6 Open the Infrastructure Settings Manager, select the context "Operations Management" and locate the section "HPOM Topology Synchronization".

Figure 13 Open the Infrastructure Setting Manager



Task 7 Add the topology synchronization directors for the BlackBerry Content Pack

Figure 14 Add the BlackBerry Content Pack to the synchronization list



3 Troubleshooting the BlackBerry Content Pack

CI Resolution and CI Relationships

If messages forwarded from the OM server and appearing as BSM events are not linked to the correct BlackBerry CI in BSM, or if expected "use" relationships are missing in the BlackBerry CI topology, please read on.

The BlackBerry SPI service discovery adds the names of MSSQL Server and Microsoft Exchange Server hosts as attributes to the BlackBerry CIs. This information is then used to establish the relationships in the BlackBerry universe.

These names are the result of a name resolution on the managed nodes, where the object reference to a MSSQL Server or Exchange Server has been discovered.

It's essential that these names are the same as those discovered by the appropriate Smart Plug-In, i.e. the Database SPI for SQL Server or the Exchange SPI.

In addition, the BlackBerry SPI adds CI resolution hints to its messages using the resolved name of the generating host.

Thus, the name resolution must deliver identical results on the OM server and the BSM server, or else the CI resolution will not succeed and the BSM events are not linked to the expected BlackBerry CI.

In short, the name resolution method has to be configured in a consistent way on both the OM and the BSM server and all OM managed hosts.

4 De-Installation of the BlackBerry Content Pack

The instructions in this section describe how to remove the BlackBerry Content Pack software quickly and cleanly from the BSM Platform.

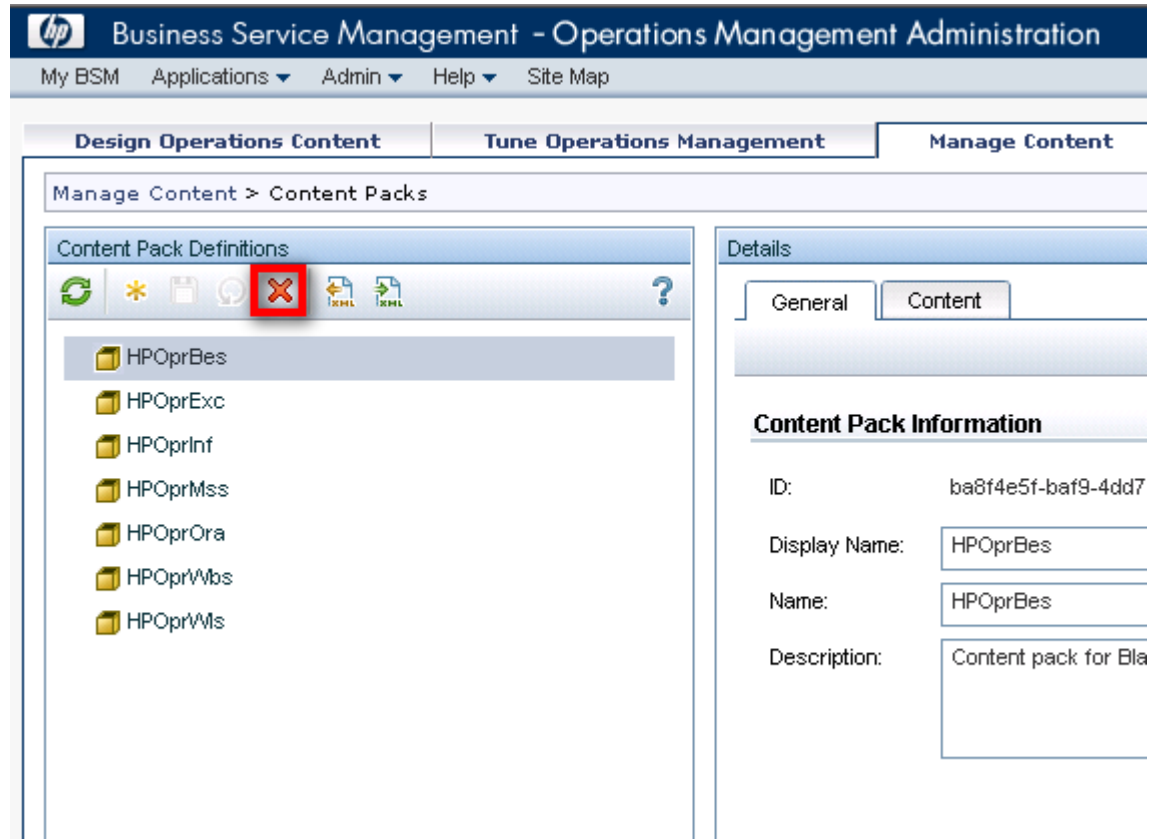
The following steps should be taken:

- Step 1 - Remove the Content Pack
- Step 2 - Remove the ODB package
- Step 3 - Remove the Topology Synchronization information
- Step 4 - Remove the BlackBerry SPI

Step 1 - Remove the Content Pack

- Log on to the BSM Portal as a user with sufficient privileges
- Open Admin->Operations Management ->Manage Content -> Content Packs
- Select the HPOprBes Content Pack definition.
- Click "Delete Item" and confirm.

Figure 15 Remove the HPOprBes Content Pack

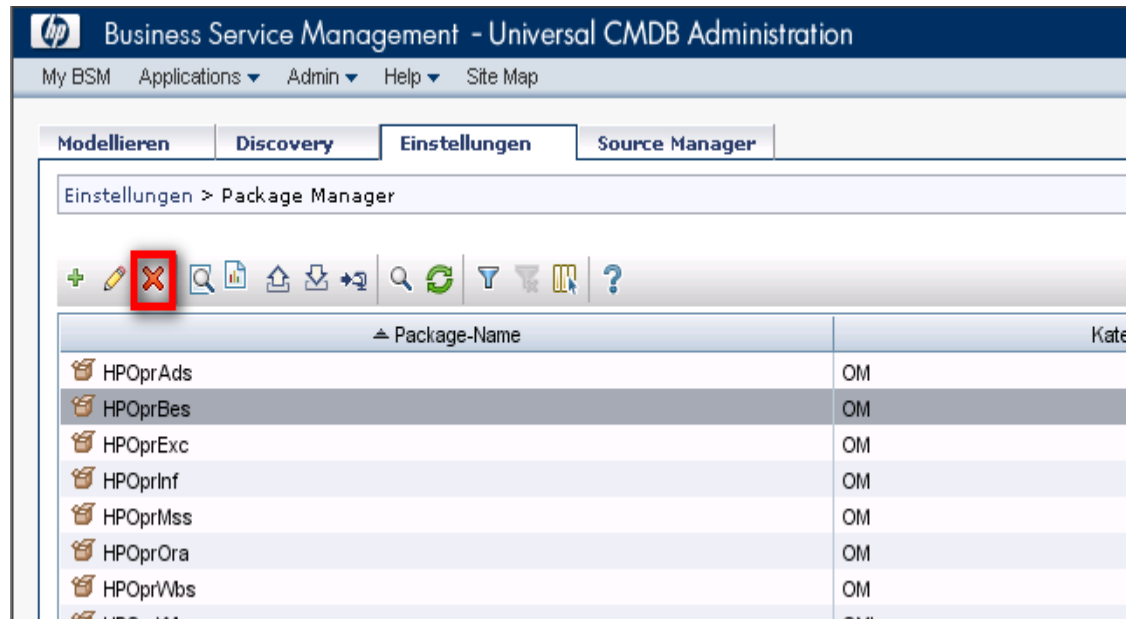


Step 2 - Remove the ODB package

Log on to the BSM Portal as a user with sufficient privileges

- Open Admin->ODB Administration
- Open the "Settings" tab.
- Choose "Package Manager".
- Highlight the HPOprBes package
- Click "remove" and confirm

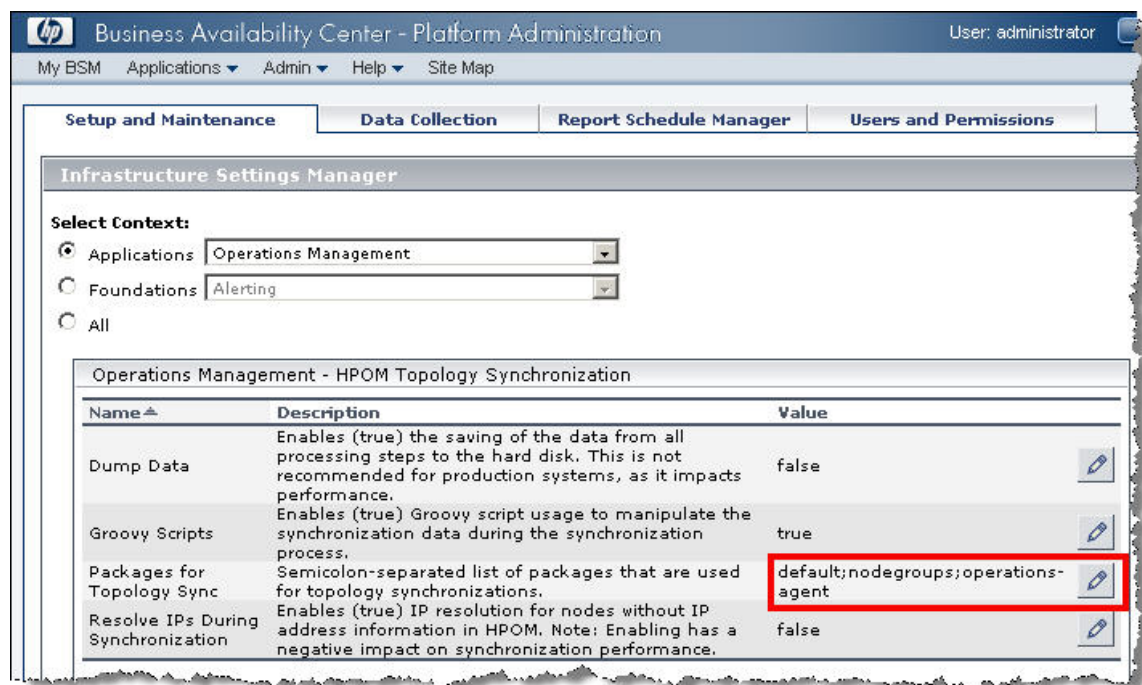
Figure 16 Remove the HPOprBes ODB package



Step 3 - Remove the Topology Synchronization information

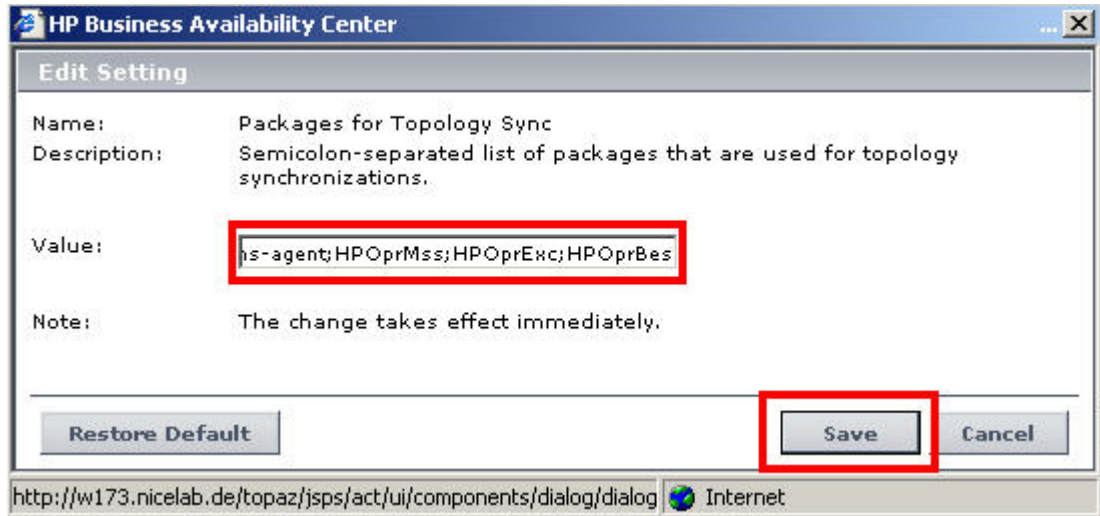
Task 1 Open the Infrastructure Settings Manager, select the context "Operations Management" and locate the section "HPOM Topology Synchronization".

Figure 17 Open the Infrastructure Setting Manager



Task 2 Remove the topology synchronization director for the BlackBerry Content Pack

Figure 18 Add the BlackBerry Content Pack to the synchronization list



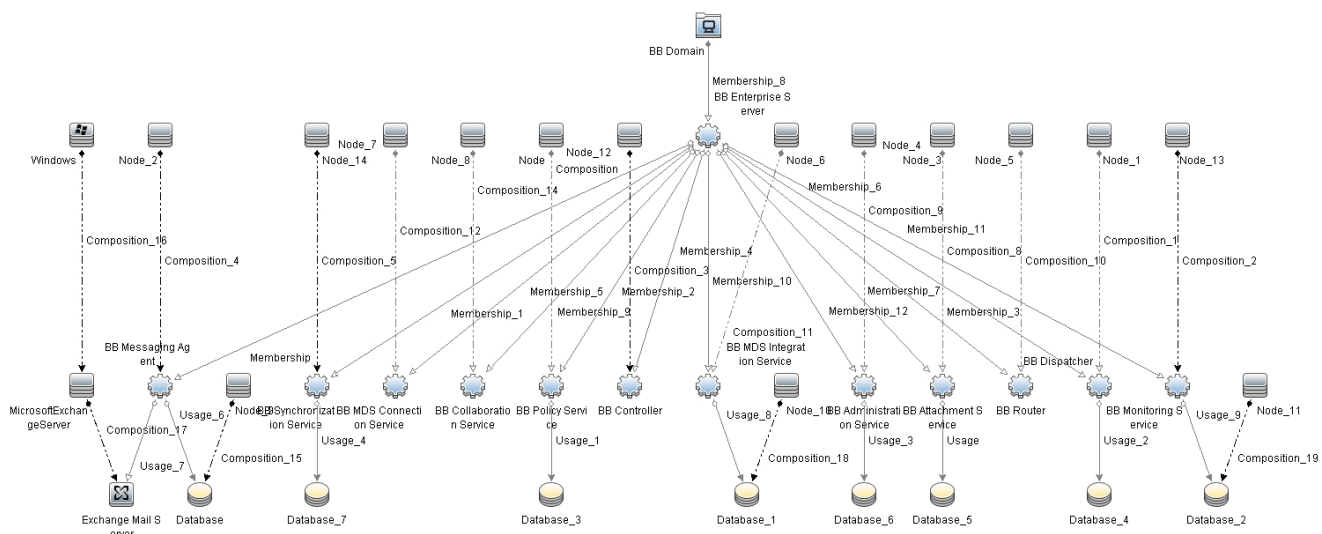
Step 4 - Remove the BlackBerry SPI Content Pack

- Open Control Panel - Add and remove Programs
- Select HPOM BES Content Pack
- Click "remove" and confirm

5 BlackBerry SPI Content Pack Reference

CI Types and ODB Views

The ODB package in the BlackBerry SPI installation package includes the BlackBerry Domain and BlackBerry Topology views, which refers to the BB Enterprise Server, BB Domain and BB Component CI types. The following image shows the relationship among the CI types.



Health Indicators

The BlackBerry SPI Content Pack includes the following Health Indicators (His) to monitor the BlackBerry-related events:

CI Type	HI	Value	KPI
bb_messaging_agent	BB Average Delivery Time Per User	High, Normal	AVAILABILITY
bb_messaging_agent	BB Average MAPI Response Time Per User	High, Normal	AVAILABILITY

bb_component	BB CPU Time in 24H		PERFORMANCE
bb_component	BB Database Average Response Time	High, Normal	PERFORMANCE
bb_component	BB Database Transaction In 24H		PERFORMANCE
bb_component	BB DB Connection Status	Established, Disconnected	AVAILABILITY
bb_messaging_agent	BB Dispatcher Connection Status	Established, Disconnected	AVAILABILITY
bb_component	BB High Availability Mode		AVAILABILITY
bb_component	BB Memory Use	High, Normal	PERFORMANCE
bb_messaging_agent	BB Message Server Average Response Time	High, Normal	AVAILABILITY
bb_controller	BB Number Of Active Agents		PERFORMANCE
bb_router	BB Number Of BlackBerry Devices Connected		PERFORMANCE
bb_messaging_agent	BB Number Of Failed Connections Per User		AVAILABILITY
bb_messaging_agent	BB Number Of Failed Messages		AVAILABILITY
bb_messaging_agent	BB Number Of Pending Messages		AVAILABILITY
bb_component	BB Number Of Pending Transactions		PERFORMANCE
bb_dispatcher	BB Number Of Processing Threads		PERFORMANCE
bb_messaging_agent	BB Number Of Transactions Detected During Rescan	High, Normal	AVAILABILITY
bb_component	BB Number Of Transactions Waiting To Be Sent		PERFORMANCE

bb_messaging_agent	BB Number of User Initialization Failures		AVAILABILITY
bb_messaging_agent	BB Percentage Of Hung Threads	High, Normal	AVAILABILITY
bb_component	BB Service Status	Up, Down	AVAILABILITY
bb_component	BB SRP Connection Status	Established, Disconnected	AVAILABILITY
bb_component	BB SRP Link Latency	High, Normal	PERFORMANCE

Event Type Indicators

The BlackBerry SPI Content Pack includes the following Event Type Indicators (ETIs) to monitor BlackBerry-related events.

CI Type	ETI	Description	Value
bb_messaging_agent	BB_Average_Delivery_Time_Per_User	BB Average Delivery Time Per User	High, Normal
bb_messaging_agent	BB_Average_MAPI_Response_Time_Per_User	BB Average MAPI Response Time Per User	High, Normal
bb_component	BB_CPU_Time_in_24H	BB CPU Time in 24H	
bb_component	BB_Database_Average_Response_Time	BB Database Average Response Time	High, Normal
bb_component	BB_Database_Transaction_In_24H	BB Database Transaction In 24H	
bb_component	BB_DB_Connection_Status	BB DB Connection Status	Established, Disconnected
bb_messaging_agent	BB_Dispatcher_Connection_Status	BB Dispatcher Connection Status	Established, Disconnected
bb_component	BB_High_Availability_Mode	BB High Availability Mode	
bb_component	BB_Memory_Use	BB Memory Use	High, Normal
bb_messaging_agent	BB_Message_Server_Average_Response_Time	BB Message Server Average Response Time	High, Normal
bb_controller	BB_Number_Of_Active_Agents	BB Number Of Active Agents	

bb_router	BB_Number_Of_BlackBerry_Devices_Connected	BB Number Of BlackBerry Devices Connected	
bb_messaging_agent	BB_Number_Of_Failed_Connections_Per_User	BB Number Of Failed Connections Per User	
bb_messaging_agent	BB_Number_Of_Failed_Messages	BB Number Of Failed Messages	
bb_messaging_agent	BB_Number_Of_Pending_Messages	BB Number Of Pending Messages	
bb_component	BB_Number_Of_Pending_Transactions	BB Number Of Pending Transactions	
bb_dispatcher	BB_Number_Of_Processing_Threads	BB Number Of Processing Threads	High, Normal
bb_messaging_agent	BB_Number_Of_Transactions_Detected_During_Rescan	BB Number Of Transactions Detected During Rescan	High, Normal
bb_component	BB_Number_Of_Transactions_Waiting_To_Be_Sent	BB Number Of Transactions Waiting To Be Sent	
bb_messaging_agent	BB_Number_of_User_Initialization_Failures	BB Number of User Initialization Failures	
bb_messaging_agent	BB_Percentage_Of_Hung_Threads	BB Percentage Of Hung Threads	High, Normal
bb_component	BB_Service_Status	BB Service Status	Up, Down
bb_dispatcher	BB_SRP_Connection_Errors	BB SRP Connection Errors	
bb_component	BB_SRP_Connection_Status	BB SRP Connection Status	Established, Disconnected
bb_component	BB_SRP_Link_Latency	BB SRP Link Latency	High, Normal
bb_messaging_agent	BB_Transactions_Detected_During_Rescan	BB Transactions Detected During Rescan	

Correlation Rules

The BlackBerry SPI Content Pack includes the following rules to correlate BlackBerry-related events.

BB:BB Dispatcher:Service Status >> BB Dispatcher Connection Status

DESCRIPTION: Cause: BB Dispatcher:BB Service Status		
Symptom: BB Message Agent:BB Dispatcher Connection Status		
Cause:		
CIT: BB Dispatcher	ETI: Service Status	Value: Down
Symptom		
CIT: BB Component	ETI: BB DB Connection Status	Value: Disconnected

BB:BB Message Agent:Percentage Of Hung Threads >> BB Average Delivery Time Per User

DESCRIPTION: Cause: BB Message Agent:Percentage Of Hung Threads		
Symptom: BB Message Agent:Average Delivery Time Per User		
Cause:		
CIT: BB Messaging Agent	ETI: BB Percentage Of Hung Threads	Value: High
Symptom		
CIT: BB Message Agent	ETI: Average Delivery Time Per User	Value: High

BB:Computer:CPU Load >> BB DB Average Response Time

DESCRIPTION: Cause: Computer:CPU Load		
Symptom: BB Component:BB Database Average Response Time		
Cause:		
CIT: Computer	ETI: CPU Load	Value: Bottlenecked
Symptom		
CIT: BB Component	ETI: BB Database Average Response Time	Value: High

BB:Computer:System Status >> BB DB Connection Status

DESCRIPTION: Cause: Computer:System Status:Down		
--	--	--

Symptom: BB Component:BB DB Connection Status:Disconnected		
Cause:		
CIT: Computer	ETI: System Status	Value: Down
Symptom		
CIT: BB Component	ETI: BB DB Connection Status	Value: Disconnected

BB:Database:CPU by SQL >> BB Database Average Response Time

DESCRIPTION: Cause: Database:CPU by SQL		
Symptom: BB Component:BB Database Average Response Time		
Cause:		
CIT: Database	ETI: CPU by SQL	Value: High
Symptom		
CIT: BB Component	ETI: BB Database Average Response Time	Value: High

BB:Database:Database Server Status >> BB DB Connection Status

DESCRIPTION: Cause: Database:Database Server Status		
Symptom: BB Component:BB DB Connection Status		
Cause:		
CIT: Database:	ETI: Database Server Status	Value: Down
Symptom		
CIT: BB Component	ETI: BB DB Connection Status	Value: Disconnected

BB:Exchange Mail Server:Average Mail Delivery Time >> BB Average Delivery Time Per User

DESCRIPTION: Cause: Exchange Mail Server:Average Mail Delivery Time		
Symptom: BB Message Agent:BB Average Mail Delivery Time		
Cause:		
CIT: Exchange Mail Server	ETI: Average Mail Delivery	Value: High, Very High

	Time	
Symptom		
CIT: BB Message Agent	ETI: BB Average Mail Delivery Time	Value: High

BB:Exchange Mail Server:Mapi Connectivity >> BB Average MAPI Response Time Per User

DESCRIPTION: Cause: Exchange Mail Server:Mapi Connectivity		
Symptom: BB Message Agent:BB Average MAPI Response Time Per User		
Cause:		
CIT: Exchange Mail Server	ETI: Mapi Connectivity	Value: Down
Symptom		
CIT: BB Message Agent	ETI: BB Average MAPI Response Time Per User	Value: High, Very High

BB:Exchange Mail Server:Memory Status >> BB Message Agent Average Delivery Time

DESCRIPTION: Cause: Exchange Mail Server: Exchange Memory Status		
Symptom: BB Message Agent:BB Message Server Average Response Time		
Cause:		
CIT: Exchange Mail Server	ETI: Exchange Memory Status	Value: Critical
Symptom		
CIT: BB Message Agent	ETI: BB Message Server Average Response Time	Value: High

Tool Definitions

Additional tools may be found in the HP Operations Manager GUI, where BlackBerry SPI is installed. Refer to the BlackBerry SPI Administration Guide for detailed information.

BES SPI Data Storing off

This tool switches off the storing of the Report Data from all templates from the policy group "BlackBerry Enterprise Server". In order to execute correctly, the Data Store needs to be set up before with the help of the performance tool "Create Report Data Store".

BES SPI Data Storing on

This tool switches on the storing of the Report Data from all templates from the policy group "BlackBerry Enterprise Server". In order to execute correctly, the Data Store needs to be set up before with the help of the performance tool "Create Report Data Store".

BES SPI License Check

Executing the License Check tool can help finding out if there is a valid runtime license applied to this node. It is advisable to execute it if the BlackBerry SPI cannot work at all with messages like "no license found", or if similar messages show up during normal operation.

As you know, the runtime licenses are node locked and / or time-restricted, so installed runtime licenses may become invalid when the "hostname" changes or the evaluation time frame expires.

The typical output of the License Check is shown here:

```
List of valid licenses for version A.03.10.
```

```
1 x BESPI:TIER2 only A.03.10, features '12345678', expires 2010-12-31, not node
locked, V1 license issued 2009-06-04 17:47:36 at 49-71229-1 (r = 0b0f6a8c)
```

BES SPI License List

This tool lists all runtime licenses currently available on the management server. However, they must be deployed to the managed nodes in order to be active.

The tool output part will display the list of all currently installed licenses:

```
1 x BESPI:TIER0 only A.03.10, features '00000000', expires 2010-12-31, not node
locked, V1 license issued 2009-11-28 11:02:37 at 49-71229-1 (r = 01baa3cd)
```

```
1 x BESPI:TIER4 only A.03.10, features '00000000', expires 2010-05-22, not node
locked, V1 license issued 2009-05-20 17:55:08 at 49-71229-1 (r = 4df2bd66)
```

```
1 x BESPI:TIER2 only A.03.10, features '12345678', expires 2010-12-31, not node
locked, V1 license issued 2009-06-04 17:47:36 at 49-71229-1 (r = 0b0f6a8c)
```

```
1 x BESPI:TIER1 from A.03.10, features '12345678', expires 2999-12-31, locked
to w103.nicelab.de, V1 license issued 2009-06-04 17:48:38 at 49-71229-1 (r =
620506af)
```

BES SPI off

The operation of the BlackBerry SPI may be switched off (and on) for maintenance or other reasons. All active policies will be disabled without the need to remove them from the BES or BMS server.

Please wait ...This operation may take some time, because we must synchronize this action with the Operations agent.

BES SPI on

The operation of the BlackBerry SPI may be switched on (and off) for maintenance or other reasons. All active policies will be disabled without the need to remove them from the BES or BMS server.

Please wait ...This operation may take some time, because we must synchronize this action with the Operations agent.

Graph Templates

The BlackBerry SPI includes the BlackBerry SPI graph family, which is mapped to the BlackBerry CI types BB Component and BB Enterprise Server. Refer to the BlackBerry SPI documentation for a list of graphs.

Policy Setting ETIs

The following table lists the Content Pack ETIs and SPI threshold policies that set the ETIs.

For more information refer to the BlackBerry SPI Reference Guide.

ETI / HI	Metric Number	Policy Description
BB_Dispatcher_Connection_Status	00100	Specifies whether the connection is currently established.
BB_Message_Server_Average_Response_Time	00101	The average response time for

		the connection.
BB_DB_Connection_Status	00102 00209 00305 00407	Specifies whether the connection is currently established.
BB_Database_Average_Response_Time	00104	The average response time for the connection.
BB_Average_Delivery_Time_Per_User	00105	The time when an email or calendar message is delivered to the BlackBerry device. The average delivery time is the difference between the time when a transaction is sent to the device and the time when the device returns an acknowledge.
BB_Average_MAPI_Response_Time_Per_User	00107	In the BlackBerry Enterprise Server for IBM Lotus Domino, the response time of the IBM Lotus Notes API. In BlackBerry Enterprise Server for Microsoft Exchange, the response time of specific MAPI functions.
BB_Number_Of_Transactions_Detected_During_Rescan	00113	In the BlackBerry Enterprise Server for Microsoft Exchange and for Novell GroupWise, it is the number of new messages found during a rescan. (This does not include the notification messages sent from the messaging server).
BB_Percentage_Of_Hung_Threads	00115	The number of user threads that are detected to be hung.
BB_High_Availability_Mode	00116 00216	Specifies whether the high availability mode of the component is primary or standby.
BB_Service_Status	00120 00217 00300 00400 00510 00609	The status of a Component Service
BB_Database_Average_Response_Time	00211	The average response time for the connection.
BB_Memory_Use	00304	The amount of real system memory allocated to the

	00406	process, in KB.
BB_Number_Of_Processing_Threads	00301 00401	The number of threads that are running in the BlackBerry Enterprise Server environment.
BB_SRP_Connection_Status	00600	Specifies whether the connection is currently established.
BB_SRP_Link_Latency	00602	The link latency on the SRP connection for the BlackBerry Router.