

HP Business Service Management

for the Windows operating system

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Deployment Guide

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Acknowledgements

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

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- Software Version number, which indicates the software version.
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- 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

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Welcome to This Guide

Welcome to the HP Business Service Management Deployment Guide. This guide introduces you to HP Business Service Management, provides information on getting started, describes server and component configuration and installation.

Note: The information in the *HP Business Service Management Deployment Guide* PDF is not relevant to HP Software-as-a-Service customers.

This chapter includes:

- How This Guide Is Organized on page 12
- Who Should Read This Guide on page 13
- HP Business Service Management Documentation on page 13
- Recommended Reading Lists on page 17
- Additional Online Resources on page 18
- Documentation Updates on page 19

How This Guide Is Organized

This guide contains the following parts:

Part I Introduction to HP Business Service Management

Introduces HP Business Service Management and provides a getting started roadmap, deployment planning checklist, information on using the capacity calculator, and overview of the HP Business Service Management platform and components.

Part II Deployment Introduction and System Requirements

Provides an overview of platform deployment and describes the system requirements required for running the HP Business Service Management platform, as well as describing the deployment configurations, one-machine or distributed deployments.

Part III HP Business Service Management Server Installation for Windows

Describes how to install HP Business Service Management servers, configure database parameters, install component setup files, and uninstall HP Business Service Management servers on a Windows platform.

Part IV Troubleshooting

Describes common problems that you may encounter when installing, or connecting to, HP Business Service Management and the solutions to these problems.

Part V Server Administration and Maintenance

Provides information on post-installation tasks, how to improve your system availability and reliability using high availability options, file backup recommendations, lists the ports used by HP Business Service Management for communication, and explains how to change the user for both the HP Business Service Management service.

Part VI Accessing HP Business Service Management

Describes the HP Business Service Management server Start menu options and explains how to log in to the HP Business Service Management Web interface for the first time.

Who Should Read This Guide

This guide is intended for all types of HP Business Service Management administrators.

Readers of this guide should be knowledgeable and highly skilled in enterprise system administration and knowledgeable about HP Business Service Management.

HP Business Service Management Documentation

This guide is part of the HP Business Service Management Documentation Library. This Documentation Library provides a single point of access for all Business Service Management documentation.

HP Business Service Management documentation provides complete information on deploying, administering, and using the HP Business Service Management platform and applications.

HP Business Service Management includes the following documentation:

Readme. Provides a list of version limitations and last-minute updates. From the HP Business Service Management DVD root directory, double-click **readme900.html**. You can also access the most updated readme file from the HP Software Support Web site.

What's New. Provides a list of new features and version highlights. In HP Business Service Management, select **Help > What's New**.

Online Documentation Library. The Documentation Library is an online help system that describes how to work with HP Business Service Management. You access the Documentation Library using a Web browser. For a list of viewing considerations, see "Client Requirements for Viewing BSM" on page 66.

To access the Documentation Library, in HP Business Service Management, select **Help > Documentation Library**. Context-sensitive help is available from specific HP Business Service Management pages by clicking **Help > Help on this page** and from specific windows by clicking the **Help** button.

The HP Business Service Management Documentation Library includes the following online guides:

- ▶ **Documentation Updates.** Lists details of updates to the Documentation Library.
- ▶ **Glossary.** Defines key terms used in HP Business Service Management.
- ▶ **Platform Administration.** Describes how to configure and administer the HP Business Service Management platform, including database management, alert configuration, and user permission and security administration.
- ▶ **ODB Data Flow Management.** Explains how to integrate to set up your ODB (operational database) to discover network components.
- ▶ **ODB Administration.** Explains how to work with ODB.
- ▶ **Modeling.** Enables you to manage the content of your IT Universe model.
- ▶ **ODB Developer Reference.** For users with an advanced knowledge of ODB. Explains how to define and use adapters and how to use APIs to access data.
- ▶ **My BSM.** Describes how to work with the My BSM application and configuration pages.
- ▶ **Service Health.** Describes how to administer and work with the Service Health application.
- ▶ **Service Level Management.** Describes how to administer and work with the Service Level Management application.

- ▶ **Operations Management.** Describes how to administer and work with Operations Management application.
- ▶ **End User Management.** Describes how to administer and work with End User Management application.
- ▶ **Business Process Insight.** Describes how to administer and work with Business Process Insight application.
- ▶ **Transaction Management.** Describes how to administer and work with Transaction Management application.
- ▶ **System Availability Management.** Describes how to administer and work with System Availability Management application.
- ▶ **Reports.** Describes how to use the custom reporting tools to create, manage, and view user-defined reports.
- ▶ **Solutions and Integrations.** Describes various solutions and integrations that enable you to use HP Business Service Management together with external and third-party software and environments.

Books Online/Printer-Friendly Documentation. All HP Business Service Management documentation is available in PDF format. To access PDF files, in HP Business Service Management select **Help > Documentation Library** and click the PDF icon next to each guide. Alternatively, access PDF files from the Documentation directory on the HP Business Service Management DVD.

The following guides are available only in PDF format and can also be accessed from the Main Topics tab in the Documentation Library:

- ▶ **HP Business Service Management Database Guide.** Describes how to prepare and configure the enterprise database infrastructure to work optimally with HP Business Service Management, including how to set up a recommended database configuration.
- ▶ **HP Business Service Management Deployment Guide** (this guide). Describes how to get started with and install HP Business Service Management.

- ▶ **HP Business Service Management Hardening Guide.** Describes how to harden the HP Business Service Management platform to provide a secure environment for the HP Business Service Management software and hardware.
- ▶ **Business Process Monitor Administration.** Describes how to deploy and administer the Business Process Monitor data collector.
- ▶ **Real User Monitor Administration.** Describes how to deploy and administer the Real User Monitor data collector.
- ▶ **HP SiteScope Deployment Guide.** Describes how to deploy and administer the SiteScope data collector.
- ▶ **TransactionVision Deployment.** Describes how to deploy and administer TransactionVision for use in the Transaction Management application.
- ▶ **Discovery and Integration Content.** Explains how to run discovery to discover applications, operating systems, and network components running on your system. Also explains how to discover data in other data repositories through integration.
- ▶ **Business Process Insight Server Administration.** Describes how to deploy and administer Business Process Insight.
- ▶ **HP BSM Integration Adapter Installation and Configuration Guide.** Describes how to install and configure the Integration Adapter.
- ▶ **HP BSM Integration Adapter User Guide.** Describes how to use the Integration Adapter.
- ▶ **OMi Extensibility Guide.** Provides information to customize and extend the functionality of HP Business Service Management Operations Management provided by the Operations Manager *i* license.

Books Online can be viewed and printed using Adobe Reader 4.0 or later. Reader can be downloaded from the Adobe Web site (www.adobe.com).

Recommended Reading Lists

The lists below describe the guides in the HP Business Service Management Documentation Library that are recommended reading for the different users of HP Business Service Management. These lists can be distributed to staff as required.

Reading lists for the following users are described below:

- HP Business Service Management Administrators. See page 17.
- Database Administrators. See page 17.
- Security Administrators. See page 17.
- Data Collector Administrators. See page 18.
- Script Developers. See page 18.
- Platform Administrators. See page 18.
- Application Administrators. See page 18.
- End Users. See page 18.

HP Business Service Management Administrators

- All books in Documentation Library

Database Administrators

- Glossary
- HP Business Service Management Database Guide

Security Administrators

- Glossary
- Hardening Guide

Data Collector Administrators

- All books in Documentation Library

Script Developers

- Glossary
- End User Management

Platform Administrators

- All books in Documentation Library

Application Administrators

- All books in Documentation Library

End Users

- Glossary
- MyBSM
- Service Health
- Service Level Management
- End User Management
- System Availability Management
- Reports
- Solutions and Integrations

Additional Online Resources

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

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

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

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

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

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

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

Documentation Updates

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

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

Welcome to This Guide

Part I

Introduction to HP Business Service Management

1

Getting Started with HP Business Service Management

This chapter includes:

- About HP Business Service Management on page 23
- Alignment with ITIL on page 24
- Certified BSM Deployments on page 27

About HP Business Service Management

Welcome to HP Business Service Management. Before you install HP Business Service Management or read any other HP Business Service Management documentation, it is recommended that you read this short introduction to HP Business Service Management, which includes a description of the concepts that are a result of HP Business Service Management's alignment with ITIL.

HP Business Service Management helps businesses optimize the performance and availability of applications in production and proactively resolve problems when they arise, thus assisting critical production applications to perform as required and deliver business results.

HP Business Service Management helps customers model their business processes and services by providing a framework for mapping the complex and dynamic dependencies between applications and their supporting infrastructure. HP Business Service Management helps customers optimize business availability and event handling by proactively detecting problems in order to prioritize problem resolution based on business impact and service level compliance.

HP Business Service Management consists of an integrated set of applications for real-time performance and availability monitoring from a business perspective, service level management, end-user management, event handling, system availability management, and custom reporting and alerting. HP Business Service Management is based on a common foundation of shared workflow, administration and reporting services, shared assets, and expertise.

HP Business Service Management helps customers to reduce mean time to detection (MTTD) and end-user downtime by proactively detecting application performance and availability problems—assisting in escalation of problems to the right department at the right priority, as well as resolution of performance problems before service-level objectives are breached. This helps organizations toward the goal of the maximization of value of IT operations and reduction of Total Cost of Ownership (TCO) of IT infrastructure.

Alignment with ITIL

Several concepts in HP Business Service Management are a result of the alignment with the Information Technology Infrastructure Library (ITIL) methodology. ITIL is the most widely accepted methodology for IT service management in the world. In fact, it is quite possible that your organization is already following the ITIL methodology.

This section also includes:

- ▶ "What Is ITIL?" on page 25
- ▶ "ITIL in HP Business Service Management" on page 26
- ▶ "The IT Universe Concept" on page 26

What Is ITIL?

Originally developed by the Office of Government Commerce, a branch of the British Government, ITIL is a cohesive set of well-defined best practices for IT processes drawn from the public and private sectors internationally. ITIL best practices aim to provide the following benefits:

- Improved communications between IT, businesses, and customers
- Increased IT productivity
- Reduced IT costs
- Better management of risk
- Higher levels of customer satisfaction

For more information on ITIL, refer to the following Internet resources:

- <http://www.itipeople.com>
- <http://www.ogc.gov.uk> (click **Programmes & Projects > Programmes & Projects Documents > IT Infrastructure Library**)

Note: The main ITIL concepts and terminology used in HP Business Service Management are defined in the HP Business Service Management Documentation Library *Glossary*.

ITIL in HP Business Service Management

HP Business Service Management introduces the concept of the HP operational database (ODB). The ODB stores information on services, their components or configuration items, details about configuration item attributes, the history of each configuration item, and details of the relationships between configuration items. A configuration item (CI) is a component that makes up a part of the IT environment. A CI can be a line of business, business process, application, server hardware, or a service that is provided by your IT organization. A CI can also be a logical container that includes multiple CIs. A CI Type (CIT) is the type of each CI within the IT environment.

The IT Universe Concept

In your environment, you provide services that depend on many applications and databases that utilize a variety of server and network hardware. All these services, applications, and hardware are interconnected to form what is called in HP Business Service Management the **IT Universe**.

In HP Business Service Management, you start by defining a model of your company's IT Universe. To manage your company's IT Universe model, you create views. Views enable you to organize the IT Universe model into logical entities for monitoring. The IT Universe model then becomes the foundation for the management functions provided by HP Business Service Management applications.

Having a defined model of the organization's IT Universe enables you to see what application is being monitored, or to determine whether a server problem affects other CIs as well—for example, whether a service suffered outages due to a problem with its database server.

Applying these HP Business Service Management concepts can help you manage and deliver IT services to your end users and customers more efficiently and effectively.

Certified BSM Deployments

There are five certified deployments for BSM 9.00. While the licensing for BSM 9.00 is flexible and any combination of applications and licenses can be acquired, these are recommended deployment scenarios.

- ▶ **APM Basic.** Enables you to manage your applications from an end-user perspective, realize the business impact of performance and availability issues, as well as diagnose application problems.
- ▶ **APM Advanced.** In addition to the APM Basic deployment scenario, enables business process and transaction tracing with an enhanced solution scale.
- ▶ **OPS Basic.** Enables consolidated event management and service health across domains, including agent-based and agentless system management, as well as synthetic end-user experience monitoring.
- ▶ **OPS Advanced.** In addition to the Ops Basic deployment scenario, enables enhanced business alignment with Service Level Management, and cross domain management over real users and networks with an enhanced solution scale.
- ▶ **BSM Full.** Complete BSM deployment, combining APM Advanced with Ops Bridge Advanced deployment scenarios. Enables a manager of manager perspective across domains, as well as domain management for applications, system, and networks with an enhanced solution scale.

The installation of most of the individual components is done separately and is not covered in this guide. This guide covers the installation of the BSM platform.

Deployment	Components
APM Basic	<ul style="list-style-type: none"> ▶ End User Management including: <ul style="list-style-type: none"> ▶ Business Process Monitor ▶ Real User Monitor ▶ System Availability Management and SiteScope ▶ Service Health ▶ Service Level Management ▶ HP Diagnostics
APM Advanced	<ul style="list-style-type: none"> ▶ End User Management including: <ul style="list-style-type: none"> ▶ Business Process Monitor ▶ Real User Monitor ▶ System Availability Management and SiteScope ▶ Service Health ▶ Service Level Management ▶ HP Diagnostics ▶ Business Transaction Management including: <ul style="list-style-type: none"> ▶ Business Process Insight ▶ Transaction Management
OPS Basic	<ul style="list-style-type: none"> ▶ Operations Manager <i>i</i> ▶ SiteScope ▶ End User Management including: <ul style="list-style-type: none"> ▶ Business Process Monitor ▶ Service Health ▶ HP Operations Manager

Deployment	Components
<p>OPS Advanced</p>	<ul style="list-style-type: none"> ➤ Operations Manager <i>i</i> ➤ System Availability Management and SiteScope ➤ End User Management including: <ul style="list-style-type: none"> ➤ Business Process Monitor ➤ Service Health ➤ HP Operations Manager ➤ Service Level Management ➤ Network Node Manager
<p>BSM Full</p>	<ul style="list-style-type: none"> ➤ End User Management including: <ul style="list-style-type: none"> ➤ Business Process Monitor ➤ Real User Monitor ➤ Operations Manager <i>i</i> ➤ System Availability Management and SiteScope ➤ HP Operations Manager ➤ Service Health ➤ Service Level Management ➤ HP Diagnostics ➤ Business Transaction Management including: <ul style="list-style-type: none"> ➤ Business Process Insight ➤ Transaction Management ➤ Network Node Manager

Installations

The following applications are also sold as separate products and must be installed separately from BSM. For details, refer to the products' installation guides.

- HP Operations Manager
- Network Node Manager

The following applications must also be installed separately and can be downloaded once BSM is installed depending on your licensing scenario. For details, see "Installing Component Setup Files" on page 105.

- SiteScope
- HP Diagnostics
- Business Process Monitor
- Real User Monitor
- Business Process Insight
- Transaction Management

2

Getting Started Roadmap

This chapter provides a basic step-by-step roadmap for getting up and running with HP Business Service Management.

All guides referred to are located in the **Documentation\pdfs** directory on the HP Business Service Management DVD.

1 Read about where to get help.

Learn about the various sources of assistance, including HP Software Support and the HP Business Service Management Documentation Library. For details, review the information at the very beginning of this guide, as well as the Welcome chapter.

2 Register your copy of HP Business Service Management.

Register your copy of HP Business Service Management 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 HP Business Service Management on the HP Software Support site (<http://www.hp.com/go/hpsoftwaresupport>).

3 Plan your HP Business Service Management deployment.

Create a complete deployment plan prior to installing HP Business Service Management software. Use the Deployment Planning checklist on page 54 to assist you. For in-depth deployment planning best practices, consult your HP Professional Services representative.

4 Learn about the HP Business Service Management platform and components.

Learn about the servers and components that power the HP Business Service Management system. For details, see page "Understanding the Platform and Components" on page 33.

5 Install HP Business Service Management servers.

Before installing, review deployment requirements (page 41) and configurations (page 67). To install, follow the instructions for installing on Windows (page 79). If deploying HP Business Service Management securely, see the *HP Business Service Management Hardening Guide* PDF.

6 Log in to HP Business Service Management and initiate system administration.

Log in to the HP Business Service Management Web interface using a Web browser. For details on logging in for the first time, see "Initial Login to HP Business Service Management" on page 171. For details on initial platform administration tasks, see *Platform Administration*.

7 Set up HP Business Service Management to monitor your IT environment.

Using HP Business Service Management applications and tools, you model your IT world, configure data collectors to monitor your IT assets, and collect metrics on your infrastructure and applications. For details on working with HP Business Service Management, see the HP Business Service Management Documentation Library.

8 Roll out HP Business Service Management to business and systems users.

Once the HP Business Service Management system is up and running with defined users and incoming monitor data about your modeled IT world, begin the process of educating business and systems users on how to access and use HP Business Service Management reporting and alerting functionality.

3

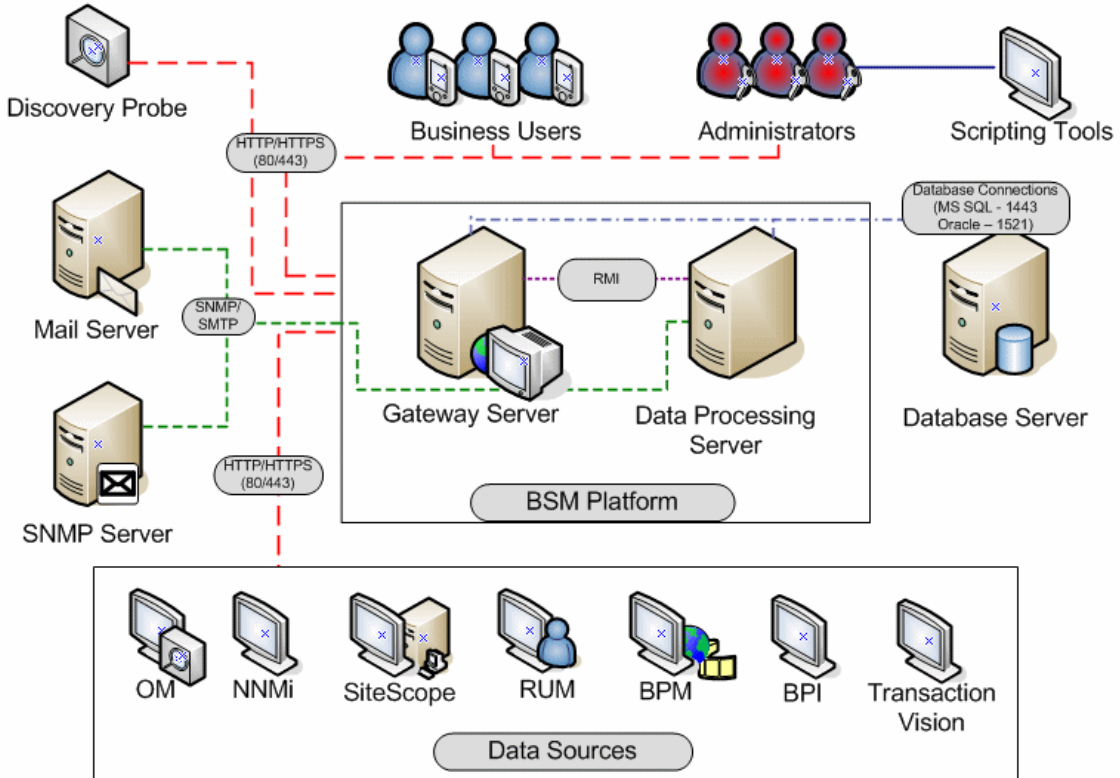
Understanding the Platform and Components

This chapter includes:

- ▶ Platform Architecture Diagram on page 34
- ▶ HP Business Service Management Servers on page 35
- ▶ HP Business Service Management Data Sources on page 36
- ▶ Additional Proprietary Components on page 38
- ▶ Third-Party Components on page 39
- ▶ Bus Communication Among HP Business Service Management Components on page 40

Platform Architecture Diagram

The below diagram illustrates the general HP Business Service Management platform architecture and the communication protocols used among the components.



HP Business Service Management Servers

The HP Business Service Management platform consists of proprietary servers and components, data sources, scripting tools, and third-party servers, such as database and mail servers, that you set up in the enterprise network environment. This chapter provides an overview of the HP Business Service Management platform and components.

HP Business Service Management is powered by a set of servers that are responsible for running the applications, facilitating system management, data handling, reporting, and alerting. You install the following HP Business Service Management servers on one or more Microsoft Windows machines in your enterprise network environment:

- ▶ **HP Business Service Management Gateway Server.** Responsible for running HP Business Service Management applications, producing reports, operating the administration areas, receiving data samples from the data collectors and distributing this data to the relevant HP Business Service Management components, and supporting the bus. To work with HP Business Service Management, the Gateway server machine must run Web servers.
- ▶ **HP Business Service Management Data Processing Server.** Responsible for aggregating data, running the Business Logic Engine, and controlling the ODB service.

For more information on HP Business Service Management servers, see "Introducing HP Business Service Management Platform Deployment" on page 43.

HP Business Service Management Data Sources

HP Business Service Management data sources are responsible for collecting performance and event data from various points throughout the infrastructure, as well as from external locations, and feeding it into a central repository. The data is used to monitor and analyze events and the performance of business applications and IT infrastructure and alert staff to performance and threshold breaches. Some data collectors can also report the topology that they are monitoring to HP Business Service Management.

Data Collectors

Data collectors are installed and administered separately. Downloading and running data collectors require separate licensing. Each data collector can be downloaded from the HP Business Service Management Downloads page, accessed from Platform Administration (**Admin > Platform > Setup and Maintenance > Downloads**). For details, see "Downloads Overview" in *Platform Administration*.

You can install the following data collectors on machines in your enterprise network environment or at remote locations:

- ▶ **Business Process Monitor (BPM)**. Emulates the end-user experience by running transactions (virtual business processes) and collecting availability and response time data.
- ▶ **SiteScope**. Collects key performance measurements on a wide range of back-end infrastructure components, including Web, application, database, and firewall servers.
- ▶ **Real User Monitor (RUM)**. Measures the end-user experience of real users from a network/server perspective by monitoring real user traffic and collecting network and server performance data in real time.
- ▶ **Business Process Insight (BPI)**. Provides visibility into the health and performance of the business processes that are running over IT infrastructure to enable assessment of the business impact of delays or blockages in processes due to an IT performance problem.
- ▶ **Transaction Management**. Measures the health, performance and business impact of enterprise transactions and provides reporting on transaction activity.

Once the data collectors are installed and configured, you further define their settings in End User Management Administration (**Admin > End User Management**) and System Availability Management Administration (**Admin > System Availability Management**). End User Management Administration enables you to centrally manage your monitoring environment for Business Process Monitor and Real User Monitor. System Availability Management enables you to access hosted instances of SiteScope. Business Process Insight and TransactionVision each have their own administration areas (**Admin > Business Process Insight** and **Admin > TransactionVision**).

You can deploy monitors, configure eventing and alert schemes, and manage and organize your monitor environment all from within the HP Business Service Management platform.

Data from HP Software Applications and Integrations

HP Business Service Management has the ability to integrate with BTO products, with applications that are part of Business Service Management, and with external applications.

These integrations enable the flow of data from application to application as well as the flow of events from the applications to Business Service Management and to its Operations Management component, depending on the applications. You can drill down from BSM to some of the relevant applications.

You can integrate with the following HP Software applications and tools:

- **HP Integration Adapter**
- **HP Network Node Manager**
- **HP Operations Manager**
- **HP Operations Orchestration**
- **HP Service Manager**
- **HP Release Control**

For details on these integrations, see "Business Service Management Integration with Other Applications" in *Solutions and Integrations*.

Additional Proprietary Components

HP Business Service Management administrators deploy the Discovery Probe to enable the Discovery process, which aids in modeling the IT world. In addition, administrators use HP scripting tools to create the scripts that are used by Business Process Monitor to collect data for monitored applications.

Data Flow Probe

The Data Flow Probe enables you to collect data about your IT infrastructure resources and their interdependencies. This process discovers resources such as applications, databases, network devices, servers, and so on. The Data Flow Probe is the main component responsible for receiving discovery tasks from the server, dispatching them to the IT components, and sending the results back to the ODB through the server. For details on the discovery process and Data Flow Probe deployment, see *Discovery and Dependency Mapping Content Guide*.

Scripting Tools

HP Business Service Management scripting tools enable you to record the end-user actions that represent the key business transactions whose performance you want to monitor using Business Process Monitor. You save the transactions in recorded scripts. The table below describes the scripting tools that are available. For additional information on Business Process Monitor scripting tools, including script recording tips, see *Using End User Management*.

Tool	Description
HP Virtual User Generator (VuGen)	Enables you to record scripts for a large variety of protocols. This is the recommended tool for recording Business Process Monitor scripts. You download VuGen from the Downloads page, accessed from the Setup and Maintenance tab in Platform Administration. For details on using VuGen, see the HP Virtual User Generator documentation. For information on using HP LoadRunner scripts in HP Business Service Management, contact HP Software Support.
QuickTest Professional (for use with Windows-based Business Process Monitor only)	Enables you to record scripts for Web-based applications that include Java applets and ActiveX. For details on using QuickTest Professional, refer to the documentation installed with the product.

Third-Party Components

For full functionality, HP Business Service Management requires connection to a database server and a mail server.

The database server is used to store:

- ▶ System-wide and management-related data, which includes administrative settings and customer-configured information
- ▶ Profile data, which includes data collector settings and collected metrics
- ▶ Configuration item (CI) data, which includes the CIs used to model your IT infrastructure and the relationships between them.

The mail server is used to send alerts and scheduled reports to designated recipients.

Optionally, connection to an SNMP server may be implemented to receive SNMP traps sent by the HP Business Service Management alerting mechanism.

In addition, HP Business Service Management supports integration of data from third-party systems via SiteScope Integration Monitors, and to third-party systems, using HP Business Service Management APIs.

For more information on using database servers in HP Business Service Management, see the *HP Business Service Management Database Guide* PDF. For more information on SiteScope Integration Monitors, see "Working with SiteScope Integration Monitors" in *Using SiteScope* in the SiteScope Help. For more information on third-party integrations, see *Solutions and Integrations*.

Bus Communication Among HP Business Service Management Components

A bus is a virtual communications channel between HP Business Service Management servers.

The following functionality is provided by the Bus:

- ▶ **High availability for communication between the Gateway and Data Processing servers**

The bus uses a JMS-based messaging system for communication between the servers. A broker process on each server receives and delivers messages between the servers. Bus clustering allows multiple brokers to detect dropped server connections and to reconnect without data loss.

- ▶ **Transfer of monitoring data**

Data collectors send raw monitoring data via HTTP/HTTPS protocol to the Gateway Server. The Gateway Server formats the raw data and sends it to the Data Processing Server via the Bus. In the event that the Online BLE is experiencing downtime, the bus preserves the data until the Online BLE is again operational, thus guaranteeing that the Alert Engine has all of the data to perform its calculations on. Service Health uses the online BLE to listen to the Bus, and Service Level Management uses the offline BLE to listen to the Bus. Both applications display the formatted data to the user.

- ▶ **Transfer of alerts**

Each Data Processing server can generate alerts as a result of the data aggregation process. These alerts are sent from the Alerts Administrator in the Gateway Server through the bus to the Alerts Engine in the Data Processing Server and on to the user's e-mail, pager, or SMS.

Part II

Deployment Introduction and System Requirements

4

Introducing HP Business Service Management Platform Deployment

This chapter includes:

- About HP Business Service Management Platform Deployment on page 43
- Deploying HP Business Service Management Servers on page 47
- Setting Database Parameters on page 49
- Web Servers on page 51

About HP Business Service Management Platform Deployment

The HP Business Service Management servers are the backbone of the HP Business Service Management platform, which powers the HP Business Service Management applications. This chapter provides an overview of HP Business Service Management 9.00 platform deployment and describes the process recommended to set up and maintain an HP Business Service Management system.

When setting up the HP Business Service Management platform, in addition to reviewing deployment guidelines, it is recommended that you also review the following documentation, as relevant for your organization and platform requirements:

- For details on deploying a database server for use with HP Business Service Management, see the *HP Business Service Management Database Guide* PDF.

- ▶ For information on running HP Business Service Management on a hardened platform (including using HTTPS protocol), see the *HP Business Service Management Hardening Guide* PDF.
- ▶ HP Services offers best practice consulting on deployment planning, strategies, and security. For information on how to obtain this service, contact your HP representative.

If you are installing HP Business Service Management for the first time, the platform deployment consists of the following main stages:

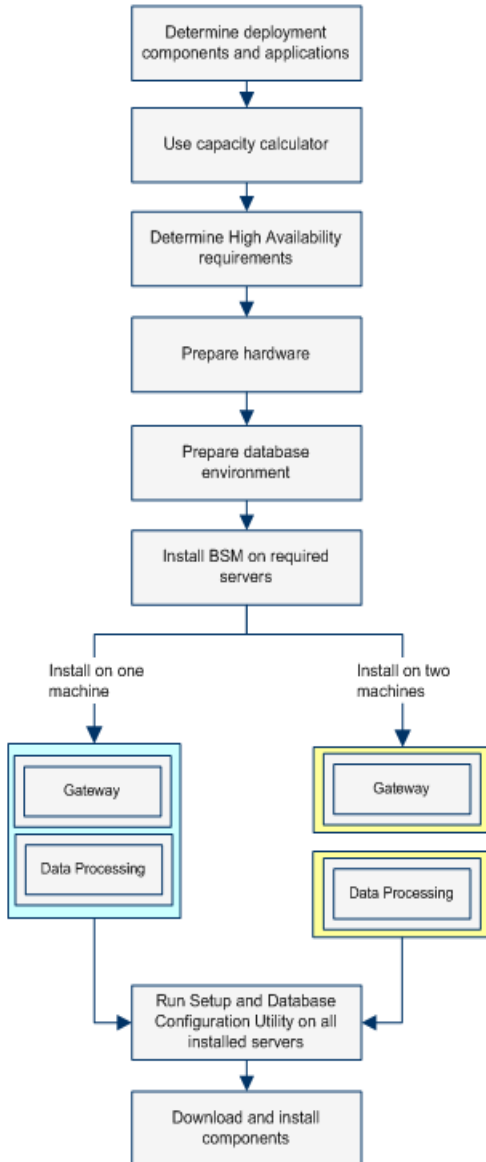
- 1 Installing HP Business Service Management 9.00 servers.** For details, see "Deploying HP Business Service Management Servers" on page 47.
- 2 Creating the HP Business Service Management databases and connecting to these databases.** For details, see "Setting Database Parameters" on page 49.
- 3 Installing component files.** For details, see "Installing Component Setup Files" on page 105.

Note:

After installing HP Business Service Management servers, register your copy of HP Business Service Management 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 HP Business Service Management on the HP Software Support Web site (<http://www.hp.com/go/hpsoftwaresupport>). Remember to notify HP or your local representative if you move to a new address, so that you can continue to receive product information and updates.

For troubleshooting issues, refer to the HP Software Self-solve knowledge base (h20230.www2.hp.com/selfsolve/documents), which can be accessed from the HP Business Service Management Help menu or from the HP Software Support Web site. In addition, refer to the HP Business Service Management readme file (located in the HP Business Service Management package root directory) for the latest technical and troubleshooting information.

Deployment Workflow Diagram



Deploying HP Business Service Management Servers

You install the following servers when deploying HP Business Service Management:

- ▶ **HP Business Service Management Gateway Server.** Responsible for running HP Business Service Management applications, producing reports, operating the Administration Console, receiving data samples from the data collectors and distributing this data to the relevant HP Business Service Management components, and supporting the Bus.
- ▶ **HP Business Service Management Data Processing Server.** Responsible for aggregating and partitioning data, running the business logic engines and the operational database-related services.

The HP Business Service Management 9.00 servers are run in a Microsoft Windows operating environment, and should be installed by your organization's system administration staff. The procedure for installing HP Business Service Management servers is described in "Installing Servers on a Windows Platform" on page 81.

You can install the HP Business Service Management servers according to a number of different deployment strategies. Distributed deployments, in which multiple server machines are installed, can benefit from various high availability and load balancing options. For details on the recommended deployment strategies, see "Deployment Configuration" on page 73.

Note: If HP Business Service Management 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 HP Business Service Management application and can result in performance and stability issues. For more information, contact HP Software Support.

This section also includes:

- ▶ "General Information for Server Deployment" on page 48

General Information for Server Deployment

Note the following when deploying HP Business Service Management servers:

- ▶ Access to the HP Business Service Management server machine must be available, either through HTTP or HTTPS, from any standard Internet or intranet connection.
- ▶ The HP Business Service Management server machine must have a user account with administrative rights to the database server(s) upon which you set up the required and optional databases used by BSM.
- ▶ To maximize the performance of machines on which you install HP Business Service Management servers, it is recommended that server machines be dedicated to HP Business Service Management and not run other applications.
- ▶ HP Business Service Management servers should not be installed on machines on which other HP products are installed.
- ▶ The HP Business Service Management service resides on all HP Business Service Management servers and is responsible for running all required HP Business Service Management processes. The HP Business Service Management service is installed when you run the Server and Database Configuration utility.
- ▶ After HP Business Service Management deployment, you install the setup files for various HP Business Service Management tools (data collectors and tools for recording scripts) to the HP Business Service Management Downloads page. For details on installing HP Business Service Management tools setup files on a Windows platform, see "Installing Component Setup Files" on page 105.
- ▶ Sun Java 6 (update 20) is copied onto the machine during server installation as part of the HP Business Service Management installation.
- ▶ Installing HP Business Service Management in an I18N environment is supported only for HP Business Service Management installed on a Windows platform. For considerations and limitations when deploying HP Business Service Management in a non-English language environment, see "Working in Non-English Locales" in *Platform Administration*.

Setting Database Parameters

HP Business Service Management requires the following types of databases/user schemas, which you set up on either Microsoft SQL Server or Oracle Server:

- ▶ **Management database.** For storage of system-wide and management-related metadata for the HP Business Service Management environment. HP Business Service Management requires one management database.
- ▶ **ODB database.** For storage of configuration information that is gathered from the various HP Business Service Management and third-party applications and tools. This information is used when building HP Business Service Management views. The ODB also contains the object repositories used to define configuration items and Key Performance Indicators (KPIs).
- ▶ **ODB history database.** For storage of changes, over time, of the ODB configuration items (CIs). This information can be viewed in the form of CI changes as well as snapshots.
- ▶ **Profile database(s).** For storage of raw and aggregated measurement data obtained from the HP Business Service Management data collectors. Although only one profile database is required, you can store profile data in multiple databases, if required.
- ▶ **Business Process Insight database.** For storage of the Business Process Models created using the Business Process Insight Modeler. For details on the Business Process Insight database, see "BPI Server Database Requirements" in the *Business Process Insight Deployment Guide*.
- ▶ **Event schema.** For storage of events and OMi topology synchronization.

Part of the process of deploying HP Business Service Management servers requires connecting to these databases. If you are installing HP Business Service Management for the first time, you can manually create these databases directly on the database server(s) before server installation, or you can allow HP Business Service Management to create the databases for you, using the Server and Database Configuration utility.

For detailed information on deploying the database servers in your system for use with HP Business Service Management, and creating the databases/user schemas manually, see the *HP Business Service Management Database Guide* PDF.

The procedure for setting database parameters is described in "Server Deployment and Setting Database Parameters" on page 93.

Note: If you need to verify the integrity of the databases, you can run the database schema verification. For details, see Appendix D, "Database Schema Verification" in the *HP Business Service Management Database Guide* PDF.

Web Servers

To work with HP Business Service Management, the server machine(s) must run a Web server. In Windows environments, you can select between:

- ▶ **Microsoft Internet Information Server (IIS).** If you plan to run HP Business Service Management on IIS, you should install the IIS prior to HP Business Service Management installation. During HP Business Service Management server installation, the IIS settings are automatically configured to work with HP Business Service Management.

Note: If you are installing on Windows 2008 and using IIS 7, you must create the appropriate roles for the IIS. For details, see "Microsoft Internet Information Server (IIS)" on page 87.

- ▶ **Apache HTTP Server.** The version installed during HP Business Service Management server installation has been adapted by HP for HP Business Service Management and is the version you must use. If you plan to use HP Business Service Management with the Apache HTTP Server, you select the Apache HTTP Server during installation.

For information on setting up the Web server to work with HP Business Service Management, see "Working with the Web Server" on page 87.

5

Deployment Planning

This chapter includes:

- Deployment Planning Checklist on page 54
- Using the Capacity Calculator on page 55

Deployment Planning Checklist

Deploying HP Business Service Management in an enterprise network environment is a process that requires resource planning, system architecture design, and a well-planned deployment strategy. The checklist below describes some of the basic issues that should be considered prior to installation. For comprehensive best practices documentation on deployment planning, consult with HP Professional Services.

Note: Although HP Software-as-a-Service customers do not deploy HP Business Service Management software, most of the steps listed below are still relevant to optimally plan the best way to use HP Business Service Management within the HP Software-as-a-Service framework.

Use this checklist to review the basic issues that your organization should consider when planning the HP Business Service Management deployment.

✓	Step
	Analyze the IT processes and organizational structure and culture that can affect, or be affected by, the deployment.
	Map the customer environment.
	Analyze the organization's goals and identify the key IT-enabled business processes to achieve these goals.
	Identify the target users (those with a vested interest in the business processes), for example, executives, LOB managers, marketing managers, customer support personnel, support engineers, and so forth.
	Align the project with current performance management practices.
	Map the architecture of the monitored infrastructure, including identifying the processes, systems, system resources, and other infrastructure elements to monitor in each of the applications.
	Define the project deliverables, including setting expectations regarding measurements, features, the deployment scope, and maturity levels.
	Identify the appropriate HP Business Service Management functionality.

✓	Step
	Build a deployment roadmap.
	Define success criteria for the project.
	Define performance and availability objectives for each monitored business process.
	Define measurement types to be supported at each deployment stage.
	Form HP Business Service Management administration and operations team(s).
	Plan the practical aspects of the deployment, including system architecture and capacity planning using the capacity calculator; and database environment and security considerations, and so forth.

Using the Capacity Calculator

You can use the capacity calculator excel sheet to determine the scope and size of your BSM deployment. You input the information regarding the scope of your deployment in terms of numbers of applications running, users, and expected data. The capacity calculator then calculates the required memory and determines the size of your deployment. You use this information to determine your hardware requirements and deployment configuration.

This information can be uploaded automatically while running the Setup and Database Configuration Utility which is run immediately after installing BSM. The Server Deployment page of the utility enables you to browse and locate your saved capacity calculator file in the local server or available network location and upload the file. When the file is uploaded, the data from the file is used to populate the fields in the Server Deployment page. This enables you to use the numbers you input into the calculator to determine the size and scope of your deployment during installation. Only those applications for which you have a license appear in the list of applications in the Server Deployment page of the utility.

The capacity calculator excel file includes the following sheets:

- ▶ **Deployment Calculator.** Includes the Capacity Questionnaire table, where you enter your capacity and deployment data, and the Output tables, where your capacity levels and machine requirements are automatically calculated for you.
- ▶ **Certified Deployments.** Includes detailed information on hardware requirements, included components, and capacity for the five certified deployments. For details on these deployment options, see "Certified BSM Deployments" on page 27.
- ▶ **Detailed Capacities.** Gives detailed data regarding the numbers used to calculate capacity levels of **Small, Medium, Large, and Extra Large** for each BSM application, users, metric data, and model size.
- ▶ **Level Override.** This sheet should be used only by very experienced BSM administrators. It enables the option to override the capacity levels determined in the capacity calculator.

To use the capacity calculator:

- 1** Locate the excel sheet named **BSM_9_Deployment_and Capacities.xls** in your installation media. The file can be found in the **Documentation** folder in the main BSM installation DVD or you can download the latest version from the HP Software Product Manuals Web site (<http://h20230.www2.hp.com/selfsolve/manuals>).
- 2** In the **Deployment Calculator** sheet **Capacity Questionnaire** columns:
 - ▶ Select which applications you are running by selecting **Yes** or **No** as appropriate in the cells next to the name of each application.
 - ▶ Enter the required data for each application that you are running and for the number of **Logged in Users**.

You can hover over each cell to read a tooltip description of the information required for each application.

- 3 Once you enter your data, the **Output** tables on the right of the **Deployment Configuration** sheet automatically update to give you the required information regarding your deployment.
 - ▶ The **Output - Application/Level** table on the top right indicates the scope of your deployment, giving you sizing information. This includes users, size of your model, size of your expected metrics data, application status (on or off), and sizing for each application.
 - ▶ The **Output - Machine Requirements** table in the lower right indicates, for each installation type (one machine or distributed), the required memory in gigabytes for each server installation.

Select which Deployment Type (one machine or distributed) is applicable to your deployment.

- 4 Save the excel file in a location that is accessible to the servers where you are installing BSM.

You can now prepare the hardware environment and install BSM based on these recommendations.

To apply the capacity calculator data during installation:

- ▶ When running the Setup and Database Configuration Utility in the Server Deployment page, you browse to the location where you saved the Capacity Calculator with your data. You can upload the file, and the data from the excel sheet automatically updates the fields in the wizard.

For details on using the utility, see "Running the Server and Database Configuration Utility" on page 100.

Using the Capacity Calculator After Installation

Once you have BSM installed, you may want to make changes to your deployment. You can add applications, change the number of logged in users or any of the other numbers related to running applications. You can edit your capacity calculator and determine if the scope of your deployment has changed.

You can upload the data from the updated capacity calculator's excel file directly into the Server Deployment page in Platform Administration. This page enables you to update the information that you entered in the Server Deployment page while running the Server and Database Configuration Utility without having to run the wizard.

If you do not have the appropriate license for an application, the application does not appear in the list of available applications in the Server Deployment page, either during installation or in the Platform Admin page. You can add licenses for applications once BSM is deployed in the License Management page in Platform Admin. Once you add a license, you must go to the Server Deployment page to enable the application.

For details on updating a deployment, see "How to Update Your BSM Licenses, Applications, or Deployment Scope" in *Platform Administration*. For any changes to take effect while updating a deployment, you must restart BSM.

6

Reviewing System Requirements

Note: The HP Business Service Management readme file, available with the HP Business Service Management package, contains the latest information on support matrixes with the supported operating systems for HP Business Service Management components. It also lists support for the current and previous HP Business Service Management versions.

This chapter includes:

- ▶ HP Business Service Management Servers on page 60
- ▶ HP Business Service Management Databases on page 62
- ▶ Client Requirements for Viewing BSM on page 66
- ▶ Server Environment Settings on page 70
- ▶ HP Business Service Management on Virtual Platforms on page 71

HP Business Service Management Servers

Computer/Processor	<p>Windows:</p> <p>To fulfill the CPU requirements, you must have one of the following:</p> <ul style="list-style-type: none"> ▶ Intel Dual Core Xeon Processor 2.4 GHz or higher ▶ AMD Opteron Dual Core Processor 2.4 GHz or higher <p>Note: As Business Service Management performance is dependent upon processor speed, it is recommended to get the fastest possible processor speed to ensure proper performance.</p>
Operating System	<p>Windows:</p> <ul style="list-style-type: none"> ▶ Windows 2008 Server/Enterprise SP2 (64bit) ▶ Windows 2008 Server/Enterprise R2 (64bit) ▶ Windows 2003 Server/Enterprise SP2 (64bit) ▶ Windows 2003 Server/Enterprise R2 (64bit)
Web Server	<p>Windows:</p> <ul style="list-style-type: none"> ▶ Microsoft Internet Information Server (IIS) 7.0, 7.5 ▶ Microsoft Internet Information Server (IIS) 6.0 ▶ Apache HTTP Server 2.2.11 (adapted by HP for HP Business Service Management and installed during HP Business Service Management server installation)

Memory and CPU Requirements

The following table lists the memory and CPU requirements according to some of the deployment scenarios available for BSM. To get the most accurate requirement information for your deployment, use the capacity calculator. For details, see "Using the Capacity Calculator" on page 55.

Certified Deployment	Server Type	Memory	CPU	Virtual Memory/ Swap Space
APM Basic	One machine	recommended 6 GB/ minimum 4 GB	4 CPU	6 GB
APM Advanced	Gateway	7 GB	8 CPU	8 GB
	Data Processing	15 GB	8 CPU	8 GB
OPS Basic	One machine	7 GB	4 CPU	6 GB
OPS Advanced	Gateway	9 GB	4 CPU	6 GB
	Data Processing	19 GB	8 CPU	8 GB
Full BSM	Gateway	9 GB	8 CPU	8 GB
	Data Processing	19 GB	8 CPU	8 GB

HP Business Service Management Databases

Hardware Requirements

The following table describes the hardware (CPU and memory) requirements recommended for the HP Business Service Management Oracle or Microsoft SQL database server:

Deployment	Number of Processors	Physical Memory
Standard	1 dual core	Minimum: 2G RAM Recommended: 4G RAM
Large	Minimum 2 dual core or 1 quad core	Minimum: 4G RAM Recommended: 8G RAM

For larger deployments, a separate database server is required for Business Process Insight and for TransactionVision. In smaller deployments, they can share the database server.

For details on the criteria for standard and large deployments of HP Business Service Management, see the *HP Business Service Management Database Guide* PDF.

Software Requirements - Oracle Server

The following table lists the Oracle servers supported for working with HP Business Service Management.

Database Release - Version	System Type
Oracle 10.2 (10.2.0.4 or higher component specific release number 10.2.0.X) Enterprise Edition	64 bit
Oracle 10.2 (10.2.0.4 or higher component specific release number 10.2.0.X) RAC Enterprise Edition	64 bit
Oracle 11.1.0.7 Enterprise Edition	64 bit
Oracle 11.2 (11g R2) Enterprise Edition	64 bit
Oracle 11.2 (11g R2) RAC Enterprise Edition	64 bit

Note:

- ▶ It is strongly recommended to apply the latest critical Oracle patches per your operating system. For details, consult the Oracle documentation.
 - ▶ Consult the Oracle documentation for supported platforms.
 - ▶ The Oracle Partitioning option should be enabled.
-

Examples of Tested Deployments - Oracle Server

The following table details those deployment environments that were tested by HP.

Database Release - Version	System Type	Operating System
Oracle 11.2 (11g R2) Enterprise Edition	64 bit	Linux Enterprise Edition RHEL 5
Oracle 11.2 (11g R2) RAC Enterprise Edition	64 bit	Linux Enterprise Edition RHEL 5
Oracle 10.2.0.4 Enterprise Edition	64 bit	Linux Enterprise Edition RHEL 5
Oracle 11.2 (11g R2) Enterprise Edition	64 bit	Solaris 10

Software Requirements - Microsoft SQL Server

The following table describes the Microsoft SQL Servers supported for working with HP Business Service Management:

Database Release		
Version	System Type	Service Pack
Microsoft SQL Server 2008 Enterprise Edition	32 bit	Service Pack 1
Microsoft SQL Server 2008 Enterprise Edition	64 bit	Service Pack 1
Microsoft SQL Server 2005 Enterprise Edition	32 bit	Service Pack 3
Microsoft SQL Server 2005 Enterprise Edition	64 bit	Service Pack 3

Note:

- Only supported service packs should be installed, with latest patches.
- Consult the Microsoft documentation for supported platforms.

Examples of Tested Deployments - Microsoft SQL Server

The following table details those deployment environments that were tested by HP.

Database Release			Operating System
Version	System Type	Service Pack	
Microsoft SQL Server 2008 Enterprise Edition	32 bit	Service Pack 1	Windows 2008 Enterprise Edition Service Pack 1
Microsoft SQL Server 2008 Enterprise Edition	64 bit	Service Pack 1	Windows 2008 Enterprise Edition Service Pack 1 (64-bit)

Client Requirements for Viewing BSM

Display	<ul style="list-style-type: none">▶ Minimum: color palette setting of at least 256 colors▶ Recommended: color palette setting of 32,000 colors
Resolution	1280x1024 or higher (recommended) 1024x768 1280x800
Supported Browsers	<ul style="list-style-type: none">▶ Microsoft Internet Explorer (IE) 8.0▶ Microsoft Internet Explorer (IE) 7.0 <p>Note: The browser must be set to accept all cookies.</p>
Flash Player	Adobe Flash 10.0 or later

Java Plug-in (to view applets)	<p>Recommended: 6u18</p> <p>Supported: 6u18 and higher</p> <p>Note: You may not be able to view all HP Business Service Management applets with an earlier version of Java and you will need to download the latest version from the Java download site (http://www.java.com/en/download/manual.jsp) and install it. You may also have to disable earlier versions after download.</p> <p>After installation, if you are using Internet Explorer, verify that the browser is using the correct Java version and disable earlier versions. To do so, choose Tools > Internet Options > Advanced tab, locate the Java (Sun) item and select the check box for the correct Java version, click OK, close the browser, and reopen it.</p>
Viewing the Documentation Library	<ul style="list-style-type: none"> ▶ The Documentation Library is best viewed in Internet Explorer. ▶ The Documentation Library is best viewed from a browser with Java support. If your browser does not have Java support, download the Sun Java plug-in from the Sun Java Web site (http://java.com/en/index.jsp). Note that if Java support is not available, the Documentation Library automatically opens using the JavaScript implementation. The JavaScript implementation provides the same basic functionality as the Java implementation, however does not allow use of the Favorites tab within the navigation pane. ▶ If you experience a JavaScript error when opening the Documentation Library, disable the Show Exception Dialog Box in the Java Console and open the Help again.

Note for users having trouble opening Java applets:

If you are having trouble opening Java applets in the user interface, try one or both of the following:

- ▶ If you are using 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**).
-

Note the following additional requirements for using your browser with HP Business Service Management:

- ▶ HP Business Service Management uses cookies. Ensure that your Web browser is set to accept all cookies.
- ▶ HP Business Service Management requires browser support for pop-up windows. HP Business Service Management will not perform properly if you are using Web applications that are set to block pop-up windows in your browser.
- ▶ Users who view the HP Business Service Management site using Microsoft Internet Explorer (IE) must set their browser caching to automatically check for newer versions of stored pages.

To set IE browser caching options for HP Business Service Management:

- 1** In the browser page, select **Tools > Internet Options**. The Internet Options dialog box opens and displays the **General** tab.
- 2** Click **Settings**.
If you are working with IE 7.0, this button is located within the **Browsing History** section.
The Settings dialog box opens.
- 3** In the **Check for newer version of stored pages** list, select **Automatically**.
- 4** Click **OK** to close the dialog boxes.

Server Environment Settings

Time Settings	<p>All HP Business Service Management servers and database servers must have the same settings for the following:</p> <ul style="list-style-type: none"> ▶ Time zone ▶ Daylight Savings Time configuration ▶ Time
Name resolution	<p>The HP Business Service Management servers must be able to resolve the names of the machines with which it must communicate. These include all the HP Business Service Management servers, database servers, data collectors.</p>
TCP	<p>Windows:</p> <p>It is highly recommended that you make the following change in your registry:</p> <p>For registry key MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters, create a new key TcpTimedWaitDelay (DWORD) and set the (Decimal) value to 60.</p> <p>If this is not done, there may be a problem with exhausting the available TCP resources because the time delay default value may be too long.</p> <p>When working with the registry, it is recommended that you back it up before making any changes.</p>

HP Business Service Management on Virtual Platforms

If you are deploying HP Business Service Management on a virtual platform, the sizing guidelines for a regular installation are not applicable. The following general limitations and recommendations are applicable to an installation on a virtual machine:

- ▶ The following virtualization platforms are supported:
 - ▶ VMWare ESX 3.x, 4.x
 - ▶ Microsoft Hyper-V
- ▶ Performance of HP Business Service Management on a virtual machine can be expected to be slower than in a regular installation.
- ▶ Business Process Monitors can be run in a VMware environment, but HP will not address or resolve any support issues arising from Business Process Monitors running in a VMware environment.
- ▶ HP Business Service Management capacities and performance will vary according to the various server resources, such as CPU, memory, and network bandwidth, allocated to HP Business Service Management components.
- ▶ A Gigabit network card should be used.
- ▶ It is strongly recommended that you do not run a database server containing HP Business Service Management databases on a virtual machine if the database files reside on a virtual disk.
- ▶ Refer to the SiteScope documentation for details on SiteScope requirements for installing on a virtual machine.

7

Deployment Configuration

This chapter includes:

- ▶ One-Machine Deployment on page 73
- ▶ Distributed Deployment on page 74
- ▶ Load Balancing and High Availability on page 75

Note: It is highly recommended to use the capacity calculator to determine the scope of your deployment and whether a one or two machine deployment is best for your installation. For details, see "Using the Capacity Calculator" on page 55.

One-Machine Deployment

A one-machine deployment has the Gateway Server and Data Processing Server installed on the same machine.

A one-machine deployment can be used for many installations scenarios as long as the machine has the required hardware to handle the capacity.

In a one-machine deployment, all servers are installed on one machine:

To set up a one-machine deployment:

Choose the **Typical** setup type during HP Business Service Management installation.

For details on installing HP Business Service Management on a Windows platform, see "Installing Servers on a Windows Platform" on page 81.

Distributed Deployment

A distributed deployment is when one instance of a Gateway Server is installed on one machine and the Data Processing Server is installed on a second machine.

To set up a distributed deployment:

During HP Business Service Management installation, specify the server type you want to install on each machine.

- ▶ When installing the Gateway server, select **Gateway Server** as the setup type.
- ▶ When installing the Data Processing server, select **Data Processing Server** as the setup type.

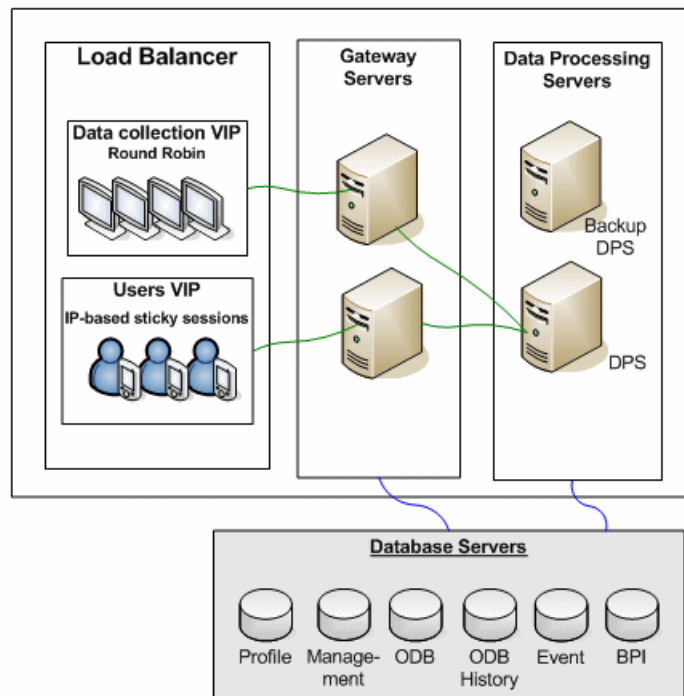
The order in which you install these servers is not important.

For details on installing HP Business Service Management on a Windows platform, see "Installing Servers on a Windows Platform" on page 81. For details on using the Setup and Database Configuration utility, see "Server Deployment and Setting Database Parameters" on page 93.

Load Balancing and High Availability

Load balancing and high availability can be implemented in one-machine or distributed deployments. You configure load balancing by adding an additional Gateway Server and high availability by adding a backup Data Processing Server.

The diagram below illustrates load balancing and high availability for a distributed deployment but the same configuration can be used if the Gateway server and the Data Processing server have been installed on one machine.



Note: Data Processing Servers can run concurrently with additional Data Processing Servers as long as the same service is not being run concurrently on more than one machine.

Benefits of a Multi-server Deployment

Deploying multiple servers for HP Business Service Management for either a one-machine deployment or a distributed deployment gives you the following benefits:

- ▶ Provides scaling solutions for your HP Business Service Management system.
- ▶ Multiple Gateway Servers can be placed behind a load balancer to divide load and improve system performance. For details on load balancing, see "Load Balancing for the Gateway Server" on page 131.
- ▶ Backup machines for the HP Business Service Management servers allow high availability options to be used to improve system availability and reliability. For details on high availability, see "High Availability for HP Business Service Management" on page 129.

Deploying Multiple Servers

When deploying multiple HP Business Service Management servers, you must perform the following steps:

- ▶ At the end of the server installation process, use the Server and Database Configuration utility to establish connectivity between the server and the databases. You must specify the same database and connection parameters for each HP Business Service Management server (whether the servers are at the same location or geographically separated). For details on using the Setup and Database Configuration utility, see "Server Deployment and Setting Database Parameters" on page 93.
- ▶ After installing HP Business Service Management servers, point HP Business Service Management data collectors (Business Process Monitor, SiteScope, Real User Monitor, TransactionVision, Business Process Insight) to the server or load balancer with which they must communicate to perform their work. For details, see "Configuring HP Business Service Management Data Collectors in a Distributed Environment" on page 149.
- ▶ Ensure that the servers are accessible from any standard Internet or intranet connection, either through HTTP or HTTPS.

- ▶ Ensure that each server has a user account with administrative rights to the database servers.
- ▶ Create a common temporary directory to hold the temporary images created by the Gateway Servers when generating scheduled reports. For details, see "How to Modify the Location and Expiration of Temporary Image Files" in *Platform Administration*.

Notes and Limitations

- ▶ If HP Business Service Management servers, including the database servers, are installed on multiple network segments, it is highly recommended to minimize the number of hops and the latency between the servers. Network-induced latency may adversely affect the HP Business Service Management application and can result in performance and stability issues. For more information, contact HP Software Support.
- ▶ It is highly recommended that there be no firewall between the HP Business Service Management servers.

Part III

HP Business Service Management Server Installation for Windows

8

Installing Servers on a Windows Platform

This chapter includes:

- ▶ Overview of HP Business Service Management Server Installation on page 81
- ▶ Features Included in HP Business Service Management Server Installation on page 82
- ▶ Preparing Information Required for Installation on page 83
- ▶ Installation Prerequisites on page 85
- ▶ Working with the Web Server on page 87
- ▶ Installing HP Business Service Management Servers on page 88

Overview of HP Business Service Management Server Installation

There are several stages to the HP Business Service Management 9.00 server installation:

- 1** Installing HP Business Service Management 9.00 as described in "Installing HP Business Service Management Servers" on page 88. The first wizard that opens copies the files and packages onto the machine. The post-installation wizard opens within the installation wizard and enables you to configure administration settings. These include registration and connection information, Web server and SMTP settings. It also includes bus installation and shortcut creation.

- 2 Configuring the licenses and deployment, and setting the management, ODB, ODB history, Business Process Insight, and Event (OMi) databases by specifying the database type and connection parameters for each database, as described in "Server Deployment and Setting Database Parameters" on page 93. You have the option of running this wizard immediately upon completing the post-installation wizard or running it after completing all installations.
- 3 Installing component setup files in the HP Business Service Management Downloads page, as described in "Installing Component Setup Files" on page 105.

The server Setup program gives you the option of installing both of the HP Business Service Management servers on one machine, or installing only one of the server types on the machine. For details on the different deployment configurations that are possible, see "Deployment Configuration" on page 73.

Features Included in HP Business Service Management Server Installation

Component	Description
Gateway Server	The Gateway Server is responsible for the following: <ul style="list-style-type: none">▶ Running the HP Business Service Management applications▶ Reporting▶ Operating the Administration Console▶ Receiving data samples from the data collectors▶ Distributing data to the relevant HP Business Service Management components▶ Supporting the Bus

Component	Description
Data Processing Server	<p>The Data Processing Server is responsible for the following:</p> <ul style="list-style-type: none"> ▶ Aggregating and partitioning data ▶ Running the Business Logic Engines ▶ Controlling the ODB-related services ▶ Supporting the Bus <p>For further details on the services run by the Data Processing Servers, see "Services Assigned to the Server" on page 137.</p>

Note: Other servers and components are automatically installed during HP Business Service Management server installation. For details, see "Deploying HP Business Service Management Servers" on page 47.

Preparing Information Required for Installation

Have the following information ready before installation:

- ▶ **Target directory names.** During installation HP Business Service Management 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
- HP OpenView Performance Access
- **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 HP Business Service Management components), you can do so within the HP Business Service Management site: Select **Admin > Platform > Setup and Maintenance > License Management** and click the **Add License** button. For information on updating the license key, see "Licenses" in *Platform Administration*.

- **Maintenance number.** This is the maintenance number you received with your HP Business Service Management package.
- **Administrator's e-mail address.**
- **Port number used by the Web server.** This is the port for access to the HP Business Service Management. 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 HP Business Service Management site.
- **SMTP mail server name.**
- **SMTP sender name.** This name appears on alerts sent from HP Business Service Management.

Note: In addition to sending e-mail alerts via the configured SMTP server, HP Business Service Management can send e-mail alerts via the Microsoft SMTP Service.

- ▶ **Information for setting the management, ODB, ODB history, Business Process Insight, and Event database parameters.** See "Required Information for Setting Database Parameters" on page 97.

Installation Prerequisites

Note the following before installing HP Business Service Management servers:

- ▶ It is recommended that you install HP Business Service Management servers to a drive with at least 20 GB of free disk space. For more details on server system requirements, see "Reviewing System Requirements" on page 59.
- ▶ If HP Business Service Management 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 HP Business Service Management application and can result in performance and stability issues. For more information, contact HP Software Support.
- ▶ HP Business Service Management servers should not be installed on a machine that already has other HP Software products installed on it.
- ▶ If you are using the IIS Web server, it must be up and running prior to BSM installation.
- ▶ HP Business Service Management 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 HP Business Service Management site when using Microsoft Internet Explorer 7.0 or later.
- ▶ During HP Business Service Management server installation, you can specify a different path for the HP Business Service Management directory (default is **C:\HPBSM**), but note that the full path to the directory must not contain spaces and cannot contain more than 15 characters.
- ▶ 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: 1098-1098, 1099-1099, 8009-8009, 8080-8080, 4444-4444, 8083-8083, 8093-8093.

Note: 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.

- ▶ If you plan to run HP Business Service Management servers on a hardened platform (including using HTTPS protocol), review the hardening procedures described in the *HP Business Service Management Hardening Guide* PDF.

Working with the Web Server

HP Business Service Management installed on a Windows platform works with Apache HTTP Server or Microsoft Internet Information Server (IIS).

Note: There must be only one running Web server on a server machine that uses the same port that HP Business Service Management uses. For example, if you select to use Apache HTTP Server during HP Business Service Management 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

If you plan to run HP Business Service Management on the Apache HTTP Server, you must use the Apache HTTP Server version that has been adapted by HP for HP Business Service Management. It is installed during the server installation.

HP Business Service Management runs its Apache HTTP Server, by default, through port 80. If port 80 is already in use, before beginning HP Business Service Management installation, reconfigure the service using that port to use a different port.

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 HP Business Service Management, as configured in the Apache configuration file (`httpd.conf` and `httpd-ssl.conf`).

Microsoft Internet Information Server (IIS)

If you are installing on a Microsoft Windows Server 2008 and using the IIS 7.X Web server, you must 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:
 - **Application Development** section:
 - **ISAPI Extensions**
 - **ISAPI Filters**
 - **Management Tools** section:
 - **IIS Management Scripts and Tools**
- 6 Click **Install**.

Installing HP Business Service Management Servers

You install HP Business Service Management 9.00 servers—the Gateway Server and Data Processing Server—from the HP Business Service Management DVD provided with the HP Business Service Management distribution package. Unless you install on a machine running IIS, HP Business Service Management installs Apache HTTP Server (adapted for HP Business Service Management) during the installation process.

You need administrative privileges for the machines on which you are installing HP Business Service Management servers.

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.

To install HP Business Service Management servers:

- 1** Insert the HP Business Service Management 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_9.00_setup.exe`. The setup file for HP Business Service Management servers is located in the **Windows_Setup** directory of the DVD. For example, enter `d:\Windows_Setup\HPBsm_9.00_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.** Select a language for installation only on servers that are localized for the following available languages: English, Japanese, Korean, and Simple Chinese.

Note: 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 shared content.
- Select the data directory for shared content.
- Select the installation directory for product specific content. In Microsoft Windows environments, this path must be 15 characters or less, and must not contain spaces. If the name exceeds 15 characters, during the next step, the installation prompts you to give a different name.

Note: During installation you may get the following messages:

- ▶ There is not enough available disk space or swap space. If you get this warning, the installation fails or completes with errors. Free up disk or swap space on the machine and proceed with the installation.
 - ▶ 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 half an hour or one hour in a virtual environment.

Once the process completes, you see checkmarks 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:**
 - ▶ **Apache HTTP Server.** If port 80, the default port, is already in use by the existing Web server, HP Business Service Management notifies you to resolve the conflict. For details, see "Apache HTTP Server" on page 87. If you select Apache, you must also enter the email address of the BSM administrator.
 - ▶ **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:**

If HP Business Service Management 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 HP Business Service Management with Microsoft IIS, click **Cancel** to exit HP Business Service Management Setup. Install IIS and rerun the HP Business Service Management installation.

► **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 HP Business Service Management sends. If HP Business Service Management 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.

► **Setup and Database Configuration Utility.** Select whether to run the Setup and Database Configuration Utility immediately or at a later time. This utility must be run once all the servers are installed.

For details, see "Server Deployment and Setting Database Parameters" on page 93.

If deploying on more than one server, install additional HP Business Service Management 9.00 servers using the above steps.

Note: In some cases you may want to rerun the post-installation wizard. For example, you want to change the BSM Web Server type you are working with (from IIS to Apache or vice versa) or in IIS, you want to update the Web site. You can rerun the post-installation wizard by running the following batch file: **<HPBSM root directory>\bin\postinstall.bat**.

9

Server Deployment and Setting Database Parameters

Note: If you are working with Oracle Server, substitute the term **user schema** for the term **database** below.

This chapter includes:

- Setup and Database Configuration Utility Overview on page 94
- Setting Database Parameters on page 95
- Required Information for Setting Database Parameters on page 97
- Running the Server and Database Configuration Utility on page 100

Setup and Database Configuration Utility Overview

You configure your server deployment and create and connect to the databases/user schemas necessary for running HP Business Service Management using the Server and Database Configuration Utility.

You can run the Server and Database Configuration utility as part of HP Business Service Management server installation (described in "Installing Servers on a Windows Platform" on page 81 or "Installing HP Business Service Management Servers on Linux" on page 147) by selecting it in the last page of the post-installation wizard. Alternatively, you can run the Server and Database Configuration utility independently after server installation. The steps involved are the same for both procedures, as described in "Running the Server and Database Configuration Utility" on page 100.

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 Server and Database Configuration utility again. BSM must be disabled when running this utility (select **Start > Programs > HP Business Service Management > Disable Business Service Management**).

After modifying database type or connection parameters, restart all HP Business Service Management servers and data collectors.

Note: Modifying connection parameters for the management, ODB, ODB history, Business Process Insight, and Event databases after HP Business Service Management 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 page 95 and "Required Information for Setting Database Parameters" on page 97.

For detailed information on preparing either MS SQL Server or Oracle Server in your system for use with HP Business Service Management, see the *HP Business Service Management Database Guide* PDF.

Setting Database Parameters

You must set connection parameters for the following databases:

- ▶ Management
- ▶ ODB
- ▶ ODB History
- ▶ Business Process Insight (BPI)
- ▶ Event

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" on page 96.
- ▶ Specify the connection parameters to the database or user schema. See "Connecting to Existing Databases" on page 96.

Note: If you need to change an active management database for HP Business Service Management, contact HP Software Support.

Creating Databases

You can either use the Server 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 Server 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 *HP Business Service Management Database Guide* PDF. For instructions on creating user schemas manually on Oracle Server, see "Manually Creating the Oracle Server Database Schemas" in the *HP Business Service Management Database Guide* PDF.

Note: Each database/user schema created in HP Business Service Management (whether on the same database server or on different database servers) must have a unique name.

Connecting to Existing Databases

When running the Server 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 HP Business Service Management 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. Once 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 HP Business Service Management, see "Deployment Configuration" on page 73.

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. HP Business Service Management 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`).
- ▶ **User name and Password.** (if you are using MS SQL Server authentication)
The user name and password of a user with administrative rights on MS SQL Server. The default MS SQL Server administrator user name is **sa**.
Note that a password must be supplied.

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 HP Business Service Management service has the necessary permissions to access the MS SQL Server database. For information on assigning a Windows user to run the HP Business Service Management service, see "Changing the HP Business Service Management Service User" on page 167. For information on adding a Windows user to MS SQL Server, see "Using Windows Authentication to Access Microsoft SQL Server Databases" in the *HP Business Service Management Database Guide* PDF.

Configuring Connection Parameters for Oracle Server

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 HP Business Service Management user schemas, see "Oracle Server Configuration and Sizing Guidelines" in the *HP Business Service Management Database Guide* PDF.

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. HP Business Service Management automatically displays the default port, **1521**.
- ▶ **SID.** The Oracle instance name that uniquely identifies the Oracle database instance being used by HP Business Service Management.
- ▶ **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 schema, you must have user creation privileges.

Running the Server and Database Configuration Utility

You can run the Server and Database Configuration utility either as part of the HP Business Service Management Setup program or separately from the Setup program. If you run the Server and Database Configuration utility separately from HP Business Service Management server Setup, note the following important points:

- ▶ If the command prompt window is open on the HP Business Service Management server machine, you must close it before continuing with the Server and Database Configuration utility.
- ▶ If running this wizard after installation to modify existing configuration and not during initial installation, you must disable HP Business Service Management on the HP Business Service Management server machine before running the Server and Database Configuration utility (select **Start > Programs > HP Business Service Management > Disable Business Service Management**).
- ▶ Use only English characters when entering database parameters.

To set database parameters:

- 1** Launch the Server and Database Configuration utility in one of the following ways:
 - ▶ After completing the server installation stage of HP Business Service Management setup, select to run the Server and Database Configuration utility as a continuation of the HP Business Service Management Setup program.
 - ▶ **Windows:** On the HP Business Service Management server machine, select **Start > Programs > HP Business Service Management > Administration > Configure HP Business Service Management**. HP Business Service Management launches the Server and Database Configuration utility.
- 2** Follow the on-screen instructions for setting the following databases:
 - ▶ **Management**
 - ▶ **ODB**
 - ▶ **ODB history**
 - ▶ **Business Process Insight**
 - ▶ **Event**

Note: When running the utility on the Gateway server, not all databases appear.

- 3 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 HP Business Service Management is installed in the Licenses page of Platform Administration. For details, see "Licenses" in *Platform Administration*.

4 Server Deployment. The recommended workflow is to enter your deployment information in the capacity calculator to determine the scope of your deployment. 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 "Using the Capacity Calculator" on page 55.

- ▶ **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, or 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: Only applications for which you have a valid license appear in this page.

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.

5 Login Settings. Enter credentials for the administrator to use when accessing BSM and the JMX console.

- 6 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.
- ▶ When you select to configure automatically, the default port is configured on the Gateway server. You must manually configure the same port when running the utility on the Data Processing Server because the certificate server is hosted there.
 - ▶ When you select to configure manually, no port configuration is executed and you must manually configure on both the Gateway server and the Data Processing server.
- 7** To enable the database connections, you must click **Finish** at the end of the utility.
- 8** If you ran the Server and Database Configuration utility as part of HP Business Service Management server installation, you must start HP Business Service Management on the server only after successfully setting the parameters for all the databases. For details, see "Starting and Stopping HP Business Service Management" on page 153.

If you ran the Server and Database Configuration utility to modify the previously defined database types or connection parameters, restart all HP Business Service Management 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, both MyBSM and Service Health will no longer contain any pages and components.

To restore MyBSM and Service Health pages and components:

- Open the following directory: **<Gateway server root directory>\conf\uimashup\import**. This contains two directories: **\loaded**, and **\toload**.
- Copy the contents of the **\loaded** directory into the **\toload** directory. Restart BSM.

The default MyBSM and Service Health pages and components are now available.

10

Installing Component Setup Files

This chapter includes:

- Overview of Installing Component Setup Files on page 105
- Installing Component Setup Files on page 106

Overview of Installing Component Setup Files

The component setup files are used to install the components used by HP Business Service Management. The component setup files are not installed as part of the basic HP Business Service Management installation. They are located separately in the Web delivery package download area and in the **Data Collectors and Components\components** directory of the HP Business Service Management DVDs and must be installed separately to the HP Business Service Management Downloads page. The component setup files can then be downloaded from HP Business Service Management and used when required. For details on working with the HP Business Service Management Downloads page, see "Downloads Overview" in *Platform Administration*.

There are three DVDs provided for installation, which are grouped according to the following data collectors and components:

- Business Process Monitor, Real User Monitor, SiteScope, and Data Flow Probe
- HP Diagnostics
- Business Process Insight and TransactionVision

You must run all DVDs to enable downloading all the HP Business Service Management 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 HP Business Service Management once the component's setup files are copied to the Downloads page.

Installing Component Setup Files

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 HP Business Service Management 9.00.

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 **<HP Business Service Management root directory>\AppServer\webapps\site.war\admin\install** directory on the HP Business Service Management 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 **<HP Business Service Management root directory>\AppServer\webapps\site.war\admin\install** directory on the HP Business Service Management 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 HP Business Service Management Downloads page using the setup utility:

- 1** Insert the HP Business Service Management DVD into the drive of the HP Business Service Management Gateway Server on which you want to copy the component setup files.
- 2** 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 double-click **copydc.bat**. The Data Collector Wizard opens.
- 3** From the **Welcome** page, click **Next** to continue.
- 4** Select the data collectors you want to copy into your downloads page.
Click **Next** to continue.
- 5** On the **Confirmation** page, verify that the components to be copied are correct. Click **Next** to continue and transfer the files, as indicated on the **File Transfer** page.

- 6 The **Finish** page indicates that the component setup files have been installed. Click **Close** to exit the setup.

11

Uninstalling HP Business Service Management Servers on a Windows Platform

This chapter includes:

- Complete Uninstall on page 109

Complete Uninstall

Use the procedure below to completely uninstall HP Business Service Management.

Note: When uninstalling HP Business Service Management servers completely, the uninstall program removes all HP Business Service Management servers installed on the server machine.

To completely uninstall HP Business Service Management servers:

- 1** On the machine from which you are uninstalling HP Business Service Management, select **Start > Settings > Control Panel > Add/Remove Programs**. Select **HP Business Service Management**.
- 2** Click **Remove**, wait for the HP BSM uninstall script to remove any present updates, and follow the on-screen instructions when prompted.
- 3** If the **Show Updates** check box is selected, all the updates installed over HP BSM are displayed. When BSM is removed, all updates are removed, as well.

- 4 When a Minor-Minor HP BSM Release (9.0X) is removed, any HP BSM Public Patches installed on top of the release are removed, as well.
- 5 Restart the server machine.
- 6 If you are running HP Business Service Management with Microsoft IIS, open the IIS Internet Services Manager and check the following:
 - Under the **Default Web Site**, check that the following virtual directories have been removed and remove them if they still appear:
 - ext
 - HPBAC
 - Jakarta
 - mam_images
 - MercuryAM
 - opr-console
 - Topaz
 - TopazDC
 - Right-click the server machine name in the tree, and select **Properties**. In the Properties dialog box, with **WWW Service** displayed in the Master Properties list, click **Edit**. Select the **ISAPI Filters** tab. If the **jakartaFilter** filter still appears, remove it.

Note: If you plan to uninstall HP Business Service Management and then reinstall it to a different directory on the server machine, there is no need to remove the **jakartaFilter** filter. However, you will need to update the path for the filter. For details, see "Installation and Connectivity Troubleshooting" on page 115.

7 Access the Windows Registry Editor by selecting **Start > Run**. Enter **Regedit**

- a** Delete the HP Business Service Management root registry key from the following path:

- **HKEY_LOCAL_MACHINE\SOFTWARE\Hewlett-Packard\BSM**

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

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

When working with the registry, it is recommended that you back it up before making any changes.

Part IV

Troubleshooting

12

Installation and Connectivity Troubleshooting

This section describes common problems that you may encounter when installing HP Business Service Management or connecting to HP Business Service Management following installation, and the solutions to these problems. For additional troubleshooting information, Use the HP Software Self-solve knowledge base (h20230.www2.hp.com/selfsolve/documents).

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 Server 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.

The HP Business Service Management service is not installed after the Server and Database Configuration utility has been run

This can happen if the Windows Services screen is open when the Server and Database Configuration utility begins to run. To avoid the problem, ensure that the Services screen is closed before starting the Server and Database Configuration utility.

A network login prompt appears when completing an HP Business Service Management 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 HP Business Service Management.

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 HP Business Service Management servers causes a conflict with the Tomcat servlet engine.

Solution:

Stop the Oracle HTTP Server service, disable and then enable HP Business Service Management.

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 HP Business Service Management 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.

HP Business Service Management dialog boxes and applets, such as the Authentication Wizard, do not load properly.

Possible Cause:

Old java files on your client PC.

Solution:

Clear the java cache by following this procedure:

- Navigate to **Start > Control Panel > Java**.
- In the Temporary Internet Files section, click **Settings**.
- In the Temporary File Settings dialog box, click **Delete Files**.

After installing HP Business Service Management, the LDAP service does not start

Possible Cause:

The machine had a previous installation of HP Business Service Management. The service **OpenLDAP Directory Service** is attempting to run against the old install directory (for example **C:\MercuryAM\openldap\slapd.exe**).

Solution:

Verify that the old service is still on the HP Business Service Management machine. If it is, update the service name.

To locate and update the LDAP service:

- 1** Access the Windows registry and locate the **OpenLDAP-slapd** service (**Start > Run > type regedit**. Expand **HKEY_LOCAL_MACHINE > SYSTEM > CurrentControlSet > Services**).
- 2** If the **OpenLDAP-slapd** service is listed, you must change it to the correct service name, **OpenLDAP Directory Service**, by running the following command in a command prompt window:

```
sc.exe config "OpenLDAP-slapd" binPath="<HP Business Service Management root directory>\openldap\slapd.exe service"
```

After uninstalling HP Business Service Management and reinstalling to a different directory, HP Business Service Management does not work

Possible Cause:

When uninstalling and reinstalling to a different location, the IIS ISAPI filter does 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 HP Business Service Management 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 HP Business Service Management

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 HP Business Service Management and may be left over from previous versions of HP Business Service Management.

Solution:

Delete the **MercRedirectFilter** filter and ensure that the **jakartaFilter** is the only IIS ISAPI filter running.

HP Business Service Management has been installed, but the Downloads page is empty

Possible Cause:

The components setup files have not been installed to the Downloads page.

Solution:

Install the components setup files to the Downloads page. For details on installing the component setup files on a Windows platform, see "Installing Component Setup Files" on page 105.

General connectivity problems related to ports

Verify that all ports required by HP Business Service Management servers are not in use by other applications on the same machine. To do so, open a Command Prompt window, and run netstat (or use any utility that enables you to view port information). Search for the required ports.

You can also check the <HPBSM root directory>\log\EJBContainer\jboss_boot.log for ports in use. If the jboss_boot.log reports "Port <> in use" but you do not see that this port is in use when you run netstat utility, restart the server and then start BSM.

For details on the ports required by HP Business Service Management, see Chapter 16, "Port Usage."

Tip: To troubleshoot port usage problems, use a utility that lists all ports in use and the application that is using them.

HP Business Service Management connectivity is down, but the Tomcat servlet engine and jboss application server appear to be working

Connectivity problems include the inability to log in to HP Business Service Management, and the inability of Business Process Monitor to connect to the Gateway Server.

Possible Cause:

This can happen if the **TopazInfra.ini** file is empty or corrupt.

To verify that this is the problem:

- 1 In the browser, type <http://<Gateway Server>:8080/web-console> to connect to the JMX Console.

If prompted, enter the JMX Console authentication credentials (if you do not have these credentials, contact your system administrator).

- 2 Under **System > JMX MBeans > Topaz**, select **Topaz:service=Connection Pool Information**.
- 3 Click the **showConfigurationSummary Invoke** button toward the bottom of the page. If the Operation Result page is blank, the **TopazInfra.ini** file is empty or corrupt.

Solution:

To solve this problem, rerun the Server and Database Configuration utility and either reconnect to your existing management database or define a new management database. If you did not discover a problem with the **TopazInfra.ini** file, contact HP Software Support.

Inability to log in to HP Business Service Management, and jboss application server fails to initialize

Run the database schema verify program to verify that the database server on which the management database is located is up and running. For details, see Appendix D, "Database Schema Verification" in the *HP Business Service Management Database Guide* PDF.

Browser unable to reach HP Business Service Management and an error about insufficient heap space

A message box opens indicating that HP Business Service Management is not available and you should try logging in at a later time.

Possible Cause 1:

Check log files in **<HP Business Service Management root directory>\log** directory for errors.

Microsoft's Security Update 921883 for Windows 2003 Service Pack 1 and for Windows XP Professional x64 Edition may cause applications using more than 700 MB of contiguous memory to fail. HP Business Service Management JVM uses a heap size larger than 768 MB memory. For more information about Security Update 921883, see <http://www.microsoft.com/technet/security/Bulletin/MS06-040.mspx>.

If the HP Business Service Management server goes down, look for the following error in <**HP Business Service Management server root directory**>\

log\jboss_boot.log when the service or process is restarted:

Error occurred during initialization of VM.
Could not reserve enough space for object heap.

Solution:

Although Microsoft has a hotfix available only for Microsoft Support customers, it is recommend to wait for the next Service Pack release. For more information about this hotfix, see <http://support.microsoft.com/kb/924054>.

If Security Update 921883 is already installed, do the following:

- ▶ If the Security Update is not critical at your site:
 - ▶ Uninstall it and wait for Microsoft's next Service Pack.
 - ▶ Disable **Windows Automatic Updates** to prevent Security Update 921883 from being installed again.
- ▶ If the Security Update is critical at your site, install the hotfix.

Possible Cause 2:

The page file size is too small.

Solution:

Configure the page file size to be at least 150% of RAM size. Restart the server.

Browser unable to reach HP Business Service Management or the .jsp source code appears in the browser window

A message box opens indicating that the HP Business Service Management page does not exist.

Solution 1:

Ensure that the Tomcat servlet engine is running and that port 8009 is not in use by another application. Perform the activities below on the HP Business Service Management Gateway Server machine.

To verify Tomcat servlet engine functionality:

- 1** Verify whether jboss application server is running by opening the **<HP Business Service Management server root directory>\og\jboss_boot.log** file and looking for a line similar to the following:

```
2007-07-12 18:45:26,202 - 2007-07-12 18:45:26,202 [main]
(ServerImpl.java:504) INFO - JBoss (MX MicroKernel) [4.0.5.GA (build:
CVSTag=JBoss_4_0_5_GA_JBAS-3978 date=200701111225)] Started in
5m:2s:452ms
```

where:

2007-07-12 18:45:26,202 – represents the date in ms

200701111225 – represents the date in hours

5m:2s:452ms – represents jboss startup duration

- 2** Verify whether the HP Business Service Management service is installed and running.
- 3** If port 8009 is in use by another application:
 - Terminate the application using port 8009.
 - Modify the port used by HP Business Service Management.

Solution 2:

Ensure that the Jakarta filter path is correct. The path might be incorrect—for example, if you uninstall HP Business Service Management servers and then reinstall to a different directory. In this case, the Jakarta filter path is not updated, causing redirection problems.

To update the Jakarta filter 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** Select **jakartaFilter** and click **Edit**.
- 6** In the **Filter Properties** box, update the path to point to the drive and directory of the current HP Business Service Management installation.
- 7** Apply your changes and quit the Internet Services Manager.
- 8** Restart the IIS service.

HP Business Service Management is sitting behind a proxy and the server name is not recognized by the proxy

The problem occurs for both Microsoft IIS and Apache Web servers.

Possible Cause:

The Web server redirects the browser page to a URL that replaces the server name entered by the user.

Solution:

Add the HP Business Service Management server name to the Windows hosts file on the proxy server machine. This file is located in **WINNT\system32\drivers\etc**.

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 **WINNT\system32\drivers\etc\hosts** file.
- ▶ Change the Gateway Server name in the **<HP Business Service Management root directory>\WebServer\conf\httpd.conf** file on the Gateway Server to a recognized name in the DNS.

Host names of Gateway or Data Processing server has changed

You can no longer access HP Business Service Management on the server names on which they were installed and must change the names of the servers. Refer to the HP Software Self-solve knowledge base, article number KM522738, which can be accessed at <http://h20230.www2.hp.com/selfsolve/document/KM522738>.

Part V

Server Administration and Maintenance

13

High Availability for HP Business Service Management

This chapter includes:

- ▶ Overview of High Availability Options on page 129
- ▶ Load Balancing for the Gateway Server on page 131
- ▶ High Availability for the Gateway Server on page 134
- ▶ High Availability for the Data Processing Server on page 136
- ▶ Configuring HP Business Service Management Data Collectors in a Distributed Environment on page 149

Overview of High Availability Options

You can improve your system availability and reliability using high availability options that combine multiple servers, external load balancing, and failover procedures.

Implementing a high availability configuration means setting up your HP Business Service Management servers so that service is continuous despite power outages, machine downtime, and heavy load.

High availability is implemented in two layers:

- ▶ **Hardware infrastructure.** This layer includes redundant servers, networks, power supplies, and so forth.
- ▶ **Application.** This layer has two components:
 - ▶ **Load balancing.** Load balancing divides the work load among several computers. As a result, system performance and availability increase.

Internal load balancing is built into the HP Business Service Management applications and into the bus communication between HP Business Service Management servers.

External load balancing is a software and hardware unit supplied by an outside vendor. This unit must be installed and configured to work with HP Business Service Management applications.
 - ▶ **Failover.** Work performed by the Data Processing Server is taken over by a backup if the primary server or component fails or becomes temporarily unavailable.

Implementation of load balancing and failover is discussed in detail throughout this chapter.

Note: HP Professional Services offers best practice consulting on high availability. For information on how to obtain this service, contact your HP representative.

Load Balancing for the Gateway Server

When you install multiple HP Business Service Management Gateway Servers, HP Business Service Management can utilize external load balancing mechanisms to help ensure the even distribution of processing and communication activities across the network. This is particularly important in cases of high load, to avoid overwhelming any single server.

It is generally recommended that you use one or more external load balancers at the entry to HP Business Service Management.

Note: If you have installed TransactionVision UI/Job Server on the Gateway server, you must ensure that the load balancer is configured to forward the TransactionVision UI/Job Server traffic to the correct Gateway server. For details, refer to the *HP TransactionVision Deployment Guide* PDF.

Configuring Load Balancing

To configure the load balancer for a Gateway Server, create two virtual hostnames. The virtual hostname must be a fully qualified domain name (FQDN), in the format <servername>.<domainname>. This requirement is necessary to support Lightweight Single Sign On authentication, which is enabled by default.

The first hostname is for accessing the HP Business Service Management Web site on the Gateway Server. This URL can be distributed to BSM users. The second hostname is for the data collectors to access the Gateway Server. This URL must be used when configuring data collectors to communicate with HP Business Service Management.

You must enter the relevant load balancer hostnames in the Infrastructure Settings for the virtual servers. To do so, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Foundations**, select **Platform Administration**.

Modify the following settings in the **Platform Administration - Host Configuration table**:

- ▶ **Default Virtual Gateway Server for Application Users URL.** Virtual hostname for the BSM Web site
- ▶ **Default Virtual Gateway Server for Data Collectors URL Default Virtual Centers Server URL.** Virtual hostname for Data Collectors
- ▶ **Local Virtual Gateway Server for Application Users URL.** URL of physical GW host for application users.
- ▶ **Local Virtual Gateway Server for Data Collectors URL.** URL of physical GW host for data collectors

Enter a value for all four settings.

To configure the load balancer for the data collectors' virtual hostname:

Use the standard settings for the load balancer, but set the following:

- ▶ **round robin enabled**

To configure the load balancer for HP Business Service Management Web site's virtual hostname:

Use the standard settings for the load balancer, but set **stickiness by session enabled**.

Notes and Limitations

- ▶ A software load balancer is not supported.
- ▶ If you use two load balancers for failover, you must ensure that you configure the hostnames of both load balancers on the DNS server machine. You can then specify the machine name, hostname's FQDN, or URL of either load balancer when this information is required for the data collectors, or in the browser to open the HP Business Service Management site.

- ▶ If you use two load balancers for failover, and the load balancers each work with more than one server type, you should define a unique virtual hostname on each load balancer for each server type, map the virtual hostnames to the actual hostnames of the corresponding servers, and ensure that you configure all the virtual hostnames on the DNS server machine. You can then specify either of the relevant virtual hostnames for each data collector, or in the browser to open the HP Business Service Management site.
- ▶ If you have installed TransactionVision UI/Job Server on the Gateway server:
 - ▶ You must ensure that the load balancer is configured to forward the TransactionVision traffic to the correct Gateway server.
 - ▶ The TransactionVision UI/Job Server on the Gateway server does not have a high availability mechanism. In this case the Gateway server becomes unavailable and is migrated to another server. You must manually migrate the TransactionVision UI/Job Server installation to the other server.

For details, refer to the *HP TransactionVision Deployment Guide* PDF.

High Availability for the Gateway Server

HP Business Service Management provides high availability for the Gateway Servers to ensure that data gets to its destination and that the users can use the Dashboard application during server failures.

Protected Delivery for Incoming Data

HP Business Service Management provides protected data delivery for monitor data. Protected data delivery means that the data is not deleted from one data store until it is forwarded to, and stored in, the next data store.

Note: HP Professional Services offers best practice consulting on this subject. For information on how to obtain this service, contact your HP representative.

HP Business Service Management supports the following mechanisms to help ensure high availability for the raw data:

- ▶ If the Web server of the Gateway Server machine fails, the data is either redirected to another Gateway Server by the load balancer, or is queued on the data collector until the Web Server is up.
- ▶ If the Web server of the Gateway Server machine receives the data, but the bus is down, the data is stored on the data collector until the bus is up again.
- ▶ If the bus receives the data, but the monitoring data loader is down, the data is stored on the bus until the monitoring data loader is up again. The data is then sent to the database.

High Availability for Service Health

HP Business Service Management provides high availability for Service Health on the Gateway Server to ensure that users can continue working with Service Health even if a Gateway Server fails while a user is in the middle of a session.

When a user logs in to HP Business Service Management and starts working with Service Health, the session information is registered on a specific Gateway Server and the load balancer sends all communications related to that session to the same Gateway Server. If that Gateway Server fails, the load balancer redirects the session to another Gateway Server and the session is re-registered on the new Gateway Server. The user continues working without any interruption of service and without having to log in to HP Business Service Management again.

The load balancer for the Gateway Server must be set with **stickiness by session enabled**. For details, see "Configuring Load Balancing" on page 131.

Caution: It is possible that in certain situations, the transition from one Gateway Server to another could take a few seconds. During this transition, errors may be received for some user actions.

High Availability for the Data Processing Server

To ensure high availability, you should install a backup Data Processing Server. For HP Business Service Management to function properly in the event of a primary Data Processing Server failure, the backup Data Processing Server can take over.

It is recommended that when you install the primary and backup Data Processing Servers, the servers should be comparable in terms of hardware, memory, and performance.

If the high availability for the Data Processing Server is enabled and a backup server is defined, in the event that one or more services becomes unavailable, the High Availability Controller performs automatic failover and moves the services to the backup server. The server retrieves the current configuration from the management database and continues to provide the services as the new active Data Processing Server.

You can also use the JMX console to manually reassign services to the backup server. You may want to do this if for example, you are planning a maintenance on one of the Data Processing Servers. Moving the services manually can reduce BSM's downtime.

Note: When deploying a new HP Business Service Management installation, the first Data Processing Server started becomes the default server for the assigned Data Processing Server services—that is, it becomes the primary Data Processing Server. If a second Data Processing Server is started, you can assign it to act as a backup server.

This section includes the following topics:

- "Services Assigned to the Server" on page 137
- "Services Managed by the High Availability Controller (HAC)" on page 139
- "Configuring Automatic Failover" on page 141
- "Reassigning Services with JMX Console" on page 143
- "Manually Reassigning Services" on page 144
- "Manually Disabling Data Aggregator Services" on page 148

Services Assigned to the Server

Various processes are assigned to the Gateway and Data Processing Servers. Each process is responsible for running specific services. You can use the JMX console to view the services running on the BSM servers or on a specific server, such as the Data Processing Server.

To view services via the JMX Web console:

1 In a Web browser, open:

<http://<Data Processing Server machine name>:8080/jmx-console>

When prompted, enter the JMX Console authentication credentials (if you do not have these credentials, contact your system administrator).

2 In the **Topaz** section, select **service=hac-backup**.

3 Under **java.lang.String listAllAssignments()** from the database, click **Invoke**.

If you want to view the services of a specific server, such as the Data Processing Server, enter the name of the server in the parameter value. If you want to view all services, leave the parameter value for the server name empty.

The processes running on the server are displayed in a table. The JMX online table contains the following columns:

Column Name	Description
Service	The name of the assigned service.
Customer	The ID of the customer for which the service is assigned. The default customer ID for an individual HP Business Service Management system (that is, one not managed by HP Software-as-a-Service) is 1. A customer ID of -1 represents the entire system as opposed to a specific customer.
Process	The name of the Data Processing Server and the name of the JVM process handling the service. The length of time the server has been running and the last time it was pinged are also displayed.
Assigned	Whether the service assignment is currently active or not, the date the service was assigned, and the length of time it has been assigned are displayed.
State	The current state of the service. Valid states are: <ul style="list-style-type: none"> ➤ 1 – Stopped ➤ 2 – Starting ➤ 3 – Stopping ➤ 4 – Running ➤ -1 – Failed ➤ -2 – Failed to stop ➤ -3 – Failed to start The date that the service acquired the state, and the length of time that it has been in the state are displayed.
Srv. Sign	Server signature.
State Sign	State signature (should match the server signature).

Services Managed by the High Availability Controller (HAC)

The Data Processing Server services that can be managed by HAC are described in the following table, including:

- Name of the process in JVM
- Name the High Availability Controller (HAC) uses for the process
- The services running on the process
- A description of the process

JVM Process Name	HAC Process Name	Service Name	Description of Service Location of Log File
Mercury AS	mercury_as	KPI_ENRICHMENT	KPI_Enrichment service is responsible for adding dashboard KPIs to CIs that were added to the model by external monitoring systems. The KPIs to add and the CIs to which the KPIs are added are configurable.
		BSM_DT	BSM_DT handles the configured downtimes in the system. Downtimes can be configured onto CIs and can be configured to affect alerts, events, reports, KPI calculations, and monitoring.
		VERTICALS	Verticals service is for SAP that ensures compatibility with HP Business Service Management. SAP service links data retrieved from SiteScope and Business Process Monitors to SAP related entities brought from the ODB.
		EUM_ADMIN	EUM_ADMIN handles End User Management Administration where Business Process Monitors and Real User Monitors are configured for monitoring.

JVM Process Name	HAC Process Name	Service Name	Description of Service Location of Log File
mercury_odb	odb	BSM_ODB	The ODB is a central repository for configuration information that is BSM and third-party applications and tools. This information is used to build HP Business Service Management views.
hpbsm_bizImpact	business_impact_service	BIZ_IMPACT	The Business Impact component enables you to see the business CIs and SLAs that are impacted by another CI in Service Health.
		LIV_SERVICE	Local Impact View enables you to also create local impact views in Service Health. These are independent of all other views. When you modify indicator definitions on a CI within a local impact view, this has no effect on this CI in all other views.
bpi_process_repository	bpi_process_repository	PROCESS_REPOS	Responsible for maintaining all Business Process Insight configurations when Business Process Insight is not installed on a separate server.
hpbsm_offline_engine	offline_engine	NOA	The New Offline Aggregator service validates and synchronizes new tasks for the offline aggregator on an hourly or daily basis.
hpbsm_marble_supervisor	marble_supervisor	DASHBOARD	Dashboard service on the Data Processing Server is responsible for online business logic calculations for Service Health.

JVM Process Name	HAC Process Name	Service Name	Description of Service Location of Log File
hpbsm_pmanager	pmanager	PM	The Partition and Purging Manager splits fast-growing tables into partitions at defined time intervals. After a defined amount of time has elapsed, data in a partition is no longer accessible for use in HP Business Service Management reports. After an additional, defined amount of time, that partition is purged from the profile database.
hpbsm_opr_bakend	opr_bakend	OPR	Responsible for the Operations Management application.

Note: Log files are primarily for HP Software Support's use. They are listed here only to alert you to new files on your servers.

Configuring Automatic Failover

You can configure automatic reassignment of services running on a primary Data Processing Server to a backup Data Processing Server. To configure the automatic reassignment of services running on a primary Data Processing Server to a backup Data Processing Server, you must:

- Enable automatic failover.
- Define a backup Data Processing server in the JMX console.

Enabling Automatic Failover

You enable either using the Infrastructure Settings in the BSM interface or in the JMX console. You can also use the JMX console to check whether high availability is enabled.

To enable automatic failure in Infrastructure Settings:

- 1 Select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**.
- 2 Choose **Foundations**, select **High Availability Controller**, and locate the **Automatic Failover Enabled** entry in the General Properties table.
- 3 Modify the value to **true**. The change takes effect immediately.

To enable automatic failover in the JMX:

- 1 In a Web browser, open:
<http://<Data Processing Server machine name>:8080/jmx-console>
When prompted, enter the JMX Console authentication credentials (if you do not have these credentials, contact your system administrator).
- 2 In the **Topaz** section, select **service=hac-backup**.
- 3 Locate **void setAutomaticFailoverEnabled ()**, select **True**, and click **Invoke**.

To check whether automatic failover has been configured:

- 1 Follow steps 1 and 2 above for accessing the JMX and **hac-backup** service.
- 2 Locate **void getAutomaticFailoverEnabled ()**, click **Invoke**.

Defining a Backup Server

You must use the JMX console to define or remove a backup Data Processing server. You can also view your high availability configurations.

To use the JMX console to define a backup server:

- 1 In a Web browser, open:
<http://<Data Processing Server machine name>:8080/jmx-console>
When prompted, enter the JMX Console authentication credentials (if you do not have these credentials, contact your system administrator).
- 2 In the **Topaz** section, select **service=hac-backup**.

3 Locate **addBackupServer** and enter the following values:

- **primaryServerName**. The name of the primary server.
- **backupServerName**. The name of the backup server.

Use the machine name for both these parameters. If you are unsure of the machine name, you can use the **listservers** method described below to retrieve the name of the machines already configured.

4 Click **Invoke**.

To remove a backup server:

1 Follow steps 1 and 2 above for accessing the JMX and **hac-backup** service.

2 Locate **removeBackupServer** and enter the following value:

- **primaryServerName**. The name of the primary server for which you are removing the backup server.

3 Click **Invoke**.

To view your high availability configuration:

1 Follow steps 1 and 2 above for accessing the JMX and **hac-backup** service.

2 Locate **listservers** and click **Invoke**.

The result displays a list of **Servers** and **Backup Servers**. If there are no backup servers defined or if high availability is not enabled, you get a message saying automatic failover is disabled.

Reassigning Services with JMX Console

You can move services between Data Processing Servers as server availability and resource issues arise. Reassigning services can also limit downtime during maintenance of the Data Processing Servers.

You do not have to have high availability enabled to perform this procedure and the source and destination servers do you have to have been configured for high availability.

To use the JMX console to reassign services between Data Processing Servers:

- 1** In a Web browser, open:
<http://<Data Processing Server machine name>:8080/jmx-console>
When prompted, enter the JMX Console authentication credentials (if you do not have these credentials, contact your system administrator).
- 2** In the **Topaz** section, select **service=hac-backup**.
- 3** Locate **moveServices()** and enter the following values:
 - ▶ **customerId**. The default customer ID for a regular HP Business Service Management installation is **1**. HP Software-as-a-Service customers should use their customer ID.
 - ▶ **srcServer**. The name of the source server from where you are moving services.
 - ▶ **dstServer**. The name of the destination server to where you are moving the services.

Use the machine name for both these parameters. If you are unsure of the machine name, you can use the **listservers** method described above to retrieve the name of the machines already configured.
 - ▶ **groupName**. Leave this parameter value blank.
- 4** Click **Invoke**. All services running on the source server are moved to the destination server.

Manually Reassigning Services

Caution: The procedures below should only be used for reassigning services should be followed with caution and only by advanced users.

You can manually reassign services running on a primary Data Processing Server to a backup Data Processing Server should it be necessary. Since a service can only be active on one Data Processing Server, you must either remove the existing assignment, or make it inactive, before reassigning the service to a different Data Processing Server.

To reassign a service, you can either add a new assignment, or activate a previously defined, but inactive, assignment.

Tip: You can check that services have been reassigned, activated, or inactivated correctly by viewing the service status in the JMX Web console. For details, see "Services Assigned to the Server" on page 137.

Removing a Service's Assignment

Removing a service's assignment deletes the entry from the HA_TASKS table in the management database so that it must be added as a new assignment if you wish to use it again in the future.

To remove a service's current assignment:

1 In a Web browser, open:

<http://<Data Processing Server machine name>:8080/jmx-console>

When prompted, enter the JMX Console authentication credentials (if you do not have these credentials, contact your system administrator).

2 In the **Topaz** section, click **service=hac-backup**.

3 Under **removeAssignment()**, enter the following data:

- **customer_id.** The default customer ID for an individual HP Business Service Management system is **1**. HP Software-as-a-Service customers should use their customer ID in this field.

Note: The **customer_id** for the PM and NOA services is always -1, as they are services assigned to the system as a whole, as opposed to a specific customer.

- **serviceName.** The name of the service for which you are removing the current assignment.

- ▶ **serverName.** The name of the Data Processing Server to which the service is currently assigned.
 - ▶ **processName.** The name of the process (such as **mercury_as**, **mercury_online_engine**, **mercury_offline_engine**, **topaz_pm**).
- 4 Click **Invoke**. The assignment for the service is removed from the specified Data Processing Server.

Changing the Status of an Assigned Service

You can leave the assignment of a service to a specific Data Processing Server in the HA_TASKS table in the management database, but make it active or inactive by changing its assigned value.

Note: The HA_TASK_ASSIGN table from previous versions is obsolete. Use the HA_TASKS table.

To change the assigned value of an existing assignment:

- 1 In a Web browser, open:
<http://<Data Processing Server machine name>:8080/jmx-console>
When prompted, enter the JMX Console authentication credentials (if you do not have these credentials, contact your system administrator).
- 2 In the Topaz section, click **service=hac-backup**.
- 3 Under **changeAssignment()**, enter the following data:
 - ▶ **customerId.** The default customer ID for a regular HP Business Service Management installation is **1**. HP Software-as-a-Service customers should use their customer ID.

Note: The customer_id for the PM and NOA services is always -1 as they are services assigned to the system as a whole, as opposed to a specific customer.

- **serviceName.** The name of the service for which you are changing the assignment value.
 - **serverName.** The name of the Data Processing Server to which the service is assigned.
 - **processName.** The name of the process .
 - **assignValue.** The assigned value for the assignment. Any number between -9 and 9 is valid. The value **1** makes the assignment active and any other number makes it inactive.
- 4** Click **Invoke**. The assignment for the service is changed according to the **assignValue** entered.

Adding an Assignment for a Service

You can add an assignment for a service to a specific Data Processing Server and either activate it immediately, or keep it inactive until needed. This is useful when working with a primary and a backup Data Processing Server. Assignments for all the services can be created for each server, with the assignments to the primary Data Processing Server being active, and the assignments to the backup Data Processing Server being inactive.

To add a new assignment for a service:

- 1** In a Web browser, open:

<http://<Data Processing Server machine name>:8080/jmx-console>

When prompted, enter the JMX Console authentication credentials (if you do not have these credentials, contact your system administrator).

- 2** In the Topaz section, click **service=hac-backup**.

- 3** Under **addAssignment()**, enter the following data:

- **customer_id.** The ID of the customer for which the service is to be assigned. The default customer ID for an individual HP Business Service Management system (that is, one not managed by HP Software-as-a-Service) is **1**.

Note: The `customer_id` for the PM and NOA services is always -1 as they are services assigned to the system as a whole, as opposed to a specific customer.

- ▶ **serviceName.** The name of the service you are assigning.
 - ▶ **serverName.** The name of the new Data Processing Server to which the service is being assigned.
 - ▶ **processName.** The name of the process .
 - ▶ **assignValue.** The assigned value for the assignment. Any number between -9 and 9 is valid. The value **1** makes the assignment active and any other number makes it inactive.
- 4** Click **Invoke**. The assignment for the service is added for the specified Data Processing Server.

Manually Disabling Data Aggregator Services

There may be times, such as during server maintenance, when you need to disable data aggregator services but do not need to use System Health.

To disable the offline aggregation and business logic engine services on the Data Processing Server:

- 1** Select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Foundations**.
- 2** Select **Offline Aggregator**.
- 3** Edit the **Run Aggregator** parameter. Change the setting to **False**. The change takes effect immediately.

Configuring HP Business Service Management Data Collectors in a Distributed Environment

This section describes how to configure the HP Business Service Management data collectors to work in a distributed HP Business Service Management deployment.

Business Process Monitor and Real User Monitor

For Business Process Monitors to perform their work, you must specify the Gateway Server URL in the Business Process Monitor Admin application on each host machine on which the Business Process Monitor is running. Edit the Gateway Server URL entry in the Configure Instance page for each Business Process Monitor instance. For more information, see "Business Service Management Registration Properties Area" in *the Business Process Monitor Administration* PDF.

For Real User Monitors to perform their work, HP Business Service Management requires you to specify the Gateway Server URL in the Real User Monitor Web Console. For more information, see "BSM Connection Settings" in the *Real User Monitor Administration* PDF.

Specify the Gateway Server address as follows:

- If you install one Gateway Server, specify the URL of this machine.
- If you cluster two or more Gateway Servers behind a load balancer, specify the URL of the load balancer.

If you use two load balancers for failover, specify the URL of either load balancer, and ensure that you configure the host names of both load balancers on the DNS server machine.

SiteScope

For SiteScopes to perform their work, you must specify the Gateway Server URL in each SiteScope profile, using HP Business Service Management System Availability Management (**Admin > System Availability Management**). For details, refer to "Configuring the Connection" in *Using System Availability Management*.

If you are using a load balancer and have defined virtual IPs or URLs, you use the virtual IPs or URLs when defining the Gateway Server URL. If you are using two load balancers for failover, specify the URL of either load balancer and ensure that you configure the hostnames of both load balancers on the DNS server machine.

For more information on configuring high availability for SiteScope, see *SiteScope Failover Guide*.

Business Process Insight and TransactionVision

Refer to the *HP Business Process Insight Deployment Guide* PDF and the *HP TransactionVision Deployment Guide* PDF for details on how to configure for high availability.

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File Backup Recommendations

This chapter includes:

- Configuration and Data File Backup on page 151

Configuration and Data File Backup

HP Business Service Management directories that contain key configuration and data files should be backed up on a daily basis as a precautionary measure.

The table below lists the HP Business Service Management directories that contain such files and should therefore be backed up. All directories are under <HP Business Service Management root directory>.

Resource	Comments
\\HPBSM\\BLE	Configuration of business rules. Back up if business rules have been created.
\\HPBSM\\conf	Assorted HP Business Service Management configuration files.
\\HPBSM\\dat	Assorted HP Business Service Management configuration files.
\\HPBSM\\dbverify\\conf	Configuration files for dbverify. This directory does not have to be backed up if dbverify has not been run.
\\HPBSM\\EJBContainer\\bin	Configuration files for the scripts used to run HP Business Service Management, and environment settings.

Resource	Comments
\HPBSM\bin	HP Business Service Management binary files. Back up if changes were made to any of the installation defaults.
\HPBSM\lib	HP Business Service Management library files. Back up if changes were made to any of the installation defaults.
\HPBSM\AppServer\GDE	Configuration files for the Generic Data Engine, used for obtaining data for reports.
\HPBSM\odb\conf	ODB main configuration directory
\HPBSM\odb\lib	ODB library files. Back up if changes were made to any of the installation defaults.
\HPBSM\odb\classes	ODB patch files. Back up if any patches were added.
\HPBSM\odb\runtime\fcmdb	ODB adapter files.
\HPBSM_postinstall	Post-installation configuration files.
\HPBSM\opr\bin	Operations Management application binary files. Back up if changes were made to any of the installation defaults.
\HPBSM\opr\lib	Operations Management library files. Back up if changes were made to any of the installation defaults.
\HPBSM\opr\webapps	HP Business Service Management Web application files. Back up if changes were made to any of the installation defaults.
\HPBSM\opr\newconfig	Assorted HP Business Service Management configuration files and libraries.
\HPBSM\AppServer\webapps\site.war\WEB-INF\sam\hi-mapping-monitors.xml	Custom EMS monitor types. Back up if any customer EMS SiteScope monitors were configured.

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Post-Deployment

This chapter includes:

- ▶ Starting and Stopping HP Business Service Management on page 153
- ▶ Post-Installation Tasks on page 154
- ▶ Viewing the Status of the Services on page 157

Starting and Stopping HP Business Service Management

After completing HP Business Service Management 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 prior to restarting the machine.

After successfully installing the 9.00 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 HP Business Service Management on each server machine.

Note: You can check which HP Business Service Management servers and features are installed on an HP Business Service Management server machine by viewing the [INSTALLED_SERVERS] section of the <HP Business Service Management 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 HP Business Service Management:

- ▶ **Windows:** Select **Start > Programs > HP Business Service Management > Administration > Enable Business Service Management.**

You can now open and work in HP Business Service Management.

To stop HP Business Service Management:

- Select **Start > Programs > HP Business Service Management > Administration > Disable Business Service Management.**

Note: When you stop HP Business Service Management, the HP Business Service Management service is not removed from Microsoft's Services window. The HP Business Service Management service is removed from the Services window only after you uninstall HP Business Service Management.

Post-Installation Tasks

This section contains the following post-installation tasks:

- ▶ "Checking Deployed Servers" on page 155
- ▶ "Reserving Ports" on page 155
- ▶ "Disabling Anti-Virus Scans" on page 155
- ▶ "Ensuring All Processes Started Properly" on page 156
- ▶ "Importing Content Packs" on page 156
- ▶ "Checking Installation Log Files" on page 156
- ▶ "Troubleshooting" on page 157

Checking Deployed Servers

After installation, you can check which HP Business Service Management server types are installed on an HP Business Service Management server machine by doing the following:

- 1 Open the **<HP Business Service Management server root directory>\conf\TopazSetup.ini** file.
- 2 Check the [INSTALLED_SERVERS] section. For example, **Data_Processing_Server=1** indicates that the Data Processing Server is installed on the machine.

Reserving Ports

Once you have installed HP Business Service Management, it is recommended that you run the script to reserve ports. This ensures that the necessary ports are reserved in the registry for running Business Service Management. When working with the registry, it is recommended that you back it up before making any changes.

To reserve ports in the registry for Business Service Management:

Double-click the following file: **<HP Business Service Management root directory>\dat\reserved-ports.reg**.

Disabling Anti-Virus Scans

It is highly recommended that you disable any anti-virus software from running on all the files and directories in the **<HP Business Service Management root directory>**. Running anti-virus software on this directory could disrupt HP Business Service Management.

Ensuring All Processes Started Properly

You can check to ensure that all processes started properly in the nanny manager by doing the following:

Click **Start > Programs > HP Business Service Management > Administration > HP Business Service Management Status**.

For details on the nanny manager, see "Viewing the Status of the Services" on page 157.

Importing Content Packs

If you are going to be using the Operations Management application and for other event functionality, you must run a batch process that installs a set of content packs into your BSM installation. You run this batch file only after you have completed the installation of the servers.

To automatically import content packs using the batch process:

- 1 After enabling BSM, on a machine where the Gateway server is installed, open a command prompt window and execute the following commands:

```
CD %TOPAZ_HOME%\bin  
bsm_content_packs_install.bat
```

- 2 When prompted by the script, enter your BSM administrator user name and password.
- 3 Select the language of the content packs from the available options. Click ENTER and wait for the script to finish running.

Checking Installation Log Files

Two installation log files are located in
%TEMP%\HPOvInstaller\HPBsm_9.00

You can access them by selecting **Start > Run**, typing **%temp%\Mercury**, and clicking **OK**. The log file names are in the format:

- ▶ **<product_name>_<version>_<date and time>_HPOvInstallerLog.html**
- ▶ **<product_name>_<version>_<date and time>_HPOvInstallerLog.txt**

For example: **HPBsm_9.00_2010.05.05_08_56_HPOvInstallerLog.html**

Troubleshooting

For troubleshooting installation and connectivity problems, refer to the following documentation:

- ▶ **HP Software Self-solve knowledge base.** This site can be accessed from the HP Business Service Management Help menu or from the HP Software Support Web site (<http://www.hp.com/go/hpsoftwaresupport>).
- ▶ **Readme files.** These files are located with the HP Business Service Management package.
- ▶ **Chapter 12, “Installation and Connectivity Troubleshooting.”** This chapter lists installation and connectivity problems and solutions.

Viewing the Status of the Services

You can view the status of the services run by the HP Business Service Management service and High Availability Controller on the HP Business Service Management server status HTML page. Select **Start > Programs > HP Business Service Management > Administration > HP Business Service Management Status**.

To view the status of all the services, right-click the security warning above the HP Software title bar, select **Allow Blocked Content**, and click **Yes** in the dialog box that opens. The line below the HP Software title bar indicates whether all the HP Business Service Management services are running (Server is READY) or some are down (Server is NOT READY).

To view a list of all the services and their statuses, click the **Nanny Status** and **HAC Status** title bars.

The screenshot shows the HP Software interface with a green status bar indicating 'Server is READY'. Below this, there are two expandable sections: 'Nanny Status' and 'HAC Status'.

Nanny Status

ServiceName	ProcessName	Status	ExecutionOrder
domain_manager	DomainManager	STARTED	2
message_broker	MessageBroker	STARTED	4
mercuryAS	MercuryAS	STARTED	6
tmu	TMU	STARTED	10
online_engine	mercury_online_engine	STARTED	16
db_loader	mercury_db_loader	STARTED	18
wde	mercury_wde	STARTED	20
ldap	slapd	STARTED	22
offline_engine	mercury_offline_engine	STARTED	24
email_reports	EmailReportsMdrv	STARTED	26
pmanager	mercury_pm	STARTED	28

HAC Status

Service	Process	Ping	State - [Since] - [Duration]
CDM	mercury_as	10s	RUNNING - [29/Jul/2007 11:25:59] - [1d:1h:4m]
CMDB	mercury_as	10s	RUNNING - [29/Jul/2007 11:17:27] - [1d:1h:13m]
MAMVIEWSYS	mercury_as	10s	RUNNING - [29/Jul/2007 11:18:03] - [1d:1h:12m]
VERTICALS	mercury_as	10s	RUNNING - [29/Jul/2007 11:25:54] - [1d:1h:4m]
MAMPACKAGER	mercury_as	10s	RUNNING - [29/Jul/2007 11:25:37] - [1d:1h:5m]
MAMBASIC	mercury_as	10s	RUNNING - [29/Jul/2007 11:17:43] - [1d:1h:12m]
MAMDISCOVERY	mercury_as	10s	RUNNING - [29/Jul/2007 11:18:03] - [1d:1h:12m]
KPI_ENRICHMENT	mercury_as	10s	RUNNING - [29/Jul/2007 11:25:55] - [1d:1h:4m]
MAMIMPACT	mercury_as	10s	RUNNING - [29/Jul/2007 11:18:03] - [1d:1h:12m]
MAMREPORT	mercury_as	10s	RUNNING - [29/Jul/2007 11:18:03] - [1d:1h:12m]
MAMCONFIG	mercury_as	10s	RUNNING - [29/Jul/2007 11:18:03] - [1d:1h:12m]
EMS_HOST	mercury_as	10s	RUNNING - [29/Jul/2007 11:25:57] - [1d:1h:4m]
NOA	mercury_offline_engine	2s	RUNNING - [29/Jul/2007 11:18:17] - [1d:1h:11m]

Last updated: 14:30:38

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Port Usage

This chapter includes:

- ▶ Incoming HP Business Service Management Traffic on page 160
- ▶ Outgoing HP Business Service Management Traffic on page 162
- ▶ Local HP Business Service Management Traffic on page 163

Note: The ports listed here are those ports that HP Business Service Management uses. If you need to change a port assignment, it is strongly recommended that you first consult with HP Software Support.

Incoming HP Business Service Management Traffic

There are two categories of incoming HP Business Service Management traffic:

Internal Traffic

Internal traffic is the traffic between two HP Business Service Management servers. The following table lists the ports used to transmit data between two HP Business Service Management servers:

Port Number	HP Business Service Management Servers that Listen on Port	Port Usage
4444	Gateway Server, Data Processing Server	Remote Method Invocation (RMI) channel between HP Business Service Management servers
4445	Gateway Server, Data Processing Server	Remote Method Invocation (RMI) channel between HP Business Service Management servers
9389	Gateway Server	TCP local LDAP connection for communication between Gateway Servers in a distributed deployment environment
2506	Data Processing Server	Bus domain manager for the connection between the Data Processing Server and the Gateway Server
2507	Gateway Server, Data Processing Server	Main bus processes for the connection between HP Business Service Management servers
383	Gateway Server, Data Processing Server	Events coming from HP Operations Manager into the Operations Management application

External Traffic

External traffic is the traffic coming into one of the HP Business Service Management servers from a client that is not an HP Business Service Management server. The following table lists the ports used to transmit data from an external HP Business Service Management client machine to an HP Business Service Management server:

Port Number	HP Business Service Management Servers that Listen on Port	Port Usage
80/443	Gateway Server	<ul style="list-style-type: none"> ▶ 80. HTTP/S channel to Gateway Server applications ▶ 443. Port for reverse proxy

Outgoing HP Business Service Management Traffic

The following table lists the ports used by the HP Business Service Management servers to connect to external servers (non HP Business Service Management servers):

Port Number	HP Business Service Management Servers that Connect to Port	Port Usage
25	Gateway Server, Data Processing Server	SMTP channel from the HP Business Service Management servers to the SMTP mail server
123	Gateway Server	NTP channel from the Gateway Server to the NTP server
161	Data Processing Server	SNMP channel from the Data Processing Server to the SNMP manager
389	Gateway Server	Connection between the Gateway Server and LDAP server for authentication (optional). For more information, see "Authentication Strategies - Overview" in <i>Platform Administration</i> .
1433	Gateway Server, Data Processing Server	Connection between the HP Business Service Management servers and the Microsoft SQL Server. This is the default port. This port may be changed during installation or thereafter.
1434	Gateway Server, Data Processing Server	Connection between the HP Business Service Management servers and the Microsoft SQL Browser Service. This port is in use only when a named instance is used.

Port Number	HP Business Service Management Servers that Connect to Port	Port Usage
1521	Gateway Server, Data Processing Server	Connection between the HP Business Service Management servers and the Oracle Server This is the default port. This port may be changed during installation or thereafter.
80/443	Gateway Server	<ul style="list-style-type: none"> ▶ 80. HTTP/S channel between the Gateway Server and data collectors for remote administration tasks ▶ 443. Port for reverse proxy

Local HP Business Service Management Traffic

Port Usage Table

The table below lists the ports used for communication between components on all HP Business Service Management server machine.

Port Number	HP Business Service Management Servers that Connect to Port	Port Usage
1098	Gateway Server, Data Processing Server	RMI management channel used by the jboss application server
1099	Gateway Server, Data Processing Server	Naming service used by the jboss application server
4504	Gateway Server	TCP local LDAP connection used by the Gateway Server
5001	Gateway Server	Used to connect VuGen to Central Repository Service
8009	Gateway Server, Data Processing Server	Tomcat AJP13 connector

Port Number	HP Business Service Management Servers that Connect to Port	Port Usage
8080	Gateway Server, Data Processing Server	HTTP channel for same machine components
8083	Gateway Server, Data Processing Server	RMI dynamic class loading
8093	Gateway Server, Data Processing Server	TCP JMS OIL/2 and UIL used by the jboss application server
11020	Gateway Server, Data Processing Server	RMI management channel for the HP Business Service Management service
11021	Gateway Server, Data Processing Server	HTTP channel for the HP Business Service Management service
21212	Data Processing Server	HTTP channel for the ODB process
21301	Data Processing Server	RMI communication from backend to EPI server Admin services
21302	Gateway Server	RMI communication from console web-app to admin web-app
21303	Gateway Server	RMI communication from console web-app to custom action script server running on the same host
29601	Gateway Server, Data Processing Server	RMI management channel for the jboss application server
29602	Gateway Server, Data Processing Server	RMI management channel for the bus processes
29603	Gateway Server	RMI management channel for the DB Loader process
29604	Gateway Server	RMI management channel for the Web Data Entry (WDE) process
29608	Data Processing Server	RMI management channel for the Offline BLE process

Port Number	HP Business Service Management Servers that Connect to Port	Port Usage
29610	Data Processing Server	RMI management channel for the Partition and Purging Manager
29612	Gateway Server, Data Processing Server	RMI management channel for the ODB process
29616	Gateway Server	RMI management channel for the Scheduler process
29620	Data Processing Server	RMI management channel for the BPI repository
29622	Data Processing Server	RMI management channel for the Operations Manager backend process
29628	Data Processing Server	RMI for script execution for pipeline processing in OMi
29629	Gateway Server	RMI for script execution for customizable context menus in the event browser of OMi
29630	Data Processing Server	RMI
29700	Data Processing Server	RMI port for online BLE processes
29711,29712, 29713	Data Processing Server	RMI port for online BLE processes
29720	Data Processing Server	RMI port for online BLE processes
29800	Data Processing Server	HTTP port for online BLE processes
29807	Gateway Server, Data Processing Server	Shutdown of main bus processes
29811,29812, 29813	Data Processing Server	HTTP port for online BLE processes
29820	Data Processing Server	HTTP port for online BLE processes
29903	Gateway Server	HTTP channel for the DB Loader process
29904	Gateway Server	HTTP channel for the Web Data Entry (WDE) process

Port Number	HP Business Service Management Servers that Connect to Port	Port Usage
29908	Data Processing Server	HTTP channel for the Offline BLE process
29910	Data Processing Server	HTTP channel for the Partition and Purging Manager
29916	Gateway Server	HTTP channel for the Scheduler process
29920	Data Processing Server	RMI port for online BLE processes
29922	Data Processing Server	HTTP channel for the Operations Manager backend process
29928	Data Processing Server	HTTP port for script execution for pipeline processing in OMi
29929	Gateway Server	HTTP port for script execution for customizable context menus in the event browser of OMi
29930	Data Processing Server	HTTP
30020	Data Processing Server	HTTP port for online business logic engine processes
31000-31999; 32000-32999	Gateway Server, Data Processing Server	HP Business Service Management service, uses the first available port in each range
Dynamic ports	Gateway Server, Data Processing Server	Some dynamic ports are used for inter-component channels

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Changing HP Business Service Management Service Users

This chapter includes:

- Changing the HP Business Service Management Service User on page 167

Changing the HP Business Service Management Service User

The HP Business Service Management service, which runs all HP Business Service Management services and processes, is installed when you run the Server 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 are using NTLM authentication).

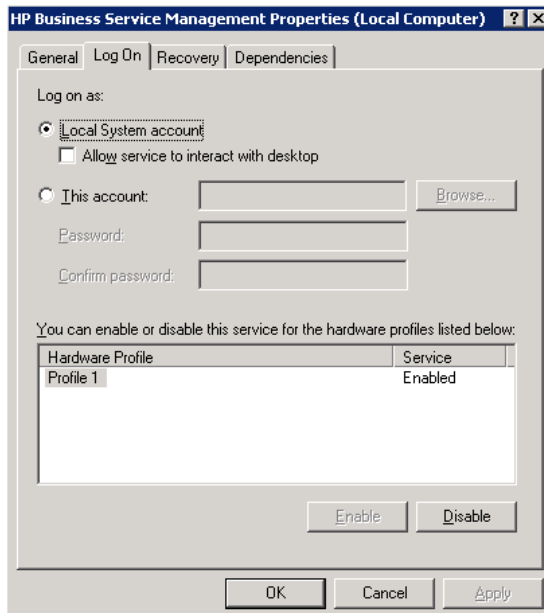
The user you assign to run the service must have the following permissions:

- Sufficient database permissions (as defined by the database administrator)
- Sufficient network permissions
- Administrator permissions on the local server

Note: When the HP Business Service Management service is installed, it is installed as a manual service. When you enable HP Business Service Management for the first time, it becomes an automatic service.

To change the HP Business Service Management service user:

- 1** Disable HP Business Service Management (**Start > Programs > HP Business Service Management > Administration > Disable 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 HP Business Service Management (**Start > Programs > HP Business Service Management > Administration > Enable Business Service Management**).

Part VI

Accessing HP Business Service Management

18

Initial Login to HP Business Service Management

This chapter includes:

- Viewing HP Business Service Management on page 171
- Logging In on page 172
- Logging Out on page 173

Viewing HP Business Service Management

To access HP Business Service Management, the client machine must have a network connection (intranet or Internet) to the HP Business Service Management servers and a running Web browser that meets the requirements. For details on Web browser requirements as well as minimum requirements to successfully view HP Business Service Management, see "Reviewing System Requirements" on page 59.

Logging In

You log in to HP Business Service Management from the login page. LW-SSO is HP Business Service Management's default authentication strategy. For details, see "Logging into BSM with Lightweight Single Sign-On" in *Platform Administration*.

You can disable LW-SSO completely or you can disable LW-SSO and use another supported authentication strategy. If LW-SSO is disabled, some integration functionality, such as in OMi, may not function properly. For details on selecting an authentication strategy, see "Set Up the Authentication Strategies" in *Platform Administration*.

Tip: Click the **Help** button on the login page for complete login help.

To access the HP Business Service Management 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 HP Business Service Management server. If there are multiple servers, or if HP Business Service Management is deployed in a distributed architecture, specify the load balancer or Gateway Server URL, as required.

Note: Users running previous versions of HP Business Service Management can still use bookmarks set to access the URL http://<server_name>.<domain_name>/mercuryam.

- 2** Enter the default superuser login parameters (specified during 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 HP Business Service Management administrators to access the system. For details on creating users in the HP Business Service Management system, see "User Management" in *Platform Administration*.

Note:

- For login troubleshooting information, see "Troubleshooting and Limitations" in *Platform Administration*.
 - For details on login authentication strategies that can be used in HP Business Service Management, see "Authentication Strategies - Overview" in *Platform Administration*.
 - For details on accessing HP Business Service Management securely, see the *HP Business Service Management Hardening Guide* PDF.
-

Logging Out

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.

19

Start Menu in Windows Environments

This chapter includes:

- Start Menu on page 175

Start Menu

During the installation of HP Business Service Management, a start menu for HP Business Service Management is added to the settings of the machine on which HP Business Service Management was installed.

To access the HP Business Service Management start menu that is added to each machine on which HP Business Service Management is installed, select **Start > Programs > HP Business Service Management**. The menu includes the following options:

- "Administration" on page 176
- "Documentation" on page 176
- "Open HP Business Service Management" on page 177

Administration

The Administration menu option includes the following sub-options:

Sub-option	Description
Configure HP Business Service Management	Runs the Server and Database Configuration utility, which enables you to create and connect to management, ODB, ODB history, and applicable application databases/user schemas on Microsoft SQL Server or Oracle Server. For details, see "Server Deployment and Setting Database Parameters" on page 93.
Disable HP Business Service Management	Stops HP Business Service Management on the specific machine, and disables it from being run automatically whenever the machine is started.
Enable HP Business Service Management	Starts HP Business Service Management on the specific machine, and sets it to be run automatically whenever the machine is started.
HP Business Service Management Server Status	Opens an HTML page that you use to view the status of the services run by the HP Business Service Management service and High Availability Controller. For details on this HTML page, see "Post-Deployment" on page 153.

Documentation

The Documentation menu option, available on the Gateway Server only, includes the following sub-options:

Sub-option	Description
HP Business Service Management Documentation Library	Opens the HP Business Service Management Documentation Library home page in your Web browser.
HP Business Service Management Deployment Guide	Opens the <i>HP Business Service Management Deployment Guide</i> PDF.

Open HP Business Service Management

Selecting this option opens a Web browser displaying the HP Business Service Management application login page.

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