HP Business Availability Center

for the Windows and Solaris operating systems

Software Version: 8.06

Deployment Guide

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Visit the HP Software Support web site at:

http://www.hp.com/go/hpsoftwaresupport

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

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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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PART IV: HP BUSINESS AVAILABILITY CENTER SERVER INSTALLATION FOR WINDOWS

Welcome to This Guide

Welcome to the HP Business Availability Center Deployment Guide. This guide introduces you to HP Business Availability Center, provides information on getting started, describes server and component configuration and installation, and details the upgrade process.

Note to HP Software-as-a-Service customers: The information in the *HP Business Availability Center 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 Availability Center Documentation on page 13

➤ Recommended Reading Lists on page 16

➤ Additional Online Resources on page 18

How This Guide Is Organized

This guide contains the following parts:

Part I Introduction to HP Business Availability Center

Introduces HP Business Availability Center and provides a getting started roadmap, deployment planning checklist, and overview of the HP Business Availability Center platform and components.

Part II Deployment Introduction, System Requirements, and Universal CMDB License Information

Provides an overview of platform deployment and describes the system requirements required for running the HP Business Availability Center platform, as well as the licensing structure for HP Universal CMDB.

Part III HP Business Availability Center Deployment Configuration

Describes the various possible HP Business Availability Center deployment configurations, as well as how to improve your system availability and reliability using high availability options.

Part IV HP Business Availability Center Server Installation for Windows

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

Part V HP Business Availability Center Server Installation for Solaris

Describes how to install HP Business Availability Center servers, configure database parameters, install component setup files, and uninstall HP Business Availability Center servers on a Solaris platform.

Part VI Troubleshooting

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

Part VII   Upgrading HP Business Availability Center

Describes how to upgrade the HP Business Availability Center platform.

Part VIII   Server Administration and Maintenance

Provides file backup recommendations, describes bus communication, lists the ports used by HP Business Availability Center for communication, and explains how to change the user for both the HP Business Availability Center service and OpenLDAP Directory Service.

Part IX   Accessing HP Business Availability Center

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

Who Should Read This Guide

This guide is intended for all types of HP Business Availability Center administrators.

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

HP Business Availability Center Documentation

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

HP Business Availability Center includes the following documentation:

Readme. Provides a list of version limitations and last-minute updates. From the HP Business Availability Center DVD root directory or download package root directory, double-click **readme80<x>.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 Availability Center, select **Help** > **What's New**.

Online Documentation Library. The Documentation Library is an online help system that describes how to work with HP Business Availability Center. You access the Documentation Library using a Web browser. For a list of viewing considerations, see "Viewing the HP Business Availability Center Site" on page 63.

To access the Documentation Library, in HP Business Availability Center, select **Help** > **Documentation Library**. Context-sensitive help is available from specific HP Business Availability Center pages by clicking **Help** > **Help on this page** and from specific windows by clicking the **Help** button. For details on using the Documentation Library, see "Working with the HP Business Availability Center Documentation Library" in *Platform Administration*.

The HP Business Availability Center 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 Availability Center.

➤ Platform Administration. Describes how to configure and administer the HP Business Availability Center platform, including database management, alert configuration, and user permission and security administration.

➤ Discovery. Describes how to use the Discovery process to automatically discover and map IT infrastructure resources and their interdependencies.

➤ Model Management. Describes how to build and administer a CMDB-based model of your IT organization.

➤ Reference Information. Describes common user interface elements, details data samples and their fields, dates and times, and troubleshooting.

➤ Using My BAC. Describes how to work with the My BAC application and configuration pages.

➤ Using Dashboard. Describes how to administer and work with Dashboard application.

➤ Using Service Level Management. Describes how to administer and work with the Service Level Management application.

➤ Using End User Management. Describes how to administer and work with End User Management application.

➤ Using System Availability Management. Describes how to administer and work with System Availability Management application.

➤ Using Problem Isolation. Describes how to administer and work with Problem Isolation application.

➤ Alerts. Describes how to use the alerting tools to create and manage alerts and recipients.

➤ 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 Availability Center together with external and third-party software and environments.

Books Online/Printer-Friendly Documentation. All HP Business Availability Center documentation is available in PDF format. To access PDF files, in HP Business Availability Center select **Help** > **Documentation Library** and select the PDFs tab. Alternatively, access PDF files from the Documentation directory on the HP Business Availability Center DVD.

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

➤ HP Business Availability Center Database Guide. Describes how to prepare and configure the enterprise database infrastructure to work optimally with HP Business Availability Center, including how to set up a recommended database configuration.

➤ HP Business Availability Center Deployment Guide (this guide). Describes how to get started with, install, and upgrade HP Business Availability Center.

➤ **HP Business Availability Center Hardening Guide.** Describes how to harden the HP Business Availability Center platform to provide a secure environment for the HP Business Availability Center 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.

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 Availability Center Documentation Library that are recommended reading for the different users of HP Business Availability Center. These lists can be distributed to staff as required.

Reading lists for the following users are described below:

➤ HP Business Availability Center Administrators. See page 17.

➤ Database Administrators. See page 17.

➤ Security Administrators. See page 17.

➤ Data Collector Administrators. See page 17.

➤ Script Developers. See page 17.

➤ Platform Administrators. See page 18.

➤ Application Administrators. See page 18.

➤ End Users. See page 18.

HP Business Availability Center Administrators

➤ All books in Documentation Library

Database Administrators

➤ Glossary

➤ HP Business Availability Center Database Guide

➤ Reference Information

Security Administrators

➤ Glossary

➤ Hardening the Platform

Data Collector Administrators

➤ All books in Documentation Library

Script Developers

➤ Glossary

➤ Using End User Management

➤ Performance and Availability Lifecycle in *Solutions and Integrations*

➤ Reference Information

Platform Administrators

➤ All books in Documentation Library

Application Administrators

➤ All books in Documentation Library

End Users

➤ Glossary

➤ Using My BAC

➤ Using Dashboard

➤ Using Service Level Management

➤ Using End User Management

➤ Using System Availability Management

➤ Using Problem Isolation

➤ Alerts

➤ 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/hpsoftwaresupport.

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

To find more information about access levels, go to:

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

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.

Part I

Introduction to HP Business Availability Center

1

Getting Started with HP Business Availability Center

Welcome to HP Business Availability Center. Before you install HP Business Availability Center or read any other HP Business Availability Center documentation, it is recommended that you read this short introduction to HP Business Availability Center, which includes a description of the new concepts that are a result of HP Business Availability Center's alignment with ITIL, starting from version 6.0.

This chapter includes:

➤ About HP Business Availability Center on page 23

➤ Alignment with ITIL on page 24

About HP Business Availability Center

HP Business Availability Center helps companies 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 Availability Center 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 Availability Center helps customers optimize business availability by proactively detecting problems in order to prioritize problem resolution based on business impact and service level compliance.

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

HP Business Availability Center 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 isolation and 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 Availability Center come as 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.

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.itilpeople.com

➤ http://www.ogc.gov.uk (click Programmes & Projects and then click ITIL)

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

ITIL in HP Business Availability Center

HP Business Availability Center introduces the concept of the HP Universal Configuration Management Database (CMDB). The HP Universal CMDB 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

If you provide an application to your company's employees to manage their own retirement accounts, then you are also providing a service. This service can be called Employee Self Help. To provide this service, you create an application that runs on a server and connects to a database. In your environment, you may provide many such 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 Availability Center the **IT Universe**.

In HP Business Availability Center, you start by defining a model of your company's IT Universe. To manage your company's IT Universe model, you create service views (views). Views enable you to divide up 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 Availability Center applications.

Having a defined model of the organization's IT Universe can then help you, for example, to see what application is being monitored by which Business Process Monitor, or to determine whether a server problem, detected by SiteScope, affects other CIs as well—for example, whether the Employee Self-Help service described above suffered service outages due to a problem with its database server.

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

2

Getting Started Roadmap

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

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

Note to customers upgrading to HP Business Availability Center 8.00: For details on upgrading, see "Upgrading HP Business Availability Center" on page 245.

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 1 **Read about where to get help.**

Learn about the various sources of assistance, including HP Software Support and the HP Business Availability Center 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 Availability Center.**

Register your copy of HP Business Availability Center 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 Availability Center from the HP Software Support site (http://www.hp.com/go/hpsoftwaresupport).

3 Plan your HP Business Availability Center deployment.

Create a complete deployment plan prior to installing HP Business Availability Center software. Use the Deployment Planning checklist on page 30 to assist you. For in-depth deployment planning best practices, consult your HP Professional Services representative.

4 Learn about the HP Business Availability Center platform and components.

Learn about the servers and components that power the HP Business Availability Center system. For details, see page "Understanding the HP Business Availability Center Platform and Components" on page 31.

5 Install HP Business Availability Center servers.

Before installing, review deployment requirements (page 39) and configurations (page 77). To install, follow the instructions relevant to your platform—Windows (page 139) or Solaris (page 183). If deploying HP Business Availability Center securely, see the *HP Business Availability Center Hardening Guide* PDF. You can also use the step-by-step process flow "How Do I Build and Maintain My HP Business Availability Center System?" on page 49 to guide you through the deployment process.

6 Log in to HP Business Availability Center and initiate system administration.

Log in to the HP Business Availability Center Web interface using a Web browser. For details on logging in for the first time, see "Initial Login to HP Business Availability Center" on page 347. For details on initial platform administration tasks, see *Platform Administration*.

7 Set up HP Business Availability Center to monitor your IT environment.

Using HP Business Availability Center 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 Availability Center, see the HP Business Availability Center Documentation Library.

8 Roll out HP Business Availability Center to business and systems users.

Once the HP Business Availability Center 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 Availability Center reporting and alerting functionality.

3

Deployment Planning

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

This chapter includes:

➤ Deployment Planning Checklist on page 30

Deployment Planning Checklist

Use this checklist to review the basic issues that your organization should consider when planning the HP Business Availability Center 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 Availability Center functionality.
	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 Availability Center administration and operations team(s).
	Plan the practical aspects of the deployment, including system architecture and capacity planning, database environment considerations, security considerations, and so forth.

4

Understanding the HP Business Availability Center Platform and Components

The HP Business Availability Center platform consists of proprietary servers and components, data collectors, 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 Availability Center platform and components.

This chapter includes:

➤ HP Business Availability Center Servers on page 32

➤ HP Business Availability Center Data Collectors on page 32

➤ Additional Proprietary Components on page 34

➤ Third-Party Components on page 35

➤ Platform Architecture Diagram on page 36

➤ Bus Communication Among HP Business Availability Center Components on page 37

HP Business Availability Center Servers

HP Business Availability Center 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 Availability Center servers on one or more Microsoft Windows or Sun Solaris machines in your enterprise network environment:

➤ **HP Business Availability Center Gateway Server.** Responsible for running HP Business Availability Center applications, producing reports, operating the Administration Console, receiving data samples from the data collectors and distributing this data to the relevant HP Business Availability Center components, and supporting the bus. To work with HP Business Availability Center, the Gateway server machine must run Web servers.

➤ **HP Business Availability Center Data Processing Server.** Responsible for aggregating data, running the Business Logic Engine, and controlling the CMDB service.

For more information on HP Business Availability Center servers, see "Introducing HP Business Availability Center Platform Deployment" on page 41.

HP Business Availability Center Data Collectors

HP Business Availability Center data collectors are responsible for collecting performance 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 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 Availability Center.

Data collectors are installed and administered separately. Downloading and running data collectors require separate licencing. Each data collector can be downloaded from the HP Business Availability Center 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.

➤ **TransactionVision**. 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 set up profiles, deploy monitors, configure alert schemes, and manage and organize your monitor environment all from within the HP Business Availability Center platform.

Additional Proprietary Components

HP Business Availability Center 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.

Discovery Probe

The Discovery process is the mechanism that 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 Discovery Probe is the main Discovery component responsible for receiving Discovery tasks from the server, dispatching them to the IT components, and sending the results back to the CMDB through the server. For details on the Discovery process and Discovery Probe deployment, see *Discovery and Dependency Mapping Guide*.

Scripting Tools

HP Business Availability Center 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 Availability Center, 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 Availability Center 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 might be implemented to receive SNMP traps sent by the HP Business Availability Center alerting mechanism.

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

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

Platform Architecture Diagram

The below diagram illustrates the general HP Business Availability Center platform architecture and the communication protocols used among the components.
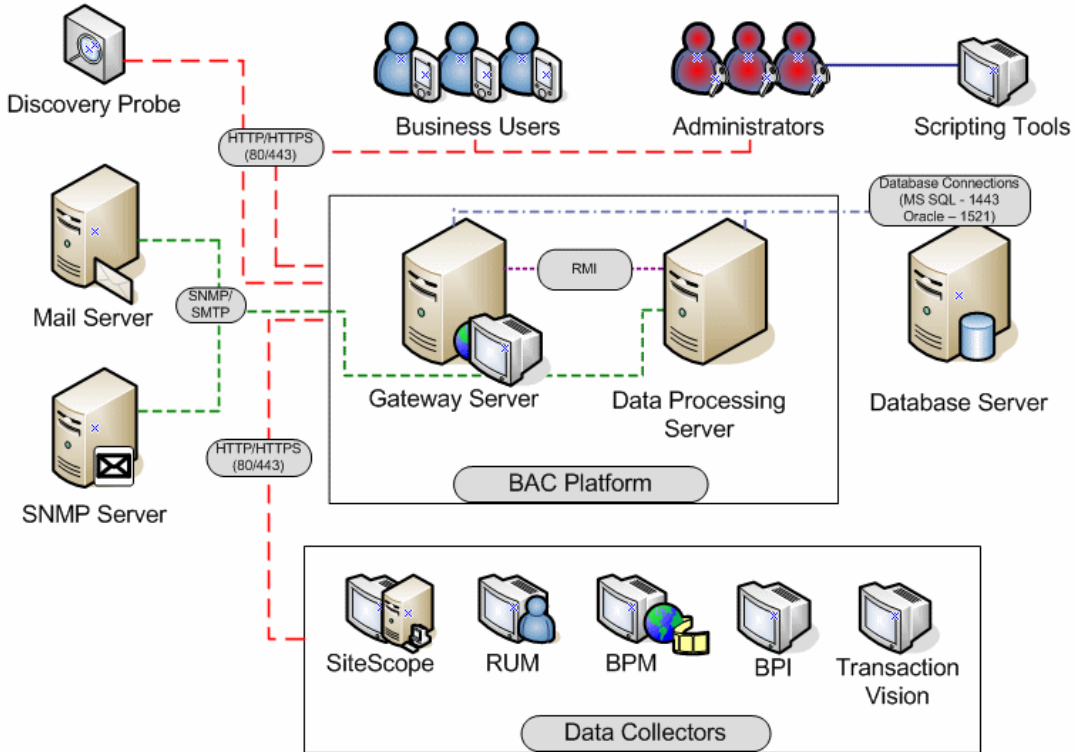
Bus Communication Among HP Business Availability Center Components

A bus is a virtual communications channel between HP Business Availability Center 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. Dashboard 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, System Requirements, and Universal CMDB License Information

5

Introducing HP Business Availability Center Platform Deployment

This topic provides an overview of platform deployment.

This chapter includes:

➤ About HP Business Availability Center Platform Deployment on page 42

➤ Deploying HP Business Availability Center Servers on page 44

➤ Setting Database Parameters on page 46

➤ Web Servers on page 48

➤ How Do I Build and Maintain My HP Business Availability Center System? on page 49

About HP Business Availability Center Platform Deployment

The HP Business Availability Center servers are the backbone of the HP Business Availability Center platform, which powers the HP Business Availability Center applications. This chapter provides an overview of HP Business Availability Center 8.00 platform deployment and describes the process recommended to set up and maintain an HP Business Availability Center system.

When setting up the HP Business Availability Center 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:

➤ If you are upgrading to HP Business Availability Center 8.00 from an earlier version of HP Business Availability Center, see "Upgrading the HP Business Availability Center Servers" on page 247.

➤ For details on deploying a database server for use with HP Business Availability Center, see the *HP Business Availability Center Database Guide* PDF.

➤ For information on running HP Business Availability Center on a hardened platform (including using HTTPS protocol), see the *HP Business Availability Center 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 Availability Center for the first time, the platform deployment consists of the following main stages:

1 Installing HP Business Availability Center 8.00 servers. For details, see "Deploying HP Business Availability Center Servers" on page 44.

2 Creating the HP Business Availability Center management, CMDB, and CMDB history databases and connecting to these databases. For details, see "Setting Database Parameters" on page 46.

3 Configuring Web server settings for Sun Java System Web Server (Solaris installations only, when not done automatically). For details, see "Web Servers" on page 48.

Note:

After installing HP Business Availability Center servers, register your copy of HP Business Availability Center 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 Availability Center 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 Availability Center Help menu or from the HP Software Support Web site. In addition, refer to the HP Business Availability Center readme file (located in the HP Business Availability Center package root directory) for the latest technical and troubleshooting information.

Deploying HP Business Availability Center Servers

You install the following servers when deploying HP Business Availability Center:

➤ **HP Business Availability Center Gateway Server.** Responsible for running HP Business Availability Center applications, producing reports, operating the Administration Console, receiving data samples from the data collectors and distributing this data to the relevant HP Business Availability Center components, and supporting the Bus.

➤ **HP Business Availability Center Data Processing Server.** Responsible for aggregating and partitioning data, running the Business Logic Engines and the HP Universal CMDB-related services.

The HP Business Availability Center servers are run in a Microsoft Windows or Sun Solaris operating environment, and should be installed by your organization's system administration staff. The procedure for installing HP Business Availability Center servers is described in "Installing HP Business Availability Center Servers on a Windows Platform" on page 141 and "Installing HP Business Availability Center Servers on a Solaris Platform" on page 185.

You can install the HP Business Availability Center 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 79. For details on high availability and load balancing options, see "High Availability for HP Business Availability Center" on page 89.

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

General Information for Server Deployment

Note the following when deploying HP Business Availability Center servers:

➤ Access to the HP Business Availability Center server machine must be available, either through HTTP or HTTPS, from any standard Internet or intranet connection.

➤ The HP Business Availability Center server machine must have a user account with administrative rights to the database server(s) upon which you set up the management, CMDB, and CMDB history databases (and later, one or more profile databases).

➤ To maximize the performance of machines on which you install HP Business Availability Center servers, it is recommended that server machines be dedicated to HP Business Availability Center and not run other applications.

➤ Installing HP Business Availability Center servers together with most other HP products on the same physical machine may result in port conflicts, performance issues, or other unexpected behavior. The coexistence of HP Business Availability Center servers with HP SiteScope or HP Operations Manager agent has been tested and is supported.

➤ The HP Business Availability Center service resides on all HP Business Availability Center servers and is responsible for running all required HP Business Availability Center processes. The HP Business Availability Center service is installed when you run the Server and Database Configuration utility.

➤ After HP Business Availability Center deployment, you install the setup files for various HP Business Availability Center tools (data collectors and tools for recording scripts) to the HP Business Availability Center Downloads page. For details on installing HP Business Availability Center tools setup files on a Windows platform, see "Installing Component Setup Files" on page 167. For details on installing HP Business Availability Center tools setup files on a Solaris platform, see "Installing Component Setup Files" on page 213.

➤ Sun JVM 1.5.0 is copied onto the machine during server installation as part of the HP Business Availability Center installation.

➤ For instructions and recommendations on performing a distributed deployment/high availability deployment of HP Business Availability Center, see "High Availability for HP Business Availability Center" on page 89.

➤ Installing HP Business Availability Center in an I18N environment is supported only for HP Business Availability Center installed on a Windows platform. For considerations and limitations when deploying HP Business Availability Center in a non-English language environment, see "Working in Non-English Locales" in *Reference Information*.

Setting Database Parameters

HP Business Availability Center 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 Availability Center environment. HP Business Availability Center requires one management database.

➤ **CMDB database.** For storage of configuration information that is gathered from the various HP Business Availability Center and third-party applications and tools. This information is used when building HP Business Availability Center views. The CMDB also contains the object repositories used to define configuration items and Key Performance Indicators (KPIs).

➤ **CMDB history database.** For storage of changes, over time, of the CMDB 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 Availability Center 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*.

Part of the process of deploying HP Business Availability Center servers requires connecting to the management, CMDB, and CMDB history databases. If you are installing HP Business Availability Center 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 Availability Center to create the database for you, using the Server and Database Configuration utility.

For detailed information on deploying either of the database servers in your system for use with HP Business Availability Center, and creating the management, CMDB, and CMDB history databases/user schemas manually, see the *HP Business Availability Center Database Guide* PDF.

The procedure for setting management, CMDB, and CMDB history database parameters is described in "Setting Database Parameters on a Windows Platform" on page 159 and "Setting User Schema Parameters on a Solaris Platform" on page 205.

Note: If you need to verify the integrity of the management and CMDB databases, you can run the database schema verify program. For details, see Appendix E, "Database Schema Verification" in the *HP Business Availability Center Database Guide* PDF.

Web Servers

To work with HP Business Availability Center, the server machine(s) must run one of the following Web servers:

➤ **Microsoft Internet Information Server (IIS)** (for Windows deployment only). If you plan to run HP Business Availability Center on IIS, you should install the IIS prior to HP Business Availability Center installation. During HP Business Availability Center server installation, the IIS settings are automatically configured to work with HP Business Availability Center.

➤ **Sun Java System Web Server** (for Solaris deployment only). If you plan to run HP Business Availability Center using the Sun Java System Web Server, you should install this Web server prior to HP Business Availability Center installation. During installation, the Sun Java System Web Server settings are automatically configured to work with HP Business Availability Center.

➤ **Apache HTTP Server** (for Windows and Solaris deployment). If you plan to use HP Business Availability Center with the Apache HTTP Server, you select the Apache HTTP Server during installation. The version installed during HP Business Availability Center server installation has been adapted by HP for HP Business Availability Center and is the version you must use.

For information on setting up the Web server to work with HP Business Availability Center, see "Working with the Web Server" on page 146 (Windows platforms), or "Working with the Web Server" on page 192 (Solaris platforms).

How Do I Build and Maintain My HP Business Availability Center System?

The flowchart below describes the process recommended to set up and maintain an HP Business Availability Center system. Note that the term database in this section refers to both Microsoft SQL Server databases and Oracle Server user schemas. The numbered elements are referenced in the table on the following page, which provides additional details about the steps and a reference to more information.

Ref. No.	Comment
1	Map out the HP Business Availability Center server and database architecture that will be required, based on organizational requirements, expected system capacity requirements (considering load factors such as data input and application usage), high availability and system failover requirements, and security requirements. For information on system hardening, see the *HP Business Availability Center Hardening Guide* PDF.
2	Set up the database server(s) that will be used with HP Business Availability Center. Establish procedures for database backup and maintenance, including backup of management, CMDB, CMDB history, profile, and LDAP databases and a data purging policy. Optionally, manually create the HP Business Availability Center databases. For more information, see the *HP Business Availability Center Database Guide* PDF.
3	Install HP Business Availability Center servers and connect to the databases. Server installation must take into account planned high availability and failover strategies (including load balancing, backup servers, and so forth). Consider installing a separate staging system to use for testing configuration changes, patches, backup and restore procedures, and so forth.
4	Implement a backup process whereby key configuration files that contain data not stored in the databases are automatically backed up daily (for more information, see "File Backup Recommendations" on page 317). In addition execute database backup plans. It is also recommended to create procedures for restoring resources and test those procedures on a staging system.

Ref. No.	Comment
5	Set up System Health to monitor the health of HP Business Availability Center servers. For details on deploying and accessing System Health, see "System Health – Overview" in *Platform Administration*.
6	Implement ongoing maintenance procedures that will enable the system to run smoothly and minimize issues during future upgrade. For example: ➤ Create run books that instruct personnel how to perform server maintenance procedures, as well as how to proceed in the event of system failure or server downtime. ➤ Track customization and configuration changes that you make (such as those made in configuration files or in the Infrastructure Settings Manager) in case you need to roll back at a later time. ➤ If you install private patches, keep track of them, and when upgrading make sure your HP representative knows about them and can confirm how the upgrade will affect their status. **Tip:** Private patches should be installed on a staging system before being deployed to production. ➤ Troubleshoot problems by accessing log files and searching for errors (for more information, see "HP Business Availability Center Logs" in *Reference Information*). Use the HP Software Self-solve knowledge base (h20230.www2.hp.com/selfsolve/documents) to search for answers to issues that may come up.

6

Reviewing System Requirements

This chapter describes the system requirements required for running the HP Business Availability Center platform.

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

This chapter includes:

➤ HP Business Availability Center Servers on page 54

➤ HP Business Availability Center Databases on page 58

➤ Viewing the HP Business Availability Center Site on page 63

➤ Additional Requirements for HP Business Availability Center on page 66

➤ Server Environment Settings on page 67

➤ HP Business Availability Center on Virtualization Platforms on page 68

HP Business Availability Center Servers

Computer/Processor	**Windows:**
	To fulfill the CPU requirements, you must have one of the following:
	➤ Intel Dual Core Xeon Processor 2.4 GHz or higher
	➤ AMD Opteron Dual Core Processor 2.4 GHz or higher
	In addition to the above requirements, you must have the following number of CPUs, depending on your deployment configuration:
	➤ One-server: 1 dual core CPU
	➤ Two-server (standard deployment): 1 dual core CPU
	➤ Two-server (enterprise deployment): 2 dual core CPUs
	Solaris:
	➤ Minimum: Dual UltraSPARC IV 1.8 GHZ, 6 GB RAM or 4 GB RAM with 2 GB of swap space
	Note: As Business Availability Center performance is dependent upon processor speed, it is recommended to get the fastest possible processor speed to ensure proper performance. Business Availability Center can scale up to 8 GB RAM and 4 CPUs.

Operating System	**Windows:**

	➤ Highly recommended for enterprise deployment:
	   ➤ Windows Server 2008 Enterprise SP2 x64
	   ➤ Windows Server 2008 Enterprise R2 x64
	   ➤ Windows Server 2003 R2 Enterprise x64 Edition, Service Pack 2
	   ➤ Windows Server 2003 Enterprise x64 Edition, Service Pack 2
	➤ Also supported:
	   ➤ Windows Server 2008 Standard SP2 x64
	   ➤ Windows Server 2008 Standard R2 x64
	   ➤ Windows Server 2003 32-Bit Enterprise Edition, Service Pack 1 or 2
	   ➤ Windows Server 2003 R2 32-Bit Enterprise Edition, Service Pack 2
	➤ Minimum for all deployments:
	   ➤ Windows Server 2003 32-Bit Standard Edition, Service Pack 1 or 2
	
	Solaris:
	➤ Sun Solaris 9
	➤ Sun Solaris 10 (recommended)
	➤ Sun Solaris Zones
	Note: Regardless of the operating system version, the entire Distribution (with OEM support) and the latest recommended Patch Cluster are required.

Web Server	**Windows:** ➤ Microsoft Internet Information Server (IIS) 7.0, 7.5 for Windows 2008 ➤ Microsoft Internet Information Server (IIS) 6.0 for Windows 2003 ➤ Apache HTTP Server 2.2.11 (adapted by HP for HP Business Availability Center and installed during HP Business Availability Center server installation) **Solaris:** ➤ Sun Java System Web Server 6.1, Service Pack 5 ➤ SSL-compatible Apache HTTP Server 2.2.11 (adapted by HP for HP Business Availability Center and installed during HP Business Availability Center server installation)
Memory	One-server deployment: ➤ Minimum: 2 GB RAM ➤ Recommended: 4 GB RAM Two-server standard deployment: ➤ Recommended: 4 GB RAM Two-server enterprise deployment: ➤ Recommended: 8 GB RAM (Windows Server 2003 Enterprise x64 Edition, Service Pack 2, can support up to 16 GB RAM.) **Note:** For Windows 32-Bit Edition, ensure that your operating system is able to recognize all of the memory. You will probably need to add the **/PAE** parameter to the **c:\boot.ini** file.

Virtual Memory/ Memory Swap Space	One-server deployment: ➤ Recommended: 3 GB RAM Two-server standard deployment: ➤ Recommended: 6 GB RAM Two-server enterprise deployment: ➤ Recommended: 12 GB RAM **Note:** The virtual memory/memory swap space should always be at least 1.5 times the physical memory size.
Free Hard Disk Space	➤ Minimum: 10 GB ➤ Recommended: 20 GB

Note: It is highly recommended that you make the following change in your registry: For registry key **MACHINE\SYSTEM\CurrentControlSet\ Services\Tcpip\Parameters**, create a new key **TcpTimedWaitDelay (DWORD)** and set the (Decimal) value to **60**. 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. When working with the registry, it is recommended that you back it up before making any changes.

HP Business Availability Center Databases

Hardware Requirements

The following table describes the hardware (CPU and memory) requirements recommended for the HP Business Availability Center 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 Availability Center, see the *HP Business Availability Center Database Guide* PDF.

Software Requirements - Oracle Server

The following table lists the Oracle servers supported for working with HP Business Availability Center.

Database Release - Version	BIT Set
Oracle 10.2 (10.2.0.3 or higher component specific release number 10.2.0.X) Enterprise Edition	64 BIT
Oracle 10.2 RAC (10.2.0.3 or higher component specific release number 10.2.0.X) Enterprise Edition	64 BIT
Oracle 10.2.0.3 Enterprise Edition	32 BIT

Database Release - Version	BIT Set
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	BIT Set	Operating System
Oracle 10.2.0.4 Enterprise Edition	64 BIT	Linux Enterprise Edition
Oracle 11.2 (11g R2) Enterprise Edition	64 BIT	Linux Enterprise Edition

Software Requirements - Microsoft SQL Server

The following table describes the Microsoft SQL Servers supported for
working with HP Business Availability Center:

Database Release			Microsoft Data Access Components (MDAC) on HP Business Availability Center servers
Version	**BIT Set**	**Service Pack**	
Microsoft SQL Server 2008 Enterprise Edition	32 BIT	Service Pack 1	2.8 SP1 Refresh – Installed automatically with your HP Business Availability Center server installation.
Microsoft SQL Server 2008 Enterprise Edition	64 BIT	Service Pack 1	
Microsoft SQL Server 2005 Enterprise Edition	32 BIT	Service Pack 3	2.8 SP1 Refresh – Installed automatically with your HP Business Availability Center server installation.
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.

➤ To check which version of MDAC is installed on your machine, download and run the component checker tool from: http://www.microsoft.com/downloads/details.aspx?FamilyID=8f0a8df6-4a21-4b43-bf53-14332ef092c9&displaylang=en.

Examples of Tested Deployments - Microsoft SQL Server

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

Database Release			Operating System	Microsoft Data Access Components (MDAC) on HP Business Availability Center servers
Version	**BIT Set**	**Service Pack**		
Microsoft SQL Server 2005 Enterprise Edition	32 BIT	Service Pack 3	Windows 2003 Enterprise Edition Service Pack 2	2.8 SP1 Refresh – Installed automatically with your HP Business Availability Center server installation.
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	

Viewing the HP Business Availability Center Site

Display	**Windows:** ➤ Minimum: color palette setting of at least 256 colors ➤ Recommended: color palette setting of 32,000 colors **Note:** This requirement is only necessary for the Gateway Server machine. **Solaris:** X-Server installed. This requirement is only necessary for the Gateway Server machine.
Resolution	1024 x 768 or higher
Supported Browsers	**Windows:** ➤ Recommended: Microsoft Internet Explorer (IE) 6.0, Service Pack 2 ➤ Microsoft Internet Explorer (IE) 7.0, 8.0 **Note:** In IE 8.0, some Business Availability Center applications, such as End User Management Administration, are shown corrupted. Using Compatibility View solves this problem. Select **Tools** > **Compatibility View Settings** to add the Business Availability Center 8.05 site to the list of Web sites displayed in Compatibility View. **Solaris:** ➤ FireFox 3.x. FireFox supports the following applications: Dashboard (excluding topology map), System Availability Management Administration, Service Level Management, and End User Management. **Note:** For both Internet Explorer and FireFox, the browser must be set to accept all cookies.
Flash Player (to view charts)	Acrobat Flash 8.0 or later

Java (to view applets)	**Recommended**: 6u10
	Supported: 6u4 and later
	Note: Having an earlier version will not enable you to view all HP Business Availability Center applets 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.
	After installation, if you are using Internet Explorer, verify that the browser is using the correct Java version. To do so, choose **Tools** > **Internet Options** > **Advanced** tab, select the **Java (Sun)** check box, click **OK**, close the browser, and reopen it.
Viewing the Documentation Library	➤ 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 Java 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 the following additional requirements for using your browser with HP Business Availability Center:

➤ HP Business Availability Center uses cookies. Ensure that your Web browser is set to accept all cookies.

➤ HP Business Availability Center requires browser support for pop-up windows. HP Business Availability Center 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 Availability Center 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 Availability Center:

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 6.0, this button is located within the **Temporary Internet files** section.

➤ 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.

Additional Requirements for HP Business Availability Center

System Availability Management Administration to manage SiteScope	Requires SiteScope 9.00 and later (available from the Downloads page in Platform Administration).

TransactionVision	➤ Requires Internet Explorer 6.0 Service Pack 1 or 2 or Internet Explorer 7.0.
	➤ Requires Java for viewing applets:
	    ➤ **Recommended**: 6u10
	    ➤ **Supported**: 6u4 and later
	➤ Requires Adobe Flash Player version 8 or later for viewing charts and graphs.
	➤ Requires 8 GB RAM on the HP Business Availability Center server (the recommended memory requirement for a two-server enterprise deployment of HP Business Availability Center)
	
	For additional information on TransactionVision requirements, refer to the *HP TransactionVision Deployment Guide* PDF.

HP Business Availability Center for Siebel Applications	Requires SiteScope version 8.2 or later. **Note:** If you are using SiteScope version 8.7 or earlier, contact HP Software Support to receive a required patch.
HP Business Availability Center for SAP	Requires SiteScope version 8.1.2 or later.
Business Process Insight	HP Business Process Insight version 8.00.

Server Environment Settings

Time settings	All HP Business Availability Center servers and database servers must have the same settings for the following: ➤ Time zone ➤ Daylight Saving Time configuration ➤ Time
Name resolution	The HP Business Availability Center servers must be able to resolve the names of the machines with which they must communicate. These include all the HP Business Availability Center servers, database servers, and data collectors.
TCP	It is highly recommended that you make the following change in your registry: For registry key MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters, create a new key TcpTimedWaitDelay (DWORD) and set the (Decimal) value to 60. 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. When working with the registry, it is recommended that you back it up before making any changes.

HP Business Availability Center on Virtualization Platforms

If you are deploying HP Business Availability Center on a VMware platform, the sizing guidelines for a regular installation are not applicable. The following general limitations and recommendations are applicable to a VMware 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 Availability Center capacities and performance will vary according to the various server resources, such as CPU, memory, and network bandwidth, allocated to HP Business Availability Center components.

➤ A Gigabit network card should be used.

➤ It is strongly recommended that you do not run a database server containing HP Business Availability Center databases on VMware if the database files reside on a VMware virtual disk.

➤ VMware is the only virtualization technology supported by HP Business Availability Center for Windows.

➤ Refer to the SiteScope documentation for details on deploying SiteScope on a VMware platform.

The following table lists the HP Business Availability Center components that are supported on virtualization platforms:

Products	Supported
HP Business Availability Center servers (Gateway and Data Processing) 8.0x	VMware ESX Server 3.x or later, Solaris 9 and 10 Zones Performance of an enterprise environment on VMware can be expected to be up to 30% slower than in a regular installation.
Business Process Insight 8.0x	VMware ESX Server 3.x
Business Process Monitor 8.02	Not Supported
SiteScope 10.00	VMware ESX Server 3.0 or later, VMware Virtual Center 2.x
SiteScope 10.10	VMware ESX Server 3.0 or later, VMware Virtual Center 2.x
HP Diagnostics Agents/Probes 8.0x	VMware ESX 3.x Server and Solaris 10 Zones
HP Diagnostics Server 8.0x	VMware ESX 3.x Server and Solaris 10 Zones
TransactionVision Agents/Sensors	Not Supported
TransactionVision Analyzer	Not Supported
Real User Monitor Engine 8.02 or later	VMware ESX 3.5 Server
Real User Monitor Probe	Not Supported
HP Universal CMDB 8.0x	VMware ESX 3.x Server or later
HP Discovery and Dependency Mapping 8.0x	VMware ESX 3.x Server or later

7

Licensing Models for Universal CMDB

This chapter provides information on the Universal CMDB licensing models.

This chapter includes:

Concepts

➤ Licensing Models – Overview on page 72

Tasks

➤ Upgrade to the Standard or Advanced License on page 74

Troubleshooting and Limitations on page 75

🎲 Licensing Models – Overview

There are three levels of licensing. Each level includes specific packages, as follows:

License Level	Packages
Foundation	➤ Database_Basic ➤ NNM_Integration ➤ SE_Integration ➤ Oracle HP Universal CMDB can work with the following packages, but they are not provided by default. For details, contact HP Software Support: ➤ DDMI_Integration ➤ SAR_Integration ➤ SM_Integration
Standard	➤ NNM_Integration ➤ SE_Integration ➤ Oracle ➤ Credential_Less_Discovery ➤ Host_Resources_By_NTCMD ➤ Host_Resources_By_SNMP ➤ Host_Resources_By_TTY ➤ Host_Resources_By_WMI ➤ Layer2 ➤ Network ➤ UMDB7-SCSM Universal CMDB can work with the following packages, but they are not provided by default. For details, contact HP Software Support: ➤ DDMI_Integration ➤ SAR_Integration ➤ SM_Integration
Advanced	All packages

This section includes the following topics:

➤ "License for HP Software-as-a-Service" on page 73

➤ "License for HP ServiceCenter/Service Manager and Other Integrations" on page 73

➤ "The DDM Probe Installation" on page 74

License for HP Software-as-a-Service

All packages.

License for HP ServiceCenter/Service Manager and Other Integrations

The following packages are available:

➤ UCMDB7-SCSM

➤ SAR_Integration

➤ DDMI_Integration

➤ NNM_Integration

➤ SE_Integration

➤ SM_Integration

Note:

➤ The name of the license file is ucmdb_license.xml.

➤ You are asked for the location of the license file during installation. The default location of the foundation license is: <**Business Availability Center root directory**>**mam_lib****server** on the Data Processing server machine.

➤ Two weeks before the license expires, a reminder message is displayed for you to renew the license.

The DDM Probe Installation

You should install the DDM Probe, no matter which license you are running. If you have the Foundation license, the Probe is needed to run the Integration jobs (NNMi, SE, and DDMi). For details, see "DDM Probe Installation" on page 17.

☝ Upgrade to the Standard or Advanced License

When you install Business Availability Center, you receive the Universal CMDB Foundation license. To obtain the file needed to upgrade to the Standard or Advanced license, contact HP Software Support, then perform the following procedure:

To upgrade your license:

1 Obtain the appropriate file (standard or advanced) from HP Software Support.

2 Replace the **ucmdb_license.xml** file in the **<Business Availability Center root directory>\mam_lib\server** folder on the Data Processing server machine.

If Business Availability Center is installed in a distributed deployment, replace the file on the Gateway Server machine.

3 Use the JMX console to force a license change:

  a Launch a Web browser and enter the address **http://<server_name>.<domain_name>:8080/jmx-console**, where **<server_name>** is the name of the machine on which BAC is installed. When prompted, enter the JMX Console authentication credentials (if you do not have these credentials, contact your system administrator).

  b Under MAM, click **service=UCMDB UI** to open the JMX MBEAN View page.

    c Locate **java.lang.String getLicenseForCustomer()** and enter the following information:

In the force parameter box, select **True**.

In the ParamValue box for the parameter **customerId**, enter **1**.

Click **Invoke**.

Note: To verify the type of license that is installed, select **False** and enter the customer ID. Details about the license are displayed.

🔍 Troubleshooting and Limitations

This section describes troubleshooting and limitations for UCMDB licensing.

➤ **Problem**: When integrating BAC's Universal CMDB with HP Storage Essentials, unable to run the SE Integration by SQL job with the Foundation license.

Solution: Perform the procedure in "Discover the SE Oracle Database" in *Discovery and Dependency Mapping Content Guide*.

➤ **Problem**: When integrating UCMDB with HP Network Node Manager i (NNMi), unable to run the **Layer2 by NNM** job with the Foundation license.

Solution: For details, see *"Run HP NNMi–UCMDB Integration"* in *Discovery and Dependency Mapping Content Guide*.

Part III

HP Business Availability Center Deployment Configuration

8

Deployment Configuration

You can deploy HP Business Availability Center according to the size of your system and according to your load balancing and high availability needs.

This chapter includes:

➤ One-Machine Deployment on page 80

➤ Two-Machine (Standard and Enterprise) Deployment on page 82

Important:

➤ Beginning with HP Business Availability Center version 8.00, three- and five-machine deployments are no longer supported. For standard and enterprise environments, use the two-machine deployment.

➤ In HP Business Availability Center 8.00, the machine that is responsible for the functions that were previously performed by both the Centers Server and Core Server is the Gateway Server.

One-Machine Deployment

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

A one-machine deployment should be used primarily for development and testing purposes. It can also be used for very small capacity installations under the following circumstances:

➤ Maximum of:

  ➤ 150 Business Process Monitor transactions

  ➤ 750 SiteScope points

  ➤ 25 Dashboard views

  ➤ 5 concurrent Dashboard users

➤ Not supported in a one-machine deployment:

  ➤ Service Level Management

  ➤ Real User Monitor

  ➤ Discovery and Dependency Mapping

  ➤ Business Availability Center for SAP Applications

  ➤ Business Availability Center for Siebel Applications

  ➤ Business Availability Center for SOA

  ➤ Problem Isolation

  ➤ High Availability

➤ Requires minimum 2 GB RAM

Diagram of a One-Machine Deployment

In a one-machine deployment, all servers are installed on one machine:
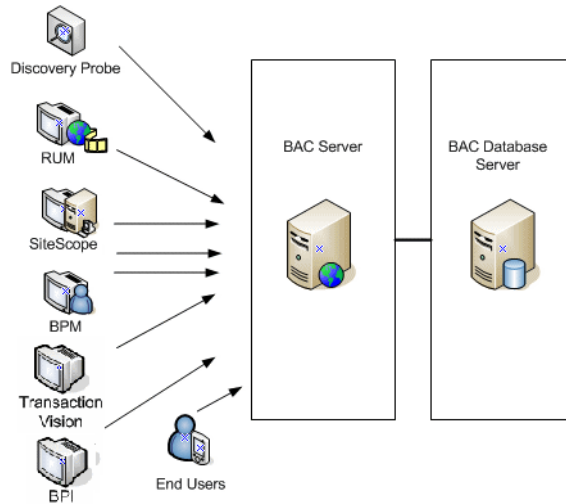
Note: If you already have a CMDB server set up as part of another HP product installation, you can connect to this server when you set your database parameters. For details, see "Setting Database Parameters on a Windows Platform" on page 159 or "Setting User Schema Parameters on a Solaris Platform" on page 205.

To set up a one-machine deployment:

Choose the **Typical** setup type during HP Business Availability Center installation.

For details on installing HP Business Availability Center on a Windows platform, see "Installing HP Business Availability Center Servers on a Windows Platform" on page 141.

For details on installing HP Business Availability Center on a Solaris platform, see "Installing HP Business Availability Center Servers on a Solaris Platform" on page 185.

Load Balancing and High Availability

A one-machine deployment is not scalable and has no load balancing or high availability options. For this reason, it should not be used as a production system.

Two-Machine (Standard and Enterprise) Deployment

A two-machine deployment is one in which one instance of a Gateway Server is installed on one machine and the Data Processing Server is installed on a second machine.

A two-machine deployment can have either a standard or enterprise configuration. These configurations differ in terms of the CPU and memory required. For details of the system requirements for each of these configurations, see "Reviewing System Requirements" on page 53.

Diagram of a Two-Machine (Standard and Enterprise) Deployment

In a two-machine (standard and enterprise) deployment, servers are installed as illustrated below:
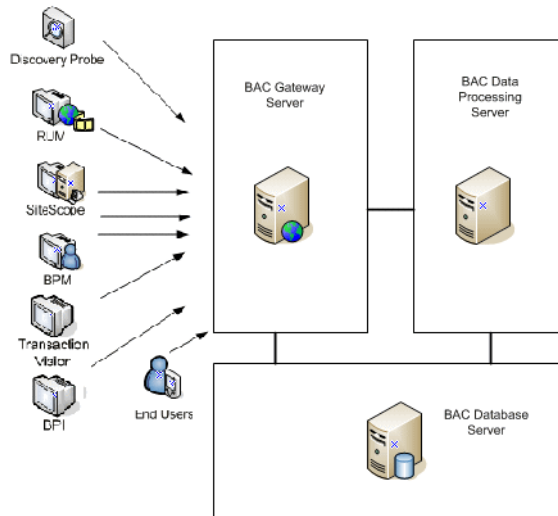
Note: If you already have a CMDB server set up as part of another HP product installation, you can connect to this server when you set your database parameters. For details, see "Setting Database Parameters on a Windows Platform" on page 159 or "Setting User Schema Parameters on a Solaris Platform" on page 205.

To set up a two-machine (standard or enterprise) deployment:

1 During HP Business Availability Center installation, specify the server type you want to install on each machine.

2 When installing the Gateway Server, do the following:

a Choose **Custom** setup.

b Select **Gateway Server**.

Select the features for "HP Business Availability Center" you would like to install:

- Product Installation
  - ☑ Gateway Server
  - ☐ Data Processing Server
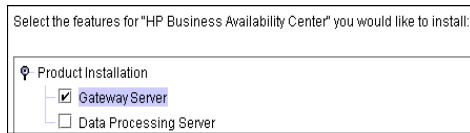
3 To install the Data Processing Server, do the following:

a Choose **Custom** setup.

b Select **Data Processing Server** and click **Next**.

Select the features for "HP Business Availability Center" you would like to install:
- Product Installation
  - ☐ Gateway Server
  - ☑ Data Processing Server
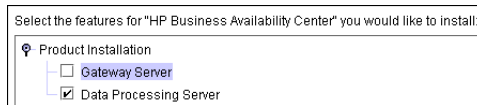
c Select **All** to install all the Data Processing Server types (Modeling, Online, and Offline) on the same machine.

For details on installing HP Business Availability Center on a Windows platform, see "Installing HP Business Availability Center Servers on a Windows Platform" on page 141.

For details on installing HP Business Availability Center on a Solaris platform, see "Installing HP Business Availability Center Servers on a Solaris Platform" on page 185.

Load Balancing and High Availability

Load balancing and high availability can be implemented in a two-machine (standard and enterprise) deployment by adding an additional Gateway Server and a backup Data Processing Server, as illustrated in the following diagram:
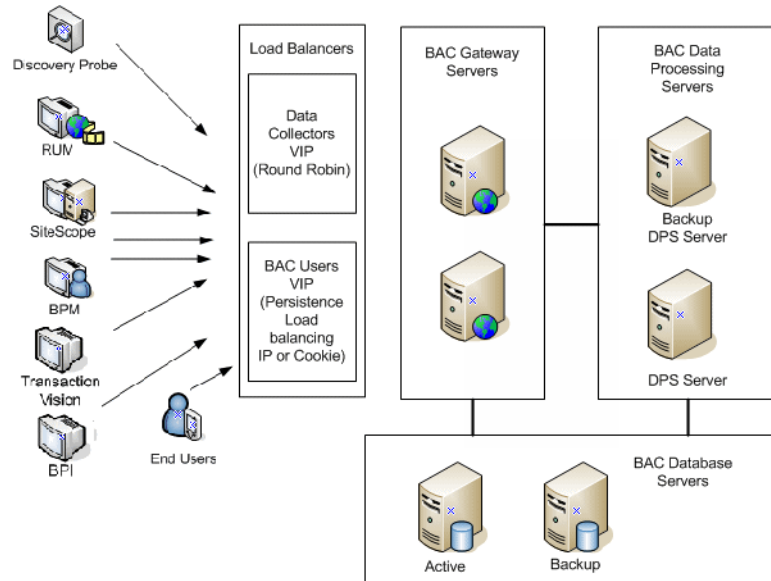
Note: Data Processing Servers can run concurrently with additional Data Processing Servers as long as the same service is not being run concurrently on more than one machine.

Benefits of a Distributed Deployment

Using a distributed architecture for HP Business Availability Center gives you the following benefits:

➤ Provides scaling solutions for your HP Business Availability Center 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 91.

➤ Backup machines for the HP Business Availability Center 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 Availability Center" on page 89.

Deploying Multiple Servers

When deploying multiple HP Business Availability Center 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 management, CMDB, and CMDB history databases. You must specify the same database and connection parameters for each HP Business Availability Center server (whether the servers are at the same location or geographically separated).

➤ After installing HP Business Availability Center servers, point HP Business Availability Center 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 Availability Center Data Collectors in a Distributed Environment" on page 110.

➤ 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 containing the management, CMDB, CMDB history, and profile databases.

➤ Create a common temporary directory to hold the temporary images created by the Gateway Servers when generating scheduled reports. For details, see "Modify the Location and Expiration of Temporary Image Files" in *Platform Administration*.

Notes and Limitations

➤ If HP Business Availability Center 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 Availability Center application and can result in performance and stability issues. For more information, contact HP Software Support.

➤ Because HP Business Availability Center uses Remote Method Invocation (RMI) calls between servers, placing firewalls between BAC servers is not supported.

9

High Availability for HP Business Availability Center

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

This chapter includes:

Overview of High Availability Options

Implementing a high availability configuration means setting up your HP Business Availability Center 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.

  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 Availability Center applications.

  ➤ **failover.** Work performed by a server, for example, 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 Availability Center Gateway Servers, HP Business Availability Center 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.

When using multiple HP Business Availability Center servers, it is generally recommended that you use one or more external load balancers at the entry to HP Business Availability Center.

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 Availability Center Web site on the Gateway Server. This URL can be distributed to BAC 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 Availability Center.

You must enter the relevant load balancer hostname in the Infrastructure Settings for the virtual servers. To do so, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Foundations**, select **Platform Administration**, and locate the **Default Virtual Centers Server URL** and **Default Virtual Cores Services Server URL** entries in the Host Configuration table. Modify the values to the appropriate load balancer hostname, where the following values are true:

Default Virtual Centers Server URL = <**Virtual hostname for HP Business Availability Center Web site**>
Default Virtual Cores Services Server URL = <**Virtual hostname for Data Collectors**>

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

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

➤ **stickiness by session disabled**

➤ **round robin enabled**

To configure the load balancer for HP Business Availability Center 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 Availability Center 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 Availability Center 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 Availability Center 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 Monitor Data

HP Business Availability Center 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 Availability Center 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 the Dashboard Application

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

When a user logs in to HP Business Availability Center and starts working with the Dashboard, 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 Availability Center again.

The load balancer for the Gateway Server must be set with **stickiness by session enabled**. For details, see "Configuring Load Balancing" on page 91.

Important: 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

In the event of a primary Data Processing Server failure, all services must be reassigned and activated on the backup Data Processing Server for HP Business Availability Center to function properly.

For Data Processing Servers, you can install only one active server in an HP Business Availability Center system. A second server can act as a backup Data Processing Server. The active server runs specific HP Business Availability Center services. In the event that the active server becomes unavailable, you can use HP Business Availability Center's System Health to reassign the services to the backup server, which then retrieves the current configuration from the management database and continues to provide the services as the new active Data Processing Server.

To configure System Health:

1 Click **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**.

2 Select **Foundations** and then select **System Health** from the dropdown menu.

3 Click the **Edit button** in System Health – URL pane.

4 Enter the URL of the System Health machine you want to connect to in the **Value** field of the Edit Setting dialog box, and click **Save** to save the setting.

Note: When deploying a new HP Business Availability Center 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. For details, see "Understanding Service Reassignment" in *Platform Administration*. To configure the automatic reassignment of services running on a primary Data Processing Server to a backup Data Processing Server, see "Configuring Automatic Failover" on page 102.

This section includes the following topics:

Services Assigned to the Data Processing Server

Various processes are assigned to the Data Processing Server. Each process is responsible for running specific services.

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, click **service=hac-manager.**

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

The processes running on a typical 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 Availability Center 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.

Column Name	Description
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: ➤ 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).

The Data Processing Server services are described in the following table:

JVM Process Name	Service Name	Description of Service
mercury _as	CDM	The CDM (Configuration Data Model) service is responsible for adding CIs representing monitors from the data collectors to the CMDB. This service is referred to as Source Adapters service in System Health (**Admin > Platform > System Health**).
	KPI_ENRICHMENT	The 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.
	VERTICALS	Verticals service is a service for both SAP and Siebel that ensures compatibility with HP Business Availability Center. SAP service links data retrieved from SiteScope and Business Process Monitors to SAP related entities brought from HP Universal CMDB. Siebel service links data retrieved from SiteScope and Business Process Monitors to Siebel related entities brought from HP Universal CMDB, for HP Business Availability Center compatibility.
	EMS_HOST	The EMS_Host service is responsible for CMDB host configuration.

JVM Process Name	Service Name	Description of Service
cmdb	CMDB	The CMDB is a central repository for configuration information that is gathered from the various HP Business Availability Center and third-party applications and tools. This information is used to build HP Business Availability Center views.
	FCMDB	This is the federation configuration service. Responsible for retrieving federated data from external data sources for replication tasks and federated queries.
	CMDBCLASSMODEL	Responsible for maintaining the class model in the CMDB.
	CMDBMODELUPDATE	Responsible for managing updates to the class model in the CMDB.
	CMDB_RES_UTILS	Responsible for storing the calculations of TQL results and Enrichment results.
	CMDB_SYS_TQLS	Responsible for the conditions applied to TQL nodes, and the condition results that are stored in the system TQL.
	CMDB_MOD_NOT	Responsible for notifications of changes that occur in the CMDB.
	CMDB_RECONCILE	The CMDB's data population reconciliation service. Responsible for the reconciliation engine of HP Universal CMDB.

JVM Process Name	Service Name	Description of Service
mam	MAM BASIC	The MAM_Basic service is responsible for user management, system parameters, and login/logout services.
	MAM CONFIG	The MAM_Config service is responsible for snapshots, CI changes queries, and TQL/View History queries.
	MAM DISCOVERY	The MAM_Discovery service is responsible for Discovery-related services.
	MAM IMPACT	The MAM_Impact service is responsible for HP Universal CMDB impact, root cause, and correlation subsystems.
	MAM PACKAGER	The MAM_Packager service is responsible for packages. Packages are zip files containing resources that are structured in organized, predefined subdirectories.
	MAM REPORT	The MAM_Report service is responsible for HP Universal CMDB report services.
	MAM VIEWSYS	The viewing system and package manager service installed on the Data Processing Server. The Viewsys service manages HP Business Availability Center views. This service is referred to as Viewing System in System Health in the HP Business Availability Center Administration Console.
bpi_process_repository	PROCESS_REPOS	Responsible for maintaining all Business Process Insight configurations when Business Process Insight is not installed on a separate server.
mercury_offline_engine	NOA	The New Offline Aggregator service validates and synchronizes new tasks for the offline aggregator on an hourly or daily basis.

JVM Process Name	Service Name	Description of Service
mercury _online _engine	DASHBOARD	Dashboard service on the Data Processing Server is responsible for online business logic calculations. This service is referred to as Online BLE (Business Logic Engine) in System Health in the HP Business Availability Center Administration Console.
topaz_ pm	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 Availability Center reports. After an additional, defined amount of time, that partition is purged from the profile database.

Note: The services under the **cmdb** and **mam** process may run on the **mercury_as** process in non-enterprise environments.

Log Files

The JVM process log files are contained in the following directories under **<HP Business Availability Center root directory>\log**:

➤ cmdb (Data Processing Server)

➤ mam (Data Processing Server)

➤ EJBContainer (Gateway and Data Processing Servers)

➤ mercury_data_upgrade (Data Processing Server)

➤ mercury_db_loader (Gateway Server)

➤ mercury_offline_engine (Data Processing Server)

➤ mercury_online_engine (Data Processing Server)

- ➤ mercury_pm (Data Processing Server)
- ➤ mercury_wde (Gateway Server)
- ➤ schedulerpr (Data Processing Server)
- ➤ schedulergw (Gateway Server)
- ➤ bus (Gateway and Data Processing Servers)
- ➤ bpi_process_repository (Data Processing Server)

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

Reassigning Services from System Health

Using the new System Health, you can move groups of services between Data Processing Servers as server availability and resource issues arise. Select **Admin** > **Platform** > **Setup and Maintenance** > **System Health**.

For details on using System Health to move services between Data Processing Servers, see "Service Manager Dialog Box" in *Platform Administration*.

Manually Reassigning Services

Important: The procedures below (which require accessing the JMX Web console) should only be used for reassigning services that cannot be reassigned in System Health.

If you have not installed System Health, you can manually reassign services running on a primary Data Processing Server to a backup Data Processing Server should it be necessary (for example, if you have to move the CDM service and the <HP Business Availability Center root directory>\CMDB directory). 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. When reassigning the CDM service between Data Processing Servers, there are additional steps that may need to be carried out. For details, see "Reassigning the CDM Service" on page 107.

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 Data Processing Server" on page 96.

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.

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

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-manager.**

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

➤ **customer_id.** The ID of the customer for which the service is assigned. The default customer ID for an individual HP Business Availability Center 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 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-manager**.

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

➤ **customerid.** The ID of the customer for which the service is assigned. The default customer ID for an individual HP Business Availability Center 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 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 (such as **mercury_as**, **mercury_online_engine**, **mercury_offline_engine**, **topaz_pm**).

➤ **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-manager.**

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 Availability Center 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 (such as **mercury_as**, **mercury_online_engine**, **mercury_offline_engine**, **topaz_pm**).

➤ **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.

Reassigning the CDM Service

The CDM service relies on content contained in the **<HP Business Availability Center root directory>\CMDB** directory. Before reassigning the CDM service to a backup server, the CMDB directory on the active server must be manually copied to the backup machine, or the directories must be synchronized, or the directory must be placed on a third machine that can be accessed by both active and backup machines (for example a netapp machine). For details on the latter two options, see "High Availability for the CDM" on page 108.

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.

High Availability for the CDM

The CDM (source adapters framework) service uses the **<HP Business Availability Center root directory>\CMDB** directory. This directory must be identical on both the active and backup Data Processing Servers. This can be accomplished in the following ways:

➤ Place the CMDB directory in a shared directory on a different machine (such as a netapp server) and point HP Business Availability Center to this machine. This is the recommended option.

➤ Synchronize the CMDB directories on the active and backup servers on a regular basis (for example, create a batch file that copies the directory from the active to backup servers periodically).

Note: If you are working with a five-machine deployment, the CDM service should be running on the Offline Data Processing Server.

Important: If the CDM service is reassigned to the shared directory on the Data Processing Server without the **<HP Business Availability Center root directory>\CMDB** directory being copied (for example, if the primary Data Processing Server fails in such a way that you do not have access to the file system), the CDM service uses the empty **<HP Business Availability Center root directory>\CMDB** directory that exists on the Data Processing Server and you lose all of your existing source adapter framework data.

To set up the Data Processing Server to use a shared CMDB directory for a new HP Business Availability Center installation:

Immediately after the installation of HP Business Availability Center, and before it is started for the first time, carry out the following steps:

1 Create the shared CMDB directory on the third machine, maintaining the same directory structure created on the Data Processing Server. Typically this directory structure is **<root drive>\<HP Business Availability Center root directory>\CMDB** (for example: C:\HPBAC\CMDB).

2 Select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Foundations**, select **Sources Configuration**, and locate **The location of the adapters directory (CMDB)** entry in the Sources Configuration – Sources table. Modify the value to the path to the machine that contains the shared CMDB directory:

On Windows: \\<third machine name>\ (no need to specify path)

On Solaris: /<folder name>/<folder name>

3 Ensure that the user under which the HP Business Availability Center service is running has read/write access to the shared CMDB directory on the third machine.

To set up the Data Processing Server to use a shared CMDB directory in an existing HP Business Availability Center environment:

1 Ensure that there are no open connections to HP Business Availability Center.

2 Copy the <**HP Business Availability Center root directory>\CMDB** directory from the active Data Processing Server to the third machine, maintaining the complete directory structure (for example: C:\HPBAC\CMDB).

3 Select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Foundations**, select **Sources Configuration**, and locate **The location of the adapters directory (CMDB)** entry in the Sources Configuration – Sources table. Modify the value to the full network address to the shared CMDB directory (//<**third machine name>/**). Do not specify the path only the name of the server with the shared CMDB directory.

4 Ensure that the user who starts the HP Business Availability Center service has read/write access to the <**HP Business Availability Center root directory>\CMDB** directory on the shared directory on the other machine.

5 Restart HP Business Availability Center on all machines.

Configuring HP Business Availability Center Data Collectors in a Distributed Environment

This section describes how to configure the HP Business Availability Center data collectors to work in a distributed HP Business Availability Center 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 "Configuring Business Process Monitor Instances" in *the Business Process Monitor Administration* PDF.

For Real User Monitors to perform their work, HP Business Availability Center requires you to specify the Gateway Server URL in the Real User Monitor Web Console. For more information, see "Using the HP Real User Monitor Web Console" 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 hostnames 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 Availability Center System Availability Management (**Admin** > **System Availability Management**). For details, refer to "Configuring the Integration" 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.

Configuring an External UCMDB with High Availability

If the external HP Universal CMDB with which you are working is running in a high availability environment, you must ensure that Business Availability Center can communicate with all the available UCMDB servers, including those that are designated for failover.

Business Availability Center invokes UCMDB operations with the High Availability Controller (HAC). The controller connects to one of the UCMDB servers and requests the active server. The UCMDB controller returns the name of the active server, and Business Availability Center connects to it and requests services.

During Business Availability Center installation or after an upgrade, you must run the Server and Database Configuration utility for Business Availability Center. This utility is where you must enter a semicolon delimited list of all UCMDB servers in the **Host Name** field as shown in the following dialog box.

The order of the hosts entered must be: active server first, followed by the standby server. For example: Host1;Host2 where Host1 is the active server and Host2 is the standby.
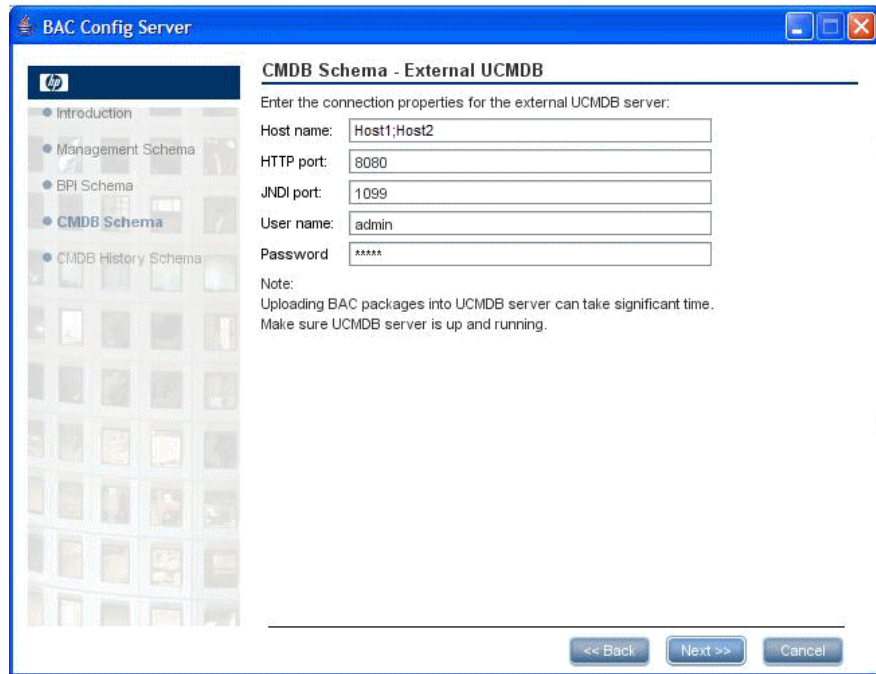
For details on the Server and Database Configuration utility, see "Setting Database Parameters on a Windows Platform" on page 159 or "Setting User Schema Parameters on a Solaris Platform" on page 205.

If a high availability external HP Universal CMDB server is added after Business Availability Center is installed or upgraded, you can add high availability server names in Infrastructure Settings. To modify the High Availability Settings, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:

➤ Select **Foundations**.

➤ Select **High Availability Controller**.

➤ In the **High Availability Controller - General External UCMDB properties** table, locate the **Name of external UCMDB host** property. Add the value of the external UCMDB server.

Factory Packages During Failover

You must manually copy the entire factory packages folder (< **HP UCMDB root folder>\UCMDBServer\root\lib\factory_packages**) from the active server to the standby (failover) server as they are not copied automatically during failover. Do this while setting up your high availability environment so that in a case of failover to the standby server the packages will be available.

10

Disaster Recovery for HP Business Availability Center

You can set up and activate (when necessary) a Disaster Recovery (DR) system for your HP Business Availability Center system.

This chapter includes:

Introduction to Disaster Recovery for HP Business Availability Center

This chapter describes the basic principles and guidelines on how to set up a Disaster Recovery system, and the required steps to make the Secondary HP Business Availability Center system become the new Primary HP Business Availability Center system. The chapter covers a typical HP Business Availability Center environment consisting of one HP Business Availability Center Gateway server, one Data Processing Server, and one database server containing HP Business Availability Center database schemas.

Note:

➤ This chapter introduces the concepts of enabling disaster recovery.

➤ Disaster Recovery involves manual steps in moving various configuration files and updates to the HP Business Availability Center database schemas. This procedure requires at least one HP Business Availability Center Administrator and one database administrator, who is familiar with the HP Business Availability Center databases and schemas.

➤ There are a number of different possible deployment and configurations for HP Business Availability Center. To validate that the DR scenario works in a particular environment, it should be thoroughly tested and documented. You should contact HP Professional Services to ensure best practices are used in the design and failover workflow for any DR scenario.

Preparing the Disaster Recovery Environment

Preparing the Disaster Recovery environment comprises the following stages:

➤ "Installing HP Business Availability Center Software in the Failover Environment" on page 117

➤ "System Configuration Backup and Data Backup Configuration" on page 119

Installing HP Business Availability Center Software in the Failover Environment

Install a second instance of HP Business Availability Center that matches your current production environment.

➤ Install exactly the same version of HP Business Availability Center in your backup environment, as that used in your production environment.

➤ To simplify issues with disparate capacities and deployments, the backup environment should be the same as your production environment (for example, Enterprise or Standard deployment).

➤ Do not run the Server and Database Configuration utility and do not create any databases.

➤ Do not start the Backup system.

Note: The Disaster Recovery environment should closely resemble the HP Business Availability Center production environment. The hardware, deployment, and versions should all be matched to prevent any loss of functionality when moving to the Failover system.

The following diagram shows a typical HP Business Availability Center environment with a Failover system also installed:
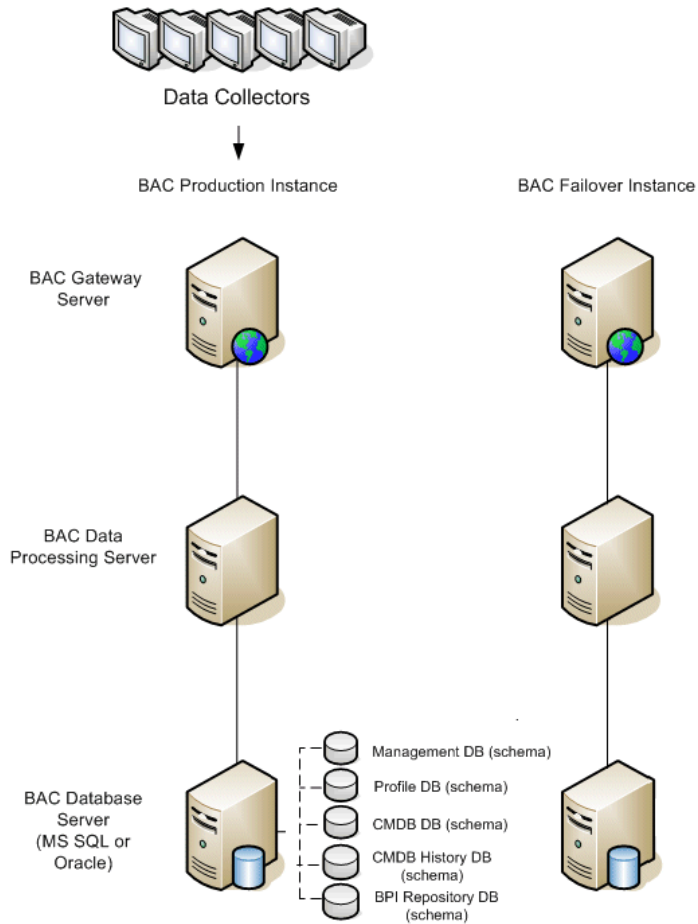
System Configuration Backup and Data Backup Configuration

This stage includes copying configuration directories to the Failover instance, configuring LDAP for Disaster Recovery, and configuring database logfile shipping.

Copying Configuration Directories to the Failover Instance

Copy from the HP Business Availability Center Production instance to the same server type in the Failover instance, any files changed in the following directories:

➤ /conf

➤ /cmdb (located on the Data Processing Server)

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

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

The following diagram shows the Failover system after copying the directories from the Production system.
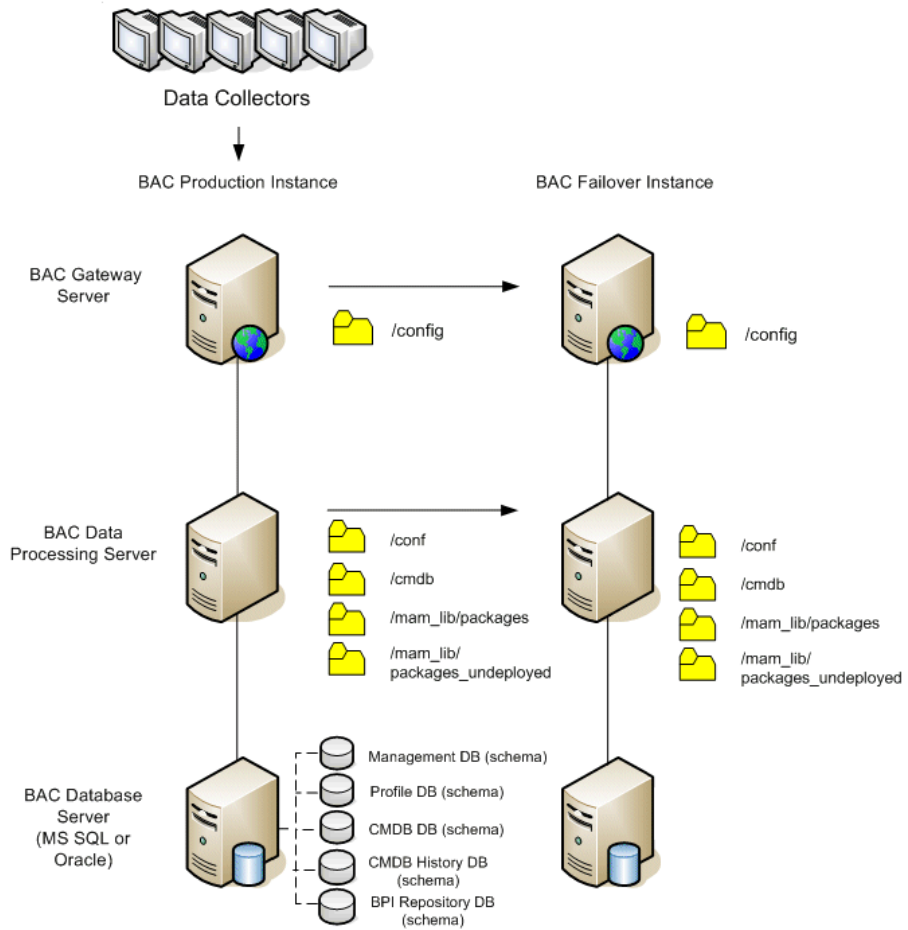
Configuring LDAP for Disaster Recovery

HP Business Availability Center contains an LDAP server component that is used to store monitoring configuration. While the loss of LDAP services does not disrupt data collection, it prevents the ability to make any configuration changes to the various HP Business Availability Center monitors and can cause errors in the HP Business Availability Center Web site.

The LDAP server included in HP Business Availability Center is OpenLDAP Software, an open source implementation of LDAP. The two most important components of the suite are:

➤ slapd - stand-alone LDAP daemon (server)

➤ slurpd - stand-alone LDAP update replication daemon

   To configure LDAP for Disaster Recovery:

 1 Review current HP Business Availability Center configuration.

When HP Business Availability Center is installed, LDAP is automatically installed on the Gateway Server. If HP Business Availability Center is installed on multiple Gateway Servers, the first Gateway Server becomes the master LDAP server. To determine which Gateway Server is the master LDAP server, use the following steps:

   a Login to HP Business Availability Center.

   b Select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Foundation** and select **Monitor Administration**.

   c The value in the **Monitor Administration Data Storage Location** setting is the name of the master server.

 2 Prepare the slave server.

To prepare your failover server as a slave LDAP server use the following steps:

   a Shutdown HP Business Availability Center on both servers on which ldap is running.

   b Copy the entire **<HP Business Availability Center root directory>\ openldap** directory from the master server to the slave server. If this directory already exists on the slave server, overwrite it.

3 Set up replication between master and slave servers.

On the **master server**, do the following:

a Install the replication daemon (slurpd) by running **<HP Business Availability Center root directory>\openldap\slurpd install**.

b Backup **<HP Business Availability Center root directory>\ openldap\slapd.conf**.

c Edit **<HP Business Availability Center root directory>\openldap\ slapd.conf** and add a **replica** and a **replogfile** directive as follows:
replica uri=ldap://<slaveHost>:9389 binddn="E=SSEnterprise"
bindmethod=simple credentials=fl1pp3r
replogfile ./replicate.log

Note: The file contains lines that are commented out; you can use them as a starting point. Each directive is on a separate line. Each directive must not break across lines. Replace <slaveHost> with the name (Fully Qualified Domain Name preferred) of your slave server.

---

d Start the slapd service.

4 On the slave server, do the following:

a Backup **<HP Business Availability Center root directory>\openldap\ slapd.conf**.

b Edit **<HP Business Availability Center root directory>\openldap\ slapd.conf** and add an **updatedn** and an **updateref** directive as follows:

updatedn "E=SSEnterprise" updateref ldap://<masterHost>:9389
minServer installation Change

Note: The file contains lines that are commented out; you can use them as a starting point. Each directive must not break across lines. Replace <masterHost> with the name (Fully Qualified Domain Name preferred) of the master Gateway Server of your slave system.

---

   c Open the slapd service.

5 **After the slapd service has started on the failover server, perform the following steps on the master server:**

   a Start the slurpd service from **<open LDAP directory>\slurdp.exe**.

   b Connect to the **master server** using an LDAP administrator utility (you can obtain one from www.ldapbrowser.com). For configuration details for the Softerra LDAP administrator see "Configuring the Softerra LDAP Administrator" on page 136.

   c Make a change in the LDAP repository (for example, add a value) using the administrator utility.

   d Check **<HP Business Availability Center root directory>\openldap\ replicate.log**. You should see entries that reflect the change you applied.

   e Connect to the **slave server** using an LDAP administrator utility.

   f Check the LDAP repository to see that your change is reflected.

You can now shut down both slaps services on the master and slave servers.

Start the failover LDAP server to receive updates.

The following diagram shows the Production and Failover systems with LDAP replication enabled:
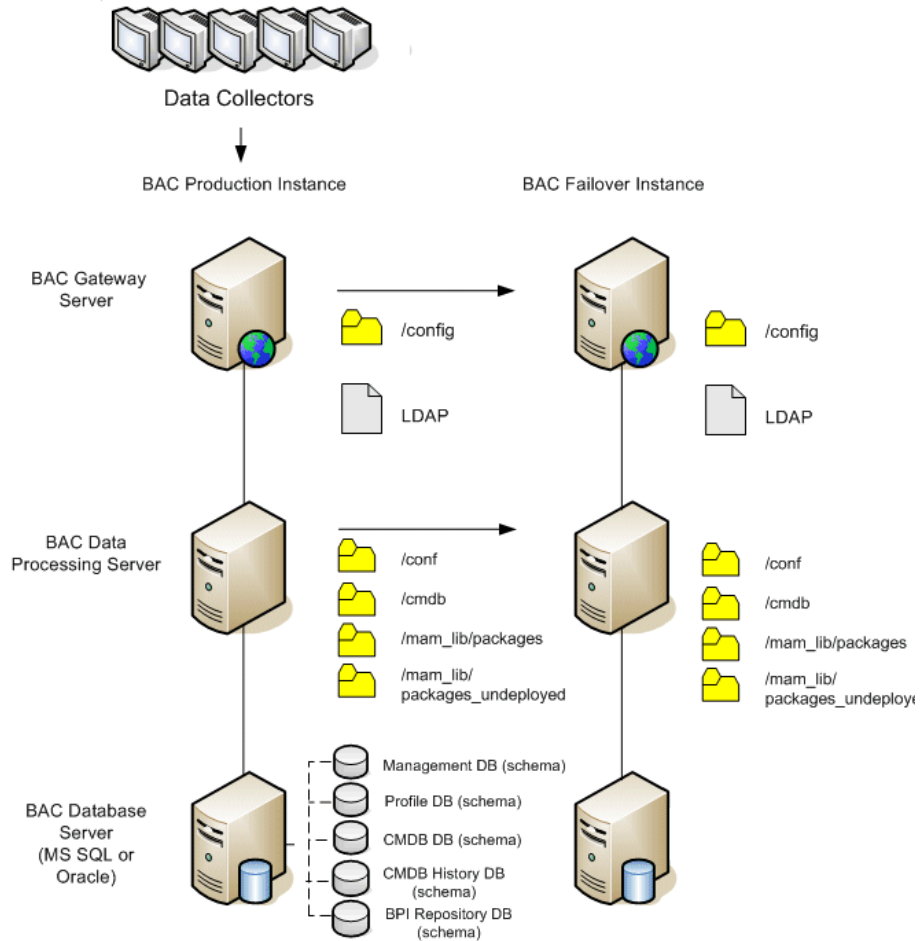
6 Configure the Backup database.

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

➤ **Microsoft SQL–configure database logfile shipping**

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

The log file shipping needs to be configured for the following HP Business Availability Center databases:

➤ HP Business Availability Center Management database

➤ HP Business Availability Center Profile database

➤ HP Business Availability Center CMDB database

➤ HP Business Availability Center CMDB History database

➤ HP Business Process Insight Repository database

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

This section does not contain the specific steps to configure log file shipping. The HP Business Availability Center database administrator can use the following links as a guide to configure log file shipping for the appropriate version of database software that is used in the HP Business Availability Center environment:

➤ **Microsoft SQL Server 2000**:

  ➤ http://support.microsoft.com/default.aspx?scid=http://support.microsoft.com/support/sql/content/2000papers/LogShippingFinal.asp

  ➤ http://www.microsoft.com/technet/prodtechnol/sql/2000/maintain/logship1.mspx

➤ **Microsoft SQL Server 2005**:

  ➤ http://msdn2.microsoft.com/en-us/library/ms188625.aspx

  ➤ http://msdn2.microsoft.com/en-us/library/ms190016.aspx

  ➤ http://msdn2.microsoft.com/en-us/library/ms187016.aspx

➤ **Oracle–configure the Standby database (Data Guard)**

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

Note: HP recommends that if Oracle is the database platform, Oracle 10g should be used to utilize Data Guard.

This section does not contain the specific steps to configure a Standby database. The HP Business Availability Center database administrator can use the following link as a guide to configure a Standby database for Oracle 10g:

http://download.oracle.com/docs/cd/B19306_01/server.102/b14239/toc.htm

Upon successful completion of the Backup database configuration, the HP Business Availability Center Failover Database should be in sync with the HP Business Availability Center Production Database.

The following diagram shows the production and Failover systems with database logfile shipping enabled:
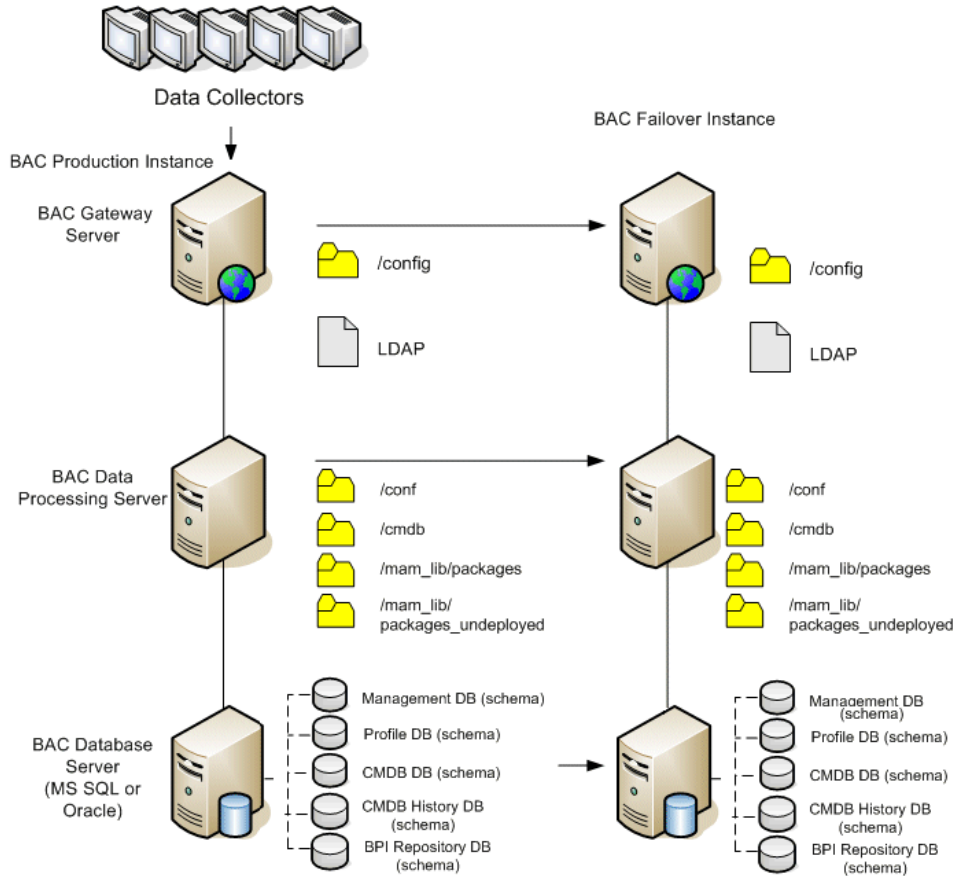
Preparing the HP Business Availability Center Failover Instance for Activation

When it is time to activate the Failover instance, perform the following steps:

➤ Activate the Backup system, including its database.

➤ Ensure that all the latest database logs have been updated into the Failover Environment's databases.

➤ Run the Cleanup Procedure Before Startup to remove any localization in the databases.

Cleanup Procedure Before Startup

This procedure cleans up all the machine-specific references in the configurations from the Production instance. It is needed to reset the database on the Backup system.

Note:

Before starting the activation procedures, the HP Business Availability Center Administrator should ensure that the appropriate license has been applied to the Failover instance and that all the available data collectors can communicate with the Failover instance.

HP recommends that an experienced database administrator perform the SQL statements included in this procedure.

All the SQL statements included in this procedure need to be run against the management database.

---

1 HAC Tables

a Run these queries on the management database:

ALTER TABLE HA_SERVICES_DEP DROP CONSTRAINT
HA_SERVICES_DEP_FK1;

```
ALTER TABLE HA_SERVICES_DEP DROP CONSTRAINT
HA_SERVICES_DEP_FK2;
```

```
ALTER TABLE HA_SRV_ALLWD_GRPS DROP CONSTRAINT
HA_SRV_ALLWD_GRPS_FK1;
```

```
ALTER TABLE HA_SRV_ALLWD_GRPS DROP CONSTRAINT
HA_SRV_ALLWD_GRPS_FK2;
```

```
ALTER TABLE HA_SERVICES DROP CONSTRAINT HA_SERVICES_FK1;
```

```
TRUNCATE TABLE HA_ACTIVE_SESS
```

```
TRUNCATE TABLE HA_BACKUP_PROCESSES
```

```
TRUNCATE TABLE HA_PROC_ALWD_SERVICES
```

```
TRUNCATE TABLE HA_PROCESSES
```

```
TRUNCATE TABLE HA_SRV_ALLWD_GRPS
```

```
TRUNCATE TABLE HA_SERVICES_DEP
```

```
TRUNCATE TABLE HA_SERVICES
```

```
TRUNCATE TABLE HA_SERVICE_GRPS
```

```
TRUNCATE TABLE HA_TASKS
```

```
TRUNCATE TABLE HA_SERVERS
```

```
ALTER TABLE HA_SERVICES_DEP ADD CONSTRAINT
HA_SERVICES_DEP_FK1 FOREIGN KEY (SERVICE_ID) REFERENCES
HA_SERVICES (ID);
```

```
ALTER TABLE HA_SERVICES_DEP ADD CONSTRAINT
HA_SERVICES_DEP_FK2 FOREIGN KEY (DEPENDS_ON) REFERENCES
HA_SERVICES (ID);
```

```
ALTER TABLE HA_SRV_ALLWD_GRPS ADD CONSTRAINT
HA_SRV_ALLWD_GRPS_FK1 FOREIGN KEY (SERVER_ID) REFERENCES
HA_SERVERS (ID);
```

```
ALTER TABLE HA_SRV_ALLWD_GRPS ADD CONSTRAINT
HA_SRV_ALLWD_GRPS_FK2 FOREIGN KEY (GROUP_ID) REFERENCES
HA_SERVICE_GRPS (ID);
```

```
ALTER TABLE HA_SERVICES ADD CONSTRAINT HA_SERVICES_FK1
FOREIGN KEY (GROUP_ID) REFERENCES HA_SERVICE_GRPS (ID);
```

b Erase references to **controller upgrade** from **properties**:

```
delete from Properties
where NAMESPACE='FND_AUTO_UPGRADE' and
NAME='HAServiceControllerUpgrade'
```

2 Sessions Table

Switch references in the Sessions table to the backup session databases:

```
update sessions set SESSION_DB_SERVER = '<New DB Server>',
SESSION_DB_HOST = '<New DB Server>', SESSION_DB_SID='<New DB
SID>'
```

3 Bus Tables

Remove the reference to bus locations (including the Domain Manager) in the **properties** table:

```
DELETE FROM properties
WHERE namespace='MessageBroker' or
namespace='SonicMQ_Namespace'
```

4 Setting Manager Values

Update the URLS and LDAP Server in the SETTING_PARAMETERS table.

The following table shows the keys in the Setting Manager table that need to be updated:

SP_CONTEXT	SP_NAME	Description
Alertengine	settings.smtp.server	Name of the SMTP server used for the alert engine
Scheduledreports	settings.smtp.server	Name of the SMTP server used for scheduled reports

SP_CONTEXT	SP_NAME	Description
Platform	default.core.server.url	The URL used by data collectors to access the Gateway server in Business Availability Center
Platform	default.centers.server.url	The URL used by users to access Business Availability Center
Monitoring	ldap.host.and.port	LDAP host and port used for Monitor Administration

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

update SETTING_PARAMETERS set SP_VALUE='<new value>'
where SP_CONTEXT='<context value>' and SP_NAME='<name value>'

As follows:

➤ update SETTING_PARAMETERS set SP_VALUE='<newmachinename>'
  where SP_CONTEXT='alertengine' and SP_NAME='settings.smtp.server'

➤ update SETTING_PARAMETERS set SP_VALUE='<newmachinename>'
  where SP_CONTEXT='scheduledreports' and SP_NAME='
  settings.smtp.server '

➤ update SETTING_PARAMETERS set
  SP_VALUE='http://<newmachinename>:80'where SP_CONTEXT='platform'
  and SP_NAME='default.core.server.url'

➤ update SETTING_PARAMETERS set
  SP_VALUE='http://<newmachinename>:80'where SP_CONTEXT='platform'
  and SP_NAME='default.centers.server.url'

➤ update SETTING_PARAMETERS set SP_VALUE='ldap://<hostname>:<port
  number>' where SP_CONTEXT='monitoring' and
  SP_NAME='ldap.host.and.port'

5 SYSTEM Keys

Update the following keys in the SYSTEM table:

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

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

update SYSTEM set SYS_VALUE='<key>' where SYS_NAME='<new value>'

For example:

➤ update SYSTEM set SYS_VALUE='http://<newmachine>:port'
   where SYS_NAME='AdminServerURL'

➤ update SYSTEM set SYS_VALUE='http://<newmachine>:port'
   where SYS_NAME='GraphServerURL'

➤ update SYSTEM set SYS_VALUE='http://<newmachine>:port'
   where SYS_NAME='GraphServerURL4.5.0.0'

➤ update SYSTEM set SYS_VALUE='http://<newmachine>:port'
   where SYS_NAME='application.tac.path'

➤ update SYSTEM set SYS_VALUE='http://<newmachine>:port'
   where SYS_NAME='application.flipper.path'

Note: The default port number is 80.

---

6 Server and Database Configuration utility

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

Note:

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

Run the Server and Database Configuration utility on the machines in the same order that HP Business Availability Center was originally installed in the failover environment.

7 Bring up the Backup Environment.

Start HP Business Availability Center on all of the servers in the failover environment.

8 Configure data collectors.

Configure all the data collectors, including Business Process Monitor agents, Real User Monitor engines, SiteScopes, TransactionVision, and Business Process Insight (if installed on a separate server) to work with the Failover instance. For details, see the relevant documentation for each data collector.

The following diagram shows a fully activated Failover instance:
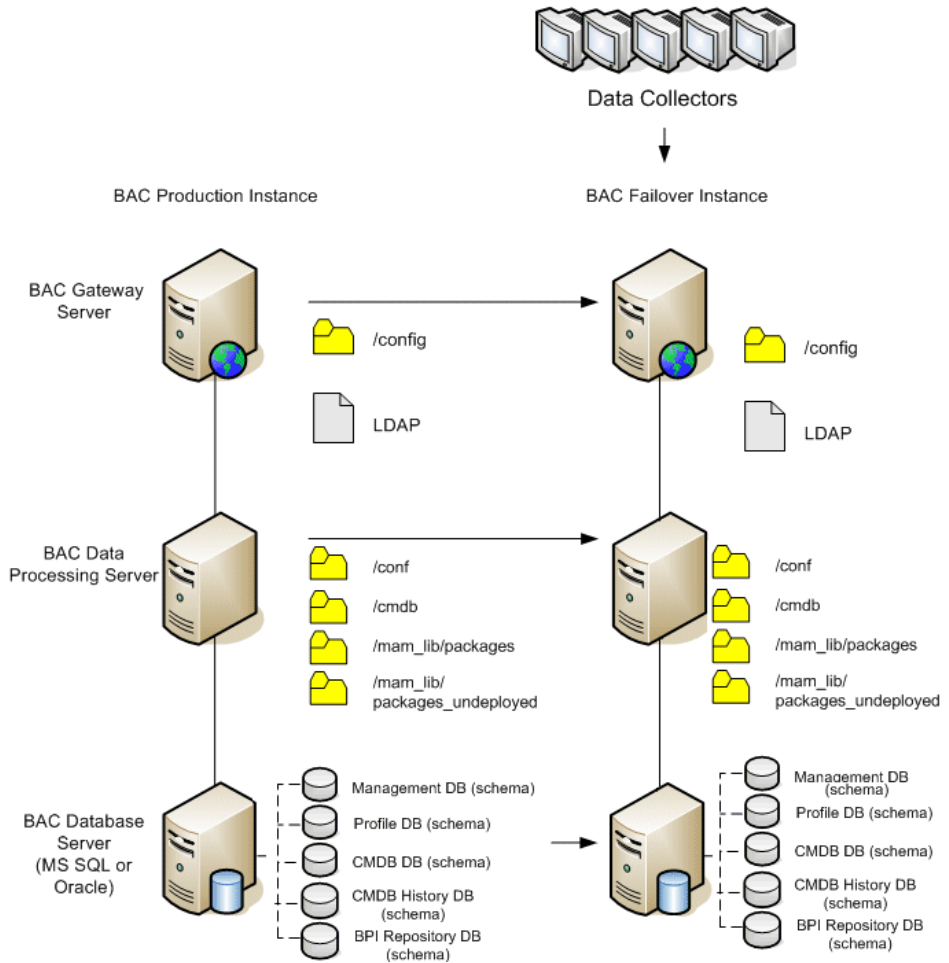
9 Configuring failover data collector connections.

If any of the data collectors have had failover instances activated, meaning that their servers have been moved to other machines, you must ensure that Business Availability Center is pointing to the correct data collector server names. This is done in various applications in HP Business Availability Center. For example:

➤ **Business Process Insight**. Go to **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings** > **Applications** > **Business Process Insight**. Change the location of the **Business Process Insight - Server Settings** and **Business Process Insight - Database Settings** to point to the new locations.

➤ **SiteScope**. Go to **Admin** > **System Availability Management**. Select the relevant SiteScope and edit the profile settings to point to the new location.

➤ **Business Process Monitor**. Go to **Admin** > **End User Management.** Select a Business Process Monitor profile and edit the relevant Transaction Monitors. In **Data Collector Assignment Settings**, edit the **Location** and **Host** values to point to the new locations.

➤ **Real User Monitor**. Go to **Admin** > **End User Management.** Select the relevant Real User Monitor engine and edit the **IP Address** value under the **Main Settings** for the engine and the **Probe Settings** to point to the new locations.

➤ **TransactionVision**. You must configure in both the following:

  ➤ Go to **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings** > **Applications** > **TransactionVision**. Change the setting of the URL that Business Availability Center uses to communicate with TransactionVision.

  ➤ Go to **Admin** > **TransactionVision** > HP Business Availability Center Settings page. Change the URL, protocol, and port that TransactionVision uses to communicate to HP Business Availability Center.

Cleanup Procedure Post Startup

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

To disable obsolete hosts:

1 Browse to the URL
http://<**Gateway Server machine**>/**topaz/systemConsole/
displayBACHosts.do**.

2 Disable all obsolete hosts.

Note: For for details on changed host names, 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.

Configuring the Softerra LDAP Administrator

To configure Softerra LDAP Administrator:

1 Start Softerra LDAP administrator.

2 From the menu select **File** > **New** > **New profile**.

3 Enter a descriptive name for the profile.

4 Click **Next**.

5 Enter the host name (FQDN preferred) of the LDAP server to which you want to connect.

 6 Enter port = **9389**.

 7 Enter Base DN = **E=SSEnterprise**.

 8 Click **Next**.

 9 Enter Principal = **E=SSEnterprise**.

10 Enter Password = **fl1pp3r**.

11 Click **Next**.

12 Click **Finish**.

Part IV

HP Business Availability Center Server Installation for Windows

11

Installing HP Business Availability Center Servers on a Windows Platform

This chapter describes how to install HP Business Availability Center servers on a Windows platform.

This chapter includes:

➤ Overview of HP Business Availability Center Server Installation on page 142

➤ Features Included in HP Business Availability Center Server Installation on page 142

➤ Preparing Information Required for Installation on page 143

➤ Installation Prerequisites on page 145

➤ Working with the Web Server on page 146

➤ Installing HP Business Availability Center Servers on page 148

➤ Starting and Stopping HP Business Availability Center on page 151

➤ Post-Installation Tasks on page 152

Note: If you are installing a service pack, the installation instructions for that service pack are located in the HP Business Availability Center Readme file. Be sure to follow them. Before beginning any installation, review the information in the Readme file for any last minute notes and limitations. Failure to follow procedures listed in the Readme could result in unexpected data loss or failure of the installation process.

Overview of HP Business Availability Center Server Installation

There are several stages to the HP Business Availability Center 8.00 server installation:

1 Installing HP Business Availability Center 8.00 as described in "Installing HP Business Availability Center Servers" on page 148.

2 Setting the management, CMDB, and CMDB history databases by specifying the database type and connection parameters for each database, as described in "Setting Database Parameters on a Windows Platform" on page 159.

3 Installing component setup files in the HP Business Availability Center Downloads page, as described in "Installing Component Setup Files" on page 167.

The server Setup program gives you the option of installing both of the HP Business Availability Center servers on one machine (referred to as an HP Business Availability Center box), or installing only one of the servers on the machine. For details on the different deployment configurations that are possible, see "Deployment Configuration" on page 79.

Features Included in HP Business Availability Center Server Installation

Component	Description
Gateway Server	The Gateway Server is responsible for the following: ➤ running the HP Business Availability Center applications ➤ reporting ➤ operating the Administration Console ➤ receiving data samples from the data collectors ➤ distributing data to the relevant HP Business Availability Center components ➤ supporting the Bus

Component	Description
Data Processing Server	The Data Processing Server is responsible for the following: ➤ aggregating and partitioning data ➤ running the Business Logic Engines ➤ controlling the HP Universal CMDB-related services ➤ supporting the Bus For further details on the services run by the Data Processing Servers, see "Services Assigned to the Data Processing Server" on page 96.

Note: Other servers and components are automatically installed during HP Business Availability Center server installation. For details, see "Deploying HP Business Availability Center Servers" on page 44.

Preparing Information Required for Installation

Have the following information ready before installation:

➤ **License key**. If you did not receive a license key with your HP Business Availability Center package, you can obtain one from your HP Software Support representative. Note that you can enter TEMPORARY if you do not yet have a permanent license key. The temporary license key grants you ten transactions over seven days. **TEMPORARY** appears by default during first-time installations.

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 Availability Center components), you can do so within the HP Business Availability Center site: Select **Admin** > **Platform** > **Setup and Maintenance** > **License Management** and click **New License Key**. For information on updating the license key, see "License Management Overview" in *Platform Administration*.

> ➤ **Maintenance number.** This is the maintenance number you received with your HP Business Availability Center package.

> ➤ **Web server name.** This name must also include the domain name.

> ➤ **Administrator's e-mail address.**

> ➤ **Port number used by the Web server.** This is the port for access to the HP Business Availability Center. The default is port 80.

> ➤ **Name of the Gateway Server machine.**

> ➤ **Name of the load balancer** (if any)**.** This is the load balancer used to access the HP Business Availability Center site.

> ➤ **SMTP mail server name.**

> ➤ **SMTP sender name.** This name appears on alerts sent from HP Business Availability Center.

Note: In addition to sending e-mail alerts via the configured SMTP server, HP Business Availability Center can send e-mail alerts via the Microsoft SMTP Service. For details, see "Configure SMTP Mails" in *Alerts*.

> ➤ **Information for setting the management, CMDB, and CMDB history database parameters**. If you plan to set the management, CMDB, and CMDB history databases during server Setup, see "Required Information for Setting Database Parameters" on page 163.

Installation Prerequisites

Note the following before installing HP Business Availability Center servers:

➤ It is recommended that you install HP Business Availability Center 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 53.

➤ If HP Business Availability Center 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 Availability Center application and can result in performance and stability issues. For more information, contact HP Software Support.

➤ Installing HP Business Availability Center servers together with most other HP products on the same physical machine may result in port conflicts, performance issues, or other unexpected behavior. The coexistence of HP Business Availability Center servers with HP SiteScope or HP Operations Manager agent has been tested and is supported.

Note: If you have other HP Software products that you need to keep installed on the machine, use the following workaround: Before running the installation, rename your other HP Software products in the registry (select **Start** > **Run** enter **Regedit** and rename **HKEY_LOCAL_MACHINE\SOFTWARE**\) for example, rename "HP Business Process Monitor" in that location. When working with the registry, it is recommended that you back it up before making any changes. Start the server installation and accept the license agreement, then return to the Registry Editor and rename the key to the original name. Continue with the installation procedure.

➤ HP Business Availability Center servers must not be installed on a drive that is mapped to a local or network resource.

➤ During installation, custom configuration data from any previous installation on the server machine is overwritten. If you have customized configuration data that you want to reapply after the new installation, you must make a list of the changes.

➤ 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 in to the HP Business Availability Center site when using Microsoft Internet Explorer 6.0 or later.

➤ During HP Business Availability Center server installation, you can specify a different path for the HP Business Availability Center directory (default is **C:\HPBAC**), but note that the full path to the directory must not contain spaces and cannot contain more than 15 characters.

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

Working with the Web Server

HP Business Availability Center 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. For example, if you select to use Apache HTTP Server during HP Business Availability Center 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 Availability Center on the Apache HTTP Server, you must use the Apache HTTP Server version that has been adapted by HP for HP Business Availability Center. It is installed during the server installation.

HP Business Availability Center runs its Apache HTTP Server, by default, through port 80. If port 80 is already in use, there are two ways to resolve the port conflict:

➤ Before beginning HP Business Availability Center installation, reconfigure the service using that port to use a different port.

➤ During HP Business Availability Center installation, select a different port for the Apache HTTP Server.

Edit the file **<HP Business Availability Center root directory>\conf\ core\WebPlatform\webserver_guard.conf** and add the following line:

```
webserver_port=<new 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 Availability Center, as configured in the Apache configuration file (**httpd.conf** and **httpd-ssl.conf**).

Installing HP Business Availability Center Servers

You install HP Business Availability Center 8.00 servers—the Gateway Server and Data Processing Server—from the HP Business Availability Center DVD provided with the HP Business Availability Center distribution package. Unless you install on a machine running IIS, HP Business Availability Center installs Apache HTTP Server (adapted for HP Business Availability Center) during the installation process.

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

To install HP Business Availability Center servers:

1 Insert the HP Business Availability Center 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 setup.exe. Note that the setup file for HP Business Availability Center servers is located in the **Windows_Setup** directory of the DVD. For example, enter d:\Windows_Setup\setup.exe.

d Click **OK**. Setup begins.

2 Follow the on-screen instructions for server installation.

Note: If HP Business Availability Center detects a previous installation on the machine, a message is displayed warning that any customized configuration data will be overwritten.

If installing on a Windows platform with remote services running in application server mode, the following window opens if Windows detects a wrong user mode for the installation:
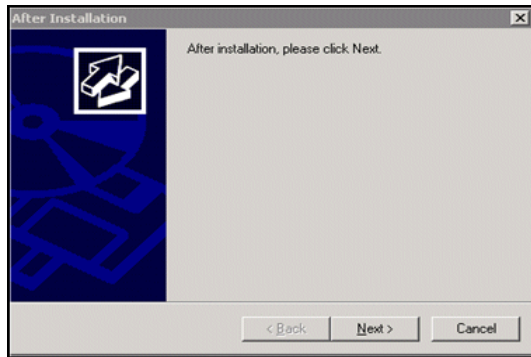
Ensure that this window remains open throughout the HP Business Availability Center setup process. When Setup is complete, click **Next** and follow any other instructions that may appear in the window.

For more information on this subject, refer to Microsoft Knowledge Base Article – 252330.

➤ **Selecting the setup type:**

  ➤ Select **Typical** setup type to install the Gateway Server and Data Processing Server on the same machine.

  ➤ Select **Custom** setup type to select the HP Business Availability Center features to be installed on the machine.

➤ **Selecting the Web server type:**

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

➤ **Configuring connection settings:**

➤ **Apache HTTP Server.** If port 80, the default port, is already in use by the existing Web server, HP Business Availability Center notifies you to resolve the conflict. For details, see "Apache HTTP Server" on page 147.

➤ **Microsoft IIS.** If IIS is using a port other than port 80, enter the IIS port.

➤ **Specifying 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 Availability Center sends. Accept the default name, **HP_BAC_Alert_Manager**, or enter another sender name.

3 Create the management, CMDB, and CMDB history databases and connect to them. For details, see "Setting Database Parameters on a Windows Platform" on page 159.

Note:

➤ If deploying a distributed server architecture, install additional HP Business Availability Center 8.00 servers using the above steps.

➤ If deploying a service pack, install the service pack before creating or connecting to the databases.

Starting and Stopping HP Business Availability Center

After completing HP Business Availability Center 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 8.00 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 management, CMDB, and CMDB history databases, you launch HP Business Availability Center on each server machine.

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

Select **Start** > **Programs** > **HP Business Availability Center** > **Administration** > **Enable Business Availability Center**.

You can now open and work in HP Business Availability Center.

To stop HP Business Availability Center:

Select **Start** > **Programs** > **HP Business Availability Center** > **Administration** > **Disable Business Availability Center**.

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

Post-Installation Tasks

This section contains the following post-installation tasks:

➤ "Checking Components" on page 152

➤ "Reserving Ports" on page 153

➤ "Disabling Anti-Virus Scans" on page 153

➤ "Ensuring All Processes Started Properly" on page 153

➤ "Viewing System Health" on page 154

➤ "Updating Daylight Savings Time for Data Collectors" on page 154

➤ "Checking Installation Log Files" on page 157

➤ "Troubleshooting" on page 157

Checking Components

After installation, you can check which HP Business Availability Center components are installed on an HP Business Availability Center server machine by doing the following:

 1 Open the **<HP Business Availability Center 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 Availability Center, 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 Availability Center. 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 Availability Center:

Double-click the following file: **<HP Business Availability Center 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 Availability Center root directory>**. Running anti-virus software on this directory could disrupt HP Business Availability Center.

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** > **HPBAC** > **Administration** > **HP BAC Server Status**.

Viewing System Health

HP Business Availability Center's System Health enables you to monitor the performance of the servers, databases, and data collectors running on your HP Business Availability Center system and ensure that they are functioning properly. It is recommended that you enable System Health after you deploy HP Business Availability Center servers. For details on deploying and accessing System Health, see "System Health – Overview" in *Platform Administration*.
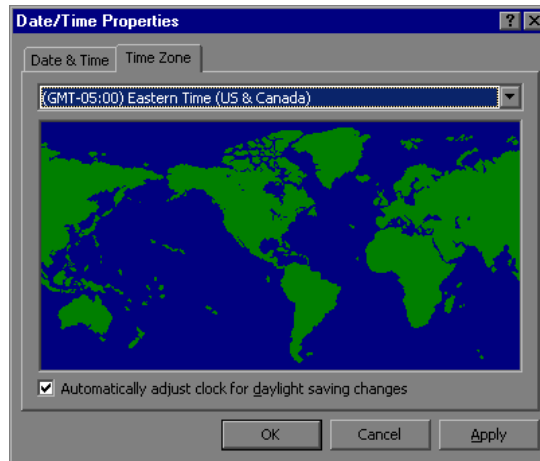
Updating Daylight Savings Time for Data Collectors

Updating of Real User Monitors and SiteScopes is not required, however it is recommended that you update the operating system for these data collectors, as described in "Updating the Operating System" on page 155.

Business Process Monitor

➤ It is recommended that you update both the operating system and the JRE for all Business Process Monitor machines. For details on updating the operating system, see "Updating the Operating System" on page 155. If you decide to update the JRE for Business Process Monitor, note that the Business Process Monitor supplied with HP Business Availability Center 8.00 (available from the Downloads page) uses the "non-updated" JRE and should be updated.

➤ Although updating the JRE is optional, note that if you do not update it, the Business Process Monitor Admin GUI may show times that are offset by one hour.

➤ Updating the operating system for Business Process Monitor machines that are set to **Automatically adjust clock for daylight saving changes** is mandatory.

Updating the Operating System

For information on updating your operating system, consult the following links:

Microsoft Windows

➤ Microsoft Windows update: http://support.microsoft.com/kb/928388/

➤ General Information:
http://www.microsoft.com/windows/timezone/dst2007.mspx

SUN Solaris

➤ SUN Solaris update:
http://sunsolve.sun.com/search/document.do?assetkey=1-26-102775-1

➤ General Information:
http://www.sun.com/bigadmin/features/techtips/dst_changes.html
http://java.sun.com/developer/technicalArticles/Intl/USDST/

Redhat Linux

➤ Redhat Linux update: http://kbase.redhat.com/faq/docs/DOC-10868

Updating the JRE for Business Process Monitor

If you choose to update the JRE on the Business Process Monitor, follow the procedure(s) below.

To determine whether a JRE update is necessary:

1 Insert the HP Business Availability Center DVD into the drive of the Business Process Monitor whose JRE you want to update.

2 Navigate to the **Windows_Setup** or **Solaris_Setup** directory on the DVD.

3 Copy the **tzupdater.jar** file to the **<Business Process Monitor root directory>\JRE\bin** directory.

4 Open a Command Prompt window (DOS shell).

5 Change the directory to the following: **<Business Process Monitor root directory>\JRE\bin**

6 Run the following command to check whether the update is required:
java -jar tzupdater.jar -t

If an update is required, the command will return a long list of messages. If nothing is returned, no further action is necessary.

To update the JRE on the Business Process Monitor:

1 Stop the Business Process Monitor service.

2 Close all Business Process Monitor Admin windows.

3 Run the following command to install the patch:
java -jar tzupdater.jar -u -bc

4 Verify that the patch has been correctly applied. Run the same command specified in step 6 of the above procedure. If nothing is returned, the patch has been successfully applied.

5 Restart the Business Process Monitor service.

Note: For more information about the JRE update, see:
http://java.sun.com/javase/tzupdater_README.html

Checking Installation Log Files

Two installation log files are located in **\Documents and Settings\
<HP Business Availability Center user>\LocalSettings\Temp\Mercury.**

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

➤ **<product name><date and time>.install.html**

➤ **<product name><date and time>.install.is.log**

For example: **HP_Business_Availability_Center.10.31.18.05.install.is.log**

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 Availability Center 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 Availability
Center package.

➤ **Chapter 19, "Installation and Connectivity Troubleshooting."** This chapter
lists installation and connectivity problems and solutions.

12

Setting Database Parameters on a Windows Platform

This chapter describes how to configure management, CMDB, and CMDB history database parameters on a Windows platform.

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

This chapter includes:

Overview of Setting Database Parameters

The Server and Database Configuration utility enables you to create and connect to the management, CMDB, and CMDB history databases/user schemas for HP Business Availability Center on MS SQL Server or Oracle Server.

You can run the Server and Database Configuration utility as part of HP Business Availability Center server installation (described in "Installing HP Business Availability Center Servers on a Windows Platform" on page 141) by continuing with the second stage of Setup for setting management, CMDB, and CMDB history database parameters. 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 165.

If, at a later time, you want to modify the management, CMDB, or CMDB history database type or connection parameters, you can run the Server and Database Configuration utility again. After modifying database type or connection parameters, restart all HP Business Availability Center servers and data collectors.

Note: Modifying connection parameters for the management, CMDB, and CMDB history databases after HP Business Availability Center is up and running may cause serious data loss and integrity problems.

Before beginning the procedure for creating and/or connecting to the management, CMDB, and CMDB history databases, it is recommended that you review "Setting Database Parameters" on page 161 and "Required Information for Setting Database Parameters" on page 163.

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

Setting Database Parameters

Setting the management, CMDB, and CMDB history database parameters involves:

➤ selecting the type of database you plan to use— MS SQL Server or Oracle Server

➤ creating the database on MS SQL Server, or user schema on Oracle Server. See "Creating Databases" on page 161.

➤ specifying the connection parameters to the database or user schema. See "Connecting to Existing Databases" on page 162.

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

Creating Databases

You can either use the Server and Database Configuration utility to create the management, CMDB, and CMDB history databases/user schemas 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 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 2000 Databases" or "Creating and Configuring Microsoft SQL Server 2005 Databases" in the *HP Business Availability Center 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 Availability Center Database Guide* PDF.

Note: Each database/user schema created in HP Business Availability Center (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. In the case of the CMDB database, you can also choose to connect to an external CMDB database if you already have a CMDB server set up as part of another HP product installation.

Note: Connecting to an external CMDB database can take some time, depending on your network environment and hardware.

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 Availability Center servers subsequent to the first server in a distributed HP Business Availability Center deployment. In this case, you connect to the databases/user schemas that you created during the installation of the first server by specifying the same connection parameters that you set during the installation of the first server. Note that once you have connected to the management database, the connection parameters for the CMDB and CMDB history databases appear by default in the appropriate screens of the Server and Database Configuration utility.

For information on implementing a distributed deployment of HP Business Availability Center, see "Deployment Configuration" on page 79.

Required Information for Setting Database Parameters

Before setting management, CMDB, and CMDB history database parameters, you should prepare the information described in the following sections.

Deploying 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>

➤ **Port.** The MS SQL Server's TCP/IP port. HP Business Availability Center automatically displays the default port, **1433**. If you connect to a non-default instance in static mode, if the default instance listens to a port other than 1433, or if you connect to a non-default instance in dynamic mode, change the port number to **1434**.

➤ **Database name.** The name of the existing database, or the name that you will give your new database (for example, BAC_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 Availability Center service has the necessary permissions to access the MS SQL Server database. For information on assigning a Windows user to run the HP Business Availability Center service, see "Changing the HP Business Availability Center Service User" on page 331. 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 Availability Center Database Guide* PDF.

Deploying Oracle Server

Before setting management, CMDB, and CMDB history 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 Availability Center user schemas, see "Oracle Server Configuration and Sizing Guidelines" in the *HP Business Availability Center Database Guide* PDF.

You need the following information for both creating a new user schema and connecting to an existing one:

➤ **Host name.** The name of the host machine on which Oracle Server is installed.

➤ **Port.** The Oracle listener port. HP Business Availability Center automatically displays the default port, **1521**.

➤ **SID.** The Oracle instance name that uniquely identifies the Oracle database instance being used by HP Business Availability Center.

➤ **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, BAC_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 Availability Center Setup program or separately from the Setup program. If you run the Server and Database Configuration utility separately from HP Business Availability Center server Setup, note the following important points:

➤ If the command prompt window is open on the HP Business Availability Center server machine, you must close it before continuing with the Server and Database Configuration utility.

➤ It is advisable to disable HP Business Availability Center on the HP Business Availability Center server machine before running the Server and Database Configuration utility.

➤ 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 Availability Center Setup, choose to create a new database/user schema or to connect to an existing one. HP Business Availability Center launches the Server and Database Configuration utility as a continuation of the HP Business Availability Center Setup program.

➤ On the HP Business Availability Center server machine, select **Start** > **Programs** > **HP Business Availability Center** > **Administration** > **Connect to Database**. HP Business Availability Center launches the Server and Database Configuration utility.

2 Follow the on-screen instructions for setting the management, CMDB, and CMDB history database parameters.

3 If you ran the Server and Database Configuration utility as part of HP Business Availability Center server installation, you must start HP Business Availability Center on the server only after successfully setting the parameters for all the databases. For details, see "Starting and Stopping HP Business Availability Center" on page 151.

If you ran the Server and Database Configuration utility to modify the previously defined database types or connection parameters, restart all HP Business Availability Center servers and data collectors after successfully completing the parameter modification process.

13

Installing Component Setup Files

This chapter describes how to install component setup files to the HP Business Availability Center Downloads page on a Windows platform.

This chapter includes:

➤ Overview of Installing Component Setup Files on page 167

➤ Installing Component Setup Files on page 168

➤ Available Components and Setup Files - Windows on page 170

Overview of Installing Component Setup Files

The component setup files are used to install the components used by HP Business Availability Center. The component setup files are not installed as part of the basic HP Business Availability Center 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 Availability Center DVDs and must be installed separately to the HP Business Availability Center Downloads page. The component setup files can then be downloaded from HP Business Availability Center and used when required. For details on working with the HP Business Availability Center Downloads page, see "Downloads Overview" in *Platform Administration*.

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

➤ Business Process Monitor, Dashboard Ticker, Discovery Probe, Real User Monitor, SiteScope, and Widgets (included in Main Setup DVD)

➤ Business Process Insight, Diagnostics, and TransactionVision (included in Additional Products DVD)

You must run both DVDs to enable downloading all the HP Business Availability Center 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 Availability Center 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 Availability Center 8.00.

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 Availability Center root directory>\AppServer\webapps\ site.war\admin\install** directory on the HP Business Availability Center Gateway Server. If required, create the **admin\install** directory structure.

For a list of available components, see "Available Components and Setup Files - Windows" on page 170.

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

1 Insert the HP Business Availability Center DVD into the drive of the HP Business Availability Center Gateway Server on which you want to copy the component setup files. For details on which component setup files are available, see "Available Components and Setup Files - Windows" on page 170.

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.

Available Components and Setup Files - Windows

The table below lists the components available for installation and the name of the setup program used to directly install each component.

Note: If you are installing a service pack version, the number in the file name reflects the version number you are installing. For example, when installing Business Process Insight for version 8.02, the file name is HPBPI_v8.02_win.exe.

Component	Description	FIle Name
Business Process Insight		
HP Business Process Insight 8.00 (Windows)	Install on server machine designated to run HP Business Process Insight.	HPBPI_v8.00_win.exe
HP Business Process Insight 8.00 Accelerator for SAP (Windows)	Install on designated SAP Server to obtain SAP business data.	HPBPISap_v8.00_win.msi
HP Business Process Insight 8.00 Accelerator for SAP (HP-UX)	Install on designated SAP Server to obtain SAP business data.	HPBPISap_v8.00_HPUX.gz
Business Process Monitor		
HP Business Process Monitor (Windows)	Install on host machines designated to run scripts and generate application performance data.	HPBPM_v8.02_win.exe

Component	Description	File Name
HP Business Process Monitor (Solaris)	Install on host machines designated to run scripts and generate application performance data.	HPBPM_8.02_solv4.tar.gz
HP Virtual User Generator	Install on machines of staff who create scripts that emulate typical user activity on Web-based or non-Web-based applications.	VUGen.exe
Microsoft Visual C++ 2005 Redistributable Package (x86)	Install on HP Business Process Monitor machines to enable running scripts that use Microsoft Visual C++ 2005.	vcredist_x86.exe
Microsoft XML core services (MSXML) 6	Install on HP Business Process Monitor machines to enable running scripts that use Microsoft XML core services (MSXML) 6.	msxml6.msi
Web Services Enhancements (WSE) 2.0 SP3 Runtime for Microsoft. NET	Install on HP Business Process Monitor machines to enable running scripts that use Microsoft .NET Web Services.	Microsoft WSE 2.0 SP3 Runtime.msi
Web Services Enhancements (WSE) 3.0 for Microsoft .NET	Install on HP Business Process Monitor machines to enable running scripts that use Microsoft .NET Web Services.	Microsoft WSE 3.0 Runtime.msi

Component	Description	FIle Name
Microsoft .NET framework 2.0	Install on HP Business Process Monitor machines to enable running scripts that use Microsoft .NET Web Services.	dotnetfx.exe
Dashboard Ticker		
HP Dashboard Ticker	Install on any machine on which you want to get real-time data notification. **Note**: The Dashboard Ticker 7.50 is compatible with Business Availability Center version 8.00 and is what should be used for version 8.00.	HPDashboardTicker_v7.5_win.msi
Diagnostics		
HP Diagnostics Server for Linux	Install on machine that will serve as a Diagnostics Server.	DiagnosticsServerSetupLinux_8_00.bin
HP Diagnostics Server for HP-UX PA	Install on machine that will serve as a Diagnostics Server.	DiagnosticsServerSetupHP11x_8_00.bin
HP Diagnostics Server for Windows 2000/2003/XP	Install on machine that will serve as a Diagnostics Server.	DiagnosticsServerSetupWin_8_00.exe
HP Diagnostics Server for Solaris	Install on machine that will serve as a Diagnostics Server.	DiagnosticsServerSetupSolaris_8_00.bin

Component	Description	FIle Name
HP Diagnostics Collector for HP-UX PA	Install on machines designated to collect data from SAP R/3, Oracle, SQL Server and MQ systems.	CollectorSetupHP11_8_00.bin
HP Diagnostics Collector for Windows 2000/2003/XP	Install on machines designated to collect data from SAP R/3, Oracle, SQL Server and MQ systems.	CollectorSetupWin_8_00.exe
HP Diagnostics Collector for HP-UX IA	Install on machines designated to collect data from SAP R/3, Oracle, SQL Server and MQ systems.	CollectorSetupHPIA64_8_00.bin
HP Diagnostics Collector for Linux	Install on machines designated to collect data from SAP R/3, Oracle, SQL Server and MQ systems.	CollectorSetupLinux_8_00.bin
HP Diagnostics Collector for Solaris	Install on machines designated to collect data from SAP R/3, Oracle, SQL Server and MQ systems.	CollectorSetupSolaris_8_00.bin
HP Diagnostics/Transaction Vision Agent for Java for UNIX	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentInstall.tar.gz
HP Diagnostics/Transaction Vision Agent for Java for Windows x86	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetup_win_8_00.exe

Component	Description	File Name
HP Diagnostics/Transaction Vision Agent for Java for zOS	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentInstall_zOS.tar.gz
HP Diagnostics/Transaction Vision Agent for Java for IBM-AIX	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetup_ibm_8_00.bin
HP Diagnostics/Transaction Vision Agent for Java for Linux	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetup_linux_8_00.bin
HP Diagnostics/Transaction Vision Agent for Java for Solaris	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetup_sol_8_00.bin
HP Diagnostics/Transaction Vision Agent for Java for HPUX PA	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetup_hp11x_8_00.bin
HP Diagnostics/Transaction Vision Agent for Java for HPUX IA	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetupHPIA64_8_00.bin
HP Diagnostics/Transaction Vision Agent for .NET for Windows 64-bit	Install on Java application server machines designated to collect Diagnostics data.	DotNetAgentSetup_x64_8_00.msi
HP Diagnostics/Transaction Vision Agent for .NET for Windows 32-bit	Install on Java application server machines designated to collect Diagnostics data.	DotNetAgentSetup_x86_8_00.msi

Component	Description	FIle Name
Discovery Probe		
Auto Discovery Probe For Windows 2000/2003/XP	Install on host machines designated to run HP Discovery and Dependency Mapping Probe.	HPDiscoveryProbe_v80_win32.exe
Real User Monitor		
HP Real User Monitor Engine	Install on Windows machines to monitor real user activity.	HPRUM_v8.0_win.exe
HP Real User Monitor Probe	Install on host machines designated as probes, to listen to real end-user traffic on the network.	HPRUMProbe_v8.0_linux.bin
SiteScope		
SiteScope for Windows 2000/2003/XP	Install on host machines designated to run SiteScope monitors and collect infrastructure machine data.	HPSiteScope_v10.0_win.exe
SiteScope for Solaris	Install on host machines designated to run SiteScope monitors and collect infrastructure machine data.	HPSiteScope_v10.0_solaris.bin
SiteScope Linux	Install on host machines designated to run SiteScope monitors and collect infrastructure machine data.	HPSiteScope_v10.0_linux.bin

Component	Description	FIle Name
TransactionVision		
HP TransactionVision Analyzer for Windows x86-64	Install on Windows systems designated to run TransactionVision Analyzer and/or Web User Interface.	tvalzr_800_win.exe
HP TransactionVision Analyzer for AIX POWER	Install on systems designated to run TransactionVision Analyzer.	tvalzr_800_aix_power.tar.gz
HP TransactionVision Analyzer for RedHat Enterprise Linux x86-64	Install on systems designated to run TransactionVision Analyzer.	tvalzr_800_linux_x86.tar.gz
HP TransactionVision Analyzer for Solaris SPARC	Install on systems designated to run TransactionVision Analyzer.	tvalzr_800_sol_sparc.tar.gz
HP TransactionVision TMF Agent for NonStop Guardian	Install on systems designated to collect events from TMF Agent.	tvtmf_800_nonstop_guardian.zip
HP TransactionVision Tuxedo Agent for AIX POWER	Install on systems designated to collect events from Tuxedo Agent.	tvtux_800_aix_power.tar.gz
HP TransactionVision Tuxedo Agent for HP-UX PA-RISC	Install on systems designated to collect events from Tuxedo Agent.	tvtux_800_hpux_parisc.tar.gz
HP TransactionVision Tuxedo Agent for Solaris SPARC	Install on systems designated to collect events from Tuxedo Agent.	tvtux_800_sol_sparc.tar.gz

Component	Description	File Name
HP TransactionVision WMQ Agent for AIX POWER	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_aix_power.tar.gz
HP TransactionVision WMQ Agent for RedHat Enterprise Linux x86	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_linux_x86.tar.gz
HP TransactionVision WMQ Agent for Solaris SPARC	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_sol_sparc.tar.gz
HP TransactionVision WMQ Agent for HP-UX PA-RISC	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_hpux_parisc.tar.gz
HP TransactionVision WMQ Agent for HP-UX Itanium	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_hpux_ia64.tar.gz
HP TransactionVision WMQ Agent for i5/OS (OS/400) iSeries	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_i5os_iseries.savf
HP TransactionVision WMQ and User Event Agents for Windows x86	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmque_800_win.exe
HP TransactionVision User Event Agent for AIX POWER	Install on systems designated to collect user-defined events.	tvue_800_aix_power.tar.gz
HP TransactionVision User Event Agent for RedHat Enterprise Linux x86	Install on systems designated to collect user-defined events.	tvue_800_linux_x86.tar.gz

Component	Description	File Name
HP TransactionVision User Event Agent for Solaris SPARC	Install on systems designated to collect user-defined events.	tvue_800_sol_sparc.tar.gz
HP TransactionVision UI/Job Server for Windows x86-64	Install on systems designated to collect user-defined events.	tvuijs_800_win.exe
HP TransactionVision UI/Job Server for Solaris SPARC	Install on systems designated to collect user-defined events.	tvuijs_800_sol_sparc.tar.gz
HP TransactionVision Agent for CICS, WMQ Batch, and WMQ IMS on z/OS	Install the sld f2 data set on z/OS systems designated to collect CICS, WMQ Batch or WMQ IMS events.	tvsld_800_zos_zseries.zip
HP TransactionVision Agent for WMQ CICS and WMQ-IMS Bridge on z/OS - f1 data set	Install on z/OS systems designated to collect WMQ CICS and/or WMQ-IMS Bridge events.	tvslm_800_zos_zseries.zip
HP Discovery Agent for z/OS	Install on z/OS systems designated for Discovery Agent	dsslr_800_zos_zseries.zip
Widgets		
HP Dashboard Widget	Install on client machine in My Widgets sub directory (must be created) in My Documents directory	HPDashWidget_v1.0_win.zip

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Uninstalling HP Business Availability Center Servers on a Windows Platform

This chapter describes how to completely uninstall HP Business Availability Center servers.

This chapter includes:

➤ Complete Uninstall on page 179

Complete Uninstall

Use the procedure below to completely uninstall HP Business Availability Center.

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

To completely uninstall HP Business Availability Center servers:

1 On the machine from which you are uninstalling HP Business Availability Center, select **Start** > **Settings** > **Control Panel** > **Add/Remove Programs**. Select **HP Business Availability Center**. (If there are additional entries or child entries, for example, **HP Business Availability Center 8.00**, do not select them). Click **Change/Remove** and follow the on-screen instructions.

2 Click **Yes** when asked to delete the HP Business Availability Center directory and then click **Next**.

 3 Restart the server machine.

 4 If you are running HP Business Availability Center 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

 ➤ Jakarta

 ➤ mam_images

 ➤ HPBAC

 ➤ MercuryAM

 ➤ 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 Availability Center 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 231.

---

5 Access the Windows Registry Editor by selecting **Start** > **Run**. Enter **Regedit** and delete the HP Business Availability Center root registry keys from the following paths:

➤ **HKEY_CURRENT_USER\software\Mercury Interactive\Topaz**

➤ **HKEY_LOCAL_MACHINE\SOFTWARE\Mercury Interactive\Topaz**

➤ **HKEY_LOCAL_MACHINE\SOFTWARE\Mercury Interactive\AM**

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

Part V

HP Business Availability Center Server Installation for Solaris

15

Installing HP Business Availability Center Servers on a Solaris Platform

This chapter describes how to install HP Business Availability Center servers on a Solaris platform.

This chapter includes:

➤ Overview of HP Business Availability Center Server Installation on page 186

➤ Features Included in HP Business Availability Center Server Installation on page 187

➤ Preparing Information Required for Installation on page 188

➤ Installation Prerequisites on page 189

➤ Working with the Web Server on page 192

➤ Installing HP Business Availability Center Servers on page 195

➤ Starting and Stopping HP Business Availability Center on page 198

➤ Post-Installation Tasks on page 200

Note: If you are installing a service pack, be sure to follow the installation instructions for that service pack in the Business Availability Center Readme file. Before beginning the installation, review the information in the Readme file for any last minute notes and limitations for the service pack. Failure to follow procedures listed in the Readme could result in unexpected data loss or failure of the installation process.

Overview of HP Business Availability Center Server Installation

There are several stages to the HP Business Availability Center 8.00 server installation:

1 Installing HP Business Availability Center 8.00 as described in "Installing HP Business Availability Center Servers" on page 195.

2 Setting the management, CMDB, and CMDB history databases by specifying the database type and connection parameters for each database, as described in "Setting User Schema Parameters on a Solaris Platform" on page 205.

3 Installing component setup files in the HP Business Availability Center Downloads page, as described in "Installing Component Setup Files" on page 213.

The server Setup program gives you the option of installing both of the HP Business Availability Center servers on one machine (referred to as an HP Business Availability Center box), or installing only one of the servers on the machine. For details on the different deployment configurations that are possible, see "Deployment Configuration" on page 79.

Features Included in HP Business Availability Center Server Installation

Component	Description
Gateway Server	The Gateway Server is responsible for the following: ➤ running the HP Business Availability Center applications ➤ reporting ➤ operating the Administration Console ➤ receiving data samples from the data collectors ➤ distributing data to the relevant HP Business Availability Center components ➤ supporting the Bus
Data Processing Server	The Data Processing Server is responsible for aggregating and partitioning data, running the Business Logic Engines, and controlling the HP Universal CMDB-related services. When you choose to install the Data Processing Server as part of a custom installation, you select the type (**All**, **Modeling**, **Online**, or **Offline**) of Data Processing Server to install. For further details on the services run by the Data Processing Servers, see "Services Assigned to the Data Processing Server" on page 96.

Note: Other servers and components are automatically installed during HP Business Availability Center server installation. For details, see "Deploying HP Business Availability Center Servers" on page 44.

Preparing Information Required for Installation

Have the following information ready before installation:

➤ **Maintenance number.** This is the number you received with your HP Business Availability Center package.

➤ **Path to Sun Java System Web Server configuration directory**. This is needed only if you are using a Sun Java System Web Server and want HP Business Availability Center to automatically configure the Web server settings. The following are examples of the path:

   ➤ **<Sun Java System Web Server root directory>\<Web server name>\config**

   ➤ **<Sun Java System Web Server root directory>\servers\<Web server name>\config**

➤ **Web server name.** This name must also include the domain name.

➤ **Administrator's e-mail address.**

➤ **Application user and group name.** This user runs the HP Business Availability Center application and owns the files in **<HP Business Availability Center root directory>**. The user and group can be defined by the administrator or by the Setup utility during installation.

Note: It is recommended to create the user before installing HP Business Availability Center rather than using the Setup utility. You then provide this user name during both HP Business Availability Center and Sun Java System Web Server installations.

➤ **SMTP mail server name.**

➤ **SMTP sender name.** This name appears on alerts sent from HP Business Availability Center.

➤ **Name of the Gateway Server machine.**

➤ **Name of the load balancer** (if any). This is the load balancer used to access the HP Business Availability Center site.

➤ **Path to the Oracle Client home**.

➤ **Port number used by the Web server.** The default port is 80.

➤ **Information for setting the management, CMDB, and CMDB history database parameters**. If you plan to set these database connection parameters during Setup, see "Required Information for Setting User Schema Parameters" on page 209.

Installation Prerequisites

Note the following before installing HP Business Availability Center servers:

➤ It is recommended that you install HP Business Availability Center servers to a drive with at least 10 GB of free disk space. For more details on server system requirements, see "Reviewing System Requirements" on page 53.

➤ If you are going to use the Sun Java System Web Server and it was previously installed by a user other than the HP Business Availability Center user, reinstall it as the HP Business Availability Center user.

➤ If HP Business Availability Center 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 Availability Center application and can result in performance and stability issues. For more information, contact HP Software Support.

➤ Installing HP Business Availability Center servers together with most other HP products on the same physical machine may result in port conflicts, performance issues, or other unexpected behavior. The coexistence of HP Business Availability Center servers with HP SiteScope or HP Operations Manager agent has been tested and is supported.

➤ You must install the latest recommended Patch Cluster for the Solaris operating system version on each HP Business Availability Center server machine. Patch Cluster installation can take several hours. The Patch Cluster can be accessed from SunSolve. After installing the patches, restart the server machine.

➤ HP Business Availability Center servers must not be installed on a drive that is mapped to a network resource.

➤ During installation, custom configuration data from any previous installation on the server machine is overwritten. If you have customized configuration data that you want reapplied after the new installation, make a list of the changes.

➤ The following files must be on each HP Business Availability Center server machine. If these files are missing, the installation may fail:

  ➤ **/usr/xpg4/bin/id**

  ➤ **/usr/openwin/bin/xdpyinfo**

➤ Due to certain Web browser limitations, the names of server machines running the Gateway Server must only consist of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). For example, if the names of the machines running the Gateway Server contain underscores, it may not be possible to log in to the HP Business Availability Center site. To access the HP Business Availability Center site in this case, use the machine's IP address instead of the machine name containing the underscore.

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

➤ You must be a root user to install HP Business Availability Center on the server machine.

➤ If you plan to install in UI (graphical user interface) mode, the **DISPLAY** environment variable must be properly configured on the HP Business Availability Center server machine. The machine from which you are installing must be running an X-Server.

➤ Apache HTTP Server and Sun Java System Web Server cannot run simultaneously on the same server. One of the Web servers must be stopped.

For example, if you choose to use Apache HTTP Server and you are installing on a machine with Sun Java System Web Server running, stop the Sun Java System service before installation. Also, be sure that Sun Java System Web Server will not automatically start on reboot.

➤ If you plan to install Apache HTTP Server, you must install the following packages in the **/usr/local/lib/** directory on the installation machine:

Package	Download Site	Name of Binary to Download
expat version 2.0.1	http://www.sunfreeware.com/ programlistsparc<version of Solaris operating system>. html#expat For example: http://www.sunfreeware.com/ programlistsparc9.html#expat (example of version 9 used for all packages listed here)	expat-2.0.1-sol<version of Solaris operating system>-sparc-local.gz For example: expat-2.0.1-sol9-sparc-local.gz (example of version 9 used for all packages listed here)
libiconv version 1.11	http://www.sunfreeware.com/ programlistsparc9.html #libiconv	libiconv-1.11-sol9-sparc-local.gz
aprutil version 1.2.2	http://www.sunfreeware.com/p rogramlistsparc9.html#aprutil	aprutil-1.2.2-sol9-sparc-local.gz
db version 4.2.52.NC	http://www.sunfreeware.com/p rogramlistsparc9.html#db4	db-4.2.52.NC-sol9-sparc-local.gz
gdbm version 1.8.3	http://www.sunfreeware.com/p rogramlistsparc9.html#gdbm	gdbm-1.8.3-sol9-sparc-local.gz
openssl version 0.9.8k	http://www.sunfreeware.com/p rogramlistsparc9.html#openssl 098	openssl-0.9.8k-sol9-sparc-local.gz
libgcc version 3.4.6	http://www.sunfreeware.com/p rogramlistsparc9.html#libgcc34	libgcc-3.4.6-sol9-sparc-local.gz
slang version 2.1.4	http://www.sunfreeware.com/p rogramlistsparc9.html#slang	slang-2.1.4-sol9-sparc-local.gz

The download site for each package corresponds to the version of Solaris operating system on the installation machine.

Working with the Web Server

HP Business Availability Center installed on a Solaris platform works with Apache HTTP Server or Sun Java System Web Server.

Note: There must only be one running Web server on an HP Business Availability Center server machine.

Apache HTTP Server

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

HP Business Availability Center runs its Apache HTTP Server, by default, through port 80. If port 80 is already in use, there are two ways to resolve the port conflict:

➤ Before beginning HP Business Availability Center installation, reconfigure the service using that port to use a different port.

➤ During HP Business Availability Center installation, select a different port for the Apache HTTP Server.

Edit the **<HP Business Availability Center root directory>\conf\ core\WebPlatform\webserver_guard.conf** file and add the following line:

```
webserver_port=<new 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 Availability Center, as configured in the Apache configuration file (**httpd.conf** and **httpd-ssl.conf**).

Sun Java System Web Server

The Sun Java System Web Server is not included in the HP Business Availability Center installation. If you plan to run HP Business Availability Center using this Web Server, there are two requirements:

➤ It must be installed on all server machines before installing the HP Business Availability Center servers.

➤ It must be installed to run with the HP Business Availability Center user and group so that the same permissions apply.

During Setup, choose the **typical** installation procedure. You must specify the Sun Java System Web Server configuration path so that HP Business Availability Center can automatically configure the Sun Java System Web Server settings.

If Sun Java System Web Server does not use the default port of 80, edit the **<HP Business Availability Center root directory>\conf\core\ WebPlatform\webserver_guard.conf** file and add the following line:

```
webserver_port=<new port>
```

After completing the installation, HP Business Availability Center restarts the Web Server so that the configuration changes can take effect.

Web Server files are found in the following directories:

➤ **<Sun Java System Web Server root directory>/https-<machine name>/config/**

➤ **<Sun Java System Web Server root directory>/httpacl/**

HP Business Availability Center changes the following Sun Java System Web Server files:

Web Server File Name	Change
obj.conf	➤ Adds virtual directories ➤ Adds Web Server extensions (Tomcat redirector, HP extension)
magnus.conf	➤ Adds virtual directories ➤ Adds Web Server extensions (Tomcat redirector, HP extension) ➤ Sets the threads number on the threads pool and cancels multi-process mode if set
mime.types	➤ Provides additional definitions of file extensions
start	➤ Sets new environment variables ➤ Sets descriptors number limit
generated.https-<machine name>.acl	➤ Adds virtual directories ➤ Adds Web Server extensions (Tomcat redirector, HP extension)

The original files are saved under the name **<original file name>.j2f.bck**.

Installing HP Business Availability Center Servers

You install HP Business Availability Center 8.00 servers—the Gateway Server and Data Processing Server—from the HP Business Availability Center DVD provided with the HP Business Availability Center distribution package.

The only supported installation method is to mount the HP Business Availability Center DVD on a Solaris machine with a DVD device. You can then either install directly from the DVD or copy the files to a directory on a Solaris machine and install from there. Copying files from a Windows operating system to a Solaris operating system may cause loss of files during installation.

There are two installation modes:

➤ **Console mode installation.** This is the recommended mode. It enables you to install via the terminal command line in text format.

➤ **UI mode installation.** UI mode enables you to install HP Business Availability Center servers using graphical user interface functionality. You cannot install HP Business Availability Center servers in UI mode using MS-DOS Telnet or any kind of serial console connection.

After each stage of the installation process (or after each dialog box in UI mode), you have the option to continue to the next stage or move back to the previous stage.

Note: It is recommended that you do not use **Exceed** to install HP Business Availability Center in UI mode. Installing via **Exceed** may slow the pace of the installation and may adversely affect the appearance and functionality of the GUI. If you are installing via **Exceed**, use the console mode.

To install HP Business Availability Center servers:

1 Log in to the server as user **root**.

2 Insert the HP Business Availability Center DVD into the drive from which you want to install. If you are installing from a network drive, mount the DVD.

3 Move to the **Solaris_Setup** directory of the DVD drive.

4 Run one of the following scripts:

➤ To install in UI mode:

```
./solv4_setup.bin
```

➤ To install in console mode:

```
./solv4_setup.bin -console
```

Select options by entering the option number. The selected option is marked with an [X].

5 The installation begins. Follow the on-screen instructions for server installation. Note the following during the server installation stage:

➤ **Selecting the setup type:**

➤ Select **Typical** to install both the Gateway Server and Data Processing Server on the same machine.

➤ Select **Custom** to select the HP Business Availability Center features to be installed on the machine.

➤ **Setting connection settings:**

➤ **Apache HTTP Server.** If port 80 (default port) is already in use, HP Business Availability Center notifies you of this.

➤ **Sun Java System Web Server.** If using a port other than port 80 (default port), enter the port number.

➤ **Specifying user and group:**

If either the user or group that you specify are not found, choose one of the following options:

➤ **Exit installation.** Exits Setup so that you can create the user/group, and run Setup again.

➤ **Select a new user/group.** Enables you to enter a new user and/or group.

➤ **Allow Setup to create the user/group.** Setup creates a user and/or group on the local host.

➤ **Specifying 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 Availability Center sends. Accept the default name, **HP_BAC_Alert_Manager**, or type another sender name.

6 Create the management, CMDB, and CMDB history databases and connect to them. For details, see "Setting User Schema Parameters on a Solaris Platform" on page 205.

Note:

➤ If deploying a distributed server architecture, install additional 8.00 servers using the above steps.

➤ If deploying a service pack, install the service pack before connecting to the schemas.

Starting and Stopping HP Business Availability Center

If you are using Sun Java System Web Server, HP Business Availability Center restarts the Web Server at the end of installation in order for the configuration changes to take effect.

After successfully installing the 8.00 servers (either together on one machine, or each server type in a distributed deployment) and connecting the server machines to the management, CMDB, and CMDB history databases, you launch HP Business Availability Center on each server machine.

To start HP Business Availability Center:

1 Log in to the server as user **topaz**. This is the user that is automatically created during installation.

2 Navigate to the **scripts** directory using the following command:

```
cd <HP Business Availability Center server root directory>/scripts/
```

3 Run the following script:

```
./run_topaz start
```

```
root@labm2sun08 [11:41] /opt/HPBAC/scripts#./run_topaz start
Setting NLS_LANG to AMERICAN_AMERICA.UTF8
starting X server...
/opt/HPBAC/X/runXvfb : Xvfb (no pid file) not running
/opt/HPBAC/X/runXvfb start: Xvfb started
starting Apache web server...
starting nanny...
*** WARNING!!! ORACLE_HOME environment variable is set incorrectly ! Topaz will not functi
on properly ! ***
/opt/HPBAC
root@labm2sun08 [11:41] /opt/HPBAC/scripts#Starting nannyManager...
```

You return to the command line prompt when the script has finished.

To access the HP Business Availability Center site, enter the HP Business Availability Center URL with the server machine name and the domain name. The domain was defined in the Web server configuration dialog box during HP Business Availability Center server Setup. For example, enter http://muffett.hp.com/topaz.

To stop HP Business Availability Center:

1 Log in to the server as user **root**.

2 Navigate to the **scripts** directory using the following command:

> cd <HP Business Availability Center server root directory>/scripts/

3 Run the following script:

> ./run_topaz stop

```
root@labm2sun09 [11:44] /opt/HPBAC/scripts#./run_topaz stop
Setting NLS_LANG to AMERICAN_AMERICA.UTF8
stopping X server...
/opt/HPBAC/X/runXvfb : Xvfb (no pid file) not running
stopping Apache web server...
./run_topaz: /opt/HPBAC/WebServer/bin/apache2stop.sh: not found
stopping nanny...
*** WARNING!!! ORACLE_HOME environment variable is set incorrectly ! Topaz will
not function properly ! ***
/opt/HPBAC
root@labm2sun09 [11:44] /opt/HPBAC/scripts#Stopping nannyManager...
```

You return to the command line prompt when the script has finished.

Post-Installation Tasks

This section contains the following post-installation tasks:

Checking Installation Log Files

Two installation log files are located in the HP Business Availability Center server root installation directory (the / directory). The log file names are in the following format:

➤ **<product name><date and time>.install.html**

➤ **<product name><date and time>.install.is.log**

For example: **HPBAC.10.31.18.05.install.is.log**

Checking Components

After installation, you can check which HP Business Availability Center components are installed on an HP Business Availability Center server machine in either of two ways:

➤ Open the **<HP Business Availability Center server root directory>/conf/ TopazSetup.ini** file. Check the [INSTALLED_SERVERS] section. For example, Data_Processing_Server=1 indicates that the Data Processing Server is installed on the machine.

➤ Enter the Solaris command at the prompt:

```
pkginfo -i | grep MERQ
```

Viewing System Health

HP Business Availability Center's System Health enables you to monitor the performance of the servers, databases, and data collectors running on your HP Business Availability Center system and ensure that they are functioning properly. It is recommended that you enable System Health after you deploy HP Business Availability Center servers. For details on deploying and accessing System Health, see "System Health – Overview" in *Platform Administration*.

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 Availability Center root directory>**. Running anti-virus software on this directory could disrupt HP Business Availability Center.

Updating Daylight Savings Time for Data Collectors

Updating of Real User Monitors and SiteScopes is not required, however it is recommended that you update the operating system for these data collectors, as described in "Updating the Operating System" on page 202.

Business Process Monitor

➤ It is recommended that you update both the operating system and the JRE for all Business Process Monitor machines. For details on updating the operating system, see "Updating the Operating System" on page 202. If you decide to update the JRE for Business Process Monitor, note that the Business Process Monitor supplied with HP Business Availability Center 8.00 (available from the Downloads page) uses the non-updated JRE and should be updated.

➤ Although updating the JRE is optional, note that if you do not update it, the Business Process Monitor Admin GUI may show times that are offset by one hour.

➤ Updating the operating system for Business Process Monitor machines that are set to **Automatically adjust clock for daylight saving changes** is mandatory.

Updating the Operating System

For information on updating your operating system, consult the following links:

Microsoft Windows

➤ Microsoft Windows update: http://support.microsoft.com/kb/928388/

➤ General Information:
http://www.microsoft.com/windows/timezone/dst2007.mspx

SUN Solaris

➤ SUN Solaris update:
http://sunsolve.sun.com/search/document.do?assetkey=1-26-102775-1

➤ General Information:
http://www.sun.com/bigadmin/features/techtips/dst_changes.html
http://java.sun.com/developer/technicalArticles/Intl/USDST/

Redhat Linux

➤ Redhat Linux update: http://kbase.redhat.com/faq/FAQ_80_7909.shtm

Updating the JRE for Business Process Monitor

If you choose to update the JRE on the Business Process Monitor, follow the procedure(s) below.

To determine whether a JRE update is necessary:

1 Insert the HP Business Availability Center DVD into the drive of the Business Process Monitor whose JRE you want to update.

2 Navigate to the **Windows_Setup** or **Solaris_Setup** directory on the DVD.

3 Copy the **tzupdater.jar** file to the **<Business Process Monitor root directory>\JRE\bin** directory.

4 Open a Command Prompt window (DOS shell).

5 Change the directory to the following: **<Business Process Monitor root directory>\JRE\bin**

6 Run the following command to check whether the update is required:
java -jar tzupdater.jar -t

If an update is required, the command will return a long list of messages. If nothing is returned, no further action is necessary.

To update the JRE on the Business Process Monitor:

1 Stop the Business Process Monitor service.

2 Close all Business Process Monitor Admin windows.

3 Run the following command to install the patch:
java -jar tzupdater.jar -u -bc

4 Verify that the patch has been correctly applied. Run the same command specified in step 6 of the above procedure. If nothing is returned, the patch has been successfully applied.

5 Restart the Business Process Monitor service.

> **Note:** For more information about the JRE update, see:
> http://java.sun.com/javase/tzupdater_README.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 Availability Center 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 Availability Center package.

➤ **Chapter 19, "Installation and Connectivity Troubleshooting."** This chapter lists installation and connectivity problems and solutions.

16

Setting User Schema Parameters on a Solaris Platform

This chapter describes how to configure management, CMDB, and CMDB history user schema parameters on a Solaris platform.

This chapter includes:

➤ Overview of Setting User Schema Parameters on page 205

➤ Setting User Schema Parameters on page 206

➤ Required Information for Setting User Schema Parameters on page 209

➤ Running the Server and Database Configuration Utility on page 210

Overview of Setting User Schema Parameters

The Server and Database Configuration utility enables you to create and connect to the management, CMDB, and CMDB history user schemas for HP Business Availability Center on Oracle Server.

You can run the Server and Database Configuration utility as part of HP Business Availability Center server installation (described in "Installing HP Business Availability Center Servers on a Solaris Platform" on page 185) by continuing with the second stage of Setup for setting management, CMDB, and CMDB history user schema parameters. 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 210.

If, at a later time, you want to modify the management, CMDB, or CMDB history user schema connection parameters, you can run the Server and Database Configuration utility again. After modifying connection parameters, restart all HP Business Availability Center servers and data collectors.

Note: Modifying connection parameters for the management, CMDB, and CMDB history user schemas after HP Business Availability Center is up and running may cause serious data loss and integrity problems.

Before beginning the procedure for creating and/or connecting to the management, CMDB, and CMDB history user schemas, it is recommended that you review "Setting User Schema Parameters" on page 206 and "Required Information for Setting User Schema Parameters" on page 209.

For detailed information on preparing Oracle Server in your system for use with HP Business Availability Center, see the *HP Business Availability Center Database Guide* PDF.

Setting User Schema Parameters

Setting the management, CMDB, and CMDB history user schema parameters involves:

➤ creating the user schema on Oracle Server. See "Creating User Schemas" on page 207.

➤ specifying the connection parameters to the user schema. See "Connecting to Existing User Schemas" on page 207.

Note: If you need to change an active management user schema for HP Business Availability Center, contact HP Software Support.

Creating User Schemas

You can either use the Server and Database Configuration utility to create the management, CMDB, and CMDB history user schemas for you, or you can create these user schemas manually, directly in Oracle Server (for example, if your organization does not allow the use of administrator credentials during Setup). If you created the user schemas manually, you run the Server and Database Configuration utility to connect to them.

For instructions on creating user schemas manually on Oracle Server, see "Setting Up the Database Environment" in the *HP Business Availability Center Database Guide* PDF.

Note:

➤ Each user schema created in HP Business Availability Center (whether on the same database server or on different database servers) must have a unique name.

➤ If you choose to create user schemas using the Server and Database Configuration utility, you must update the HP Business Availability Center license information once the user schemas have been created, as described in "Updating License Information (for Solaris installations only)" in the *HP Business Availability Center Database Guide* PDF.

Connecting to Existing User Schemas

When running the Server and Database Configuration utility, you select whether you want to create a new user schema or connect to an existing one. In the case of the CMDB user schema, you can also choose to connect to an external CMDB user schema if you already have a CMDB server set up as part of another HP product installation.

Note: Connecting to an external CMDB user schema can take some time, depending on your network environment and hardware.

You generally use the **Connect to an existing schema** option in the following scenarios:

➤ When connecting to a user schema you manually created directly on Oracle Server.

➤ When installing HP Business Availability Center servers subsequent to the first server in a distributed HP Business Availability Center deployment. In this case, you connect to the user schemas that you created during the installation of the first server by specifying the same connection parameters that you set during the installation of the first server. Note that once you have connected to the management user schema, the connection parameters for the CMDB and CMDB history user schemas appear by default in the appropriate screens of the Server and Database Configuration utility.

For information on implementing a distributed deployment of HP Business Availability Center, see "Deployment Configuration" on page 79.

Required Information for Setting User Schema Parameters

Before setting management, CMDB, and CMDB history user schema 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 Availability Center user schemas, see "Oracle Server Configuration and Sizing Guidelines" in the *HP Business Availability Center Database Guide* PDF.

You need the following information for both creating a new user schema and connecting to an existing one:

➤ **Host name.** The name of the host machine on which Oracle Server is installed.

➤ **Port.** The Oracle listener port. HP Business Availability Center automatically displays the default port, **1521**.

➤ **SID.** The Oracle instance name that uniquely identifies the Oracle database instance being used by HP Business Availability Center.

➤ **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, BAC_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

The following procedure describes how to run the Server and Database Configuration utility either as part of the HP Business Availability Center Setup program or separately from the Setup program. If you run the Server and Database Configuration utility separately from HP Business Availability Center server Setup, note the following important points:

➤ It is advisable to disable HP Business Availability Center on the HP Business Availability Center server machine before running the Server and Database Configuration utility.

➤ Use only English characters when entering database parameters.

To set user schema parameters:

1 Launch the Server and Database Configuration utility in one of the following ways:

➤ After completing the server installation stage of HP Business Availability Center Setup, choose to create a new user schema or to connect to an existing one. HP Business Availability Center launches the Server and Database Configuration utility as a continuation of the HP Business Availability Center Setup program.

➤ On the HP Business Availability Center server machine, navigate to the bin directory using the following command:

```
cd <HP Business Availability Center root directory>bin
```

Run the following script:

```
./config-server-wizard.sh
```

The Server and Database Configuration utility is launched.

Note: The Server and Database Configuration utility can be run in UI mode
only and X-Server is required for this purpose. If the display is not set
correctly, enter the following command:
Set DISPLAY=<machine name>:0.0

---

2 Follow the on-screen instructions for setting the management, CMDB, and
CMDB history user schema parameters.

3 If you ran the Server and Database Configuration utility as part of server
installation, you must start HP Business Availability Center on the server
only after successfully setting the parameters for all the user schemas. For
details, see "Starting and Stopping HP Business Availability Center" on
page 198.

If you ran the Server and Database Configuration utility to modify
previously defined connection parameters, restart all HP Business
Availability Center servers and data collectors after successfully completing
the parameter modification process.

17

Installing Component Setup Files

This chapter describes how to install component setup files to the HP Business Availability Center Downloads page on a Solaris platform.

This chapter includes:

➤ Overview of Installing Component Setup Files on page 214

➤ Installing Component Setup Files on page 215

➤ Available Components and Setup Files on Solaris on page 217

Overview of Installing Component Setup Files

The component setup files are used to install the components used by HP Business Availability Center. The component setup files are not installed as part of the basic HP Business Availability Center 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 Availability Center DVDs and must be installed separately to the HP Business Availability Center Downloads page. The component setup files can then be downloaded from HP Business Availability Center and used when required. For details on working with the HP Business Availability Center Downloads page, see "Downloads Overview" in *Platform Administration*.

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

➤ Business Process Monitor, Dashboard Ticker, Discovery Probe, Real User Monitor, SiteScope, and Widgets (included in Main Setup DVD)

➤ Business Process Insight, Diagnostics, and TransactionVision (included in Additional Products DVD)

You must run both DVDs to enable downloading all the HP Business Availability Center 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 Availability Center 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 Availability Center 8.00.

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 Availability Center root directory>\AppServer\webapps\ site.war\admin\install** directory on the HP Business Availability Center Gateway Server. If required, create the **admin/install** directory structure.

For a list of available components, see "Available Components and Setup Files on Solaris" on page 217.

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 Availability Center root directory>/AppServer/webapps/ site.war/admin/install** directory on the HP Business Availability Center 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 Availability Center Downloads page using the setup utility:

 1 Insert the HP Business Availability Center DVD into the drive of the HP Business Availability Center Gateway Server on which you want to copy the component setup files. If you are installing from a network drive, mount the DVD. For details on which component setup files are available, see "Available Components and Setup Files on Solaris" on page 217.

 2 Navigate to the **Data Collectors and Components** directory on the DVD and run **bash copydc.sh**. 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.

Available Components and Setup Files on Solaris

The table below lists the components available for installation and the name of the setup program used to directly install each component.

Note: If you are installing a service pack version, the number in the file name reflects the version number you are installing. For example, when installing Business Process Insight for version 8.01, the file name is HPBPI_v8.01_win.exe.

Component	Description	File Name
Business Process Insight		
HP Business Process Insight 8.00 (Windows)	Install on server machine designated to run HP Business Process Insight.	HPBPI_v8.00_win.exe
HP Business Process Insight 8.00 Accelerator for SAP (Windows)	Install on designated SAP Server to obtain SAP business data.	HPBPISap_v8.00_win.msi
HP Business Process Insight 8.00 Accelerator for SAP (HP-UX)	Install on designated SAP Server to obtain SAP business data.	HPBPISap_v8.00_HPUX.gz
Business Process Monitor		
HP Business Process Monitor (Windows)	Install on host machines designated to run scripts and generate application performance data.	HPBPM_v8.02_win.exe
HP Business Process Monitor (Solaris)	Install on host machines designated to run scripts and generate application performance data.	HPBPM_v8.02_solv4.bin

Component	Description	FIle Name
HP Virtual User Generator	Install on machines of staff who create scripts that emulate typical user activity on Web-based or non-Web-based applications.	VUGen.exe
Microsoft Visual C++ 2005 Redistributable Package (x86)	Install on HP Business Process Monitor machines to enable running scripts that use Microsoft Visual C++ 2005.	vcredist_x86.exe
Microsoft XML core services (MSXML) 6	Install on HP Business Process Monitor machines to enable running scripts that use Microsoft XML core services (MSXML) 6.	msxml6.msi
Web Services Enhancements (WSE) 2.0 SP3 Runtime for Microsoft .NET	Install on HP Business Process Monitor machines to enable running scripts that use Microsoft .NET Web Services.	Microsoft WSE 2.0 SP3 Runtime.msi
Web Services Enhancements (WSE) 3.0 for Microsoft .NET	Install on HP Business Process Monitor machines to enable running scripts that use Microsoft .NET Web Services.	Microsoft WSE 3.0 Runtime.msi
Microsoft .NET framework 2.0	Install on HP Business Process Monitor machines to enable running scripts that use Microsoft .NET Web Services.	dotnetfx.exe

Component	Description	FIle Name
Dashboard Ticker		
HP Dashboard Ticker	Install on any machine on which you want to get real-time data notification. **Note**: The Dashboard Ticker 7.50 is compatible with Business Availability Center version 8.00 and is what should be used for version 8.00.	HPDashboardTicker_v7.5 _win.msi
Diagnostics		
HP Diagnostics Server for Linux	Install on machine that will serve as a Diagnostics Server.	DiagnosticsServerSetupLi nux_8_00.bin
HP Diagnostics Server for HP-UX PA	Install on machine that will serve as a Diagnostics Server.	DiagnosticsServerSetupH P11x_8_00.bin
HP Diagnostics Server for Windows 2000/2003/XP	Install on machine that will serve as a Diagnostics Server.	DiagnosticsServerSetup Win_8_00.exe
HP Diagnostics Server for Solaris	Install on machine that will serve as a Diagnostics Server.	DiagnosticsServerSetupS olaris_8_00.bin
HP Diagnostics Collector for HP-UX PA	Install on machines designated to collect data from SAP R/3, Oracle, SQL Server and MQ systems.	CollectorSetupHP11_8_0 0.bin
HP Diagnostics Collector for Windows 2000/2003/XP	Install on machines designated to collect data from SAP R/3, Oracle, SQL Server and MQ systems.	CollectorSetupWin_8_00 .exe

Component	Description	File Name
HP Diagnostics Collector for HP-UX IA	Install on machines designated to collect data from SAP R/3, Oracle, SQL Server and MQ systems.	CollectorSetupHPIA64_8_00.bin
HP Diagnostics Collector for Linux	Install on machines designated to collect data from SAP R/3, Oracle, SQL Server and MQ systems.	CollectorSetupLinux_8_00.bin
HP Diagnostics Collector for Solaris	Install on machines designated to collect data from SAP R/3, Oracle, SQL Server and MQ systems.	CollectorSetupSolaris_8_00.bin
HP Diagnostics/Transaction Vision Agent for Java for UNIX	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentInstall.tar.gz
HP Diagnostics/Transaction Vision Agent for Java for Windows x86	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetup_win_8_00.exe
HP Diagnostics/Transaction Vision Agent for Java for zOS	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentInstall_zOS.tar.gz
HP Diagnostics/Transaction Vision Agent for Java for IBM-AIX	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetup_ibm_8_00.bin
HP Diagnostics/Transaction Vision Agent for Java for Linux	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetup_linux_8_00.bin

Component	Description	FIle Name
HP Diagnostics/Transaction Vision Agent for Java for Solaris	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetup_sol_8_00 .bin
HP Diagnostics/Transaction Vision Agent for Java for HPUX PA	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetup_hp11x_ 8_00.bin
HP Diagnostics/Transaction Vision Agent for Java for HPUX IA	Install on Java application server machines designated to collect Diagnostics data.	JavaAgentSetupHPIA64_ 8_00.bin
HP Diagnostics/Transaction Vision Agent for .NET for Windows 64-bit	Install on Java application server machines designated to collect Diagnostics data.	DotNetAgentSetup_x64_ 8_00.msi
HP Diagnostics/Transaction Vision Agent for .NET for Windows 32-bit	Install on Java application server machines designated to collect Diagnostics data.	DotNetAgentSetup_x86_ 8_00.msi
Discovery Probe		
Auto Discovery Probe For Windows 2000/2003/XP	Install on host machines designated to run HP Discovery and Dependency Mapping Probe.	HPDiscoveryProbe_v80_ win32.exe
Real User Monitor		
HP Real User Monitor Engine	Install on Windows machines to monitor real user activity.	HPRUM_v8.0_win.exe
HP Real User Monitor Probe	Install on host machines designated as probes, to listen to real end-user traffic on the network.	HPRUMProbe_v8.0_linu x.bin

Component	Description	FIle Name
SiteScope		
SiteScope for Windows 2000/2003/XP	Install on host machines designated to run SiteScope monitors and collect infrastructure machine data.	HPSiteScope_v10.0_win.exe
SiteScope for Solaris	Install on host machines designated to run SiteScope monitors and collect infrastructure machine data.	HPSiteScope_v10.0_solaris.bin
SiteScope Linux	Install on host machines designated to run SiteScope monitors and collect infrastructure machine data.	HPSiteScope_v10.0_linux.bin
TransactionVision		
HP TransactionVision Analyzer for Windows x86-64	Install on Windows systems designated to run TransactionVision Analyzer and/or Web User Interface.	tvalzr_800_win.exe
HP TransactionVision Analyzer for AIX POWER	Install on systems designated to run TransactionVision Analyzer.	tvalzr_800_aix_power.tar.gz
HP TransactionVision Analyzer for RedHat Enterprise Linux x86-64	Install on systems designated to run TransactionVision Analyzer.	tvalzr_800_linux_x86.tar.gz
HP TransactionVision Analyzer for Solaris SPARC	Install on systems designated to run TransactionVision Analyzer.	tvalzr_800_sol_sparc.tar.gz

Component	Description	File Name
HP TransactionVision TMF Agent for NonStop Guardian	Install on systems designated to collect events from TMF Agent.	tvtmf_800_nonstop_guardian.zip
HP TransactionVision Tuxedo Agent for AIX POWER	Install on systems designated to collect events from Tuxedo Agent.	tvtux_800_aix_power.tar.gz
HP TransactionVision Tuxedo Agent for HP-UX PA-RISC	Install on systems designated to collect events from Tuxedo Agent.	tvtux_800_hpux_parisc.tar.gz
HP TransactionVision Tuxedo Agent for Solaris SPARC	Install on systems designated to collect events from Tuxedo Agent.	tvtux_800_sol_sparc.tar.gz
HP TransactionVision WMQ Agent for AIX POWER	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_aix_power.tar.gz
HP TransactionVision WMQ Agent for RedHat Enterprise Linux x86	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_linux_x86.tar.gz
HP TransactionVision WMQ Agent for Solaris SPARC	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_sol_sparc.tar.gz
HP TransactionVision WMQ Agent for HP-UX PA-RISC	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_hpux_parisc.tar.gz
HP TransactionVision WMQ Agent for HP-UX Itanium	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_hpux_ia64.tar.gz

Component	Description	FIle Name
HP TransactionVision WMQ Agent for i5/OS (OS/400) iSeries	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmq_800_i5os_iseries.savf
HP TransactionVision WMQ and User Event Agents for Windows x86	Install on systems designated to collect events from IBM WebSphere MQ.	tvwmque_800_win.exe
HP TransactionVision User Event Agent for AIX POWER	Install on systems designated to collect user-defined events.	tvue_800_aix_power.tar.gz
HP TransactionVision User Event Agent for RedHat Enterprise Linux x86	Install on systems designated to collect user-defined events.	tvue_800_linux_x86.tar.gz
HP TransactionVision User Event Agent for Solaris SPARC	Install on systems designated to collect user-defined events.	tvue_800_sol_sparc.tar.gz
HP TransactionVision UI/Job Server for Windows x86-64	Install on systems designated to collect user-defined events.	tvuijs_800_win.exe
HP TransactionVision UI/Job Server for Solaris SPARC	Install on systems designated to collect user-defined events.	tvuijs_800_sol_sparc.tar.gz
HP TransactionVision Agent for CICS, WMQ Batch, and WMQ IMS on z/OS	Install the sld f2 data set on z/OS systems designated to collect CICS, WMQ Batch or WMQ IMS events.	tvsld_800_zos_zseries.zip
HP TransactionVision Agent for WMQ CICS and WMQ-IMS Bridge on z/OS - f1 data set	Install on z/OS systems designated to collect WMQ CICS and/or WMQ-IMS Bridge events.	tvslm_800_zos_zseries.zip

Component	Description	FIle Name
HP Discovery Agent for z/OS	Install on z/OS systems designated for Discovery Agent	dsslr_800_zos_zseries.zip
Widgets		
HP Dashboard Widget	Install on client machine in My Widgets sub directory (must be created) in My Documents directory	HPDashWidget_v1.0_win.zip

18

Uninstalling HP Business Availability Center Servers on a Solaris Platform

This chapter describes how to completely uninstall HP Business Availability Center servers.

This chapter includes:

➤ Complete Uninstall on page 227

Complete Uninstall

Use the procedure below to completely uninstall HP Business Availability Center.

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

To completely uninstall HP Business Availability Center servers:

1 Log in to the server as user **root**.

2 To access the uninstall program, type:

```
cd <HP Business Availability Center server root directory>/_uninst
```

 3 Run one of the following scripts:

 ➤ To uninstall in UI mode:

    ./uninstall

 ➤ To uninstall in console mode:

    ./uninstall -console

 4 The HP Business Availability Center uninstall program begins. Follow the on-screen instructions. When the uninstall program is complete, a success message is displayed.

 5 Click **Finish**.

 6 Check the log file located in the HP Business Availability Center server root installation directory (the / directory) for errors. The log file name follows the format **<product name>.uninst.<date and time>.install.is.log**.

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

Part VI

Troubleshooting

19

Installation and Connectivity Troubleshooting

This section describes common problems that you may encounter when installing HP Business Availability Center or connecting to HP Business Availability Center 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).

Installation very slow and problems with GUI appearance when installing on a Solaris platform in UI mode via Exceed

GUI may include distorted screens or have missing fields.

Solution:

Do not use **Exceed** to install on a Solaris platform in UI mode. Use the console mode, or install directly on the HP Business Availability Center server machine.

Upgrade wizard fails in Solaris environment because of permission problems with accessing files

Solution:

Execute the following command as the root user:

/usr/bin/chmod -R 774 $PRODUCT_HOME_PATH/*
where $PRODUCT_HOME_PATH is the installation directory for Business Availability Center.

Continue running the upgrade wizard.

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 an 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 Sun Java System Web Server has not been updated with the platform's configuration requirements

The Sun Java System Web server should be updated automatically, as part of server installation. If not, try restarting the Sun Java System Web Server for the changes to take effect.

For details, see "Installing HP Business Availability Center Servers on a Solaris Platform" on page 185.

The HP Business Availability Center 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 Availability Center 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 Availability Center.

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 Availability Center servers causes a conflict with the Tomcat servlet engine.

Solution:

Stop the Oracle HTTP Server service, disable and then enable HP Business Availability Center.

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 Availability Center 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 Availability Center dialog boxes and applets, such as the Authentication Wizard, do not load properly after upgrade

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 Availability Center, the LDAP service does not start

Possible Cause:

The machine had a previous installation of HP Business Availability Center. 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 Availability Center 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 Availability Center root directory>\openldap\slapd.exe service"

After uninstalling HP Business Availability Center and reinstalling to a different directory, HP Business Availability Center 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 Availability Center 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 Availability Center

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 Availability Center and may be left over from previous versions of HP Business Availability Center.

Solution:

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

HP Business Availability Center 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 167. For details on installing the component setup files on a Solaris platform, see "Installing Component Setup Files" on page 213.

HP Business Availability Center has been installed on a Solaris platform, but cannot be enabled

Possible Cause:

The HP Business Availability Center user (by default, **tpuser**) does not have sufficient permissions for all files and folders.

Solution:

Ensure that the HP Business Availability Center user is granted read, write, and execute permissions for all files and folders.

General connectivity problems related to ports

Verify that all ports required by HP Business Availability Center 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.

For details on the ports required by HP Business Availability Center, see Chapter 24, "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 Availability Center 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 Availability Center, 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 Availability Center, 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 E, "Database Schema Verification" in the *HP Business Availability Center Database Guide* PDF.

Browser unable to reach HP Business Availability Center and an error about insufficient heap space

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

Possible Cause 1:

Check log files in **<HP Business Availability Center 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 Availability Center 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 Availability Center server goes down, look for the following error in **<HP Business Availability Center 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 Availability Center or the .jsp source code appears in the browser window

A message box opens indicating that the HP Business Availability Center 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 Availability Center Gateway Server machine.

To verify Tomcat servlet engine functionality:

1 Verify whether jboss application server is running by opening the **<HP Business Availability Center 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 Availability Center 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 Availability Center.

Solution 2:

Ensure that the Jakarta filter path is correct. The path might be incorrect—for example, if you uninstall HP Business Availability Center 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 Availability Center installation.

7 Apply your changes and quit the Internet Services Manager.

8 Restart the IIS service.

HP Business Availability Center 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 Availability Center 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 Availability Center 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 Availability Center 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 VII

Upgrading HP Business Availability Center

20

Upgrading the HP Business Availability Center Servers

This chapter describes how to upgrade your servers to HP Business Availability Center 8.00 using the upgrade wizard. The procedures and recommendations provided here enable you to upgrade your platform to HP Business Availability Center 8.00 with the minimum possible interruption to your system and operations.

Note:

The upgrade wizard can be used to upgrade only from Business Availability Center 7.x to HP Business Availability Center 8.00. To upgrade from a previous 6.x version, you must first upgrade to HP Business Availability Center 7.0. For information on upgrading to HP Business Availability Center 7.0, refer to the Upgrade chapters in version 7.0 of the *HP Business Availability Center Deployment Guide* PDF document.

This chapter includes:

➤ Important Information About the Upgrade on page 248

➤ Direct Upgrade – Pre-Upgrade Procedure on page 253

➤ Staging Mode – Pre-Upgrade Procedure on page 255

➤ Notes and Limitations on page 256

➤ Running the Upgrade Wizard on page 258

➤ Running the Staging Data Replicator as a Standalone Utility for Version 8.00 on page 260

Important Information About the Upgrade

Important: When installing HP Business Availability Center 8.00 to your servers in staging or direct mode, choose to configure the database connections at a later time and do not start HP Business Availability Center before running the wizard.

When upgrading, do not run the Server and Database Configuration utility wizard.

➤ Before beginning the upgrade, review the information in the HP Business Availability Center Readme file for any last minute notes and limitations regarding the upgrade process and for information on upgrading service packs. Failure to follow procedures listed in the Readme could result in unexpected data loss or failure of the upgrade process.

➤ You can choose to upgrade your servers directly within your production environment, or within a staging environment first. You make this selection within the upgrade wizard. The upgrade process differs slightly depending on the upgrade mode you choose.

➤ Before you begin the upgrade process, review the changes that occur to the CMDB, the Class Model, and TQL-based resources as a result of the upgrade process. For details, see "Class Model Changes" in *Reference Information*.

➤ If you ran discovery in your previous version of HP Business Availability Center, you may have CIs that are deleted during the upgrade process. This process could take time. If you have over 200,000 CIs of the deleted classes, you should run the DB Delete Tool in conjunction with running the upgrade wizard. For details on determining how many CIs you have and on running the tool, see "Run the DB Delete Tool" on page 304. Pay special attention to the instructions and the procedure for using the tool.

➤ HP Business Availability Center can be installed in a variety of configurations. The upgrade procedure depends on how HP Business Availability Center is configured in your environment.

   ➤ If you are upgrading to a single-machine deployment, you run the upgrade wizard on this machine.

   ➤ If you are upgrading to a two-machine deployment, the upgrade wizard should be run first on the Data Processing Server, then on the Gateway Server machine.

Note: For a description of the possible HP Business Availability Center 8.00 deployment configurations, see "Deployment Configuration" on page 79.

➤ Ensure that you reserve at least five percent of free space in each database or user schema to allow for the growth of data due to the upgrade process.

➤ If you are upgrading on a Solaris platform, ensure that you back up all files and directories as the user who is running HP Business Availability Center. Ensure that read, write, and execute permissions are granted to the **custom-rules.jar** file, as well as all the contents of each directory you back up. (If you are upgrading within a staging environment, the file and directory backup instructions are available within the upgrade wizard; if you are upgrading directly within your production environment, these instructions can be found in "Direct Upgrade – Pre-Upgrade Procedure" on page 253.)

➤ It is recommended to run through the wizard on each server and perform all the required steps.

➤ Use the following log files for troubleshooting upgrade issues:

   ➤ Upgrade wizard: the log files in the <**HP Business Availability Center 8.00 server root directory**>**log****upgrade** directory.

   ➤ Database/user schema upgrade: the log files in the <**HP Business Availability Center 8.00 server root directory**>**dbverify****log** directory.

   ➤ Component configuration upgrade: the <**HP Business Availability Center 8.00 server root directory**>**log****EJBContainer****upgradeFramework.log** file. This log file is available only on the Gateway server.

➤ For information on upgrading HP Business Availability Center components and data, including information on limitations and required procedures, see "Component and Data Upgrade and Limitations" on page 263.

➤ **SiteScope**. For information on upgrading SiteScope, see "SiteScope" on page 264.

➤ **Real User Monitor**. For information on upgrading Real User Monitor, see "Real User Monitor" on page 271.

➤ **Business Process Monitor**. For information on upgrading Business Process Monitor, see "Business Process Monitor" on page 268.

➤ **Business Process Insight**. For information on upgrading Business Process Insight, see "Business Process Insight" on page 279.

➤ **TransactionVision**. For information on upgrading TransactionVision, see "TransactionVision" on page 279.

➤ **Discovery and Dependency Mapping**. For details on upgrading the Discovery and Dependency Mapping (DDM) Probe, see "Upgrade the Probe" in *Discovery and Dependency Mapping Guide*.

➤ When you click **Next** at the bottom of the first screen in the upgrade wizard, the wizard automatically detects the type of server (Gateway or Data Processing) on the machine on which the wizard is being run. It then takes you through the upgrade process for the components that must be upgraded on each server.

➤ When logging in to HP Business Availability Center for the first time after an upgrade, press Ctrl+F5 in your browser to clear the browser's cache. (This should be done on each browser that accesses HP Business Availability Center.)

Direct Upgrade Issues

➤ If you are planning to upgrade your servers directly within your production environment, read the instructions in "Direct Upgrade – Pre-Upgrade Procedure" on page 253.

➤ If you are using an external HP Universal CMDB, you must upgrade the CMDB prior to performing the upgrade for HP Business Availability Center. For details on upgrading HP Universal CMDB, refer to the Upgrade chapter in the *HP Universal CMDB Deployment Guide* PDF.

➤ When upgrading in direct mode, upgrade your components as follows:

  ➤ **SiteScope**. Upgrade before you run the upgrade wizard.

  ➤ **Real User Monitor**. Upgrade only after you run the upgrade wizard.

  ➤ **Business Process Monitor**. You can upgrade either before or after you run the upgrade wizard.

  ➤ **Business Process Insight**. You can upgrade either before or after you run the upgrade wizard.

  ➤ **TransactionVision**. You can upgrade either before or after you run the upgrade wizard.

  ➤ **Discovery and Dependency Mapping**. You can upgrade Discovery and Dependency Mapping either before or after you run the upgrade wizard.

➤ If you are upgrading from a three server or five server legacy deployment to a two server deployment in direct mode, see the table below for instructions on which legacy servers should be upgraded to which 8.00 servers.

Legacy Deployment	Legacy Deployment Server	Upgrade to Version 8.00 Server
Three servers	Core	Gateway
	Centers	Gateway
	Data Processing	Data Processing

Legacy Deployment	Legacy Deployment Server	Upgrade to Version 8.00 Server
Five servers	Core	Gateway
	Centers	Gateway
	Online	Data Processing
	Offline	Data Processing
	Modeling	Data Processing

When performing this type of upgrade, it is recommended that you consult HP Customer Support for further assistance.

Staging Upgrade Issues

➤ If you are planning to upgrade your servers within a staging environment, you must install HP Business Availability Center 8.00 on your staging servers before running the upgrade wizard.

➤ When upgrading in staging mode, upgrade your data collectors and components only after the staging process is complete. These include:

  ➤ **SiteScope**

  ➤ **Real User Monitor**

  ➤ **Business Process Monitor**

  ➤ **Business Process Insight**

  ➤ **TransactionVision**

  ➤ **Discovery and Dependency Mapping**

➤ If you need to upgrade an external CMDB for use with HP Business Availability Center and HP Business Availability Center is being upgraded to version 8.00 in staging mode, you must perform the procedure described in "Upgrade HP Business Availability Center in Staging Mode with an External CMDB" in the *HP Universal CMDB Deployment Guide* PDF.

➤ If you are upgrading within a staging environment and this environment is located in a different domain than the production environment, you must select **Do not run the Staging Data Replicator** in the Staging Data Replicator screen of the upgrade wizard and run the Staging Data Replicator as a standalone utility. (For details, see "Running the Staging Data Replicator as a Standalone Utility for Version 8.00" on page 260.) You can run the Staging Data Replicator as part of the wizard only if your network administrator configures your staging environment to recognize the production environment's Gateway Server.

➤ If you are upgrading within a staging environment, ensure that each Gateway server you are upgrading has access to all the production environment profile databases. The Data Processing Server does not require access to the production environment profile databases. The production environment profile databases must be accessed using the connection properties listed on the Business Availability Center 7.x Database Management page (**Admin** > **Platform** > **Setup and Maintenance** > **Manage Profile Databases**). If the Gateway servers you are upgrading do not have access to the production environment profile databases, you will not be able to proceed with all the steps in the upgrade wizard.

➤ If you are upgrading from a three server or five server legacy deployment to a two server deployment in staging mode, your staging environment will have the current two server deployment running.

Direct Upgrade – Pre-Upgrade Procedure

Before upgrading your servers directly within your production environment, you must ensure the following:

➤ Back up all Business Availability Center 7.x databases (management, CMDB, CMDB history, profile).

➤ Prepare database connection information for creating and connecting to the BPI database. There are steps in the wizard to instruct you in connecting to this database.

➤ Back up all proprietary configuration files for CMDB prior to performing any install or uninstall procedure since uninstalling the previous version deletes the configuration files on the disk. This is relevant for both embedded and external CMDBs. For details on how to back up your configuration files, see "Upgrade Federated CMDB Adapters" on page 302.

➤ Back up the following Business Availability Center 7.x Data Processing Server folders:

   ➤ **<Data Processing Server root directory>\cmdb\adapters\ adapters**

   ➤ **<Data Processing Server root directory>\cmdb\general**

Note: If you are working with a distributed Business Availability Center 7.x deployment, these folders are located on the Offline Data Processing Server.

➤ If you have defined custom Dashboard rules, back up the Business Availability Center 7.x **custom-rules.jar** file located in the **<Data Processing Server root directory>\BLE\rules** directory. If you are working with a distributed Business Availability Center 7.x deployment, this file is located on both the Online and Offline Data Processing Servers.

➤ Back up the following Business Availability Center 7.x folder: **<Gateway Server root directory>\openldap\bdb**

After you have performed the above steps, uninstall Business Availability Center 7.x and delete all the files from the Business Availability Center server root directory on each Business Availability Center server machine.

You can now install HP Business Availability Center 8.00.

Important: When installing HP Business Availability Center 8.00, choose to configure the database connections at a later time. Do not start HP Business Availability Center until you are instructed to do so as part of the upgrade wizard.

Staging Mode – Pre-Upgrade Procedure

While the procedures here are outlined in the upgrade wizard, be prepared to perform the following before upgrading your servers in staging mode:

➤ Back up all Business Availability Center 7.x databases (management, CMDB, CMDB history, profile). The upgrade uses the replicated databases for the staging environment. The wizard verifies that these databases have been replicated.

➤ Prepare database connection information for creating and connecting to the BPI database. There are steps in the wizard to instruct you in connecting to this database.

➤ Back up all proprietary configuration files for CMDB prior to performing any install or uninstall procedure since uninstalling the previous version deletes the configuration files on the disk. This is relevant for both embedded and external CMDBs. For details on how to back up your configuration files, see "Upgrade Federated CMDB Adapters" on page 302.

➤ Back up the following Business Availability Center 7.x Data Processing Server folders:

➤ **<Data Processing Server root directory>\cmdb\adapters\ adapters**

➤ **<Data Processing Server root directory>\cmdb\general**

Note: If you are working with a distributed Business Availability Center 7.x deployment, these folders are located on the Offline Data Processing Server.

This step is verified by the wizard.

➤ If you have defined custom Dashboard rules, back up the Business Availability Center 7.x **custom-rules.jar** file located in the **<Data Processing Server root directory>\BLE\rules** directory. If you are working with a distributed Business Availability Center 7.x deployment, this file is located on both the Online and Offline Data Processing Servers.

➤ Back up the following Business Availability Center 7.x folder: **<Gateway Server root directory>\openldap\bdb**

After you performed the above steps, you can start installing the staging environment machines with HP Business Availability Center 8.00. At this point in the staging process, you do not connect to the databases or begin running them.

You can then begin the upgrade procedure on the staging machines, beginning with the Data Processing machine and then the Gateway machine.

Important: When installing HP Business Availability Center 8.00 on the staging environment, choose to configure the database connections at a later time. Do not start HP Business Availability Center on the staging machines until you are instructed to do so as part of the upgrade wizard.

Notes and Limitations

➤ **The Staging Data Replicator.** The Staging Data Replicator (SDR) replicates only data samples and not configuration changes made within the databases. You must therefore be in configuration freeze during the upgrade process, from the point at which you back up your production environment configuration data. Configuration changes made during the upgrade process are not supported.

➤ **Changing from an external CMDB to an embedded CMDB.** There is no support for changing from an external CMDB to an embedded CMDB.

➤ **User Interface not responding properly.** If the User Interface does not respond properly after upgrading your version of HP Business Availability Center (for example, the page does not load, or an error message is displayed), clean the java cache by following this procedure on your client PC:

  ➤ Navigate to **Start** > **Control Panel** > **Java.**

  ➤ In the Temporary Internet Files section, click **Settings**.

  ➤ In the Temporary File Settings dialog box, click **Delete Files**.

➤ **Staging Data Replicator initiation time.** In the Data Export/Import screen of the upgrade wizard, ensure that you specify a Staging Data Replicator (SDR) initiation time that is as close as possible to the time at which the Staging Data Replicator is actually activated. If there is overlap (that is, the specified SDR initiation time is later than the Staging Data Replicator's start time), certain types of data (Real User Monitor data and custom data using the UDX framework) will be duplicated for the overlapping period.

➤ **Installing System Health within a staging environment.** If you install System Health while you are upgrading within a staging environment, you must perform a Full Model Synchronization when you move your HP Business Availability Center 8.00 environment to production mode.

➤ **Real User Monitor-related limitations.** For a list of Real User Monitor-related limitations, see "Real User Monitor Limitations" on page 273.

➤ **SOA data.** If you are upgrading from a version earlier than version 7.50, SOA data is not automatically upgraded in the upgrade wizard and you must manually upgrade SOA data. For details, see "HP Business Availability Center for SOA" on page 291. This procedure is not necessary if you are upgrading from version 7.5x to version 8.00.

➤ **KPI assignment upgrade.** KPI assignment upgrade is part of the wizard's process. It upgrades the views from version 7.x to version 8.00. If this part of the upgrade fails, you receive an error message and you must stop the wizard.

➤ **HP Diagnostics server.** If in staging, the HP Diagnostics server is unregistered from BAC.

➤ **BPI server and TV analyzer.** The BPI server and the TV analyzer can be upgraded only in direct mode. Because HP Business Availability Center supports upgrading in staging mode, you can do the following:

   ➤ Upgrade HP Business Availability Center in staging mode.

   ➤ Keep the BPI server and the TV analyzer connected to HP Business Availability Center's production environment.

   ➤ Only after HP Business Availability Center's staging environment has passed verification, upgrade the BPI server and the TV analyzer.

➤ Once the BPI server and the TV analyzer have been upgraded and passed verification, they can be connected to HP Business Availability Center's staging environment for full verification.

➤ **Alerts and scheduled reports.** When working in staging mode, alerts and scheduled reports are, by default, not sent to recipients (to prevent the duplication of alerts and reports during that period).

To receive alerts and scheduled reports, you can either disable the staging mode or send alerts and scheduled reports to a staging recipient:

To disable the staging mode:

1) Select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**.

2) Select **Platform Administration** from the **Foundations** context.

3) Under **Platform Administration - HP BAC Evaluation**, set both **Enable evaluation (staging) mode** and **Enable evaluation (staging) mode for customer** to false.

To send alerts and scheduled reports to a staging recipient:

1) Select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**.

2) Select **Platform Administration** from the **Foundations** context.

3) Under **Platform Administration - HP BAC Evaluation**, edit the **Alerts e-mail address for customer BAC evaluation period** and enter the staging recipient's e-mail address.

Running the Upgrade Wizard

You run the upgrade wizard on each HP Business Availability Center 8.00 server.

Note: Ensure that you have read and completed the instructions in the previous sections before running the upgrade wizard.

To run the upgrade wizard on a Windows platform:

Double-click the **<HP Business Availability Center 8.00 server root directory>\bin\upgrade_wizard_run.bat** file. Follow the instructions within the upgrade wizard to upgrade your HP Business Availability Center server.

To run the upgrade wizard on a Solaris platform:

1 Log in to the HP Business Availability Center 8.00 server as the user who runs HP Business Availability Center.

2 Move to the **<HP Business Availability Center 8.00 server root directory> \bin** directory.

3 Run the following script:

```
./upgrade_wizard_run.sh
```

The upgrade wizard opens in UI mode.

Note: X-Server is required to run the upgrade wizard. If the display in the upgrade wizard is not set correctly, enter the following command:
Set DISPLAY=<machine name or IP address>:0.0

---

4 Follow the instructions within the upgrade wizard to upgrade your HP Business Availability Center server.

Note: When logging in to HP Business Availability Center for the first time after an upgrade, press Ctrl+F5 in your browser to clear the browser's cache. (This should be done on each browser that accesses HP Business Availability Center.)

Running the Staging Data Replicator as a Standalone Utility for Version 8.00

You must run the Staging Data Replicator as a standalone utility in the following case:

If your staging and production environments are located in separate domains and your network administrator cannot configure your staging environment to recognize your production environment's Core Server running on the Gateway.

To use the Staging Data Replicator as a standalone utility, you must install it on a separate machine with access to both your Business Availability Center 7.x Gateway Server and your HP Business Availability Center 8.00 Gateway Server. You then configure properties and run the Staging Data Replicator.

Note: The Staging Data Replicator standalone utility does not support basic authentication. For information on working with the Staging Data Replicator in conjunction with SSL, see "SSL Configuration for the Staging Data Replicator" in the *HP Business Availability Center Hardening Guide* PDF.

To use the Staging Data Replicator standalone utility:

1 Insert the HP Business Availability Center DVD into the drive from which you want to install. If you are installing from a network drive, connect to the DVD.

2 From the **Start** menu, select **Run**.

3 Enter the location from which you are installing, followed by setup.exe. Note that the setup file for the Staging Data Replicator standalone utility is located in the **Tools and Utilities\SDR\7.x** directory of the DVD. For example, enter d:\Tools and Utilities\SDR \7.x\setup.exe.

4 Click **OK**. Setup begins. Follow the on-screen instructions to install the Staging Data Replicator.

5 After you have completed the Staging Data Replicator installation, open the **<Staging Data Replicator root directory>\conf\b2G_translator.xml** file and modify the following:

➤ **_SOURCE_HOST_NAME_.** Replace this with the host name of the source Business Availability Center 7.x Gateway Server. This is the source of the data.

➤ **_DESTINATION_HOST_NAME_.** Replace this with the host name of the destination HP Business Availability Center 8.00 Gateway Server. This is the destination for the data. This string appears twice within this file in the following line:

<ForwardURL url="http://__DESTINATION_HOST_NAME__/ext/ mod_mdrv_wrap.dll?type=md_sample_array&acceptor_name=__DE STINATION_HOST_NAME__&message_subject=topaz_report/sampl es&request_timeout=30&force_keep_alive=true&send_g d=true"/>

➤ **clientid="".** If you do not require guaranteed delivery of data when the Staging Data Replicator stops running, delete the value for this parameter. It is generally recommended that you do not modify this parameter.

6 Select **Start** > **HP BAC Staging Data Replicator** > **Administration** > **Enable HP BAC Staging Data Replicator** to begin running the Staging Data Replicator.

After you have completed the staging process and are prepared to move your HP Business Availability Center 8.00 environment to a production environment, stop the Staging Data Replicator by selecting **Start** > **HP BAC Staging Data Replicator** > **Administration** > **Disable HP BAC Staging Data Replicator**.

Unsubscribing the Staging Data Replicator from the Source Server

If your source server running the previous version of HP Business Availability Center continues running Business Availability Center after the staging process is completed, it is recommended that you unsubscribe the Staging Data Replicator from the source server.

You do not have to perform this procedure if you are immediately uninstalling the previous version of Business Availability Center from the source server.

To disable the Staging Data Replicator from collecting data from the source server and ensure that data is not accumulated in the source Business Availability Center:

 1 Open the **<Staging Data Replicator root directory>\conf\b2G_translator.xml** file and locate the <Message Selector> elements. There are two.

 2 Within the **<Message Selector>** elements, replace the attribute value of enabled to 0 (the default is **enabled="1"**) per the following lines:

 <MessageSelector name="customer_name" value="Default Client" enabled="0" />

 <MessageSelector name="customer_name" value="Dummy Customer" enabled="0" />

Note: Replacing "**Default Client**" with a customer name is an optional during the configuration stage.

---

 3 Select **Start** > **HP BAC Staging Data Replicator** > **Administration** > **Enable HP BAC Staging Data Replicator.**

 4 Wait several minutes and then select **Start** > **HP BAC Staging Data Replicator** > **Administration** > **Disable HP BAC Staging Data Replicator**.

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Component and Data Upgrade and Limitations

This chapter describes how to upgrade HP Business Availability Center components to work with HP Business Availability Center 8.00. It also lists the various limitations of upgrading the components and data in HP Business Availability Center.

This chapter includes:

➤ HP ServiceCenter/HP Service Manager Integration on page 294

➤ HP Operations Manager Integration on page 294

SiteScope

HP Business Availability Center 8.00 includes SiteScope 10.00, but also supports previous versions of SiteScope. To benefit from enhanced functionality in both HP Business Availability Center and SiteScope, it is recommended that you upgrade to SiteScope 10.00.

To manage a SiteScope in HP Business Availability Center's System Availability Management Administration page, the SiteScope must be version 9.0 or later.

For details on SiteScope versions and their compatibility with HP Business Availability Center 8.00, refer to "Understanding SiteScope Integration with HP Business Availability Center" in *Using System Availability Management*.

If you are upgrading SiteScope as part of an HP Business Availability Center upgrade using a staging environment, you must upgrade SiteScope before you upgrade HP Business Availability Center. You upgrade SiteScope by installing version 10.00 on all your SiteScope machines, as described in "Upgrading SiteScopes" below.

After you upgrade your SiteScopes, you run the HP Business Availability Center upgrade wizard in either Staging or Direct mode. If you run the upgrade wizard in staging mode, you must redirect each SiteScope to report to the HP Business Availability Center 8.00 Gateway Server. For details, see "Redirecting SiteScopes" on page 265.

Upgrading SiteScopes

If you choose to upgrade your SiteScope to version 10.00, you do not need to uninstall the previous version of SiteScope. However, if you are installing on the same machine, you must install version 10.00 in a different directory.

To upgrade a SiteScope:

1 In HP Business Availability Center 8.00, select **Admin** > **Platform** > **Setup and Maintenance** > **Downloads**.

2 Click the **SiteScope** link appropriate to the operating system on which your application server is running to access the SiteScope 10.00 installation file.

3 Install SiteScope 10.00. For details, see "Installing SiteScope for Windows" or "Installing SiteScope on Solaris or Linux" in the *HP SiteScope Deployment Guide* PDF.

Redirecting SiteScopes

You must ensure that your SiteScopes are pointing to the correct Gateway Server URL so that they can communicate with the HP Business Availability Center 8.00 Gateway Server.

To redirect a SiteScope:

1 In HP Business Availability Center 8.00, select **Admin** > **System Availability Management** and click the SiteScope whose Gateway Server URL you want to update.

2 Select **Preferences** > **Integration Preferences** > **BAC Integration** and expand the **BAC Preferences Settings** section.

3 In the **Business Availability Center machine name/IP address** box, enter the name of the HP Business Availability Center 8.00 Gateway Server. Click **OK** at the bottom of the Integration Preferences page.

Important: If you have multiple SiteScopes, you can use the Global Search and Replace wizard to perform the update simultaneously on all your SiteScopes. For details on using Global Search and Replace, see the Using System Availability Management portal in the HP Business Availability Center Documentation Library.

---

4 To modify the SiteScope's settings within HP Business Availability Center, select the SiteScope in System Availability Management and click the **Edit SiteScope** button. Under **Distributed Settings**, enter the name of the HP Business Availability Center 8.00 Gateway Server, as well as the user name and password required to access the Gateway Server. Click **Submit** at the bottom of the page.

Upgrade Topology Compliance

There is a SiteScope view in Dashboard called the **SiteScope Upgrade Topology Compliance** view. If you see this view, it means one of the following:

➤ SiteScope has just been upgraded but has not yet finished reporting its new topology to HP Business Availability Center. It may take time until this process finishes, particularly the first time after an upgrade.To view the current version of SiteScope, see the System Availability Management Administration page.

➤ Monitors are not reporting topologies properly. This may occur because of the following:

  ➤ The option to **Include topology data when reporting to BAC** is not selected for monitors of supported environments that can report topology to HP Business Availability Center. For details, see "Reporting Discovered Topologies to HP Business Availability Center" in *Using System Availability Management*.

  ➤ The Topology Settings fields in an Oracle Database monitor are not entered properly. For details, see "Oracle Database Monitor Settings" in *Using System Availability Management*.

Upgrading a SiteScope Version Earlier than 9.5x

The following issues are relevant if you are upgrading from a version of SiteScope that is earlier than version 9.5x.

➤ **Enable host topology reporting option:**

The **Enable host topology reporting** option that was available in SiteScope 9.0, is not supported in this version. Host topology reporting is always active in SiteScope 10.00 and can be selected per monitor. For details, see "Reporting Discovered Topologies to HP Business Availability Center" in *Using System Availability Management*.

➤ **Duplicated links:**

The relationships between SiteScope CIs (for example: SiteScope Group and SiteScope Monitor CIs) have changed from **Depends on** and **Monitored by** to **Includes.** When you upgrade SiteScope to version 10.00, some relationships between SiteScope CIs are duplicated (for example, **Depends on** is created by the legacy SiteScope source adapter and **Includes** is created by SiteScope**).** The **Delete Duplicate Links** enrichment rule automatically deletes the legacy **Depends on** and **Monitored by** relationships.

➤ **Integration with HP Service Manager/ServiceCenter:**

If you are working with the ServiceCenter/Service Manager integration, when setting up the ServiceCenter monitor in SiteScope, a file called **peregrine.jar** is created and placed in the **WEB-INF\lib** directory on the SiteScope machine. This file must be backed up before upgrading SiteScope or it will be deleted during the upgrade. After the upgrade is complete, copy the backed up **peregrine.jar** file back to the **WEB-INF\lib** directory.

➤ **Pattern views:**

The relationships between SiteScope CIs (for example, SiteScope Group and SiteScope Monitor CIs) have changed from **Depends on** and **Monitored by** to **Includes.** Therefore, if in the previous version, you created pattern views with the legacy SiteScope relationships you must add an **Includes** and an "**or**" relationship to each **Depends on** or **Monitored by** relationships between SiteScope CIs. The two types of relationships are needed when you use different versions of SiteScope (the **Includes** relationship is supported by SiteScope version 9.50 and later and **Depends on** or **Monitored by** relationships are supported by previous versions of SiteScope).

➤ **Backward compatibility:**

The SiteScope source adapter supports only SiteScope pre-9.5x versions. The topologies created by the direct reporting from SiteScope and by the SiteScope source adapter can coexist.

➤ **Setting Topology Properties**

The following settings are no longer available in the **<SiteScope root directory>\conf\ems\jython.properties** file and can only be configured in the Topology Settings user interface (the user interface name is displayed in brackets):

➤ **appilog.collectors.domain** (Default topology probe domain)

➤ **serverPort** (Topology receiver port)

➤ **serverPortHttps** (Topology receiver SSL port)

If you modified these settings from the properties file in a previous version of SiteScope, these changes are lost when upgrading to SiteScope 10.00 and you must reconfigure the settings in the user interface. If you modified the remaining settings, these changes are lost when upgrading to SiteScope 10.00, and you must reconfigure the settings in the **<SiteScope root directory>\discovery\discovery_agent.properties** file. For details on the user interface, see *Using System Availability Management*.

Business Process Monitor

HP Business Availability Center 8.02 includes Business Process Monitor 8.02, but also supports previous versions of Business Process Monitor.

You upgrade the Business Process Monitor by uninstalling the previous version and installing Business Process Monitor 8.02. You can upgrade your Business Process Monitors either before or after you run the HP Business Availability Center upgrade wizard, however your Business Process Monitors instances will not succeed in communicating with the HP Business Availability Center Gateway Server until they are pointing to the correct Gateway Server URL. For details on pointing Business Process Monitor instances to the HP Business Availability Center Gateway Server, see "Redirecting Business Process Monitor Instances" on page 269.

Upgrading Business Process Monitors

If you choose to upgrade your Business Process Monitor to version 8.02, you must uninstall the current version and then install version 8.02.

To upgrade a Business Process Monitor:

1 Uninstall the current Business Process Monitor version.

2 In HP Business Availability Center, select **Admin** > **Platform** > **Setup and Maintenance** > **Downloads**.

3 Click the **Business Process Monitor** link appropriate to the operating system on which your application server is running in order to access the Business Process Monitor 8.02 installation file.

4 Install Business Process Monitor 8.02. For details, see "Deploying Business Process Monitor" in the *Business Process Monitor Administration* PDF.

Redirecting Business Process Monitor Instances

After you have run the HP Business Availability Center upgrade wizard in Staging mode, you must redirect each Business Process Monitor instance to report to the HP Business Availability Center Gateway Server.

You can redirect all Business Process Monitor instances simultaneously, using the Business Process Monitor redirect tool, as described below, or you can redirect each Business Process Monitor instance separately by editing each instance within Business Process Monitor Admin. For details on editing a Business Process Monitor instance within Business Process Monitor Admin, see "Modifying an Instance" in the *Business Process Monitor Administration* PDF. It is recommended that you use the Business Process Monitor redirect tool to redirect your Business Process Monitor instances.

To redirect Business Process Monitors instances using the redirect tool:

1 Extract the files within the **<HP Business Availability Center server root directory>\HPBAC\tools\RedirectTool.zip** file to a directory on a machine that has access to the Business Process Monitors whose instances you want to redirect.

2 In HP Business Availability Center, select **Admin** > **Platform** > **Data Collection** > **Data Collector Maintenance** > **Business Process Monitor**. The list of Business Process Monitors from your previous Business Availability Center system is displayed.

3 Select the Business Process Monitor instances you want to redirect and click the **Export BPM Information** button. Save the **BPMList.txt** file to a machine with access to the machine on which the **RedirectTool.zip** files are located.

4 In the **<RedirectTool installation directory>\conf\ BPMRedirectTool.properties** file, specify the following parameters:

➤ **NEW_BAC_URL.** The URL of the HP Business Availability Center Gateway Server.

➤ **INPUT_FILE_PATH.** The directory in which you saved the **BPMList.txt** file. Include the name of the file itself as well. For example: D:\\Tools\RedirectTool\BPMList.txt

➤ **USER.** The user name required to access the Business Process Monitors. (A user name is generally not required.)

➤ **PASSWORD.** The password required to access the Business Process Monitors. (A password is generally not required.)

5 Run the **<RedirectTool installation directory>\RedirectTool.bat** file. The Gateway Server URL is updated on all the Business Process Monitor instances. A log file containing information on each updated Business Process Monitor instance is created. If the redirect tool failed to update a Business Process Monitor instance, this information is included in the log file.

Real User Monitor

This section describes how to upgrade the Real User Monitor probe and engine to version 8.04. For details of engine and probe system requirements, see "Reviewing System Requirements" in the *Real User Monitor Administration* PDF.

Upgrading the Real User Monitor Probe - Linux

Follow the instructions below to upgrade Linux installations of the Real User Monitor probe. You should not uninstall the previous version of the Real User Monitor probe before installing version 8.04.

To install the Real User Monitor 8.04 **probe:**

1 On the HP Business Availability Center 8.04 **Downloads** page, which you access from **Admin > Platform > Setup and Maintenance**, click **HP Real User Monitor probe** to download the **HPRUMProbeSetup_linux.bin** file to the **/var/tmp** directory on the Real User Monitor probe machine.

Note: If you cannot download this file directly to the Linux machine on which you are installing the probe, make sure that you download the file to a machine from which you can later FTP (in binary mode) the file to the Linux machine.

---

2 Stop the Real User Monitor probe.

  a Log in to the Real User Monitor probe machine as the root user.

  b Stop the Real User Monitor probe with the following command:

  ```
  /etc/init.d/beatbox-capture stop
  ```

3 Run the installation script as described in "Installing the Probe" in the *Real User Monitor Administration* PDF.

4 Start the Real User Monitor probe with the following command:

  ```
  /etc/init.d/beatbox-capture start
  ```

Note: The above procedure should take less than a minute and therefore results in minimal data loss.

Upgrading the Real User Monitor Probe - Windows

Follow the instructions below to upgrade Windows installations of the Real User Monitor probe.

To install the Real User Monitor 8.04 probe:

1 On the HP Business Availability Center 8.04 **Downloads** page, which you access from **Admin** > **Platform** > **Setup and Maintenance**, click **HP Real User Monitor probe** to download the **HPRUMProbeSetup_win.msi** file to the Real User Monitor probe machine.

2 Stop the old probe by selecting **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Probe** > **Stop RUMProbe**.

3 Uninstall the old probe by selecting **Start** > **Control Panel** > **Add or Remove Programs** > **HP RUM Probe 8.0x**.

4 Install the new Windows probe as described in "Installing the Probe" in the *Real User Monitor Administration* PDF.

5 Start the new probe by selecting **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Probe** > **Start RUMProbe**.

Upgrading the Real User Monitor Engine

Note: If you are installing the engine and database on different machines, run the **HPRUMSetup_win.exe** file first on the MySQL database machine and then on the Real User Monitor engine machine.

To upgrade the Real User Monitor engine:

1 Uninstall the existing version of the Real User Monitor engine. During the uninstall process you must save the user data settings and configuration when prompted. For details on uninstalling the Real User Monitor engine, see "Uninstalling HP Real User Monitor" in the *Real User Monitor Administration* PDF.

2 On the HP Business Availability Center 8.04 **Downloads** page, which you access from **Admin** > **Platform** > **Setup and Maintenance**, click **HP Real User Monitor Engine for Windows**. Download the **HPRUMSetup_win.exe** file to the Real User Monitor engine machine and run the file. For details on installing the Real User Monitor engine, see "Installing the HP Real User Monitor Engine" in the *Real User Monitor Administration* PDF.

As part of the installation process, you must import the saved user data settings and configuration from a previous version.

In the HP Real User Monitor Connection Settings dialog box, ensure that you enter the name of the HP Business Availability Center 8.04 Gateway Server.

3 Start the Real User Monitor engine by selecting **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Enable HP Real User Monitor** on the Real User Monitor engine machine.

Real User Monitor Limitations

➤ If the Real User Monitor engine is working with SSL and:

  ➤ a customer self-signed Certification Authority (CA) certificate is being used for one of the connections;

  ➤ the self signed CA certificate is in the default JRE truststore (cacerts), and not in a separate keystore;

You will have to export the CA certificate manually from the original JRE truststore that is saved in the exported data directory to the new JRE used by the upgraded Real User Monitor engine. If you are using a certificate that is trusted by a well-known CA, or a self-signed certificate in a separate keystore file, you do not have to perform this procedure.

➤ If you are upgrading a Real User Monitor engine that is running on a different port than the default one (8180), you must manually change each occurrence of port **8180** within the **<Real User Monitor engine root directory>\EJBContainer\bin\mercury_run.bat** file to the port that the Real User Monitor engine is using.

➤ If your MySQL data is not saved in the default data directory, a redundant data directory will be created when you install the Real User Monitor 8.04 engine.

HP Virtual User Generator

HP Business Availability Center includes HP Virtual User Generator (VuGen). To benefit from enhanced VuGen functionality, it is recommended that you upgrade to the version compatible with this version of HP Business Availability Center. Refer to the HP Business Availability Center readme file (located in the HP Business Availability Center package root directory) for the latest information on version compatibility. For details of the enhanced functionality, see the What's New document, which you can access from within HP Business Availability Center by selecting **Help** > **What's New**.

To upgrade VuGen to a newer version:

 1 If you are installing to the same machine running your existing Virtual User Generator, uninstall the existing version.

 2 In HP Business Availability Center, select **Admin** > **Platform** > **Setup and Maintenance** > **Downloads**.

 3 Click the **HP Virtual User Generator** link to access the VuGen installation file.

 4 Install VuGen according to the on-screen instructions.

Discovery Probe

If you are upgrading to HP Business Availability Center 8.00 from HP Business Availability Center 7.x, you must uninstall the existing Discovery Probe and install the Discovery and Dependency Mapping (DDM) Probe version 8.00 before running discovery.

To upgrade the DDM Probe to version 8.00, see "Upgrade the Probe" in *Discovery and Dependency Mapping Guide*.

My BSM

When you upgrade to HP Business Availability Center 8.00, portlets added to My BSM in the previous version are updated and work properly.

Dashboard

This section describes the changes made to Dashboard when you upgrade to HP Business Availability Center 8.00.

Changes to KPI Assignments

This section describes the changes made to KPI Assignment groups when you upgrade to HP Business Availability Center 8.00.

The default descriptions of KPI assignment groups and KPI assignments override the legacy descriptions.

When upgrading the KPI Assignment Service to HP Business Availability Center 8.00, the KPI Assignments and KPI Assignments Groups, do not keep their legacy names or descriptions. The names and descriptions are changed to the HP Business Availability Center 8.00 definitions.

Source Adapters, KPI Assignments and Propagations

This section describes the changes made to KPI Assignment groups when you upgrade to HP Business Availability Center 8.00. It also describes how some source adapters have been replaced by the KPI Assignments and Propagations features.

KPIs, business rules, context menus, context menu items, thresholds, and tooltips are assigned to CIs using the KPI assignment mechanism at the monitor CI level. KPIs, thresholds, and business rules are assigned to CIs using the KPI propagation mechanism at non-monitor CI level. The propagation mechanism propagates either the KPIs assigned at the monitor level to the higher levels in the hierarchy or other KPIs. The propagation is done for each KPI separately.

While the upgrade wizard is running, the KPI Enrichment Service upgrader transforms the KPI configuration objects from the UCMDB to the HP Business Availability Center repositories.

SiteScope Source Adapter

Depending on the version of SiteScope, the upgrade maintains the source adapter or changes it as follows:

➤ **SiteScope 9.0.** The upgrade does not modify the source adapter. Customized source adapters are not modified.

➤ **SiteScope 10.0.** The SiteScope source adapter is replaced by the SiteScope KPI assignment group that includes KPI assignments and propagations. The changes you had made to the source adapter in the previous version (customization) are not transferred to the SiteScope KPI assignment group. You must make those changes manually. For details, see "Manage KPI Assignment Groups" in *Using Dashboard*.

Real User Monitor and Business Process Monitoring Source Adapters

The upgrade procedure maintains the Real User Monitor and Business Process Monitoring source adapters. The changes you had made to the source adapters in the previous version (customization) are maintained in the new version.

Changes to Views

After upgrading to HP Business Availability Center 8.00, the Host Container Group CIs are automatically deleted and replaced by the Infrastructure Container Group CIs and their topology in the relevant out-of-the-box views.

In Dashboard views, the status of a KPI is calculated at the monitor CI level and propagated at the group CI level. A KPI's status is propagated from a child CI to a parent CI according to the propagation definition only when the parent CI and the child CI are linked by either an **Impacted By (Directly)** or an **Impacted By (Potentially)** calculated relationship.

If you are working with customized views, after upgrading to 8.00, you might have to add **Impacted By** relationships to some of the topologies to ensure that the KPI statuses are propagated correctly. For more details about the **Impacted By** relationships, see "Impact Modeling" in *Model Management*.

Changes to the Console Page

In HP Business Availability Center 8.00, the Console page is divided into a number of tabs.

The Console page now enables you to view, in one central location, comprehensive data regarding the CIs selected in View Explorer. For each CI, the Console page tabs provide information regarding the CI's hierarchy, KPIs, business impact, alerts, and changes and incidents.

The information that had been displayed in the Console page in earlier versions is now displayed in the Hierarchy tab on the Console page.

Business Health KPI Renamed to Business Impact

In HP Business Availability Center 8.00, the Business Health KPI (ID 602) for Dashboard is renamed to Business Impact.

There is a new KPI, Business Health (ID 620) which displays the worst status of the following KPIs monitored by HP Business Process Insight, for the process, and its children: Backlog, Duration, Business Impact, Value, and Volume. (This list of KPIs can be modified using **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings Manager** > **Applications** > **Business Process Insight** > **List of Business KPIs**.)

You can view both the new Business Health KPI (ID 620) and the renamed Business Impact KPI (ID 602) in **Admin** > **Dashboard** > **Repositories** > **KPIs**.

Colors of KPI Statuses/KPI tooltips

After upgrading to HP Business Availability Center 8.00, the tooltip colors are not updated to the new colors for KPIs that were customized in previous versions. To display the new tooltip colors, you must redo the customization of the KPIs you changed in the previous versions, using the cloning or overriding mechanisms.

Service Level Management

The following changes are made to Service Level Management in HP Business Availability Center 8.00:

➤ The Business Health KPI (ID 604) is renamed to Business Impact. You can view this KPI in **Admin** > **Service Level Management** > **Repositories** > **KPIs**.

➤ The KPIs Valid Assignments XML definitions used to define the KPIs and rules that were automatically attached to Business Service CIs, and all their child CIs, within service-based and CI-based agreements, has been replaced by the KPI Assignments and Propagation feature. The KPI assignment mechanism assigns KPIs to the monitor CIs. The propagation mechanism propagates the KPIs assigned at the monitor level to the higher levels in the hierarchy of the SLA tree or attaches other KPIs and rules to the higher levels of the hierarchy. The propagation is performed for each KPI separately.

The upgrade does not maintain the changes made to the KPIs Valid Assignments XML definitions. You must make those changes manually to the appropriate KPI Assignments and Propagations. For details, see "Manage KPI Assignment Groups" in *Using Service Level Management.*

➤ After upgrading, the Business Services view works with impact links. This makes no difference to the functionality of the Business Services in your SLAs.

Problem Isolation

After you have upgraded to version 8.0x, you can either wait four days to accumulate significant data because your system behaves like a new installation or you can re-aggregate your samples in the profile database (contact HP Software Support, if necessary).

TransactionVision

In HP Business Availability Center 8.00, TransactionVision is a full component of the product (but requires a separate license).

If you were working with a TransactionVision integration in Business Availability Center 7.5x, then you must upgrade the TransactionVision components and Analyzers to version 8.00, to work with Business Availability Center 8.00. For details, see the *HP TransactionVision Deployment Guide* PDF.

During the upgrade, the data for the TransactionVision CIs, and the TransactionVision portlets added to My BSM, are all updated to work with Business Availability Center 8.00.

Business Process Insight

In HP Business Availability Center 8.00, Business Process Insight is a full component of the product (but requires a separate license).

If you were working with a Business Process Insight integration in Business Availability Center 7.5x, then you must upgrade the Business Process Insight server to version 8.00, to work with Business Availability Center 8.00. For details, see the *HP Business Process Insight Deployment Guide* PDF.

During the upgrade, the data for the Business Process Insight CIs, and the Business Process Insight portlets added to My BSM, are all updated to work with Business Availability Center 8.00.

The Business Health KPI, attached to BPI Business Process Monitor CIs, is automatically renamed to Business Impact KPI in 8.00.

Impact Modeling

The impact model enables you to determine the direction of the propagation of the IT infrastructure CIs in your business world. All KPI propagation is affected by the impact model. For more information, see "Impact Modeling" in *Model Management*.

This chapter describes troubleshooting and limitations relating to Impact Modeling in upgraded environments, and the recommended solution for each one.

Upgraded Instance Views

In 8.00, all instance views are automatically converted into perspective based views. This section describes the troubleshooting issues related to upgraded instance views in the specific cases described.

➤ In instance views where CIs of the type **Host** are linked to CIs of the type **Host Resource** (excluding **Disk Partition, CPU** and **Memory** CI types), the **Host Resource** CI is removed from the view results but remains in the CMDB. See an example below.
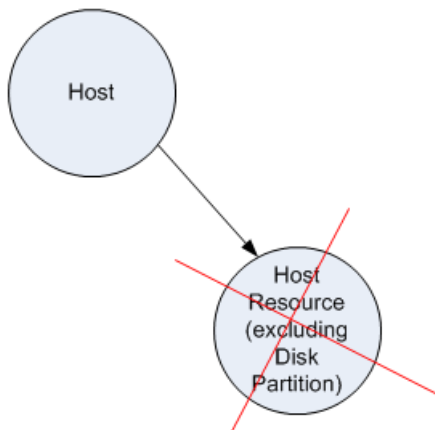
Recommended solution: Add a new triplet definition in the CI Type Manager. For details, see "Triplets Page" in *Model Management.*

➤ A leaf CI that is not a monitor is removed from the view results, but still exists in the CMDB. See an example below.
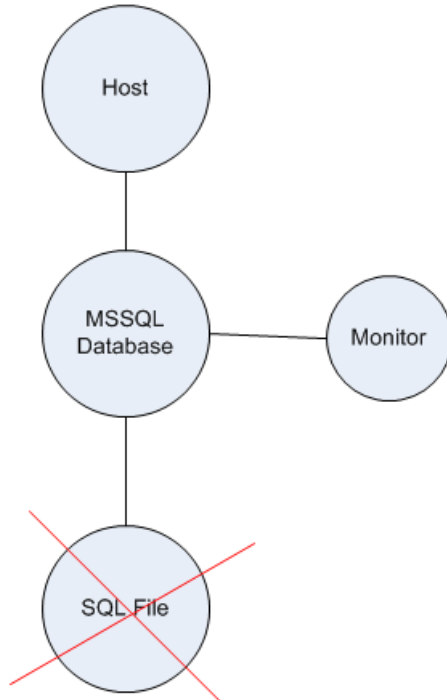
Recommended solution: To produce the same view results originally included in the 7.x view, open the view and apply the Impact Hierarchy (MDW) perspective. For details, see "Modeling Studio" in *Model Management*.

➤ In the following view, only the **Business Process Step** CI and its children appear in the upgraded view results.
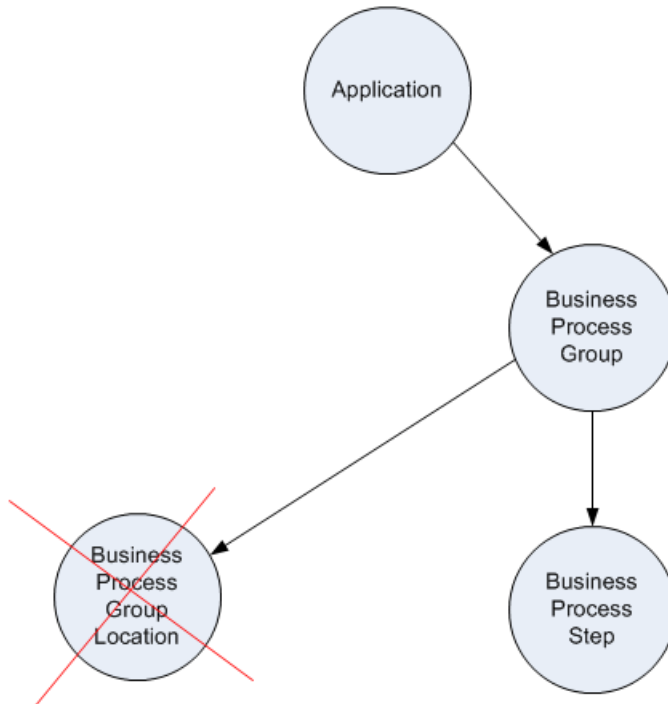
Recommended solution: Create a new model and then apply the Content Only perspective.

➤ In instance views containing End User Monitors, if you configured the adapter before the upgrade to connect the **Business Process Group** CI to the **Business Process Step** CI using the **Parent** relationship, the upgraded view results are changed.

By default, the End Users Monitors view uses the End Users Monitor perspective to generate the view results. The End User Monitors perspective looks for a **Parent** relationship between the **Business Process Group** CI to the **Business Process Group Location** CI. Since the perspective cannot find the **Parent** relationship between those CIs, the CIs contained in the upgraded view results are different from the CIs in the 7.x view results. For details on the End User Monitors View, see "End User Monitors View and End User Locations View" in *Using Dashboard*.

Recommended solution: To produce the same view results originally included in the 7.x view, open the view and apply the All Monitors perspective. For details, see "Modeling Studio" in *Model Management*.

➤ If an upgraded instance view has a compound relationship, view results do not include related CIs whose depth is greater than 8.

Recommended solution: In the **Max steps** box in the Add Compound Relationship dialog box, set the required value. For details, see "Add/Edit Compound Relationship Dialog Box" in *Model Management*.

Upgraded User-Defined Pattern Views

This section describes the troubleshooting issues related to upgraded user-defined pattern views in the specific cases described.

➤ User-defined pattern views are not upgraded to work with calculated relationships connecting a **Host** to a **Software Element**.

The view results of an upgraded user-defined pattern view do not reflect the correct propagation between **Host** and **Software Element** CIs. In HP Business Availability Center 7.x, when a **Host** was linked to a **Software Element**, the impact propagated from the **Software Element** to the **Host**. That meant that if the **Software Element** had a red status, it propagated the red status to the **Host**. See the illustration below.
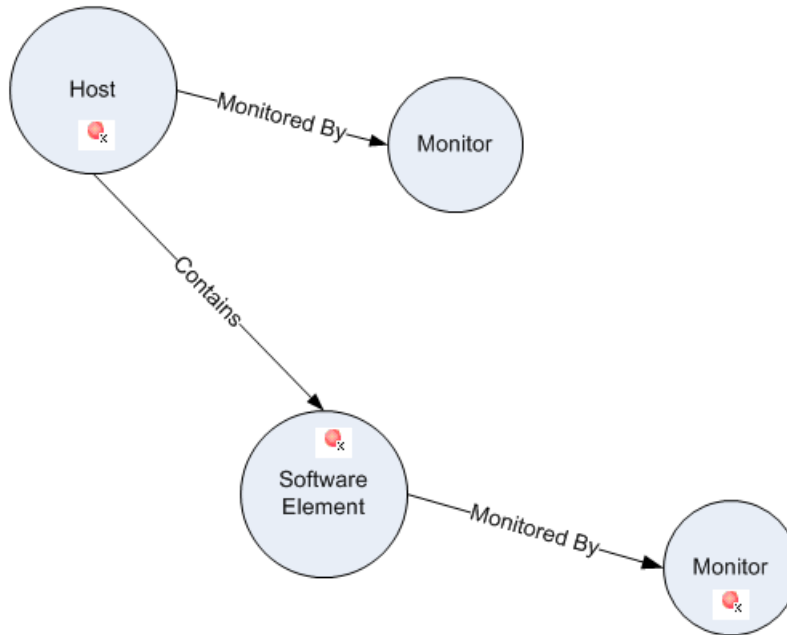
In HP Business Availability Center 8.000, a calculated relationship is automatically created between a **Host** and **Software Element**, which reverses the propagation between them. As a result, impact is propagated from the **Host** to the **Software Element**. See the illustration below.
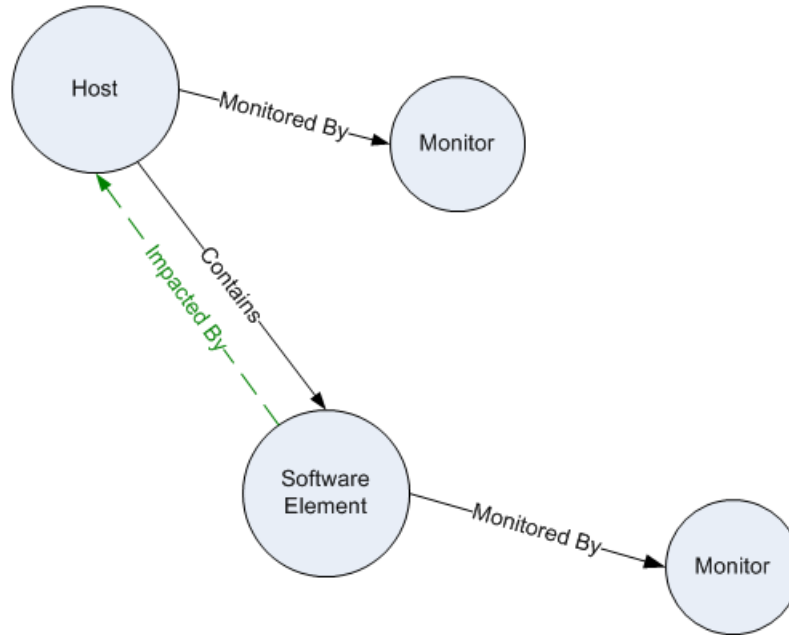
But since pattern views are not upgraded, the impact is the opposite of what you see in the pattern view results. Propagation occurs according to the impact rules, but the view results continue to show that the **Software Element** impacts the **Host**, when in actuality, the **Host** propagates to the **Software Element**.

Recommended solution: Manually replace the physical relationships with calculated relationships since the physical relationships are not automatically replaced for upgraded patterns views that are not out-of-the-box views. For details, see "Select Relationship Type Dialog Box" in *Model Management*.

➤ Upgraded user-defined pattern views containing Business CIs linked to other Business CIs do not produce view results.

In pattern views created prior to HP Business Availability Center 8.00, all **Depends On** relationships that connect Business CIs to other Business CIs, are replaced with a **Contains** relationship. As a result, all upgraded pattern views in which Business CIs are connected to other Business CIs using a **Depends On** relationship, do not produce any results.

Recommended solution: Manually replace the physical relationships with calculated relationships since the physical relationships are not automatically replaced for upgraded patterns views that are not out-of-the-box views. For details, see "Select Relationship Type Dialog Box" in *Model Management*.

Upgraded Views and Agreements Containing SiteScope Monitors Linked to Either a Software Element or Host

This section describes the troubleshooting issues related to Topologies containing SiteScope monitors linked to either a Software Element or Host.

➤ The propagation direction in an upgraded Service Level Agreement (SLA) for HP Business Availability Center 8.00 does not change during the upgrade.

For example, if you have an SLA containing a **Host** CI that is linked to a S**oftware Element** CI by a **Contains** relationship, the impact still propagates from the S**oftware Element** to the **Host**. For details on KPI propagation in Service Level Management see, "Propagations" in *Using Service Level Management*. Since the propagation impact in an SLA does not change, the calculation results remain the same as before the upgrade.

However, when viewing the same **Host** CI and S**oftware Element** CI in Dashboard, the propagation direction is reversed. (Since the propagation impact in Dashboard views is based on calculated relationships, the impact propagates from the **Host** CI to the S**oftware Element** CI.)

Recommended solution: If you want to align the impact propagation in the SLA to the Dashboard view, create a new SLA.

➤ In Dashboard, status alerts defined for the KPI of a **Host** that is connected to a Software Element are not triggered by Software Element events after upgrading to 8.00.

For example, in HP Business Availability Center 7.x, a **Host** is linked to a S**oftware Element**. The S**oftware Element** has a monitor and an alert was defined for the KPI belonging to the **Host**. In HP Business Availability Center 7.x, impact propagated from the S**oftware Element** to the **Host**. See the illustration below.
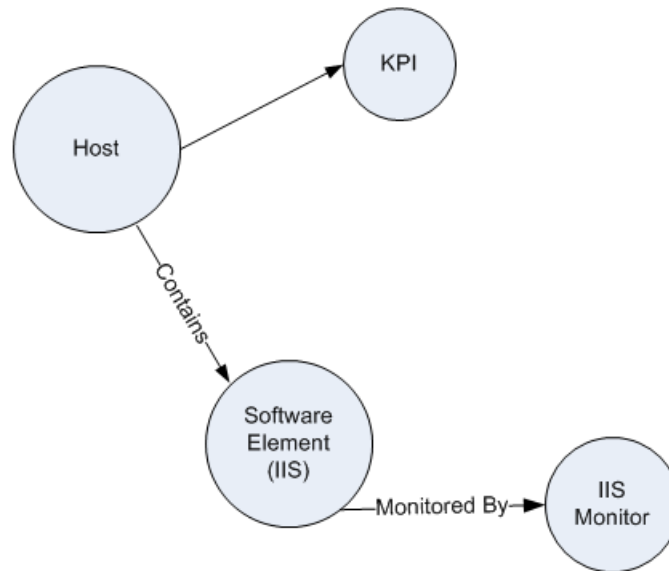
After upgrading, propagation between the **Host** and the S**oftware Element** is reversed, and the impact is propagated from the **Host** to the S**oftware Element**. As a result, the **Host** alert is not triggered by S**oftware Element** events.

See the illustration below.
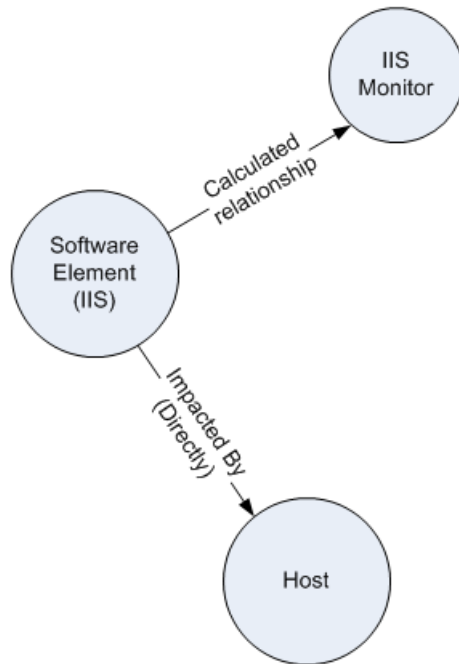
Recommended solution: After the upgrade, you need to define new alerts for the **Host**. For details, see "Alerts Administration and Application" in *Alerts*.

➤ All CIs of types **Database** and **J2EE Server** are deleted from the CMDB.

After upgrading to 8.00, CIs of the types **Database** and **J2EE Server** are removed from all instance views, Service Level Management agreements, and alerts that include the CIs of those types. This affects HP Business Availability Center for SAP Applications, HP Business Availability Center for Siebel Applications, HP Business Availability Center for SOA, and any monitoring objects created by running the Monitoring Deployment Wizard on these CIs.

Recommended solution:

To recreate the CIs and return them to the views, perform the following steps:

1 Recreate the deleted CIs from the data source that originally created the deleted CIs, such as SiteScope 10.0, running Discovery, or others.

2 Create the missing relationships that were connected to the deleted CIs using either IT Universe Manager (for details, see "IT Universe Manager" in *Model Management*) or Modeling Studio (for details, see "Modeling Studio" in *Model Management*).

To return the deleted CIs to the Service Level Management agreements, perform the following steps:

Note: The SLA report does not contain historical data for the recreated CI.

---

1 Follow steps 1 and 2 above.

2 If you have a CI-based agreement, do the following. (If you have a service-based agreement, skip this step and continue to the next.)

  a Select **Admin** > **Service Level Agreement** > **Agreements Manager**.

  b Select the required CI-based agreement and open the Edit Agreement Wizard. For details, see "Agreements Manager Page" in *Using Service Level Management*)

  c In the Edit Agreement Wizard, click **Select CIs** to open the Select CIs page.

  d Select the required view.

  e From the left pane, select the CIs you want to return to the agreement and use the upper arrow to add them to the **Selected Configuration Items** list.

  f Click **Save**.

   3 If you have a service-based agreement, do the following:

      a Select **Admin > Service Level Agreement > Agreements Manager**.

      b Select the required service-based agreement and open the Edit Agreement Wizard. For details, see "Agreements Manager Page" in *Using Service Level Management*)

      c In the Edit Agreement Wizard, click **Select Services** to open the Select Services page.

      d Click **SLA Fine Tuning** to open the SLA Fine Tuning dialog box.

      e Select the CIs you want to return to the agreement and click **Save**.

Note: All the CIs that are deleted are written to a log file on the Data Processing Server where the CMDB is running. The log file is located at: **<HP Business Availability Center root directory>\mam_lib_reports\customer_[id]\UpgradeInfoReport.txt**

HP Business Availability Center for SOA

Upgrading SOA Data from Version 7.0x to Version 8.00

The SOA data from HP Business Availability Center version 7.0x is not automatically upgraded during the upgrade wizard. You must manually upgrade the data using the JMX console. First you must verify that the data upgrade process is running in the Nanny Process Manager. Then you must perform the data upgrade in the JMX console. This procedure is not necessary if you are upgrading from version 7.5x to 8.00.

Important: It is highly recommended that you run the SOA data upgrade JMX as soon as possible once the Business Availability Center version 8.00 server is up. If there is a gap between the time the Business Availability Center begins running and the SOA data upgrade, some of the SOA samples can lose their consumer ID information. To restore any lost consumer ID, you can perform a reaggregation on the problematic data. You can perform re-aggregation using the Data Marking Tool. For details, see "Enable the Re-aggregation-Only Option" in *Platform Administration*.

To verify the data upgrade process in the Nanny Process Manager:

1 In a browser window, enter the URL: **http://<server name>.<domain name>:11021**, where <server name> is the Data Processing server.

If prompted, enter the administrator's user name and password.

2 Select **Foundations:type=NannyManager**

3 Check if the **data_upgrade** service is running by invoking the **java.util.collection listLiveService**. In the list of services, search for **data_upgrade**. If it is running, you can perform the data upgrade.

If it is not running:

a Return to the Nanny Manager view.

b Search for **void enableService**. In the **Value** column, enter data_upgrade and click **Invoke**.

  c Search for **void startService**. In the **Value** column, enter data_upgrade and
  click **Invoke**.

  To perform the data upgrade:

1 In a browser window, enter the URL: **http://<server name>.<domain
  name>:8080/jmx-console**, where <server name> is the Data Processing
  server.

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

2 Under **Foundations**, select **service=IndependentProcessesJMXInfo**.

3 Invoke **java.lang.String showProcesses()**.

4 In the **Process Name** column, locate **mercury_data_upgrade** and click the
  corresponding **Click Here** link.

5 Scroll to the **Topaz** list and select **Topaz:service=Data Upgrade**.

6 Invoke **java.lang.String startUpgrade** with the following parameters:

  ➤ **family**. Enter SOA.

  ➤ **db name**. To retrieve the name of the database, invoke **java.lang.String
    showDBs** and copy the database name.

  ➤ **sample type**. Enter ws_perf_aggr_t and ws_event_aggr_t. Invoke the
    process for each sample type separately.

Displaying HP Business Availability Center for SOA Reports

After upgrading to HP Business Availability Center 8.00 to display the HP Business Availability Center for SOA reports, you must update your license information. For information on updating your licensing information, see "License Management Overview" in *Platform Administration*.

HP Business Availability Center for SAP Applications

After upgrading to HP Business Availability Center 8.00 using the Verticals upgrade, the Host Container Group CIs are automatically deleted and replaced by the Infrastructure Container Group CIs and its topology.

For additional information, see "Impact Modeling" in *Using Dashboard*.

HP Business Availability Center for Siebel Applications

After upgrading to HP Business Availability Center 8.00 using the Verticals upgrade, the Host Container Group CIs are automatically deleted and replaced by the Infrastructure Container Group CIs and its topology.

For additional information, see "Impact Modeling" in *Using Dashboard*.

HP ServiceCenter/HP Service Manager Integration

After upgrading from a version earlier than 7.5x, the value of the **ServiceCenter host name** field in **Infrastructure Settings** > **Foundations** > **Integrations with other applications** > **Integrations with other applications - HP ServiceCenter** table is missing. You must reenter the HP ServiceCenter/HP Service Manager host name to reestablish the integration.

HP Operations Manager Integration

Problem

In Business Availability Center 7.50 and earlier, the HP OVO KPI Assignment provided the capability to use the KPI Assignment advanced mode (to access, select **Admin** > **EMS Integration** > **HP OVO**, click the **Edit** button and click the **Switch to Advanced Mode** button). This option is no longer available from Business Availability Center 8.00.

If you used this option in Business Availability Center 7.50 and earlier and you upgraded to Business Availability Center 8.00 and later, the KPI rule parameters remain as they were in 7.05 and earlier versions and are not valid in 8.00 and later.

Solution

To solve the problem, you edit the **Host Monitor CIs** KPI assignment to allow the calculation of the HPOM sample in Business Availability Center.

1 Select **Admin** > **Integrations** > **HP OVO** and click the **Edit** button.

2 Select the **Host Monitor CIs** in **3. Define the data assignments rules** and click **Edit**.

3 Replace the contents of the **Task** box with the following text:

```
<task-config>
<contextmenu id="emsMeasurementMenu,OVODrillDown"/>
<kpis-config>
<kpi-config type="1">
<rule type="36">
<rule-parameter key="Max Tooltip Events" type="Integer" value="5"/>
<rule-parameter key="No data timeout" type="Long" value="86400"/>
</rule>
<trinity-selector>
<CompositeSelector logicalOp="AND">
<Selector key="sampleType" op="EQ" type="String" value="event"/>
<Selector key="data_source" op="EQ" type="String" value="RefProp:data_source"/>
<Selector key="ci_type" op="EQ" type="String" value="RefProp:monitored_ci_type"/>
<Selector key="target_name" op="EQ" type="String" value="RefProp:monitor_id"/>
</CompositeSelector>
</trinity-selector>
</kpi-config>
</kpis-config>
</task-config>
```

4 Select **Run On Exisiting CIs** and click **OK**.

5 To activate the new KPI assignment, click the **Stop Assignment** button and then click the **Start Assignment** button for the **Host Monitor CIs** KPI assignment.

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Upgrading HP Universal CMDB to Version 8.00

This chapter explains how to upgrade HP Universal CMDB from versions 7.x to 8.00 for use in HP Business Availability Center.

This chapter includes:

Concepts

➤ Upgrade Prerequisites on page 297

➤ HP Universal CMDB and Federated CMDB Adapters Upgrade Notes on page 298

Tasks

➤ Upgrade Application View (From Version 7.x to 8.00) on page 301

➤ Upgrade Federated CMDB Adapters on page 302

➤ Run the DB Delete Tool on page 304

Troubleshooting and Limitations on page 308

🍥 Upgrade Prerequisites

➤ **Important:** It is highly recommended that you thoroughly read this chapter before commencing the upgrade procedure. The information in this chapter is relevant for upgrading an embedded CMDB in HP Business Availability Center. The file and application paths listed here point to HP Business Availability Center and are for users with an embedded CMDB. If you are working with an external CMDB, refer to the upgrade chapter in the *HP Universal CMDB Deployment Guide* PDF.

➤ **Important:** Before you begin the upgrade process, review the changes that occur to the CMDB, the Class Model, and TQL-based resources during the upgrade process. For details, see "Class Model Changes" on page 25 in *Reference Information*.

➤ All proprietary configuration files should be backed up before any install or uninstall procedure since uninstalling the previous version deletes the configuration files on the disk. For details on how to back up your configuration files, see "Upgrade Federated CMDB Adapters" on page 302.

➤ For details on upgrading the Discovery and Dependency Mapping (DDM) Probe, see "Upgrade the Probe" in *Discovery and Dependency Mapping Guide*. Note that before starting the upgrade, you should stop the currently running DDM probes and start (the new version of them) only after the server upgrade is complete.

🍀 HP Universal CMDB and Federated CMDB Adapters Upgrade Notes

This section includes upgrade issues relating to HP Universal CMDB and Federated CMDB adapters.

Note: The issues are relevant only if you are upgrading from versions 7.0x or 7.50. If the current version is 7.51 or later, there is no need to perform a replication or to upgrade the Generic DB Adapter.

Replication

When upgrading from HP Universal CMDB 7.0x or 7.5, it is recommended that you perform a diff replication on your current system prior to upgrading to 8.00. This prevents losing data for removal during the full synch. After upgrading to 8.00, each replication job should be run in full replication mode. For details on running diff and full replication, see the Replication Jobs Tab section in *Model Management*.

Proprietary Adapters Based on Generic DB Adapter

If you created proprietary adapters based on the Generic DB Adapter, you must perform the below procedure for each such adapter, after upgrading from HP Universal CMDB 7.0x or 7.50 to 8.00.

Important: Before upgrading, remember to save any Generic database adapter configuration files to which you made changes. For details, see "Upgrade Federated CMDB Adapters" on page 302.

---

 1 Copy all **.jar** files from <
HP Business Availability Center root directory>\HPBAC\fcmdb\Codebase\GenericDBAdapter to the proprietary adapter folder. Overwrite any existing files with the same name, if such files exist.

 2 Copy **plugins.txt** from **<HP Business Availability Center root directory>\HPBAC\fcmdb\Codebase\GenericDBAdapter\META-INF** to **<HP Business Availability Center root directory>\HPBAC\fcmdb\Codebase\<proprietary adapter folder>\META-INF.**

 3 Open **<HP Business Availability Center root directory>\HPBAC\fcmdb\Codebase\<proprietary adapter folder>\META-INF\orm.xml** using a text or XML editor.

 4 In **orm.xml**, for each CI type that is defined as a multinode in the **reconciliation_rules.txt** file, change the mapped attribute name from **<CI type name>_<attribute name>** to **<attribute name>**.

For example, if "host" is a multinode, change:

```
<basic name="host_host_hostname">
    <column updatable="false" insertable="false" name="[column_name]"/>
</basic>
```

to:

```
<basic name="host_hostname">
    <column updatable="false" insertable="false" name="[column_name]"/>
</basic>
```

If a reconciliation rule includes a link, attributes of end2 should still be prefixed by the corresponding CI type name. For example, if one of the reconciliation rules is **multinode[host] expression[host.host_hostname** or **ip.ip_address] end1_type[host] end2_type[ip] link_type[contained]**, **ip.ipaddress** should still be mapped as:

```
<basic name="ip_ip_address">
    <column updatable="false" insertable="false" name="[column_name]"/>
</basic>
```

5 In **orm.xml**, completely delete any entities whose name starts with **IdClass2PK** or **IdClass3PK**. For example, an entity defined as **<entity class="generic_db_adapter.IdClass2PK_cpu" name="IdClass2PK_cpu">** should be deleted.

6 In **orm.xml**, delete all lines that are similar to: **<id-class class="generic_db_adapter.IdClass2PK_xxx"/>** or **<id-class class="generic_db_adapter.IdClass3PK_xxx"/>**.

7 Delete the **<HP Business Availability Center root directory>\HPBAC\fcmdb\ Codebase\<proprietary adapter folder>\dynamic_classes** folder, if it exists.

8 In HP Business Availability Center, select **Admin > Universal CMDB > Settings** tab > **Federated CMDB > Data Stores** tab and click the **Reload Adapter** button. For details, see "Introduction to Federated CMDB" in *Model Management*.

⚒ Upgrade Application View (From Version 7.x to 8.00)

You should run the following procedure if you have used the **Add to Applications** functionality in View Manager.

To upgrade Application views:

1 Obtain the list of TQL-based resources, such as, queries, views, and so on, that have nodes connected to an application. You can retrieve the list of views by using the JMX method:

a Launch the Web browser and enter the following address:

> http://<machine name or IP address>.<domain_name>:8080/jmx-console

where **<machine name or IP address>** is the machine on which HP Business Availability Center is installed. You log in using the JMX console authentication credentials. For details, see "Using the JMX Console" in *Platform Administration*.

b Click the **Topaz > service=CMDB Business View Enrichment Services** link.

c In the JMX MBEAN View page, locate the following operation: **retrievePatternWithOldBusinessViewLink()**.

d In the **customerID** field, enter **1**.

e Click **Invoke**. A message is displayed showing the names of the TQLs that are suspected of containing an application on which a condition was defined.

2 Review the list you created in step 1 on page 301. Manually replace the **Depends On** relationship with the **Contains** relationship where relevant. For example, TQL patterns that were created to query application CIs created by the **Add To Application** functionality (for details, see "Link Nodes to Application CI" in *Model Management*) should be modified.

👆 Upgrade Federated CMDB Adapters

To prevent loss of information, use the following procedure for upgrading Federated CMDB adapters.

Upgrade Out of the Box Adapters

Note:

➤ This procedure is relevant if you made changes to the configuration files of the Service Desk and generic database adapters or the CmdbRMIAdapter.zip package.

➤ This procedure is relevant for 7.x versions. It must be implemented before any install or uninstall procedure since uninstalling the previous version deletes the configuration files on the disk.

To upgrade out of the box adapters:

1 Before uninstalling 7.x versions or the CmdbRMIAdapter.zip package, back up any Service Desk or Generic database adapter configuration files to which you made changes.

➤ **Service Desk adapter.** Back up the following configuration files **serviceDeskConfiguration.xml**, **smSyncConfFile.xml**, **webserviceAdapters.xml**, and all files with the **.xslt** extension, for backup.

These files are located in the <
HP Business Availability Center root directory>\HPBAC\fcmdb\CodeBase\ServiceDeskAdapter folder.

➤ **Generic database adapter.** Back up the configuration files from the <**HP Business Availability Center root directory>\HPBAC\fcmdb\ CodeBase\GenericDBAdapter\META-INF** folder for backup.

➤ **CMDB RMI adapter.** The CmdbRmiAdapter.zip package is overwritten during upgrade. If you modified the CmdbRmiAdapter package, copy the existing <
HP Business Availability Center root directory>\mam_lib\factory_packages\CmdbRmiAdapter.zip package on the Data Processing Server machine to a temporary directory before starting the upgrade process.

2 If your CMDB is embedded, follow the upgrade and installation procedures for HP Business Availability Center.

3 Once HP Business Availability Center version 8.00 is installed, copy the saved configuration files to their original location, as follows:

➤ **Service Desk adapter.** Copy the saved files to the <**HP Business Availability Center root directory>\HPBAC\fcmdb\CodeBase\ ServiceDeskAdapter** folder.

➤ **Generic database adapter.** Copy the saved files to the <**HP Business Availability Center root directory>\HPBAC\fcmdb\CodeBase\ GenericDBAdapter\META-INF** folder.

➤ **CMDB RMI adapter**. After the upgrade process, edit the files in the new **CmdbRmiAdapter.zip** package to match the changes you had made to the old adapter package. You must make the changes in the new CmdbRmiAdapter.zip and not overwrite it with your old package.

Proprietary Java Adapters

The published interface for developing proprietary adapters was changed in version 7.50. There is no backward compatibility for the adapters that were developed for version 7.0x (earlier than 7.50). You should fix the code of these adapters by implementing the new adapter interface described in HP Universal CMDB 7.50. For details, see "The Federation Framework SDK" in *Model Management*. The interface of HP Universal CMDB 7.50 is backward compatible in 8.00.

🔧 Run the DB Delete Tool

You use the **DB Delete** tool to shorten the time it takes to delete CIs from the database. This tool is relevant for users who ran Discovery in the previous version of Business Availability Center.

Running the DB Delete Tool must be performed in conjunction with the Business Availability Center upgrade wizard process. It should be run on the first Business Availability Center server you are upgrading as follows:

1 Before you begin running the upgrade wizard, determine whether you have a sufficient number of CIs that need deleting by following the procedure in "Checking Whether Running the DB Delete Tool Is Required for the Upgrade Process" on page 305.

2 Begin running the Business Availability Center upgrade wizard. For details, see "Running the Upgrade Wizard" on page 258.

3 When you reach the step in the wizard that asks you to manually start the Business Availability Center server, do not start the server.

Since the **DB Delete** tool works directly on the database, you run the tool when the server is offline.

4 Run the DB Delete Tool per the instructions in "Running the DB Delete Tool" on page 306.

5 Start the Business Availability Center server.

6 Return to the upgrade wizard and complete the wizard instructions.

Checking Whether Running the DB Delete Tool Is Required for the Upgrade Process

You use the **DB Delete** tool to shorten the time it takes to delete CIs from the database during the process of upgrading from version 7.x to 8.00 or later.

You can use the **DB Delete** tool to delete all instances of certain CI types. During the upgrade process of HP Business Availability Center from versions 7.x to 8.00, some CIs are deleted from the CMDB to conform to the class model of version 8.00. For details, see "Class Model Changes" on page 25. Using the **DB Delete** tool allows you to significantly reduce the time it takes to delete the CIs from the CMDB before you start the server. For details on how to delete all instances of certain CI types, see "Running the DB Delete Tool" on page 306.

The relevant CI types are:

➤ **databaseresource**

➤ **j2eemanagedobject**

➤ **ipserver**

➤ **program**

➤ **logicaldisk**

➤ **applicationcomponent**

Run the following queries against the CMDB database/schema to check how many instances you currently have:

Important: Perform these queries before running the HP Business Availability Center upgrade wizard.

➤ **select count(*) from CDM_DATABASERESOURCE_1**

If the result exceeds 200,000, it is recommended that you run the **DB Delete** tool to delete the CIs before starting the server.

➤ **select count(*) from CDM_ CDM_J2EEMANAGEDOBJECT_1**

If the result exceeds 200,000, it is recommended that you run the **DB Delete** tool to delete the CIs before starting the server.

➤ **select count(*) from CDM_IPSERVER_1**

If the result exceeds 200,000, it is recommended that you run the **DB Delete** tool to delete the CIs before starting the server.

➤ **select count(*) from CDM_PROGRAM_1**

If the result exceeds 200,000, it is recommended that you run the **DB Delete** tool to delete the CIs before starting the server.

➤ **select count(*) from CDM_LOGICALDISK_1**

If the result exceeds 200,000, it is recommended that you run the **DB Delete** tool to delete the CIs before starting the server.

➤ **select count(*) from CDM_APPLICATIONCOMPONENT_1**

If the result exceeds 200,000, it is recommended that you run the **DB Delete** tool to delete the CIs before starting the server.

Running the DB Delete Tool

Before running the tool, you should determine that you have a sufficient number of CIs for deleting (over 200,000 per deleted class) .

Important: You perform this procedure only once you have reached the stage in the upgrade wizard when you are asked to manually start the Business Availability Center server. Do not start the server. Instead, run this tool and after you have run the tool, start the Business Availability Center server, and go back and complete the upgrade wizard instructions.

To run the DB Delete tool to delete all instances of certain CI types:

1 In Windows, open the Command Prompt window and navigate to the following directory: **<HP Business Availability Center root directory>\cmdb\scripts**.

2 Type dbtool type, followed by the CI types whose instances you want to delete from the CMDB. For example: dbtool type <CI typ1>,<CI type2>. A comma (,) is used to separate the different CI types.

Other Uses for the DB Delete Tool

Other uses for the **DB Delete** tool include:

➤ **Deleting aged CIs**. If there are too many aged CIs in the CMDB, this may cause the server to fail to start. For details, see "CI Lifecycle – Overview" in *Model Management.*

Important: You use the **DB Delete** tool to delete the aged CIs before you start the server.

To run the DB Delete tool to delete the aged CIs:

1 In Windows, open the Command Prompt window and navigate to the following directory:
<HP Business Availability Center root directory>\cmdb\scripts.

2 Type dbtool aging. The aged CIs are deleted from the CMDB.

➤ **Deleting the CIs based on an SQL statement.** Enables you to delete all instances of certain CI types based on an SQL statement inside a file. The SQL statement returns a list of IDs from the CMDB of all the instances of the specified CI type.

To run the DB Delete tool to delete CIs based on an SQL statement:

1 Open a text editor and type select cmdb_id from cdm_<ci type>_1

where <ci type> is the CI type whose instances you want to delete from the CMDB.

2 Save the file using an .sql extension.

3 In Windows, open the Command Prompt window and navigate to the following directory:
<HP Business Availability Center root directory>\cmdb\scripts.

4 Type dbtool sql followed by the full path of the file. For example, if the name of the file is **file1.sql**, run the command dbtool sql <full path of file1.sql>.

🔍 Troubleshooting and Limitations

This section describes the components you can use to check for problems during the upgrade.

This section includes the following topics:

➤ "Log Files" on page 309

➤ "JMX" on page 310

➤ "Inconsistency between Tables in the Database" on page 311

➤ "Large Number of CIs in the Database" on page 312

Log Files

Note: If a **log\mam** or a **log\cmdb** folder does not exist, look for the log files under **log\EJBContainer**.

➤ **package deployment reports** are located in: **<HP Business Availability Center root directory>\HPBAC\mam_lib_reports\customer_1\ deployReports**. This file contains high level information about the package deployment process. The information contained in the report does not include exceptions.

For more information about package deployment errors, check the **mam.packaging.log** file, located in: **<HP Business Availability Center root directory>\HPBAC\log\mam**. Check this file for errors. Some errors are acceptable, for example, those that relate to CIT changes that did not succeed due to user or factory issues. For example, the Package Manager tries to remove user attributes and fails. This is the correct behavior.

➤ The **cmdb.classmodel.log** file is located in: **<HP Business Availability Center root directory>\HPBAC\log\cmdb**. This file contains information about changes in the class model. Some errors are acceptable (for an example, see the **mam.packaging.log** description).

➤ The **upgrade.report.log** file is located in: **<HP Business Availability Center root directory>\HPBAC\log**. This file contains high level information about the upgrade process. The information contained in the log does not include exceptions. Some failures are caused by the errors in the **cmdb.classmodel.log** file. Some of the errors are acceptable, for example, attributes that were supposed to be deleted and failed.

To see the exceptions, check the following log files:

➤ **upgrade.short.log** file, located in: **<HP Business Availability Center root directory>\HPBAC\log\cmdb** and **<HP Business Availability Center root directory>\HPBAC\log\mam**.

➤ **upgrade.detailed.log** file is located in: **<HP Business Availability Center root directory>\HPBAC\log\cmdb** and **<HP Business Availability Center root directory>\HPBAC\log\mam.** This file contains the XML text of all the resources (such as TQLs or views), that are being transformed as a result of the class model changes. If some of the transformations fail, you can use the XML text to restore the original resource.

➤ **dbverify.log**.This file contains information written by the **cmdbDbUpgrade** and **cmdbDbVerify** tools. The location of the log file depends on where the **cmdbDbUpgrade** tool was launched.

JMX

Check that the version number is correct:

1 Launch the Web browser and enter the following address:

```
http://<machine name or IP address>.<domain_name>:8080/jmx-console
```

where **<machine name or IP address>** is the machine on which HP Business Availability Center is installed. You log in using the JMX console authentication credentials. For details, see "Working with the JMX Console" in *Reference Information*.

2 Click the **Topaz > service=CMDB Dal services** link.

3 In the JMX MBEAN View page, locate the following operation: **getCmdbVersion()**.

4 In the **ParamValue** box for the parameter **customerID** field, enter **1**.

5 In the **ParamValue** box for the parameter **detailed**, you have two options:

➤ Choose **False** and then **Invoke**. A message displays the version number of your CMDB. If the upgrade is successful, the displayed value is 8.0.0.0

➤ Choose **True** and then **Invoke**. A message is displayed showing the statuses of different dedicated upgraders and the version number of your CMDB. If the upgrade is successful, the displayed value is 8.0.0.0.

```
upgrader.CalculatedAttributeModelUpgrader.ModelUpdateManager : 8.0.0.0
upgrader.DeleteCITsUpgrader.PackageManager : 8.0.0.0
upgrader.ObsoleteModulesUpgrader.DiscoverySubSystem : 8.0.0.0
upgrader.DbColumnsUpgrader.ModelQueryManager : 8.0.0.0
upgrader.BasicClassModelManipulateDbUpgrader.ClassModelManager : 8.0.0.0
upgrader.BusinessViewEnrichmentsUpgrader.PackageManager : 8.0.0.0
upgrader.JythonScriptsSyntaxUpgrader.DiscoverySubSystem : 8.0.0.0
upgrader.ResourcesUpgrader.PackageManager : 8.0.0.0
upgrader.CleanCorruptedResourcesUpgrader.PackageManager : 8.0.0.0
upgrader.EncryptedAdapterPasswordsUpgrader.ConfigUpdateManager : 8.0.0.0
upgrader.SoftwareElementDisplayLabelPopulator.PackageManager : 8.0.0.0
upgrader.ClassModelUpgrader.ClassModelManager : 8.0.0.0
upgrader.DeleteInstancesUpgrader.PackageManager : 8.0.0.0
upgrader.BasicClassModelUpgrader.ModelQueryManager : 8.0.0.0
upgrader.DeleteValidLinksUpgrader.PackageManager : 8.0.0.0

Cmdb db version : 8.0.0.0
Cmdb db build : 102
Cmdb code version : 8.0.0.0
Cmdb code build : 102
```

If the upgrade of at least one of the dedicated upgraders fails, the version number next to that upgrader is either empty or displays the number of the previous version, for example, **7.5.0.0**, and the **Cmdb db version** number at the bottom also displays the number of the previous version.

Inconsistency between Tables in the Database

In cases where there is an inconsistency between the **CDM_LINK_1** table and the **CDM_ROOT_1** table in the database, the upgrade might fail with the following error message:

```
2009-01-20 13:44:08,931 [CTRL-SVCStarter] (LogUtil.java:29) ERROR - Failed to execute command
[PopulateLinksClasses] time [NA ms] customer ID [1, id name: Default Client] operation stack [74484107]
com.mercury.topaz.cmdb.server.manage.dal.CmdbDalException: SQL error executing statement update
CDM_LINK_1 set CLASS =(select source.CLASS from CDM_ROOT_1 source where source.CMDB_ID =
CDM_LINK_1.CMDB_ID)
Can't execute prepared statement [update CDM_LINK_1 set CLASS =(select source.CLASS from
CDM_ROOT_1 source where source.CMDB_ID = CDM_LINK_1.CMDB_ID)], due to exception:
java.sql.SQLException: [mercury][Oracle JDBC Driver][Oracle]ORA-01407: cannot update
("CDM_LINK_1"."CLASS") to NULL
```

In this case, verify that the problem is really caused by the inconsistency mentioned above by running the following SQL statement:

select cmdb_id from CDM_LINK_1 l where not exists (select 1 from cdm_root_1 r where r.cmdb_id=l.cmdb_id)

If this SQL statement verifies that the table inconsistency is indeed the problem, correct the problem by running the following SQL statement:

delete from CDM_LINK_1 l where not exists (select 1 from cdm_root_1 r where r.cmdb_id=l.cmdb_id)

Large Number of CIs in the Database

If the number of CIs in the database exceeds 3,000,000 before the upgrade, you must increase the amount of time the connection to the database remains open during the upgrade. In the following setting, increase 18,000,000 milliseconds to 180,000,000 milliseconds:

```
<!-- This setting determines how much time a connection can remained opened against the db -->
    <setting name="db.connection.pool.timeout"
            sectionResource="section.general"
            refreshRate="Reboot"
            displayInUI="true"
            nameResource="db.connection.pool.timeout.name"
            descResource="db.connection.pool.timeout.desc">
        <value type="number">0</value>
        <value deployment="SMALL" type="number">0</value>
        <value deployment="STANDARD" type="number">0</value>

        <value deployment="ENTERPRISE" type="number">180000000</value>
    </setting>
```

Important: After the upgrade, you must return the parameter to its default setting (18,000,000 milliseconds).

Limitations

Note the following limitations:

➤ There is no automatic upgrade for queries using the Application CI type in version 7.x. For the manual upgrade see "Upgrade Application View (From Version 7.x to 8.00)" on page 301.

➤ If you configured a CI Type icon in 7.0x to change according to its CI attribute values, the definition is reset to the default icon after upgrade to version 8.00. To restore the specific non-default icon behavior, you must redefine the icon in the CI Type Manager in version 8.00. For details, see "Icon Page" in *Model Management*.

For details on version 7.0 limitations, see "Upgrade Limitations" on page 181.

Part VIII

Server Administration and Maintenance

23

File Backup Recommendations

This chapter lists the directories that contain key configuration and data files, for which regular backups are recommended.

This chapter includes:

➤ Configuration and Data File Backup on page 317

Configuration and Data File Backup

HP Business Availability Center 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 Availability Center directories that contain such files and should therefore be backed up. All directories are under **<HP Business Availability Center root directory>**.

Resource	Comments
\HPBAC\BLE	Configuration of business rules. Back up if business rules have been created.
\HPBAC\conf	Assorted HP Business Availability Center configuration files.
\HPBAC\CMDB	Dashboard configuration data, such as adapter frameworks and hierarchies.

Resource	Comments
\HPBAC\openldap	System Availability and End User Management Administration configuration data. For further information on backing up the LDAP, see Appendix F, "Backing Up and Restoring Monitor Administration Configuration Data" in the *HP Business Availability Center Database Guide* PDF.
\HPBAC\dat	Assorted HP Business Availability Center configuration files.
\HPBAC\attachments	Data for user-defined daily reports.
\HPBAC\dbverify\conf	Configuration files for dbverify. This directory does not have to be backed up if dbverify has not been run.
\HPBAC\EJBContainer\bin	Configuration files for the scripts used to run HP Business Availability Center, and environment settings.
\HPBAC\launch_service	Various modules used in HP Business Availability Center. Back up if changes were made to any of the installation defaults.
\HPBAC\settings	Aggregation configuration data.
\HPBAC\tools	Various tools and settings for HP Business Availability Center. Back up if HP Business Availability Center tools are used.
\HPBAC\bin	HP Business Availability Center binary files. Back up if changes were made to any of the installation defaults.
\HPBAC\lib	HP Business Availability Center library files. Back up if changes were made to any of the installation defaults.

Resource	Comments
\HPBAC\AppServer\DataEngine	HP Business Availability Center Data Engine configuration files used for obtaining data for reports.
\HPBAC\AppServer\GDE	Configuration files for the Generic Data Engine, used for obtaining data for reports.

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Port Usage

This chapter lists the ports used by HP Business Availability Center for communication.

This chapter includes:

➤ Incoming HP Business Availability Center Traffic on page 322

➤ Outgoing HP Business Availability Center Traffic on page 324

➤ Local HP Business Availability Center Traffic on page 325

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

Incoming HP Business Availability Center Traffic

There are two categories of incoming HP Business Availability Center traffic:

Internal Traffic

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

Port Number	HP Business Availability Center Servers that Listen on Port	Port Usage
4444	Gateway Server, Data Processing Server	Remote Method Invocation (RMI) channel between HP Business Availability Center servers
4445	Gateway Server, Data Processing Server	Remote Method Invocation (RMI) channel between HP Business Availability Center 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 Availability Center servers

External Traffic

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

Port Number	HP Business Availability Center Servers that Listen on Port	Port Usage
80/443	Gateway Server	➤ **80.** HTTP/S channel to Gateway Server applications ➤ **443.** Port for reverse proxy

Outgoing HP Business Availability Center Traffic

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

Port Number	HP Business Availability Center Servers that Connect to Port	Port Usage
25	Gateway Server, Data Processing Server	SMTP channel from the HP Business Availability Center 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 *Platform Administration*.
1433	Gateway Server, Data Processing Server	Connection between the HP Business Availability Center 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 Availability Center servers and the Microsoft SQL Browser Service. This port is in use only when a named instance is used.

Port Number	HP Business Availability Center Servers that Connect to Port	Port Usage
1521	Gateway Server, Data Processing Server	Connection between the HP Business Availability Center servers and the Oracle Server This is the default port. This port may be changed during installation or thereafter.
80/443	Gateway Server	➤ **80.** HTTP/S channel between the Gateway Server and data collectors for remote administration tasks ➤ **443.** Port for reverse proxy

Local HP Business Availability Center Traffic

Once you have installed HP Business Availability Center, 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 Availability Center. 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 Availability Center:

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

Port Usage Table

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

Port Number	HP Business Availability Center 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
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 Availability Center service
11021	Gateway Server, Data Processing Server	HTTP channel for the HP Business Availability Center service
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

Port Number	HP Business Availability Center Servers that Connect to Port	Port Usage
29603	Gateway Server	RMI management channel for the DB Loader process
29903	Gateway Server	HTTP channel for the DB Loader process
29604	Gateway Server	RMI management channel for the Web Data Entry (WDE) process
29904	Gateway Server	HTTP channel for the Web Data Entry (WDE) process
29608	Data Processing Server	RMI management channel for the Offline BLE process
29908	Data Processing Server	HTTP channel for the Offline BLE process
29609	Data Processing Server	RMI management channel for the Online BLE process
29909	Data Processing Server	HTTP channel for the Online BLE process
29610	Data Processing Server	RMI management channel for the Partition and Purging Manager
29910	Data Processing Server	HTTP channel for the Partition and Purging Manager
29611	Gateway Server	RMI management channel for the Web Server Guard process
29612	Data Processing Server	RMI management channel for the CMDB process
29912	Data Processing Server	HTTP channel for the CMDB process
29613	Data Processing Server	RMI management channel for the Viewing System process
29913	Data Processing Server	HTTP channel for the Viewing System process

Port Number	HP Business Availability Center Servers that Connect to Port	Port Usage
29615	Data Processing Server	RMI management channel for the Data Upgrade process
29915	Data Processing Server	HTTP channel for the Data Upgrade process
29616	Gateway Server	RMI management channel for the Scheduler process
29916	Gateway Server	HTTP channel for the Scheduler process
29617	Data Processing Server	RMI management channel for the cmdb_res_utils process
29917	Data Processing Server	HTTP channel for the cmdb_res_utils process
29618	Data Processing Server	RMI management channel for the Scheduler process
29918	Data Processing Server	HTTP channel for the Scheduler process
29619	Data Processing Server	RMI management channel for the Federation CMDB
29919	Data Processing Server	HTTP channel for the Federation CMDB
29620	Data Processing Server	RMI management channel for the BPI repository
29920	Data Processing Server	HTTP channel for the BPI repository
29621	Gateway Server	RMI management channel for the Repeater (used only during upgrade in staging mode)
29921	Gateway Server	HTTP channel for the Repeater (used only during upgrade in staging mode)

Port Number	HP Business Availability Center Servers that Connect to Port	Port Usage
29622	Data Processing Server	RMI management channel for the Operations Manager backend process
29922	Data Processing Server	HTTP channel for the Operations Manager backend process
29807	Gateway Server, Data Processing Server	Shutdown of main bus processes
31000-31999; 32000-32999	Gateway Server, Data Processing Server	HP Business Availability Center 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 Availability Center Service Users

This chapter explains how to change the user for both the HP Business Availability Center service and the OpenLDAP Directory Service.

This chapter includes:

➤ Changing the HP Business Availability Center Service User on page 331

➤ Changing the OpenLDAP Directory Service User on page 333

Changing the HP Business Availability Center Service User

On a Windows platform, the HP Business Availability Center service, which runs all HP Business Availability Center 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 Availability Center service is installed, it is installed as a manual service. When you enable HP Business Availability Center for the first time, it becomes an automatic service.

To change the HP Business Availability Center service user:

1 Disable HP Business Availability Center (**Start** > **Programs** > **HP Business Availability Center** > **Administration** > **Disable Business Availability Center**).

2 In Microsoft's Services window, double-click **HP Business Availability Center**. TheHP Business Availability Center Properties (Local Computer) dialog box opens.

3 Click the **Log On** tab.
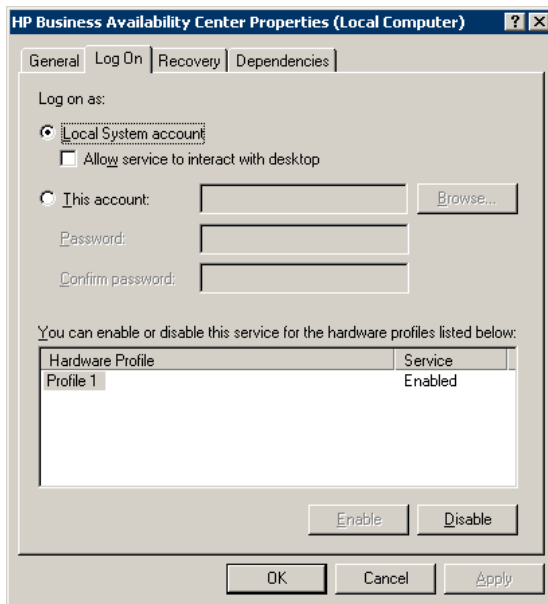
4 Select **This account** and browse to choose another user from the list of valid users on the machine.

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 Availability Center (**Start** > **Programs** > **HP Business Availability Center** > **Administration** > **Enable Business Availability Center**).

Changing the OpenLDAP Directory Service User

If you change the user for the HP Business Availability Center service and want all HP Business Availability Center services and processes to run under the same user, you must also change the user for the OpenLDAP Directory Service, which is run by the HP Business Availability Center service. (The users of all the other services and processes run by the HP Business Availability Center are automatically updated.)

To change the OpenLDAP Directory Service user:

1 Disable HP Business Availability Center (**Start** > **Programs** > **HP Business Availability Center** > **Administration** > **Disable Business Availability Center**).

2 In Microsoft's Services window, double-click **OpenLDAP Directory Service**. The OpenLDAP Directory Service Properties (Local Computer) dialog box opens.

 3 Click the **Log On** tab.
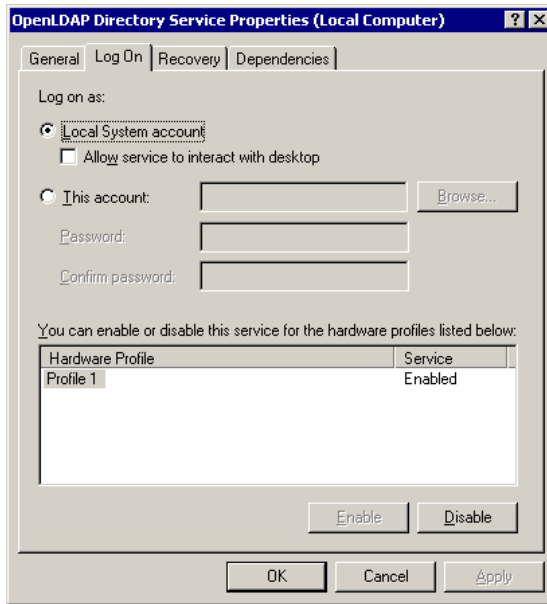
 4 Select **This account** and browse to choose the user you selected to run the HP Business Availability Center service.

 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 Availability Center (**Start** > **Programs** > **HP Business Availability Center** > **Administration** > **Enable Business Availability Center**).

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Using an External HP Universal CMDB

This chapter describes the information you need when using an external HP Universal CMDB and the process of moving from using a CMDB embedded in HP Business Availability Center into a standalone HP Universal CMDB server.

This chapter includes:

➤ Prerequisites and Considerations on page 335

➤ Convert from Using an Embedded CMDB to an External CMDB on page 336

Prerequisites and Considerations

The following are prerequisites for using an external HP Universal CMDB for HP Business Availability Center:

➤ HP Universal CMDB must be installed on a dedicated server. For details on installing HP Universal CMDB, refer to the *HP Universal CMDB Deployment Guide* PDF.

➤ There should be no firewalls between the HP Business Availability Center servers and the HP Universal CMDB.

➤ HP Business Availability Center and the HP Universal CMDB must reside on the same network segment.

➤ Discovery and Dependency Mapping should be connected to the standalone HP Universal CMDB (and not to HP Business Availability Center).

➤ The HP Universal CMDB and HP Business Availability Center must both be the same version. For example, if you are using HP Business Availability Center version 8.01, you must use HP Universal CMDB version 8.01.

The following are considerations to keep in mind when working with an external HP Universal CMDB:

➤ There is functionality that is available in both HP Business Availability Center and standalone HP Universal CMDB. Actions which affect the content of the CMDB itself, such as view creation, can be done in either product and are reflected in both products.

Any action performed that is related to platform administration affects only the product on which it is done. This includes:

➤ Users and Permissions

➤ Reports

➤ Infrastructure Settings

For example, if a user or report is added to HP Universal CMDB, it is not available in HP Business Availability Center.

➤ The System Health in HP Business Availability Center does not monitor standalone HP Universal CMDB servers. If you are using HP Universal CMDB, it is recommended to use HP Universal CMDB's own System Health for monitoring.

Convert from Using an Embedded CMDB to an External CMDB

This task describes how to convert from using an embedded CMDB server to using a standalone HP Universal CMDB server. This task merges only the CMDB data and not any other data from HP Business Availability Center, such as users, reports, scheduled reports, and so forth.

Important: The conversion process works only if the following conditions are met:

➤ You are using HP Business Availability Center 8.01 or higher.

➤ You are installing a new version of HP Universal CMDB, and not one that is already in use. The standalone version of HP Universal CMDB required for this procedure uses the data from HP Business Availability Center. This can only be done with a new installation of HP Universal CMDB.

To convert an embedded CMDB server into a standalone Universal CMDB server:

1 Stop HP Business Availability Center.

2 Optionally, separate the CMDB schema from the Management database, as follows (if your HP Business Availability Center already has separate databases for the CMDB and Management database, skip this step).

  a Backup the Management database.

  b Restore the Management database using a different name that will be used for the CMDB schema.

  c Run the Server and Database Configuration utility for HP Business Availability Center. For details on how to run this utility, see "Running the Server and Database Configuration Utility" on page 165.

  d Connect to the restored database as the CMDB schema.

  e Run the **DBVerify** utility batch file on any HP Business Availability Center server. The file is found in the following path: <**HP Business Availability Center root directory**>/**DBVerify/bin/run_db_verify.bat** (.**sh** for UNIX).

  f Run the SQL statements that the **DBVerify** utiliy generated to fix the CMDB schema. The statements are located in the following file: <**HP Business Availability Center root directory**>/**DBVerify/tmp/**<**SCHEMA_NAME**>.**sql** where <**SCHEMA_NAME**> is the name for the schema used in step d.

  g Run the **DBVerify** utility again and ensure that you removed all unnecessary tables.

3 Install HP Universal CMDB on a separate server. For details, refer to the *HP Universal CMDB Deployment Guide* PDF.

4 Run the HP Universal CMDB configuration wizard, performing the following steps:

   a Create foundation schema.

   b Connect to the existing HP Business Availability Center schemas:

      ➤ **CMDB** (if you separated the CMDB database in this procedure, use the name given in step 2)

      ➤ **History CMDB**

5 Enter the CMDB schema details into the following file: **<HP Business Availability Center root directory>/conf/exportcmdb /db_params.properties**.

6 Run the following script on any HP Business Availability Center server: **<HP Business Availability Center root directory>/bin/move_db2UCMDB.bat** (**.sh** for UNIX).

7 Start the HP Universal CMDB server.

8 Rerun the HP Business Availability Center Server and Database Configuration utility and connect to the standalone HP Universal CMDB server, as follows:

   a Use the existing settings as previously used for the Management and BPI schemas.

   b On the **CMDB schema - CMDB database Settings** page, select **Connect to an existing external UCMDB server**.

   c Click **Next** and enter the relevant details.

   d Click **Finish**.

9 Start HP Business Availability Center.

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Viewing Server Status

This chapter describes the HP Business Availability Center server status HTML page that you can use to view the status of HP Business Availability Center services.

This chapter includes:

➤ Viewing the Status of the Services on page 339

Viewing the Status of the Services

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

Note: If the Dashboard service is not running, check whether you have a license for Dashboard. Ifother services are not running, contact HP Software Support to try and resolve the problem.

Part IX

Accessing HP Business Availability Center

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HP Business Availability Center Start Menu

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

This chapter includes:

➤ Start Menu on page 344

Start Menu

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

➤ "Administration" on page 344

➤ "Documentation" on page 345

➤ "Open Business Availability Center" on page 345

Administration

The Administration menu option includes the following sub-options:

Sub-option	Description
Connect to Database	Runs the Server and Database Configuration utility, which enables you to create and connect to management, CMDB, and CMDB history databases/user schemas for HP Business Availability Center on Microsoft SQL Server or Oracle Server. For details, see "Setting Database Parameters on a Windows Platform" on page 159 or "Setting User Schema Parameters on a Solaris Platform" on page 205.
Disable Business Availability Center	Stops HP Business Availability Center on the specific machine, and disables it from being run automatically whenever the machine is started.
Enable Business Availability Center	Starts HP Business Availability Center on the specific machine, and sets it to be run automatically whenever the machine is started.
HP Business Availability Center Server Status	Opens an HTML page that you use to view the status of the services run by the HP Business Availability Center service and High Availability Controller. For details on this HTML page, see "Viewing Server Status" on page 339.

Documentation

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

Sub-option	Description
HP Business Availability Center Documentation Library	Opens the HP Business Availability Center Documentation Library home page in your Web browser.
HP Business Availability Center Deployment Guide	Opens a PDF version of the *HP Business Availability Center Deployment Guide* PDF.

Open Business Availability Center

Selecting this option opens a Web browser displaying the HP Business Availability Center application login page.

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Initial Login to HP Business Availability Center

This chapter describes how to log in to HP Business Availability Center for the first time.

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Viewing HP Business Availability Center

You view HP Business Availability Center within a supported Web browser. To access HP Business Availability Center, the client machine must have a network connection (intranet or Internet) to the HP Business Availability Center servers. For details on Web browser requirements as well as minimum requirements to successfully view HP Business Availability Center, see "Reviewing System Requirements" on page 53.

Note to HP Software-as-a-Service customers: You access HP Business Availability Center via the HP Software-as-a-Service Web site (mms.mercury.com).

Logging In

You log in to HP Business Availability Center from the login page. LW-SSO is HP Business Availability Center's default authentication strategy. When LW-SSO is enabled, you must use a fully qualified domain name (FQDN) to access HP Business Availability Center. For details, see "Logging Into HP Business Availability Center with Lightweight Single Sign-On (LW-SSO)" 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, you do not need to enter a FQDN to access HP Business Availability Center. For details on selecting an authetication strategy, see "Authentication Strategies" in *Platform Administration*.

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

To access the HP Business Availability Center login page and log in for the first time:

1 In the Web browser, enter the URL http://<server_name>.<domain_name>/HPBAC (**hpbac** can also be used), where **server_name** and **domain_name** represent the FQDN of the HP Business Availability Center server. If there are multiple servers, or if HP Business Availability Center is deployed in a distributed architecture, specify the load balancer or Gateway Server URL, as required.

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

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2 Enter the default superuser login parameters—Login Name=**admin**, Password=**admin**—and click **Log In**. After logging in, the user name appears at the top right.

3 (Highly recommended) Change the superuser password immediately to prevent unauthorized entry. For details on changing the password, see "User Management" in *Platform Administration*.

4 (Recommended) Create additional administrative users to enable HP Business Availability Center administrators to access the system. For details on creating users in the HP Business Availability Center 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 Availability Center, see "Authentication Strategies - Overview" in *Platform Administration*.

➤ For details on accessing HP Business Availability Center securely, see the *HP Business Availability Center 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.

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