HP Universal CMDB

for the Windows and Solaris operating systems

Software Version: 7.50

Deployment Guide

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This manual's title page contains the following identifying information:

- Software version number, which indicates the software version
- Document release date, which changes each time the document is updated
- Software release date, which indicates the release date of this version of the software

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- 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

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Welcome to This Guide

Welcome to the HP Universal CMDB Deployment Guide. This guide introduces you to HP Universal CMDB, provides information on getting started, describes server installation, server hardening, and details the upgrade process.

This chapter includes:

How This Guide Is Organized

This guide contains the following parts:

Part I Introduction

Introduces the components that are installed during HP Universal CMDB installation, and provides the installation workflow and deployment choices.

Part II Installation

Describes the installation procedure for the HP Universal CMDB server, including database configuration.

Part III Upgrading HP Universal CMDB

Explains the procedures for upgrading (migrating) HP Universal CMDB to version 7.0.

Part IV Hardening HP Universal CMDB

Explains the procedures for hardening the HP Universal CMDB server.

Part V Disaster Recovery

Describes the basic principles and guidelines on how to set up a Disaster Recovery system.

Part VI Accessing HP Universal CMDB

Includes information on logging in to HP Universal CMDB for the first time immediately following installation, and the Start menu.

Who Should Read This Guide

This guide is for the following users of HP Universal CMDB:

- IT administrators
- System administrators
- Database administrators

Readers of this guide should be knowledgeable about IT, system, and database administration, and should be highly knowledgeable in application installation.

HP Universal CMDB Documentation

HP Universal CMDB documentation provides complete information on deploying, administering, and using HP Universal CMDB.

HP Universal CMDB includes the following documentation:

Readme (including What's New). Provides a list of new features, version limitations and last-minute updates. In HP Universal CMDB, select **Help** > **What's New**. You can also access the most updated readme file from the Customer Support Web site.

Online Help. You access HP Universal CMDB Help by selecting **Help** > **UCMDB Help** in HP Universal CMDB. Context-sensitive help is available from specific HP Universal CMDB pages by clicking **Help** > **Help on this page** and from specific windows by clicking the **Help** button.

HP Universal CMDB Help includes the following online guides:

- Documentation Updates. Lists details of updates to the HP Universal CMDB Help.
- Glossary. Defines key terms used in HP Universal CMDB.
- Discovery. Describes the HP Universal CMDB Discovery process that enables you to collect data about your system by discovering the IT infrastructure resources and their interdependencies.
- Model Management. Describes how to to build and administer a CMDB-based model of your IT organization.
- CI Attribute Customization. Describes how to create and customize configuration items and the objects that influence their display and behavior.
- Reference Information. Describes common user interface elements, the HP Universal CMDB API, dates and times, and troubleshooting.

Books Online/Printer-Friendly Documentation. All HP Universal CMDB documentation is available in PDF format. To access PDF files, in HP Universal CMDB, select **Help** > **UCMDB Help** and select the PDFs tab.

The following Books Online guides are only available in PDF format and can also be accessed from the Main Topic tab in the HP Universal CMDB Help:

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

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).

Additional Online Resources

Troubleshooting and 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 and 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

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Typographical Conventions

This guide uses the following typographical conventions:

UI Elements and **Function Names**	This style indicates the names of interface elements on which you perform actions, file names or paths, and other items that require emphasis. For example, "Click the **Save** button." It also indicates method or function names. For example, "The **wait_window** statement has the following parameters:"
Arguments	This style indicates method, property, or function arguments and book titles. For example, "Refer to the *HP User's Guide*."
<**Replace Value**>	Angle brackets enclose a part of a file path or URL address that should be replaced with an actual value. For example, <**MyProduct installation folder**>**bin**.
Example	This style is used for examples and text that is to be typed literally. For example, "Type Hello in the edit box."
CTRL+C	This style indicates keyboard keys. For example, "Press ENTER."
[ ]	Square brackets enclose optional arguments.
{ }	Curly brackets indicate that one of the enclosed values must be assigned to the current argument.
...	In a line of syntax, an ellipsis indicates that more items of the same format may be included. In a programming example, an ellipsis is used to indicate lines of a program that were intentionally omitted.
|	A vertical bar indicates that one of the options separated by the bar should be selected.

Part I

Introduction

1

Introduction to HP Universal CMDB

This chapter introduces HP Universal CMDB, the main stages of the HP Universal CMDB installation, presents the installation workflow, provides prerequisite hardware, software, and configuration information, and helps you to get started.

This chapter includes:

HP Universal CMDB Overview

This section includes the following topics:

➤ "Discovery and Dependency Mapping" on page 21

➤ "Topology Query Language (TQL)" on page 21

About HP Universal CMDB

HP Universal CMDB consists of a rich business-service-oriented data model with built-in discovery of configuration items (CIs) and configuration item dependencies, visualization and mapping of business services, and tracking of configuration changes.

HP Universal CMDB enables you to manage all the CIs contained in a managed world. A managed world refers to any self-contained environment that can be described using a topology model (defined with HP's Topology Query Language (TQL)). For example, the IT infrastructure of a large business represents a managed world, where the topology is comprised of multiple layers such as networks, protocols, databases, operating systems, and so on. You manage Views to view the information in exactly the format you require.

Additionally, the information contained in the results of each TQL is updated automatically with the latest data entering the configuration management database (CMDB). As a result, once a TQL and View have been defined, they continue to provide updated information about the current state of your managed world. Views are displayed in multi-level maps that enable you to identify key CIs, as required. You can also create reports (in HTML, Excel or table format) about information collected by the system.

HP Universal CMDB addresses the following operational and functional needs:

➤ **IT resources and application alignment.** Automatic discovery of IT resources and their interdependencies from a business service perspective.

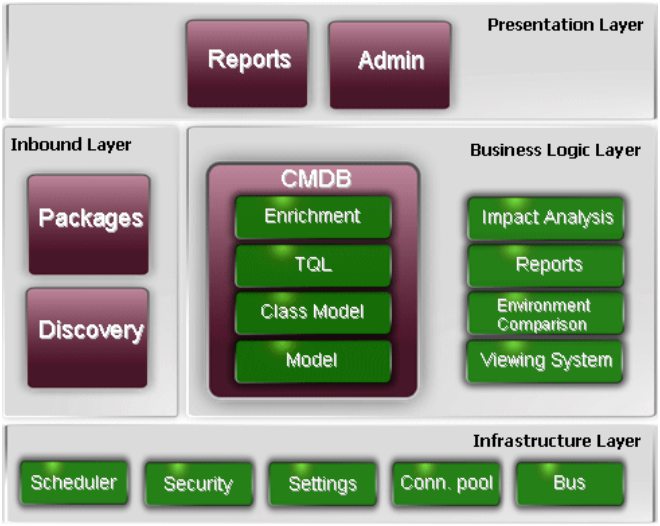
➤ **Problem isolation and problem resolution.** Understanding the causal relationships between CIs to locate and address the root cause of infrastructure problems and reduce troubleshooting time.

➤ **Business impact analysis.** Evaluating the impact of infrastructure events on business services to assess their implications and prioritize the responses to them.

- **Asset and change management control.** Automatic detection of infrastructure changes, to enable automatic updating of all the relevant sub-systems.
- **Customized state management (performance, change).** Ability to define a CI management state.
- **Performance management and capacity planning.**
- **Architecture and infrastructure planning.**
- **Federation and reconciliation data.** Retrieved from existing repositories and other CMDBs.

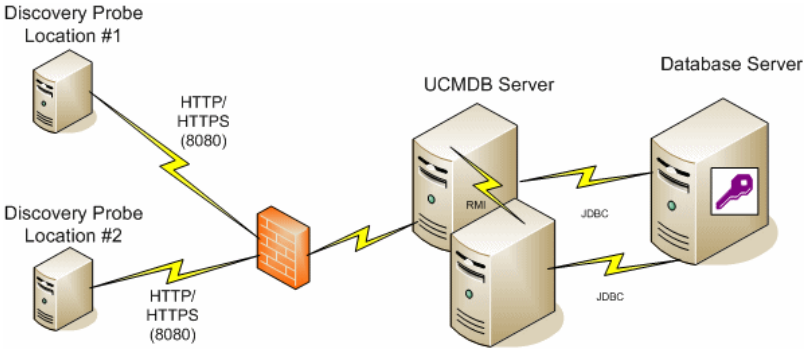
HP Universal CMDB System Architecture

The following diagram provides a graphical overview of the HP Universal CMDB system architecture:



HP Universal CMDB Deployment

The following diagram provides a graphical overview of a typical deployment of the HP Universal CMDB system.



The Configuration Management Database (CMDB)

The CMDB is the central repository for the configuration information gathered by HP Universal CMDB and the various third-party applications and tools.

The CMDB contains CIs and relationships that are created automatically from the discovery process or inserted manually. The CIs and relationships together represent a model of the components of the IT world in which your business functions.

The CMDB also stores and handles the infrastructure data collected and updated by Discovery and Dependency Mapping.

The IT model can be very large, containing thousands of CIs. To facilitate the management of these CIs, you work with the CIs in a View that provides a subset of the overall components in the IT world.

You use views (factory views supplied with HP Universal CMDB or defined in the Topology Map), to display and manage the CIs and relationships in the CMDB. The views enable you to focus on specific IT areas.

The CMDB also contains the TQL query definitions that are used to query and retrieve data from the CMDB, for presentation in:

- pattern views (views based on TQLs)
- the configuration item type (CIT) model (a repository for all CI types and relationship definitions)

Note: You can connect to the CMDB from other HP products. For details, refer to the product's installation documentation.

Discovery and Dependency Mapping

The discovery process is the mechanism that enables you to collect data about your system by discovering the IT infrastructure resources and their interdependencies (relationships). DDM can discover such resources as applications, databases, network devices, different types of servers, and so on. Each discovered IT resource is delivered and stored in the configuration management database (CMDB) where it is represented as a managed configuration item (CI).

Topology Query Language (TQL)

TQL is a language and tool for discovering, organizing, and managing IT infrastructure data. TQL is used to create queries that retrieve specific data from the configuration management database (CMDB) and display that data.

TQL queries constantly search the CMDB for changes that occur in the state of managed resources, and inform and update the relevant subsystems.

TQL extends the traditional query languages by adding two important capabilities:

- TQL enables HP Universal CMDB to draw conceptual relationships between configuration items (CIs), which represent their actual interdependencies. Using predefined operators, the different types of interconnections that exist between CIs can be established, and consequently the infrastructure design and performance are more accurately represented. This representation serves as a basis and a model for the discovery, arrangement, query, and management of complex infrastructures.
- TQL has a graphical aspect, consisting of visual symbols and syntax that represent the resources and their interconnections. This visualization of an IT infrastructure simplifies the understanding, monitoring, and managing of the IT business operations.

Installation Procedure Overview

During installation the following HP Universal CMDB components are installed:

- HP Universal CMDB server
- Foundations CMDB
- Configuration management database (CMDB)
- History CMDB
- HP Universal CMDB packages
- Discovery and Dependency Mapping (DDM) Probe (if a suitable license is present – for details, see "Licensing Models" in *Discovery and Dependency Mapping Guide*)

Important: HP Universal CMDB must **not** be installed more than once on a server even if the instances are installed in different folders or are different versions.

This section includes the following topics:

Installation Stages

The installation workflow contains the following main stages:

1 Set up the Foundation, CMDB, and History databases on Microsoft SQL Server or schemas on Oracle Server, on a Windows platform.

Set up the Foundation, CMDB, and History schemas on Oracle Server, on a Solaris platform.

For details, see "Deploying and Maintaining the Microsoft SQL Server Database" and "Deploying and Maintaining the Oracle Server Database" in the *HP Universal CMDB Database Guide* PDF.

2 If you are installing the Standard or Advanced Edition, you must obtain the appropriate license and place it on a machine that is accessible from the machine on which you are installing HP Universal CMDB. For details, see "Licensing Models" in *Discovery and Dependency Mapping Guide*.

3 Install the HP Universal CMDB server. For details, see Chapter 4, "HP Universal CMDB Installation on a Windows Platform" or Chapter 5, "HP Universal CMDB Installation on a Solaris Platform."

At the end of the server installation, the installation procedure continues directly to the installation of the databases (Foundation, CMDB, and History). You can create a new database (Microsoft SQL Server) or schema (Oracle Server), or you can connect to an existing database or schema.

Note: Factory packages are deployed automatically only once on the first server startup.

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4 Install the collectors (DDM Probes). For details, see "Installing the Probe" in *Discovery and Dependency Mapping Guide*.

Note: For a Solaris installation, you install the DDM Probes from the Windows CD-ROM.

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5 Set the UCMDB Server Service authentication permissions. For details, see "Authentication Options" on page 34.

Launching HP Universal CMDB

For details, see "Logging In" on page 203.

The Installation CD-ROMs

You install HP Universal CMDB using the Windows or Solaris CD-ROM:

- HP Universal CMDB Windows Installation CD-ROM
- HP Universal CMDB Solaris Installation CD-ROM

This section lists the installation files and their descriptions.

Installation File	Description
DiscoveryProbe.exe	Installs the DDM Probe (also called a collector)
UCMDBServer.exe	Installs the HP Universal CMDB server on a Windows platform
./UCMDBServer.bin	Installs the HP Universal CMDB server on a Solaris platform

Installation Prerequisites for Windows Platform

Consider the following issues before installing HP Universal CMDB on a Windows platform:

- Do not install HP Universal CMDB on a drive that is mapped to a network resource.
- Due to Web browser limitations, the names of server machines running the HP Universal CMDB server should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.).

  If the names of the machines running the HP Universal CMDB servers contain underscores, it may not be possible to log in to HP Universal CMDB. In this case, you should use the machine's IP address instead of the machine name.
- Database user and password names can contain alphanumeric characters from the database character set as well as the underscore sign. Names must begin with an alphabetic character and should not exceed 30 characters.
- User and Login names should not exceed 50 characters.
- Names must begin with a letter.
- The HP Universal CMDB program directory cannot contain non-English characters.

Installation Prerequisites for Solaris Platform

Consider the following issues before installing HP Universal CMDB on a Solaris platform:

- It is recommended that you install HP Universal CMDB servers to a drive with at least 4 GB of free disk space.
- HP Universal CMDB servers must not be installed on a machine that has other HP products installed on it.
- HP Universal CMDB servers must not be installed on a drive that is mapped to a network resource.

- You must install the latest recommended Patch Cluster for the Solaris operating system version on each HP Universal CMDB 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.
- The following files must be located on each HP Universal CMDB server machine. If these files are missing, the installation may fail:

  /usr/xpg4/bin/id

  /usr/openwin/bin/xdpyinfo
- You must be a root user to install HP Universal CMDB on the server machine.
- Database user and password names can contain alphanumeric characters from the database character set as well as the underscore sign. Names must begin with an alphabetic character and should not exceed 30 characters.
- The only supported installation method is to mount the HP Universal CMDB Setup CD-ROM on a Solaris machine with a CD-ROM device. You can then either install directly from the CD-ROM or copy the files to a directory on a Solaris machine and install from there. If you copy files from a Windows operating system to a Solaris operating system, there may be a loss of files during installation.
- You install HP Universal CMDB in UI mode. You cannot install the HP Universal CMDB server using MS-DOS Telnet or any kind of serial console connection.
- The DISPLAY environment variable must be properly configured on the HP Universal CMDB server machine. The machine you are installing from must be running an X-server.

Hardware and Software Requirements

This section describes the setup needed for HP Universal CMDB.

This section includes the following topics:

Note: For details on the DDM Probe hardware and software requirements, see "Probe Installation Requirements" in *Discovery and Dependency Mapping Guide*.

Server Requirements

Note: HP Universal CMDB is always installed in a one-machine deployment, for small, standard, and enterprise size systems.

Hardware Requirements

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 CPU Cores, depending on your deployment configuration: ➤ Small deployment: 1 CPU ➤ Standard deployment: 1 CPU (recommended 2 CPUs) ➤ Enterprise deployment: 2 CPUs **Solaris:** ➤ Recommended for standard and enterprise deployments: Sun Fire V490 Server with 2 UltraSPARC IV 1.8 GHZ ➤ Minimum: Sun Fire V240 machine with dual UltraSPARC-IIIi processor 1.5GHZ **Note**: As HP Universal CMDB performance is dependent upon processor speed, to ensure proper HP Universal CMDB performance, it is recommended to use the fastest possible processor speed.

Memory	**Windows:** Small deployment: ➤ Recommended: 2 GB RAM Standard deployment: ➤ Minimum: 2 GB RAM ➤ Recommended: 4 GB RAM Enterprise deployment: ➤ Recommended: 8 GB RAM **Note:** 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. **Solaris:** Recommended: 8 GB RAM
Virtual memory/ Memory swap file	**Windows:** ➤ Small deployment: 3 GB ➤ Standard deployment: 6 GB ➤ Enterprise deployment: 12 GB **Solaris:** Minimum 4 GB **Note:** The virtual memory/memory swap space should always be at least 1.5 times the physical memory size.
Free hard disk space	Minimum 3 GB (recommended: 5 GB hard disk)
Display	**Windows:** Color palette setting of at least 256 colors (recommended: 32,000 colors) **Solaris:** X-server installed

Capacity Planning Requirements

The following table lists the number of host resource CIs you can discover for each managed host in your environment. This number depends on the size of your deployment and the number of managed hosts: The more managed hosts you maintain in the CMDB, the less resource CIs you can discover for each managed host.

For example, in an Enterprise deployment, if you are running 28,000 managed hosts, you can discover 160 resource CIs for each managed host. If you are running only 9,000 managed hosts, you can discover 500 resource CIs for each managed host.

Deployment	Number of Managed Hosts/Host Resource CIs
Enterprise	28000/160 – 9000/500
Standard	9000/160 – 3000/500
Small	4500/160 – 1000/500

Software Requirements

Operating system	**Windows:** ➤ Minimum for all deployments: ➤➤ Windows Server 2000 32-Bit Edition, Service Pack 4 or later, ➤➤ Windows Server 2003 32-Bit Standard Edition, Service Pack 1 or later ➤ Highly recommended for Enterprise deployment: ➤➤ Windows Advanced Server 2000 32-Bit Edition, Service Pack 4 or later ➤➤ Windows Server 2003 32-Bit Enterprise Edition, Service Pack 1 or later **Note:** It is recommended that Dr. Watson be enabled and configured in automatic mode (after running Dr. Watson, Drwtsn32.exe, at least once). To set up automatic mode, search for **\\HKEY_LOCAL_MACHINE\Software\Microsoft\Windows NT\CurrentVersion\AeDebug** in the Windows Registry and set the value of the Auto parameter to **1**. **Solaris:** ➤ Sun Solaris 8, Sun Solaris 9, Sun Solaris 10 **Note:** Regardless of the operating system version, the entire Distribution (with OEM support) and the latest recommended Patch Cluster are required.

Web Browser	**Windows:** Microsoft Internet Explorer (IE) 6.0, Service Pack 1 or later **Note:** Browser should be set to accept all cookies. If the browser is not set to accept all cookies, the application cannot work.
Supported databases	**Windows:** Oracle Enterprise Edition 10g (recommended Oracle release), Oracle Enterprise Edition Server 9.2.0.6, Microsoft SQL Server 2005 32-bit Enterprise Service Pack 1 (recommended), or Microsoft SQL Server 2000 Enterprise Service Pack 4 **Note:** Oracle environments for Oracle Enterprise Edition 9i are 32-bit on all platforms and for Oracle Enterprise Edition 10g, 32-bit for Windows and 64-bit for UNIX. **Solaris:** Oracle Enterprise Edition Server 9.2.0.6, Oracle Enterprise Edition Server 10.2.0.1 (recommended) For more information on supported and recommended database environments when working with HP Universal CMDB, see "Introduction to Preparing the Database Environment" in the *HP Universal CMDB Database Guide* PDF.
Java Runtime Environment	JRE 1.5.0 – installed with the JBoss application server (J2F)

Client Requirements

Software Requirements

Supported browsers	Windows: Internet Explorer (IE) 6.0, Service Pack 1 or later (including 7.0) **Note**: Browser should be set to accept all cookies.
Screen resolution	Minimal resolution: 1024x768. We recommend using 1280x1024. For wide screens (for example, for the 15.4" laptops) the best resolution is 1600x1050

Java Runtime Environment (for applets)	1.6.0_x (latest version recommended). For details on working with applets, see "The HP Universal CMDB Applets and Java" on page 32. **Note:** If you are using Microsoft Internet Explorer, you can download the Sun JRE from the Java Web site (http://java.com/). After installation, verify that the browser is using the correct Java version: Click **Tools** > **Internet Options** > **Advanced** tab, and select the **Java (Sun)** check box. Click **OK**, then close the browser and reopen it.
Flash Player (to view charts in reports)	Acrobat Flash 8 or later

Database System Requirements

Oracle System Requirements

Refer to the Oracle installation guide for the specific Oracle platform. Additional information is available in the Oracle software distribution media as well as in the online Oracle documentation (http://otn.oracle.com/documentation/index.html). HP Universal CMDB supports both Solaris and Windows database servers.

For details on the certified and supported database types, see "Software Requirements" in the *HP Universal CMDB Database Guide* PDF.

Microsoft SQL Server System Requirements

For Windows platform only.

For details on the certified and supported database types, see "Software Requirements" in the *HP Universal CMDB Database Guide* PDF.

The HP Universal CMDB Applets and Java

To work correctly, the HP Universal CMDB applets used in **Admin** > **Modeling** > **IT Universe Manager** and **Application** > **Topology View** may require more memory than is allocated by default, especially when you view very large maps or use the applet for a long time without restarting the browser.

To change the memory allocation, modify a file on the client machine (on the machine of the user who will be using the applet):

1. On Windows machines, open the file **..\Documents and Settings\%USERPROFILE%\Application Data\Sun\Java\Deployment\deployment.properties**.
2. Change the line with the latest Java version by adding to the end of it the text **-XmxYYYm**, where **YYY** is the amount of memory (in megabytes) you want to allocate to the Java applet. For example,

```
deployment.javapi.jre.1.6.0_05.args=-Xmx128m
```

allocates 128 megabytes of memory to the applet.

The default value (if no **-Xmx** parameter exists) is **64MB**. You can experiment with the values 128 MB and 256 MB. It is unadvisable to use more than 256 MB. If Java is unable to acquire the specified memory it fails to load. In this case, set the memory allocation value to a lower value.

Note: You can also make this change by selecting **Start** > **Settings** > **Control Panel**. Double-click the Java icon and click the **Java** tab. Click the **View** button for Runtime settings are used when an applet is executed. Make changes in the Java Runtime Parameters field according to the above instructions.

Authentication Options

After the database configuration process is successfully completed, you can set the login credentials for the UCMDB Server Service. Go to **Start** > **Settings** > **Control Panel** > **Administrative Tools** > **Services**, select UCMDB Server Service from the Services directory, and right-click **Properties**. Click the Log On tab, select **This account,** and enter the account name and password for the computer. Then start the HP Universal CMDB server.

The login credentials used by the UCMDB Server Service require the following minimum permissions:

- sufficient database permissions (as defined by the database administrator)
- sufficient network permissions (for accessing the shared adapters' folders)
- administrator permissions on the local server

Note: The authentication process is not relevant in a Solaris environment.

Migrating from Previous Versions

You can migrate HP Universal CMDB resources from version 3.0 to version 6.5 for a Windows installation. For details, see Chapter 8, "Migrating Mercury Application Mapping from Version 3.0 to Version 6.5."

For details on upgrading HP Universal CMDB from version 6.x to 7.0, see Chapter 10, "Upgrading HP Universal CMDB to Version 7.0."

2

Getting Started with HP Universal CMDB

This chapter describes the high-level tasks you perform to set up and start working with HP Universal CMDB.

This chapter includes:

Predeployment Planning

Deploying HP Universal CMDB in an enterprise network environment is a process that requires resource planning, system architecture design, and a well-planned deployment strategy. The following checklist 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.

Use the following checklist to review the basic issues that your organization should consider when planning the HP Universal CMDB deployment.

✔	**Step**
	Define the goals of the project.
	Define the protocols to be used for Discovery and Dependency Mapping (DDM) and ensure that the protocols are available for use.
	Verify that you have access rights for the protocols to be used for DDM. Ask the system administrator for the user name and password for the relevant protocols.
	Define the speed and utilization of the network subnets to be discovered. You may find that you need to increase timeouts for some of the protocols.
	Verify whether the following applications use the default ports. If they are not using the default ports, check which ports they are using. ➤ FTP ➤ IBM HTTP Server ➤ IIS ➤ Microsoft SQL Server ➤ Oracle Server ➤ SAP ➤ SNMP ➤ Siebel ➤ WebLogic ➤ WebSphere
	Identify the components to be discovered: ➤ Server hardware platform ➤ Server operating system and version ➤ Network device types

✔	Step
	Install the following tools and utilities to help analyze discovery processes: ➤ SNMP tool ➤ WMI tool ➤ LDAP browser ➤ Log file tailer (for example, BareTail for Windows or a UNIX tail utility)
	Define what you want to do with HP Universal CMDB: ➤ System component mapping ➤ Root cause analysis ➤ Impact analysis ➤ Data center relocation/consolidation
	Analyze the IT processes and organizational structure and culture that can affect, or be affected by, the deployment.
	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, application owners, system administrators, security auditors, and so on.
	Align the project with current performance management practices.
	Define the project deliverables, including setting expectations regarding measurements, features, the deployment scope, and maturity levels.
	Identify the appropriate HP Universal CMDB functionality.
	Build a deployment roadmap.
	Define success criteria for the project.
	Decide how often you want to run DDM. For details, see"Discovery Scheduler Dialog Box" in *Discovery and Dependency Mapping Guide*.

Getting Started

This section provides a basic, step-by-step roadmap for getting started with HP Universal CMDB.

1 Read about where to get help.

Learn about the various sources of assistance, including HP Professional Services and HP Software Support, as well as HP Universal CMDB Documentation. For details, see "Welcome to This Guide" in this book.

2 Learn about the HP Universal CMDB components.

Learn about the components that power the HP Universal CMDB system. For details, see "HP Universal CMDB Overview" on page 17.

3 Plan your HP Universal CMDB deployment.

Create a complete deployment plan prior to installing HP Universal CMDB. Use the Predeployment Planning checklist to assist you. For in-depth deployment planning best practices, consult your HP Professional Services representative. For details, see "Predeployment Planning" on page 35.

4 Install HP Universal CMDB components.

Install the Server (on a Windows or Solaris system) and DDM Probe. For details, see "Installation Procedure Overview" on page 22 and Part II, "Installation."

5 Log in to HP Universal CMDB.

Launch HP Universal CMDB. For details, see Chapter 18, "Initial Login to HP Universal CMDB."

6 Initiate system administration.

Set up the HP Universal CMDB system. For details, see "Settings" in *Model Management*.

Basic Administration Tasks

This section provides a checklist for basic administration and configuration tasks. You use this checklist to review the basic administration tasks required to set up the HP Universal CMDB system.

1 **Set up Discovery and Dependency Mapping (DDM).**

Licensed DDM users can run the discovery process to identify IT resources in the network infrastructure. For details, see *Discovery and Dependency Mapping Guide*.

2 **When setting up DDM, request the following from the system administrator:**

- Operating system credentials
- Network protocol credentials
- Application credentials

3 **Set up users.**

Define permissions for views. Permissions permit or deny users access to views, TQLs, and other components. For details, see "Set Up Users" and "Security Manager User Interface" in *Model Management*.

4 **Configure recipients of scheduled reports, including method of delivery.**

For details, see "Sending a Report by E-Mail" in *Reports*.

5 **Manually build your IT universe model by defining configuration items (CIs) and CI relationships in the model.**

Divide the model into views that represent logical subsets of the overall model. Add CIs based on discovered network resources or manually define infrastructure components.

For details, see:

- "Model Management" in *Model Management*.
- "View Manager" in *Model Management*.

3

Viewing Server Status

This chapter describes the HP Universal CMDB server status HTML page that you can use to view the status of HP Universal CMDB services and contains a description of the services.

This chapter includes:

Viewing the Status of HP Universal CMDB Services

You can view the status of the services run by the HP Universal CMDB service on the HP Universal CMDB server status HTML page that you access by selecting **Start** > **Programs** > **HP UCMDB** > **HP Universal CMDB 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 Universal CMDB 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.

Server is READY

Nanny Status

ServiceName	ProcessName	Status	ExecutionOrder
domain_manager	DomainManager	STARTED	2
message_broker	MessageBroker	STARTED	4
mercuryAS	MercuryAS	STARTED	6
cmdb	mercury_cmdb	STARTED	12
fcmdb	mercury_fcmdb	STARTED	13
cmdb_res_utils	cmdb_res_utils	STARTED	13
mam	mercury_mam	STARTED	14

HAC Status

Service	Process	Ping	State - [Since] - [Duration]
CMDB	cmdb	4s	RUNNING - [23/Mar/2008 10:54:33] - [1d:22h:44m]
MAMVIEWSYS	mam	0 sec.	RUNNING - [23/Mar/2008 10:55:08] - [1d:22h:44m]
MAMPACKAGER	mam	0 sec.	RUNNING - [23/Mar/2008 10:58:04] - [1d:22h:41m]
MAMBASIC	mam	0 sec.	RUNNING - [23/Mar/2008 10:54:49] - [1d:22h:44m]
MAMDISCOVERY	mam	0 sec.	RUNNING - [23/Mar/2008 10:55:48] - [1d:22h:43m]
MAMIMPACT	mam	0 sec.	RUNNING - [23/Mar/2008 10:55:08] - [1d:22h:44m]
MAMREPORT	mam	0 sec.	RUNNING - [23/Mar/2008 10:55:08] - [1d:22h:44m]
MAMCONFIG	mam	0 sec.	RUNNING - [23/Mar/2008 10:55:08] - [1d:22h:44m]
FCMDB	fcmdb	10s	RUNNING - [23/Mar/2008 10:55:01] - [1d:22h:44m]
CMDB_SYS_TQLS	cmdb	4s	RUNNING - [23/Mar/2008 10:54:43] - [1d:22h:44m]
CMDB_RES_UTILS	cmdb_res_utils	4s	RUNNING - [23/Mar/2008 10:54:46] - [1d:22h:44m]
CMDB_MOD_NOT	cmdb	4s	RUNNING - [23/Mar/2008 10:55:43] - [1d:22h:43m]
CMDB_RECONCILE	cmdb	4s	RUNNING - [23/Mar/2008 10:55:43] - [1d:22h:43m]

Note: If there are services that are not running, contact HP Software Support to try and resolve the problem.

HP Universal CMDB Services

The HP Universal CMDB Server services are described in the following table:

Service Name	Description of Service
CMDB	A central repository for configuration information that is gathered from the various HP Universal CMDB and third-party applications and tools. This information is used to build HP Universal CMDB views. **Note**: The CMDB service is not necessarily run by the mercury_as process.
MAMVIEWSYS	Responsible for the viewing system in HP Universal CMDB.
MAM PACKAGER	Responsible for packages. Packages are zip files containing resources that are structured in organized, predefined subdirectories.
MAM BASIC	Responsible for user management, system parameters, and login/logout services.
MAM DISCOVERY	Responsible for Discovery and Dependency Mapping-related services.
MAM IMPACT	Responsible for HP Universal CMDB impact, root cause, and correlation subsystems.
MAM REPORT	Responsible for HP Universal CMDB report services, such as adding, editing, and removing System reports, calculation of Asset reports, Host Dependency reports.
MAM CONFIG	Responsible for snapshots, CI change queries, and TQL/View History queries.
FCMDB	Responsible for retrieving federated data from external data sources for replication tasks and federated queries.
CMDB_SYS_TQLS	Responsible for the conditions applied to TQL nodes, and the condition results that are stored in the system TQL.

Service Name	Description of Service
CMDB_RES_UTILS	Responsible for storing the calculations of TQL and Enrichment results.
CMDB_MOD_NOT	Responsible for notifications of changes that occur in the CMDB.
CMDB_ RECONCILE	Responsible for the reconciliation engine of HP Universal CMDB.

Part II

Installation

4

HP Universal CMDB Installation on a Windows Platform

This chapter describes the procedures to be performed to install HP Universal CMDB on a Windows system.

Note:

- It is highly recommended to thoroughly read the introduction to this guide before commencing installation. For details, see Chapter 1, "Introduction to HP Universal CMDB."
- For details on troubleshooting login, see "Troubleshooting Login" in *Reference Information*.
- **Important:** HP Universal CMDB must **not** be installed more than once on a server even if the instances are installed in different folders or are different versions.
- For details on upgrading from version 7.x to 7.5, see Chapter 11, "Upgrading HP Universal CMDB to Version 7.50."

This chapter includes:

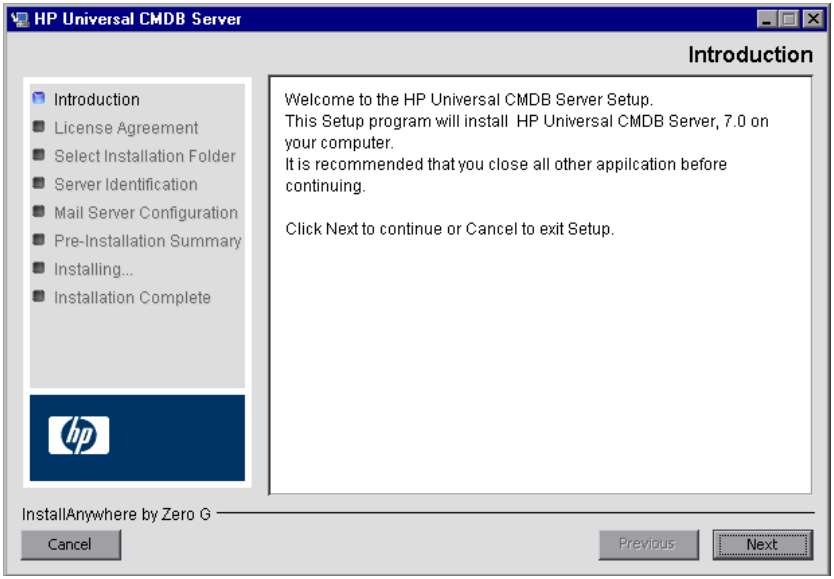
Installation Procedure

The following procedure explains how to install HP Universal CMDB.

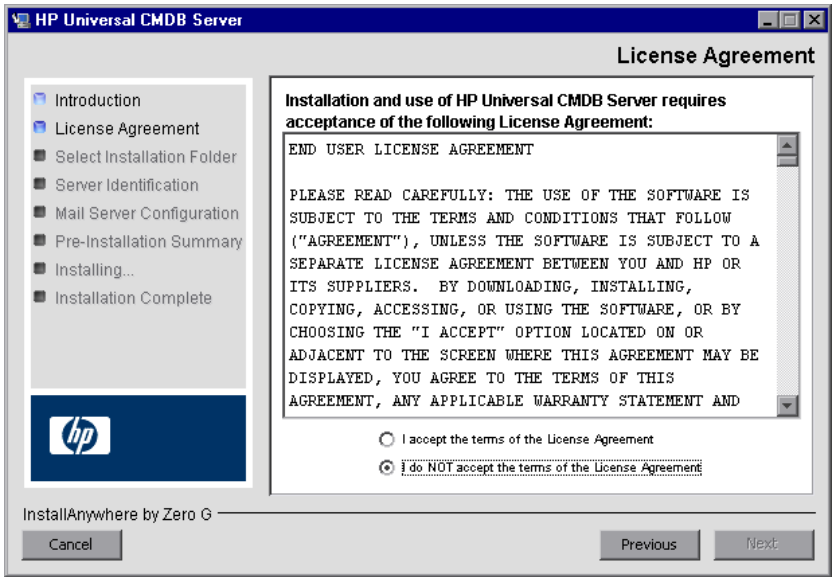
To install HP Universal CMDB:

1. Insert the **HP Universal CMDB Windows Installation** CD-ROM into the drive from which you want to install. If you are installing from a network drive, connect to it.
2. Double-click the **<CD-ROM root folder>\UCMDB70\UCMDBServer.exe** file.

   A progress bar is displayed. Once the initial process is complete, the Introduction dialog box opens.

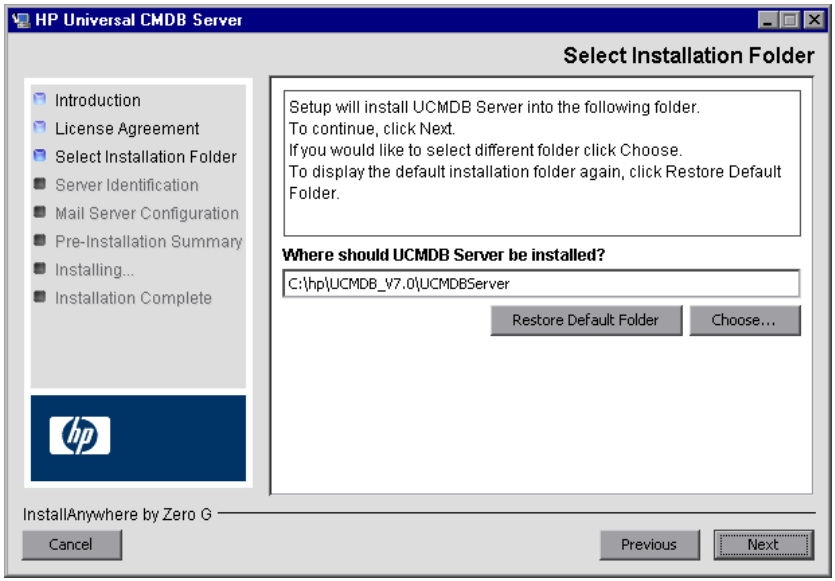


3 Click **Next** to open the License Agreement dialog box.



Accept the terms of the license and click **Next**.

4 Click **Next** to open the Select Installation Folder dialog box.

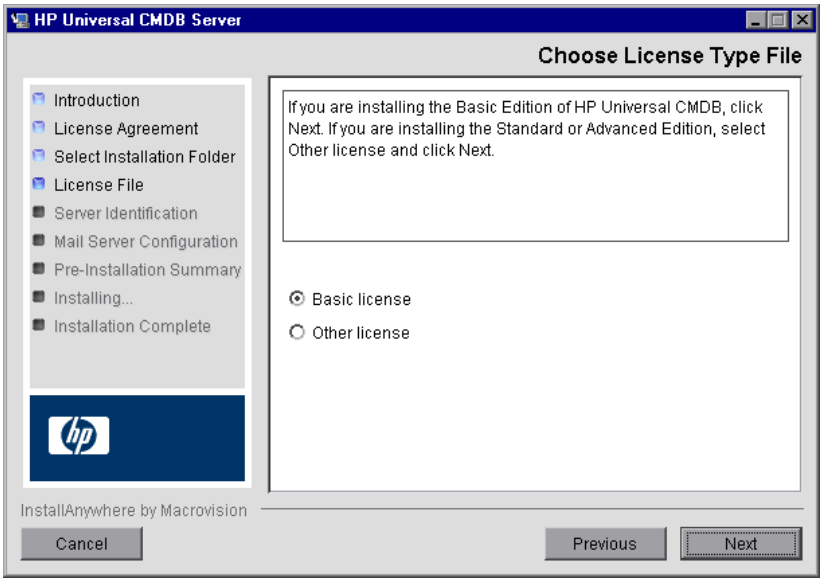


Accept the default entry or click **Choose** to display a standard Browse dialog box. To install to a different directory, browse to and select the installation folder.

Tip: To display the default installation folder again, click **Restore Default Folder**.

---

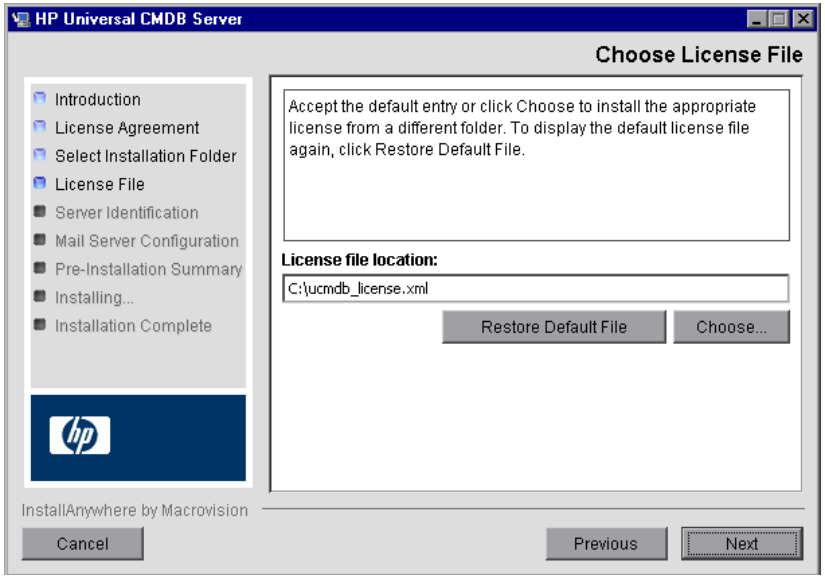
5 Click **Next** to open the Choose License Type File dialog box.



To install the basic edition, accept the default entry. To install the Standard or Advanced edition, select **Other license**. For details on licensing, see "Licensing Models" in *Discovery and Dependency Mapping Guide*.

If you select **Basic license**, skip to step 6.

If you select **Other license**, click **Next** to open the Choose License File dialog box.

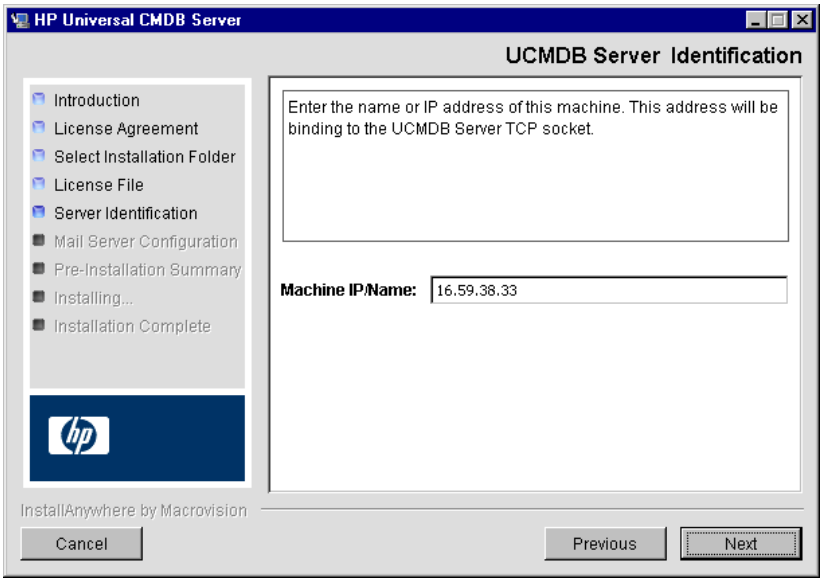


Accept the default entry or click **Choose** to display a standard Browse dialog box. Browse to and select the folder where the license file is located.

Tip: To display the default installation folder again, click **Restore Default File**.

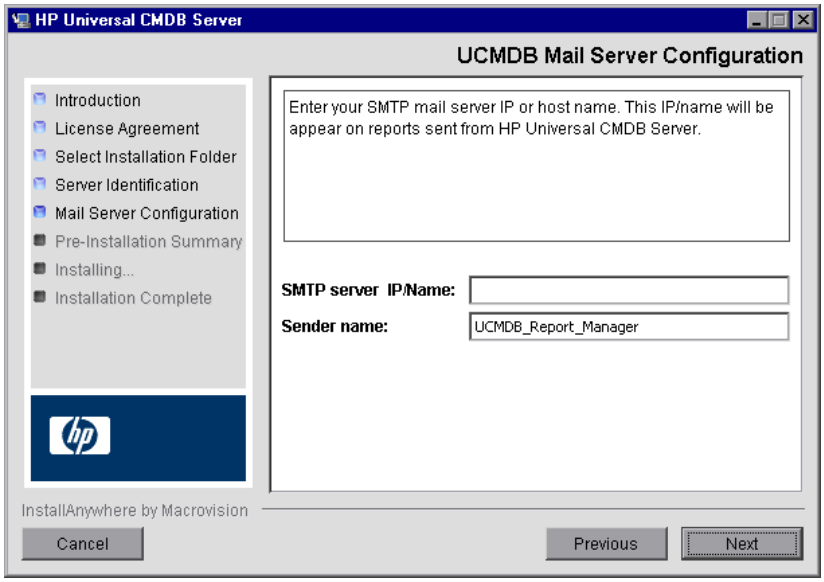
---

6 Click **Next** to open the UCMDB Server Identification dialog box.



Enter the IP address or the machine name of the workstation on which the HP Universal CMDB server is to be installed in the **Machine IP/Name** box, or accept the existing entry. The TCP socket is mapped to this address and port.

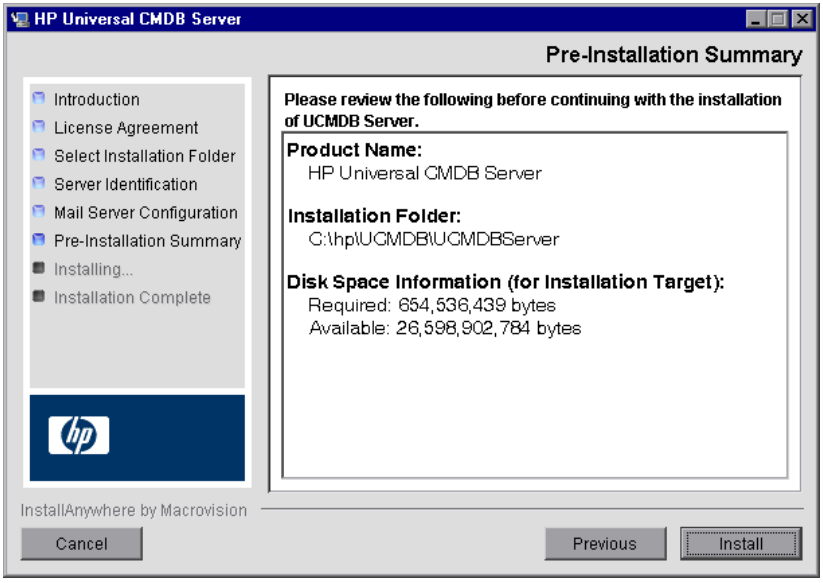
7 Click **Next** to open the UCMDB Mail Server Configuration dialog box.



In the SMTP server IP/Name box, enter the server IP or name. It is recommended that you specify the complete Internet address of the SMTP server. Use only alphanumeric characters.

In the Sender name box, specify the name to appear in reports that HP Universal CMDB sends. Accept the default name, **UCMDB_Report_Manager**, or enter another sender name.

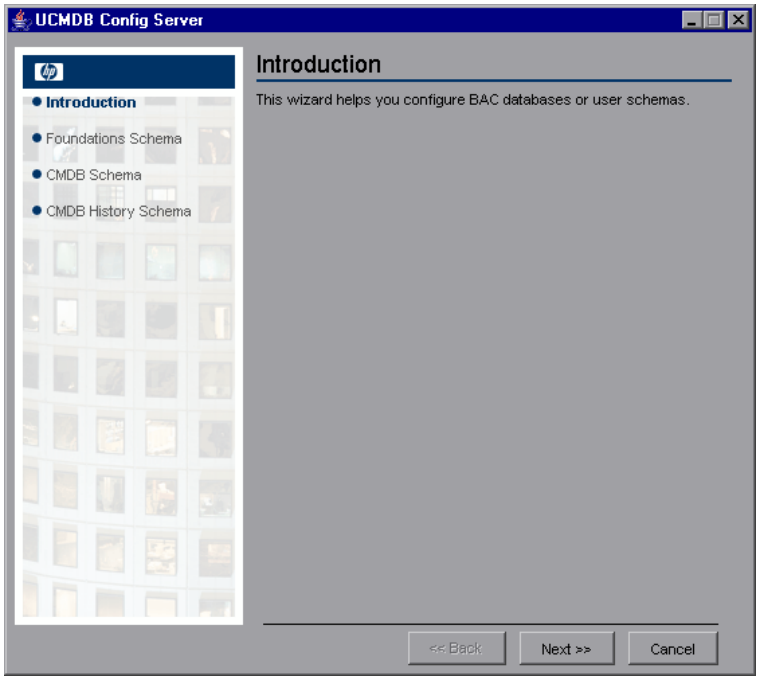
8 Click **Next** to open the Pre-Installation Summary dialog box that lists the installation options you have selected.



9 If you are satisfied with the summary, click **Install**. A message is displayed indicating that the installation is currently being performed.

10 The next stage of the procedure is to launch the UCMDB Server Configuration Service Wizard (to set up the database or schema). Click **Yes** to continue with the configuration and open the Introduction dialog box.

If you prefer, you can set up the database or schema later: access the UCMDB Server Configuration Service Wizard from the Windows Start menu.



During the following stages, you choose between creating a new database or schema (Microsoft SQL Server or Oracle Server), or connecting to an existing database or schema. You would probably create a new database or schema for a new installation of HP Universal CMDB and would connect to an existing schema or database when reinstalling a server or installing an additional server.

This procedure is the same for an installation on Windows and an installation on Solaris.

- For the introduction to creating or connecting to a database, see "Choosing the Database or Schema" on page 68.
- For the procedure for creating a Microsoft SQL Server database, see "Create a Microsoft SQL Server Database" on page 71.
- For the procedure for creating an Oracle schema, see "Create an Oracle Schema" on page 84.
- For the procedure for connecting to a Microsoft SQL Server database, see "Connect to an Existing Microsoft SQL Server Database" on page 99.

➤ For the procedure for connecting to an Oracle schema, see "Connect to an Existing Oracle Schema" on page 99.

5

HP Universal CMDB Installation on a Solaris Platform

This chapter describes the procedures to be performed to install HP Universal CMDB on a Solaris system.

Note: It is highly recommended to thoroughly read the introduction to this guide before commencing installation. For details, see Chapter 1, "Introduction to HP Universal CMDB."

This chapter includes:

Installation Procedure

The following procedure explains how to install HP Universal CMDB.

To install HP Universal CMDB:

1. Insert the **HP Universal CMDB Solaris Installation** CD-ROM into the drive from which you want to install. If you are installing from a network drive, mount it.
2. Move to the root directory of the CD-ROM drive.

```
cd /cdrom/cdrom0
```

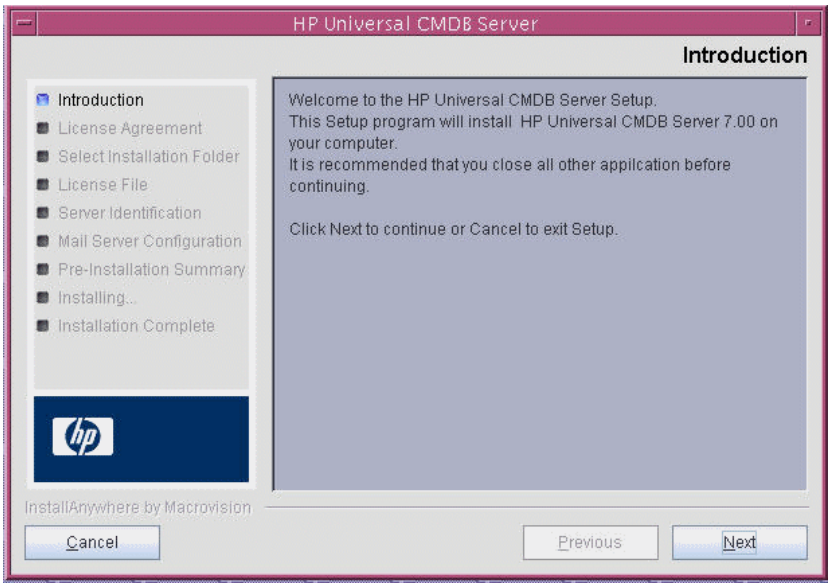
3 Move to the HP Universal CMDB 7.0 directory:

```
cd ucmdb70
```

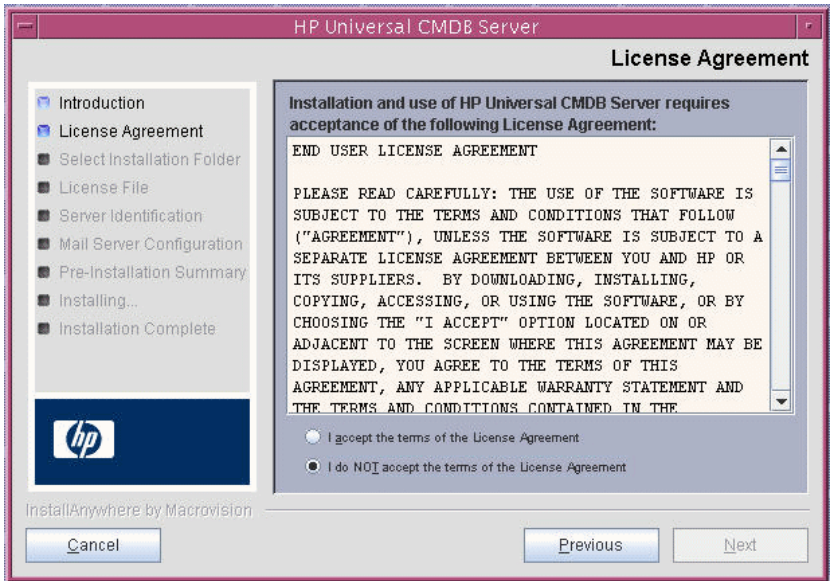
4 Run the command to install the HP Universal CMDB server:

```
./UCMDBServer.bin
```

5 A progress bar is displayed. Once the initial process is complete, the Introduction dialog box opens.

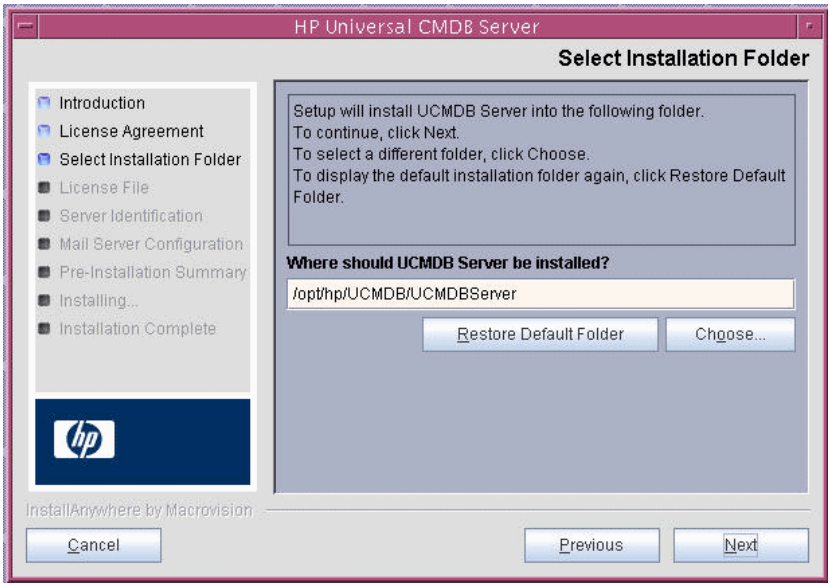


6 Click **Next** to open the License Agreement dialog box.



Accept the terms of the license and click **Next**.

7 Click **Next** to open the Select Installation Folder dialog box.

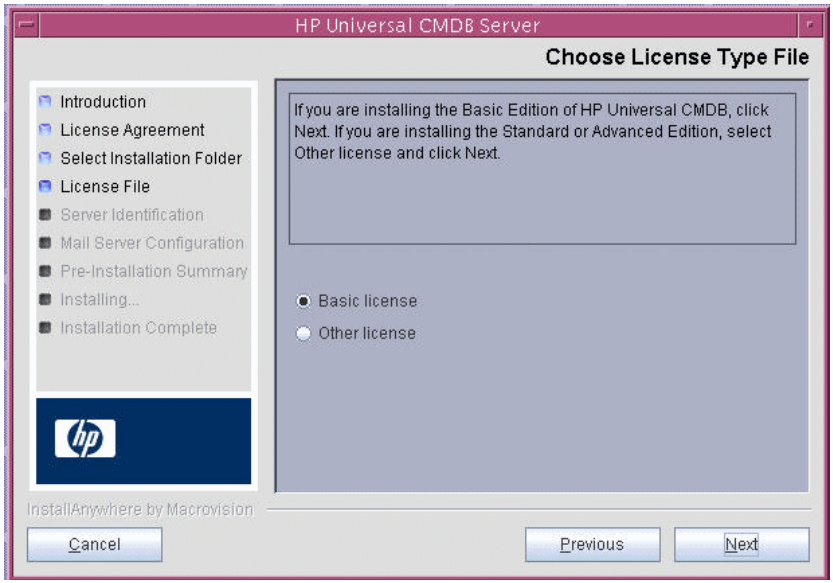


Accept the default entry or click **Choose** to display a standard Browse dialog box. To install to a different directory, browse to and select the installation folder.

Tip: To display the default installation folder again, click **Restore Default Folder**.

---

8 Click **Next** to open the Choose License Type File dialog box.



To install the basic edition, accept the default entry. To install the Standard or Advanced edition, select **Other license**. For details on licensing, see "Licensing Models" in *Discovery and Dependency Mapping Guide*.

If you select **Basic license**, skip to step 9.

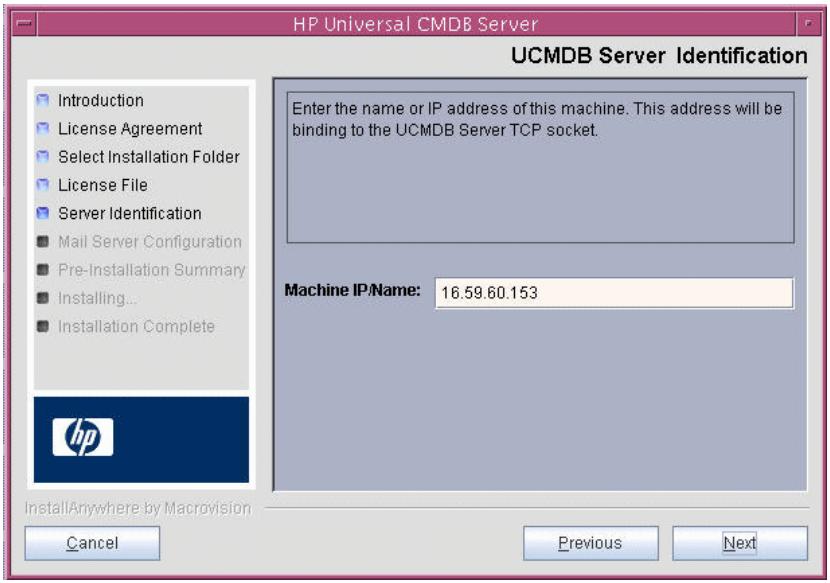
If you select **Other license**, click **Next** to open the Choose License File dialog box.

Accept the default entry or click **Choose** to display a standard Browse dialog box. Browse to and select the folder where the license file is located.

Tip: To display the default installation folder again, click **Restore Default File**.

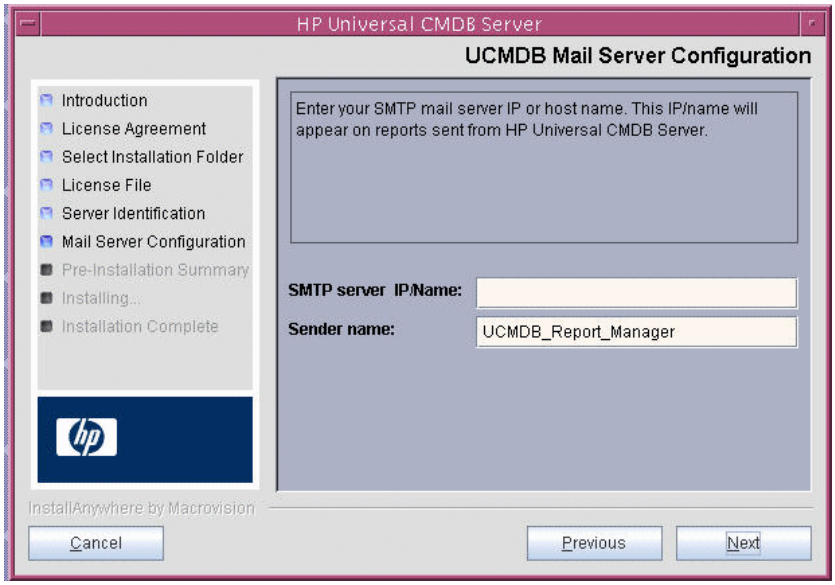
---

9 Click **Next** to open the UCMDB Server Identification dialog box.



Enter the IP address or the machine name of the workstation on which the HP Universal CMDB server is to be installed in the **Machine IP/Name** box, or accept the existing entry. The TCP socket is mapped to this address and port.

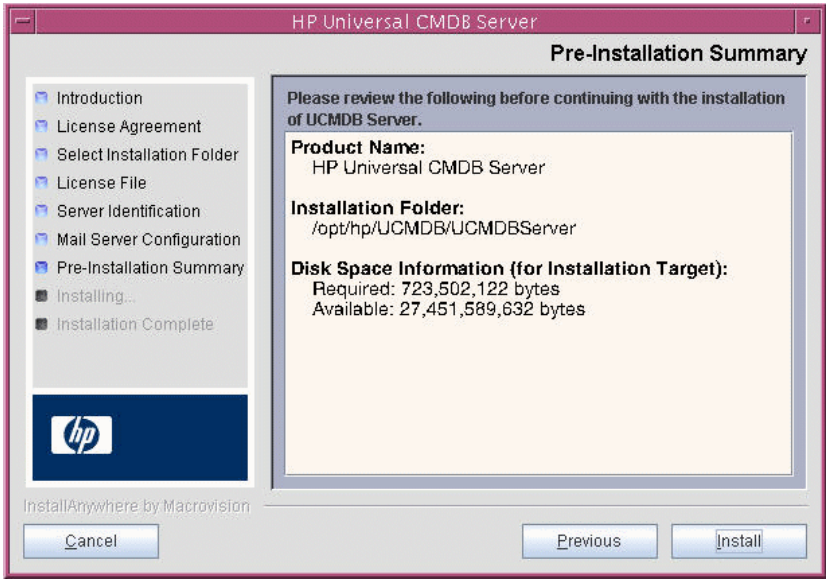
10 Click **Next** to open the UCMDB Mail Server Configuration dialog box.



In the SMTP server IP/Name box, enter the server IP or name. It is recommended that you specify the complete Internet address of the SMTP server. Use only alphanumeric characters.

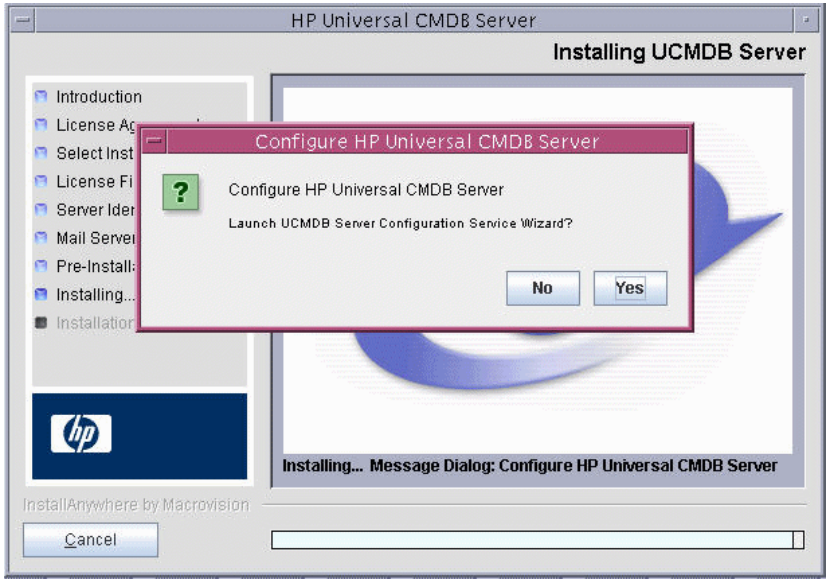
In the Sender name box, specify the name to appear in reports that HP Universal CMDB sends. Accept the default name, **UCMDB_Report_Manager**, or enter another sender name.

11 Click **Next** to open the Pre-Installation Summary dialog box that lists the installation options you have selected.



12 If you are satisfied with the summary, click **Install**. A message is displayed indicating that the installation is currently being performed.

13 The next stage of the procedure is to launch the UCMDB Server Configuration Service Wizard (to set up the database or schema).



Click **Yes** to continue with the configuration and open the Introduction dialog box.

During the following stages, you choose between creating a new database or schema (Microsoft SQL Server or Oracle Server), or connecting to an existing database or schema. You would probably create a new database or schema for a new installation of HP Universal CMDB and would connect to an existing schema or database when reinstalling a server or installing an additional server.

This procedure is the same for an installation on Windows and an installation on Solaris.

➤ For the introduction to creating or connecting to a database, see “Choosing the Database or Schema” on page 68.

➤ For the procedure for creating a Microsoft SQL Server database, see “Create a Microsoft SQL Server Database” on page 71.

➤ For the procedure for creating an Oracle schema, see “Create an Oracle Schema” on page 84.

- For the procedure for connecting to a Microsoft SQL Server database, see "Connect to an Existing Microsoft SQL Server Database" on page 99.
- For the procedure for connecting to an Oracle schema, see "Connect to an Existing Oracle Schema" on page 99.

6

Setting Database Parameters

This chapter describes the second stage of the installation procedure, which is to launch the UCMDB Server Configuration Wizard (to set up the database or schema). For details on the first stage of the installation, see Chapter 4, “HP Universal CMDB Installation on a Windows Platform” or Chapter 5, “HP Universal CMDB Installation on a Solaris Platform.”

Note: It is highly recommended to thoroughly read the introduction to this guide before commencing installation. For details, see Chapter 1, “Introduction to HP Universal CMDB.”

This chapter includes:

Choosing the Database or Schema

During installation, you must decide whether you want to create the database users or use predefined users. HP Universal CMDB enables you to make this choice at the same time as you choose on which database you want to run the application:

Choose to create a database or schema user in the following cases:

- There are no existing database users.
- There are existing database users, but you want to initialize the database default contents.

Choose to connect to an existing database or schema user in the following cases:

- You do not want to change the database's default contents, for example, because you have data in your database or schema from a previous installation of the same release. In this case, Setup updates the necessary server configuration files with the database details and updates the database scripts configuration file. For details, see the *HP Universal CMDB Database Guide* PDF.
- Your database administrator provides instructions for creating the database users in advance according to company policy. To manually create Microsoft SQL Server databases or Oracle schemas, see the *HP Universal CMDB Database Guide* PDF.

Required Information for Setting Database Parameters

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

Deploying Microsoft 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 Microsoft SQL Server is installed. If you are connecting to a non-default Microsoft SQL Server instance, enter the following: <host_name>\<instance_name>
- **Port.** The Microsoft SQL Server's TCP/IP port. HP Universal CMDB automatically displays the default port, **1433**.
- **Database name.** The name of the existing database, or the name that you will give your new database (for example, UCMDB_Foundation).
- **User name and Password.** (if you are using Microsoft SQL Server authentication) The user name and password of a user with administrative rights on Microsoft SQL Server. The default Microsoft 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 Microsoft SQL Server authentication. To do so, you must ensure that the Windows user running the HP Universal CMDB service has the necessary permissions to access the Microsoft SQL Server database. For information on assigning a Windows user to run the HP Universal CMDB service, see Chapter 7, "Changing the HP Universal CMDB Service User." For information on adding a Windows user to Microsoft SQL Server, see "Using Windows Authentication to Access Microsoft SQL Server Databases" in the *HP Universal CMDB Database Guide* PDF.

Deploying Oracle Server

Before setting foundation, CMDB, and CMDB history database parameters, ensure that you have created at least one default tablespace for each user schema for data persistency purposes, and that at least one temporary tablespace is assigned to each user schema.

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 Universal CMDB automatically displays the default port, **1521**.
- **SID.** The Oracle instance name that uniquely identifies the Oracle database instance being used by HP Universal CMDB.
- **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, UCMDB_FOUNDATION).

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 default tablespace you created for the user schema. For details on creating a HP Universal CMDB tablespace, see "Creating Schema Default and Temporary Tablespaces" in the *HP Universal CMDB Database Guide* PDF.
- **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.

Accessing the UCMDB Server Configuration Wizard

If you did not set up the database or schema during installation, you can set it up using one of the following methods:

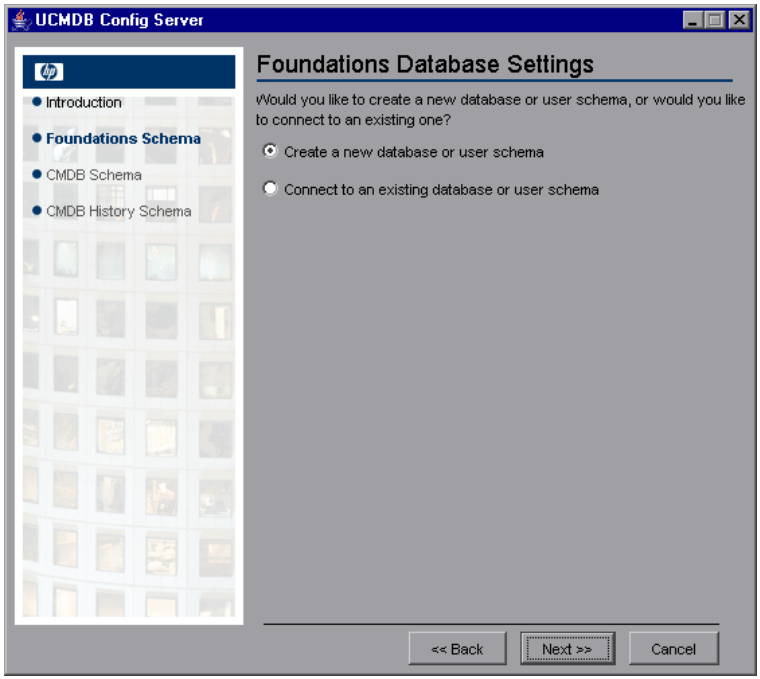
- Access the UCMDB Server Configuration Service Wizard from the Windows Start menu: **Start** > **Programs** > **HP UCMDB** > **Start UCMDB Server Configuration Wizard**.
- Double-click the following file: **<HP Universal CMDB root directory>\UCMDBServer\j2f\tools\ConfigServer\ucmdb-config-server-wizard.bat**.

Create a Microsoft SQL Server Database

This section explains how to set up the Microsoft SQL Server database. There are three parts to this stage of the installation: set up the Foundations, CMDB, and CMDB History databases.

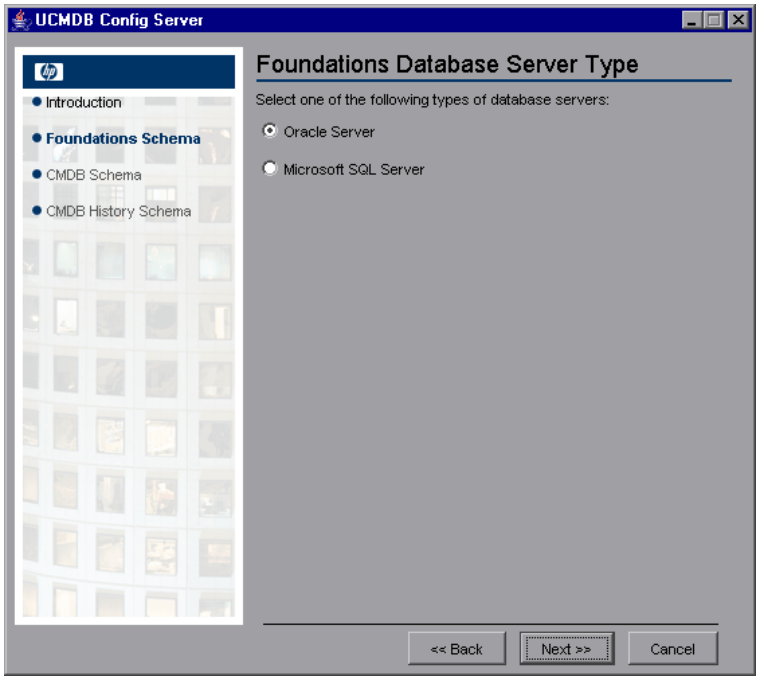
1. Click **Next** to open the Foundations Database Settings dialog box.

Note: If you have finished installation, you can access the UCMDB Server Configuration Wizard from the Windows Start menu. For details, see "Accessing the UCMDB Server Configuration Wizard" on page 71.



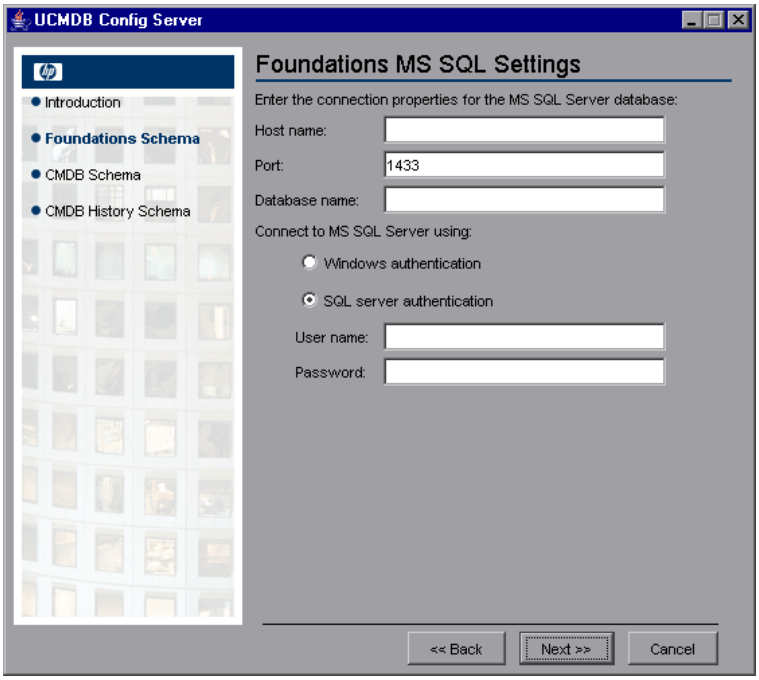
Select **Create a new database or user schema.**

2 Click **Next** to open the Foundations Database Server Type dialog box.



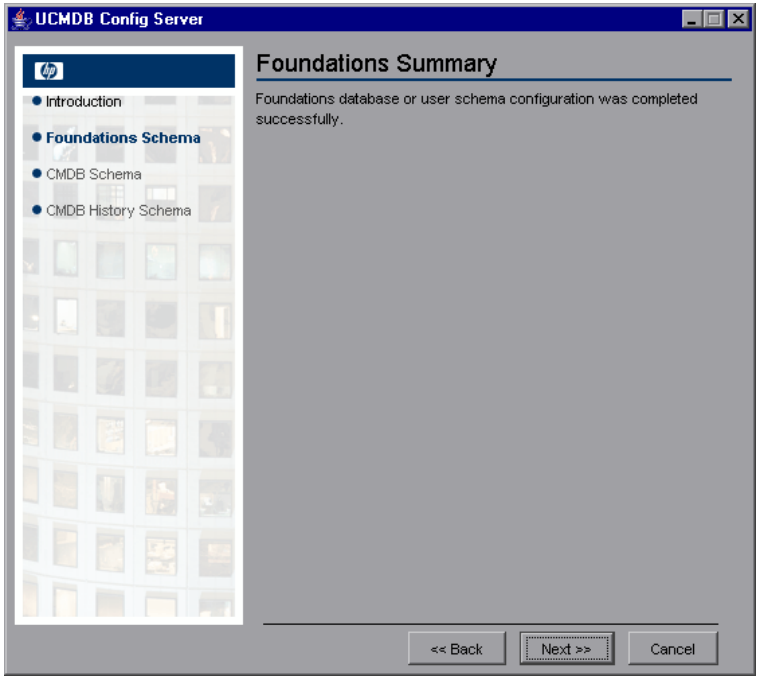
Select **Microsoft SQL Server**.

3 Click **Next** to open the Foundations MS SQL Settings dialog box.

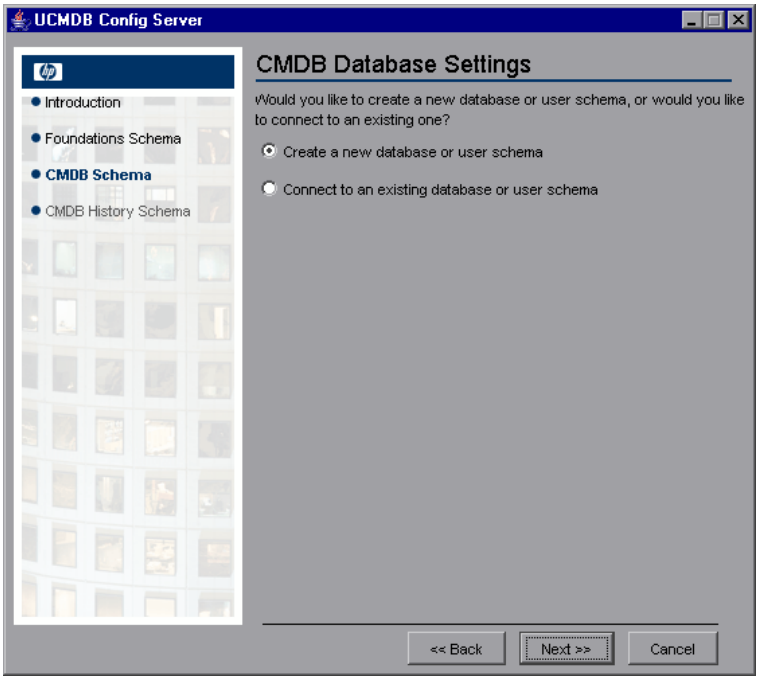


Enter the host name and database name and decide which authentication HP Universal CMDB should use to connect to the database server. For details, on Windows authentication, see “Using Windows Authentication to Access Microsoft SQL Server Databases” in the *HP Universal CMDB Database Guide* PDF.

4 Click **Next**. The Foundations database is created. When database creation is complete, the Foundations Summary dialog box is displayed.

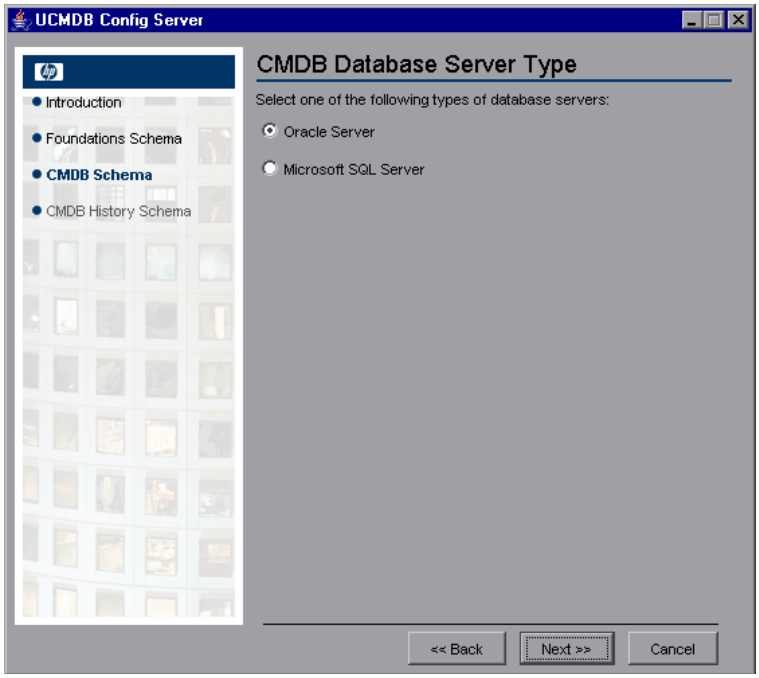


5 Click **Next** to display the CMDB Database Settings dialog box.



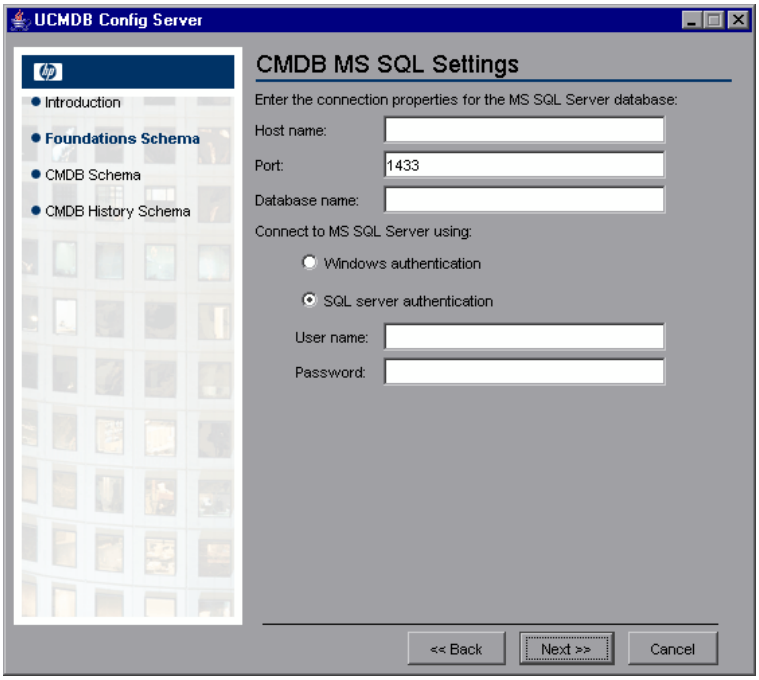
Select **Create a new database or user schema**.

6 Click **Next** to open the CMDB Database Server Type dialog box.



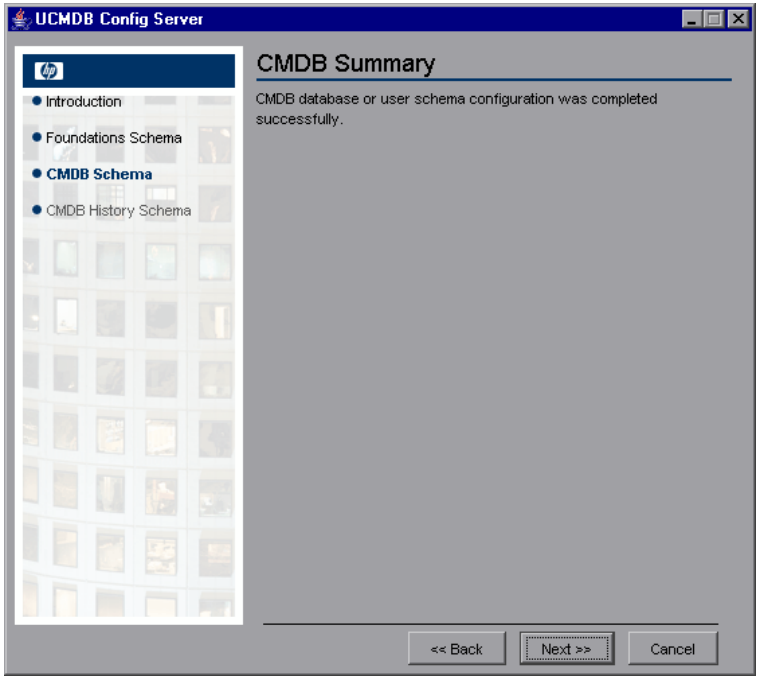
Select **Microsoft SQL Server**.

7 Click **Next** to open the CMDB MS SQL Settings dialog box.

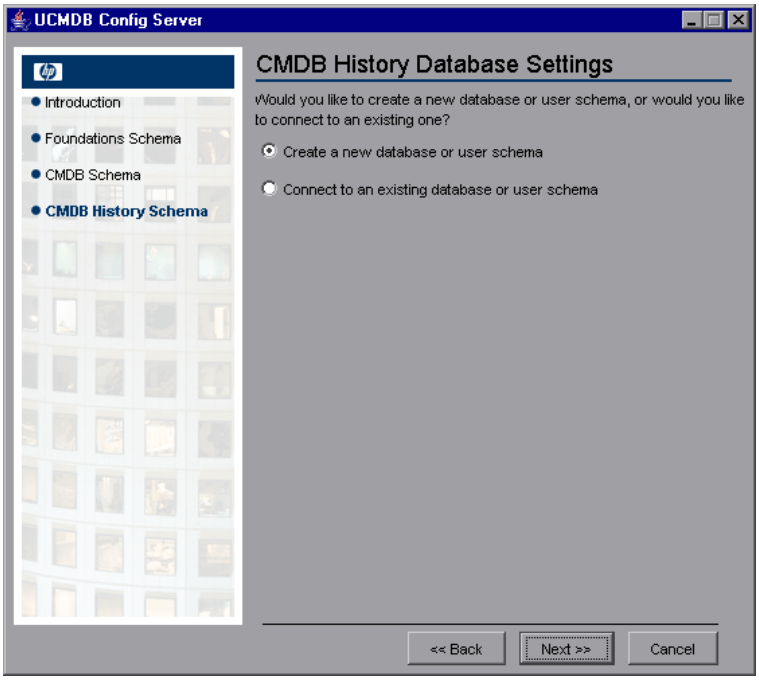


The values you added for the Foundation settings are displayed in the box.

8 Click **Next**. The CMDB database is created. When database creation is complete, the CMDB Summary dialog box is displayed.

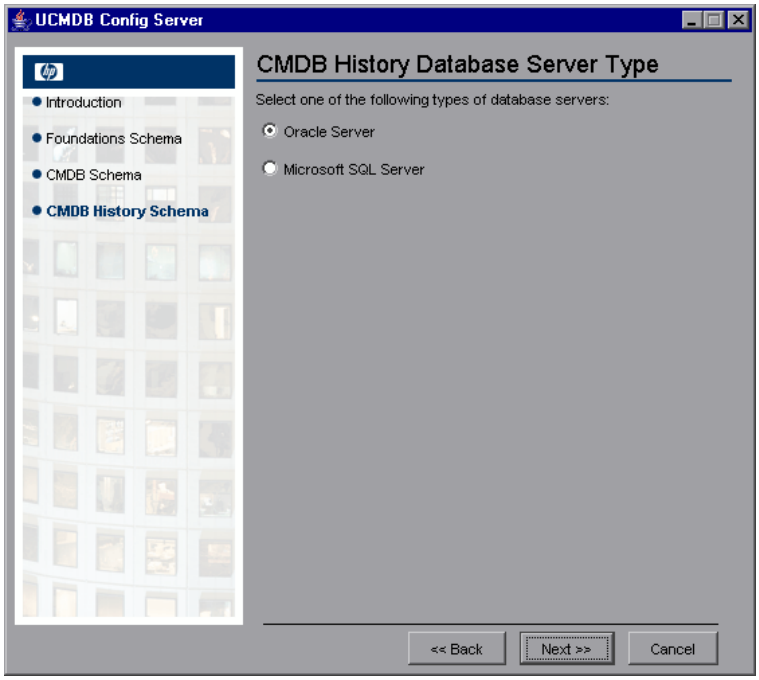


9 Click **Next** to display the CMDB History Database Settings dialog box.



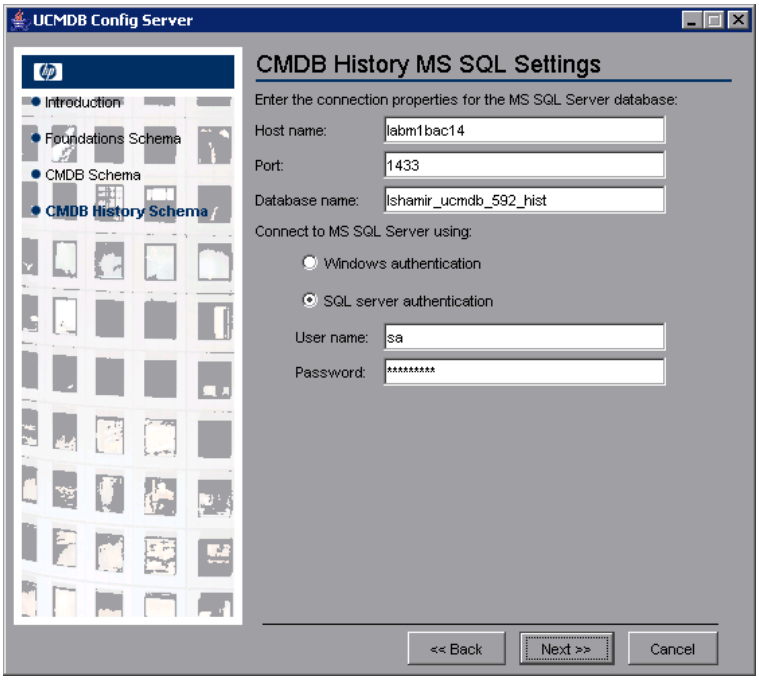
Select **Create a new database or user schema**.

10 Click **Next** to open the CMDB History Database Server Type dialog box.



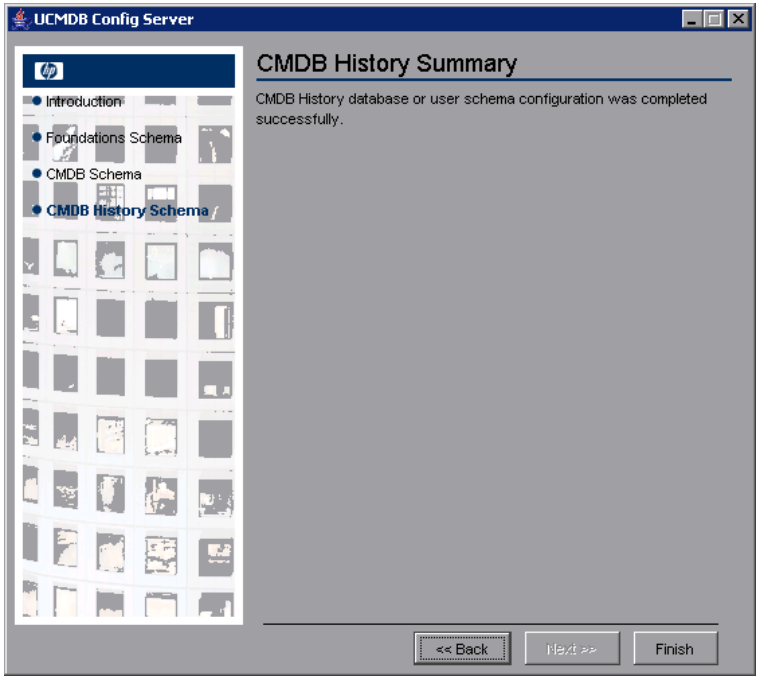
Select **Microsoft SQL Server**.

11 Click **Next** to open the CMDB History MS SQL Settings dialog box.



The values you added for the Foundation settings are displayed in the box.

12 Click **Next**. The CMDB History database is created. When database creation is complete, the CMDB History Summary dialog box is displayed.

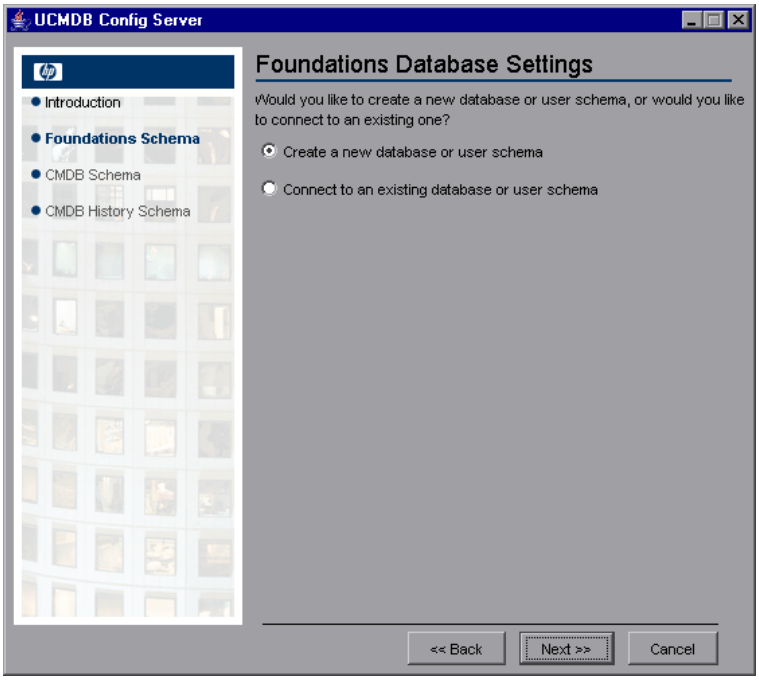


13 Click **Finish**.

Create an Oracle Schema

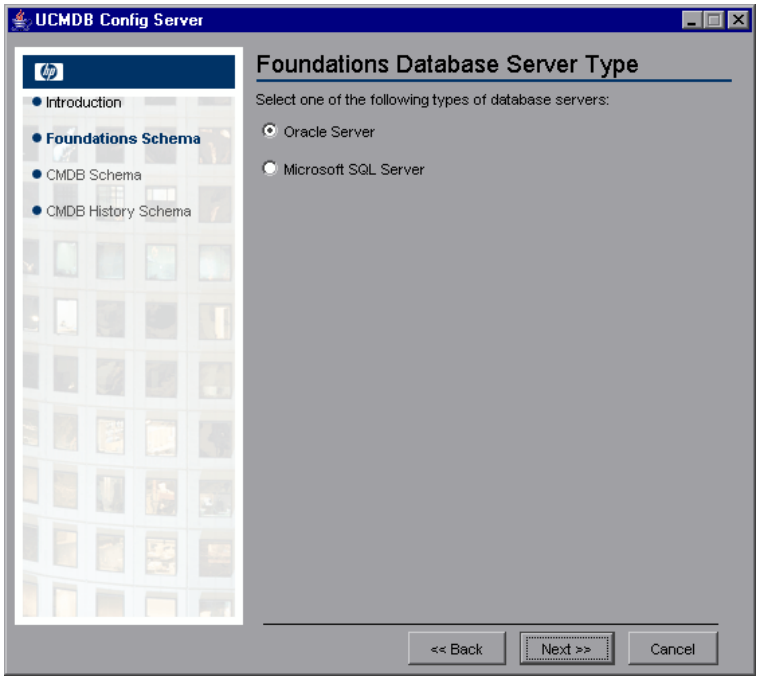
This section explains how to set up the Oracle schema. There are three parts to this stage of the installation: set up the Foundations, CMDB, and CMDB History schemas.

1 Click **Next** to open the Foundations Database Settings dialog box.



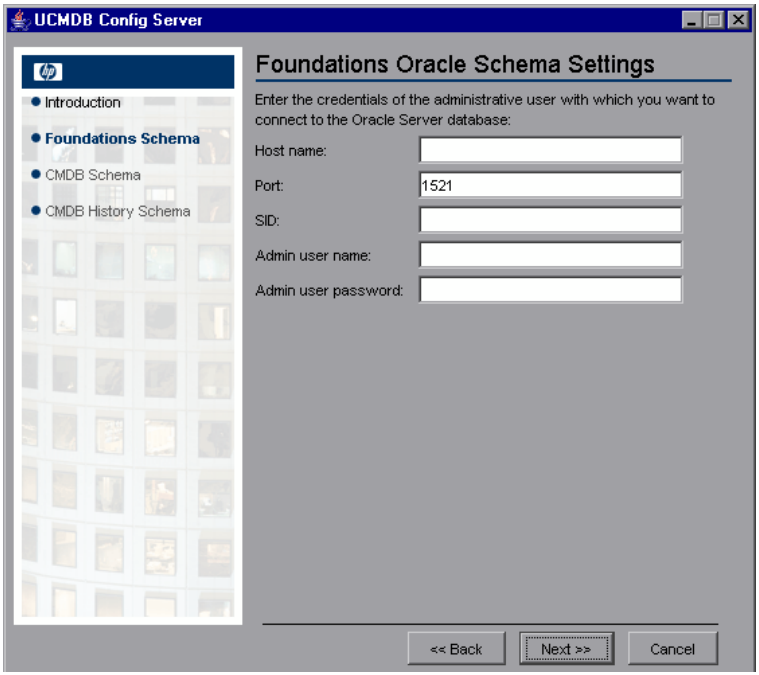
Select **Create a new database or user schema.**

2 Click **Next** to open the Foundations Database Server Type dialog box.



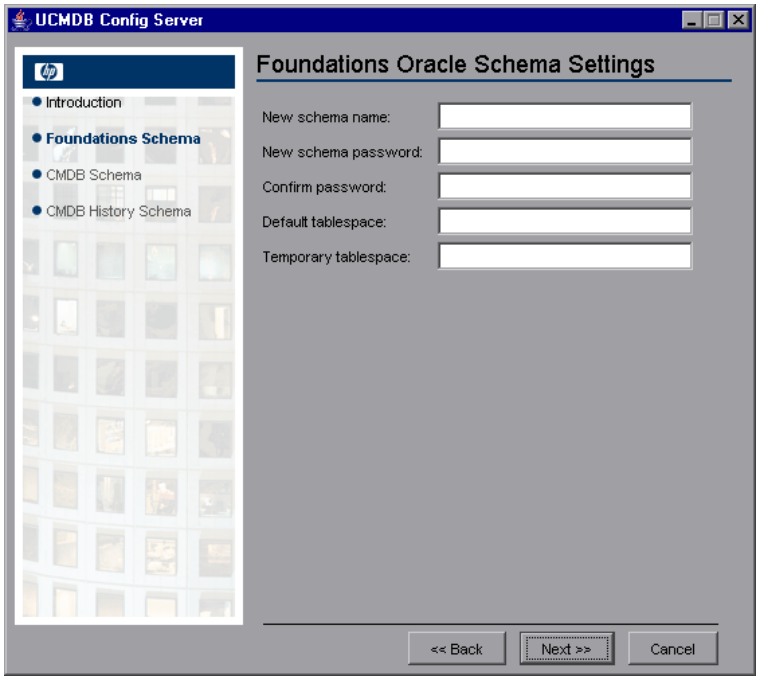
Select **Oracle Server**.

3 Click **Next** to open the Foundations Oracle Schema Settings dialog box.



Enter the details of the administration user.

4 Click **Next** to open the Foundations Oracle Schema Settings dialog box.

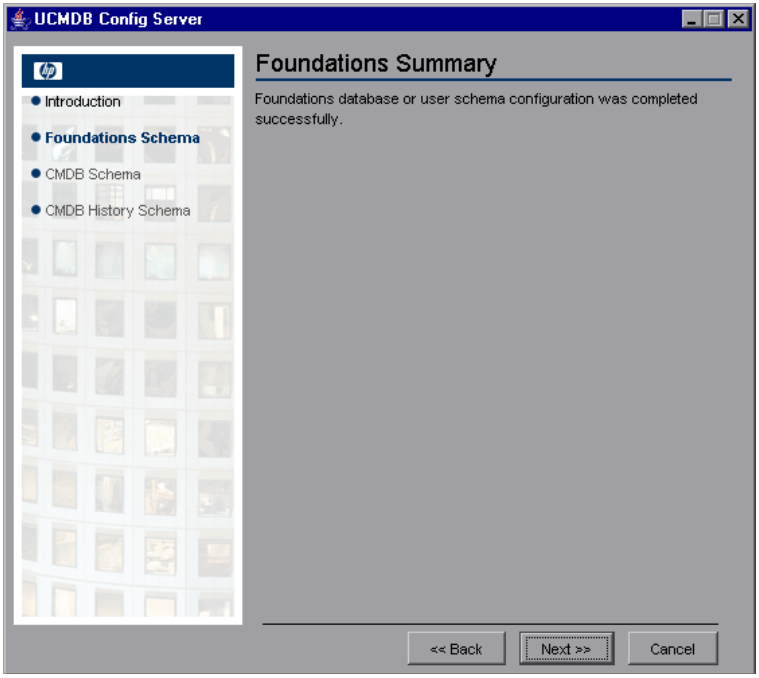


Enter the details of the schema.

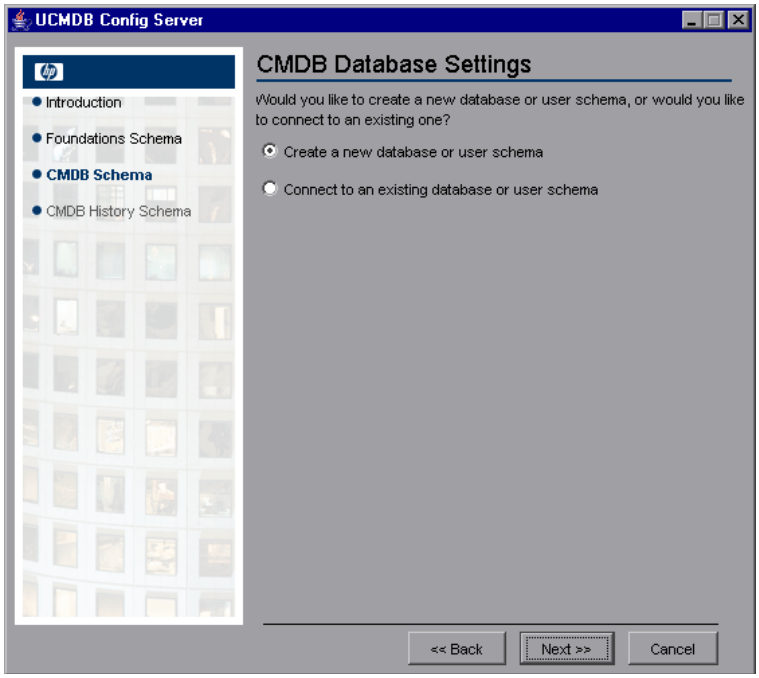
New schema name. The schema name must be unique.

Temporary tablespace. If your database administrator created a non-default temporary tablespace, enter that name, otherwise enter **temp**.

5 Click **Next**. Setup writes the information to the new schema and opens the Foundations Summary dialog box.

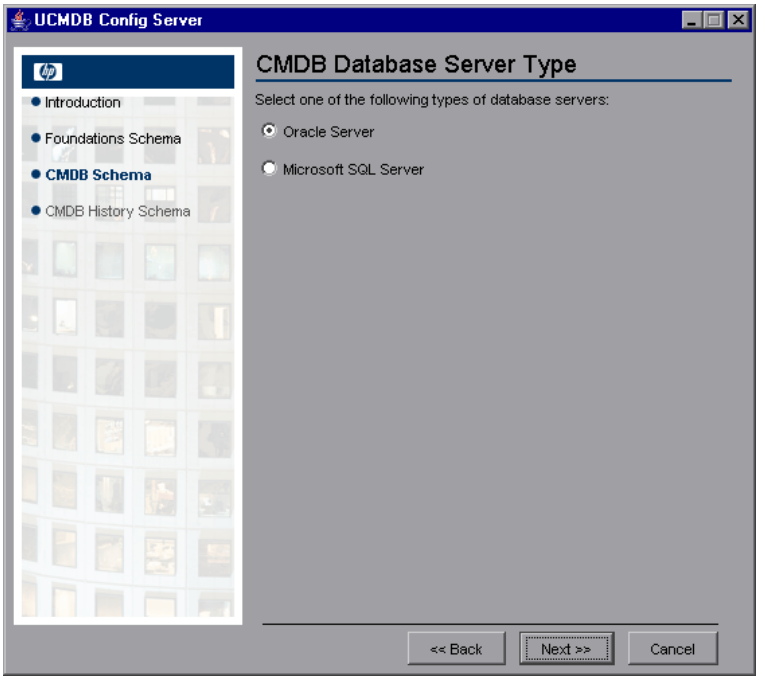


6 Click **Next** to open the CMDB Database Settings dialog box.



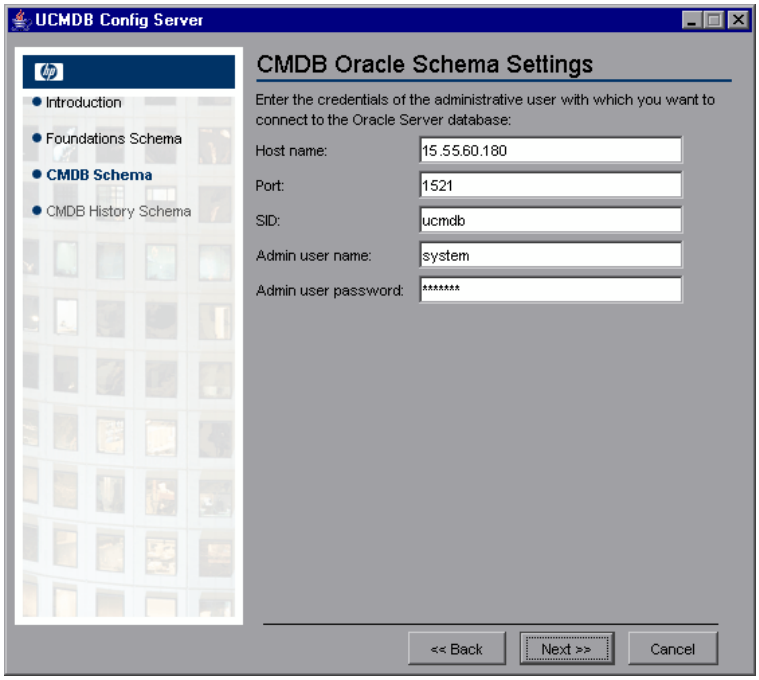
Select **Create a new database or user schema.**

7 Click **Next** to open the CMDB Database Server Type dialog box.



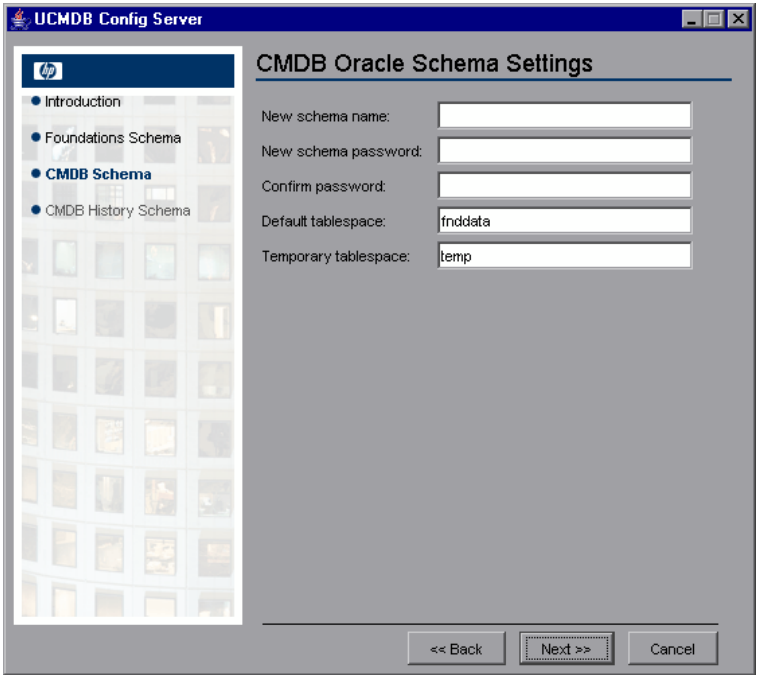
Select **Oracle Server**.

8 Click **Next** to open the CMDB Oracle Schema Settings dialog box.



The values you added for the Foundation settings are displayed in the box.

9 Make any necessary changes and click **Next** to open the CMDB Oracle Schema Settings dialog box.



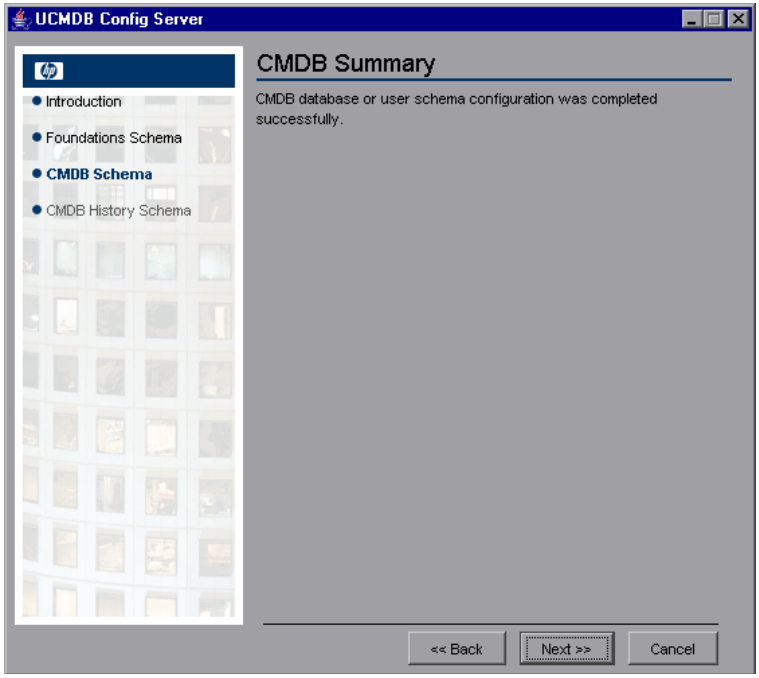
Enter the details of the schema.

New schema name. The schema name should be unique.

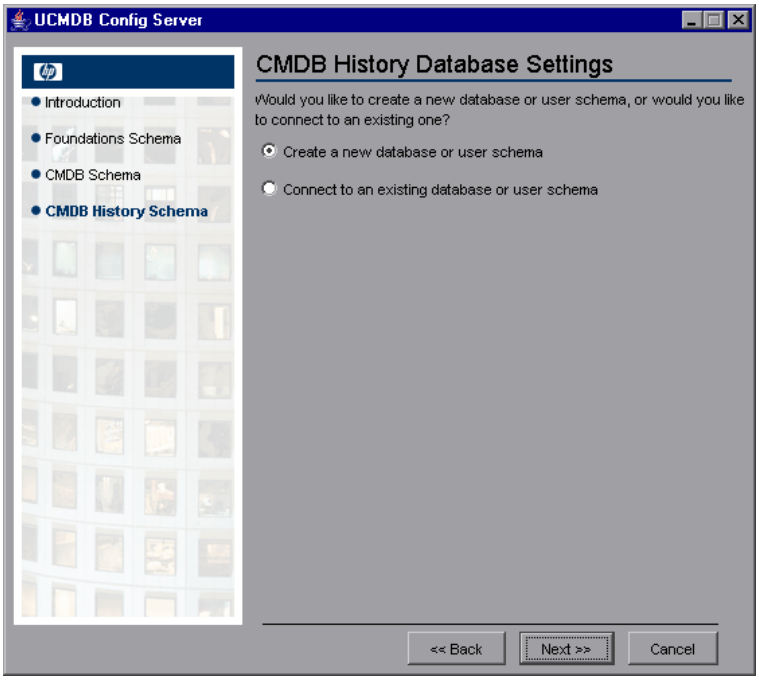
Default tablespace. Update this field.

Temporary tablespace. If your database administrator created a non-default temporary tablespace, enter that name, otherwise enter **temp**.

10 Click **Next**. Setup writes the information to the new schema and opens the CMDB Summary dialog box.

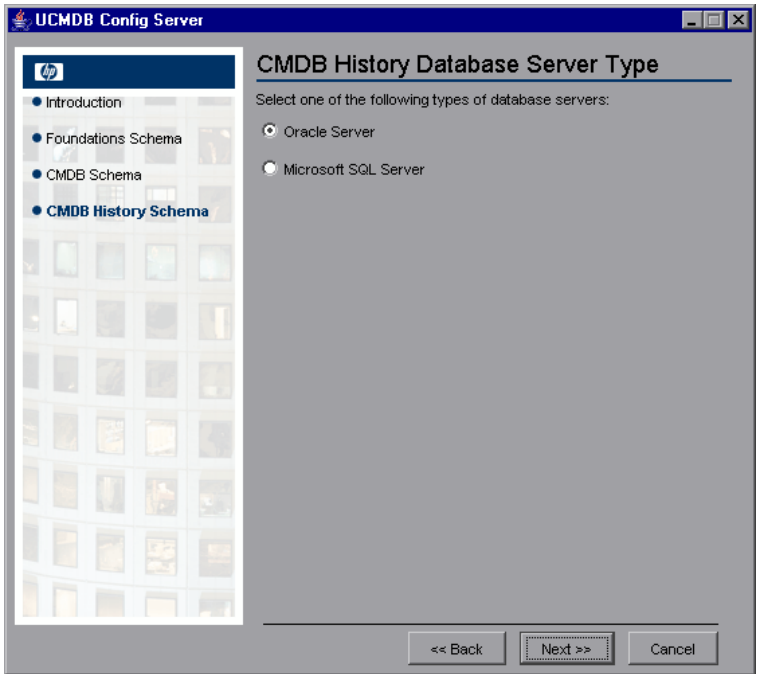


11 Click **Next** to open the CMDB History Database Settings dialog box.



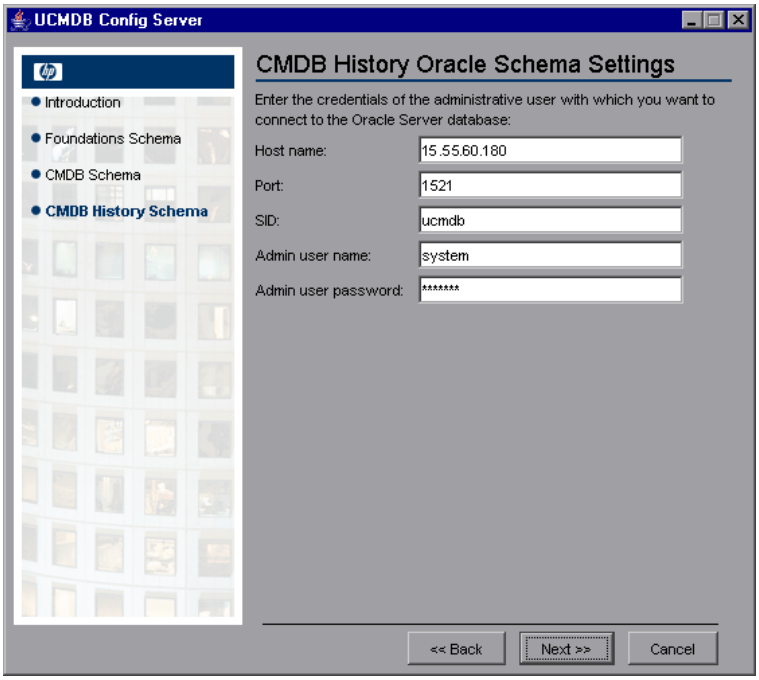
Select **Create a new database or user schema.**

12 Click **Next** to open the CMDB History Database Server Type dialog box.



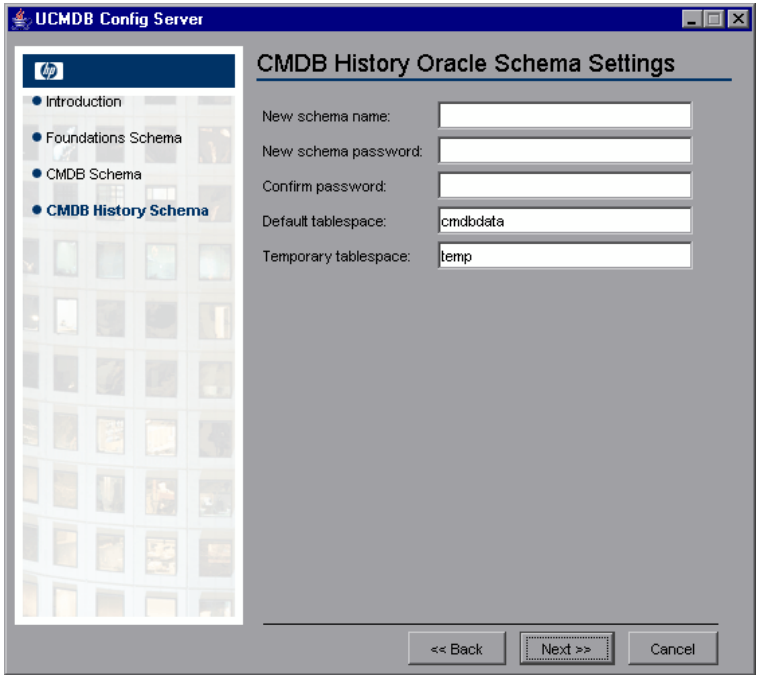
Select **Oracle Server**.

13 Click **Next** to open the CMDB History Oracle Schema Settings dialog box.



The values you added for the Foundation settings are displayed in the box.

14 Make any necessary changes and click **Next** to open the CMDB History Oracle Schema Settings dialog box.



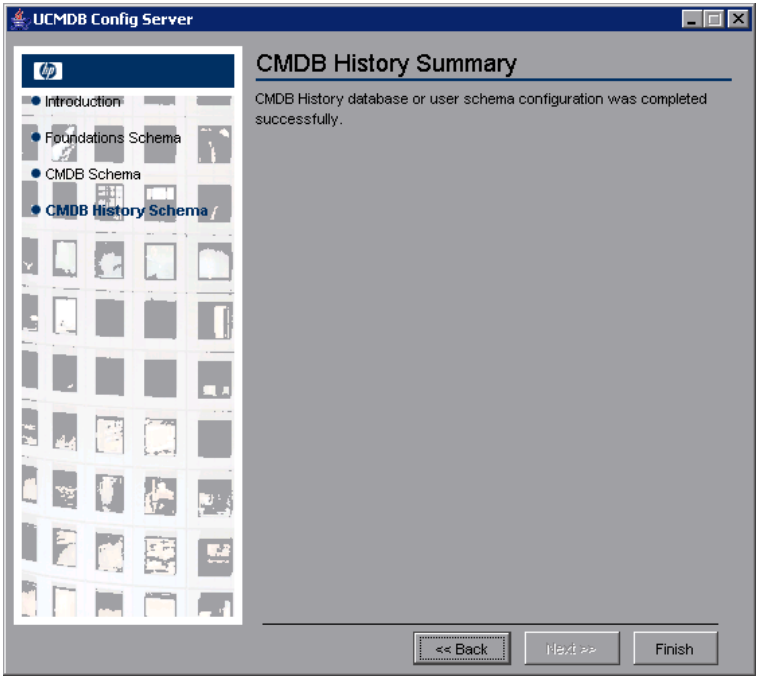
Enter the details of the schema.

New schema name. The history schema name should be unique.

Default tablespace. Update this field.

Temporary tablespace. If your database administrator created a non-default temporary tablespace, enter that name, otherwise enter **temp**.

15 Click **Next**. Setup writes the information to the new schema and opens the CMDB History Summary dialog box.



16 Click **Finish**.

Connect to an Existing Microsoft SQL Server Database

This section explains how to connect to an existing Microsoft SQL Server database. There are three parts to this stage of the installation: connect to the Foundations, CMDB, and CMDB History databases.

Follow the instructions for creating a Microsoft SQL Server database except for the following steps:

- In step 1 on page 71, select **Connect to an existing database or user schema** and click **Next**.
- In step 5 on page 76, select **Connect to an existing database or user schema** and click **Next**.
- In step 9 on page 80, select **Connect to an existing database or user schema** and click **Next**.

For details on creating a Microsoft SQL Server database, see "Create a Microsoft SQL Server Database" on page 71.

Connect to an Existing Oracle Schema

This section explains how to connect to an existing Oracle Server schema. There are three parts to this stage of the installation: connect to the Foundations, CMDB, and CMDB History databases.

Follow the instructions for creating an Oracle Server schema except for the following steps:

- In step 1 on page 84, select **Connect to an existing database or user schema** and click **Next**.
- From step 3 on page 86, skip to step 5 on page 88.
- In step 6 on page 89, select **Connect to an existing database or user schema** and click **Next**.
- From step 8 on page 91, skip to step 10 on page 93.
- In step 11 on page 94, select **Connect to an existing database or user schema** and click **Next**.

➤ From step 13 on page 96, skip to step 15 on page 98.

For details on creating an Oracle Server schema, see "Create an Oracle Schema" on page 84.

Restarting the Server

If you ran the UCMDB Server Configuration Service Wizard as part of HP Universal CMDB server installation, you must start HP Universal CMDB on the server only after successfully setting the parameters for all the databases.

If you ran the UCMDB Server Configuration Service Wizard to modify previously defined database types or connection parameters, restart the HP Universal CMDB server and the DDM Probe after successfully completing the parameter modification process.

7

Changing the HP Universal CMDB Service User

On a Windows platform, the HP Universal CMDB service, which runs all HP Universal CMDB 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). This chapter explains how to change this user.

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

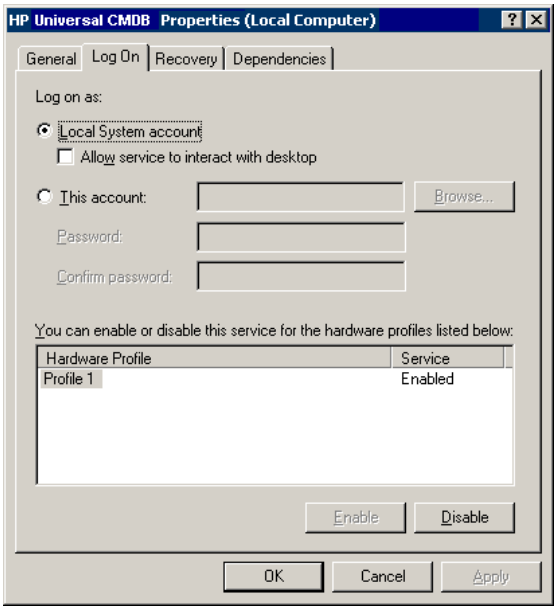
- sufficient database permissions (as defined by the database administrator)
- sufficient network permissions
- administrator permissions on the local server

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

To change the HP Universal CMDB service user:

1. Disable HP Universal CMDB (**Start** > **Programs** > **HP UCMDB** > **Stop UCMDB Server**).
2. In Microsoft's Services window, double-click **HP Universal CMDB**. The HP Universal CMDB 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 Universal CMDB (**Start** > **Programs** > **HP UCMDB** > **Start UCMDB Server**).

Part III

Upgrading HP Universal CMDB

8

Migrating Mercury Application Mapping from Version 3.0 to Version 6.5

This chapter explains how to migrate (upgrade) Mercury Application Mapping from version 3.0 to 6.5. You install the upgrade application and run it to migrate Mercury Application Mapping resources such as TQLs, views, and packages. For a list of resources that are upgraded, see "Migrated Resources" on page 117.

This chapter includes:

Upgrade Workflow

This section describes the upgrade workflow for upgrading Mercury Application Mapping from version 3.0 to 6.5.

To upgrade Mercury Application Mapping:

1. **Install Mercury Application Mapping version 6.5.**

   For details, see "Prerequisites" on page 106.

2. **Install the upgrade application.**

   For details, see "Installing the Upgrade Application" on page 107.

3. **Run the upgrade migration program.**

   For details, see "Running the Upgrade Application to Migrate Mercury Application Mapping" on page 110.

4. **Repair the resources that were not upgraded automatically.**

   For details, see "Preparing Resources with Errors for Migration" on page 116.

5. **Rerun the upgrade program.**

   For details, see "Running the Upgrade Application to Migrate Mercury Application Mapping" on page 110.

Prerequisites

The following tasks must be performed before beginning the upgrade procedure.

- Prepare a new machine on which to install Mercury Application Mapping version 6.5.
- Install the Mercury Application Mapping server, version 6.5. For details on installation options, see Chapter 1, "Introduction to HP Universal CMDB."

Note: Changes made to Python scripts that are used by Discovery and Dependency Mapping patterns are not saved during the upgrade process.

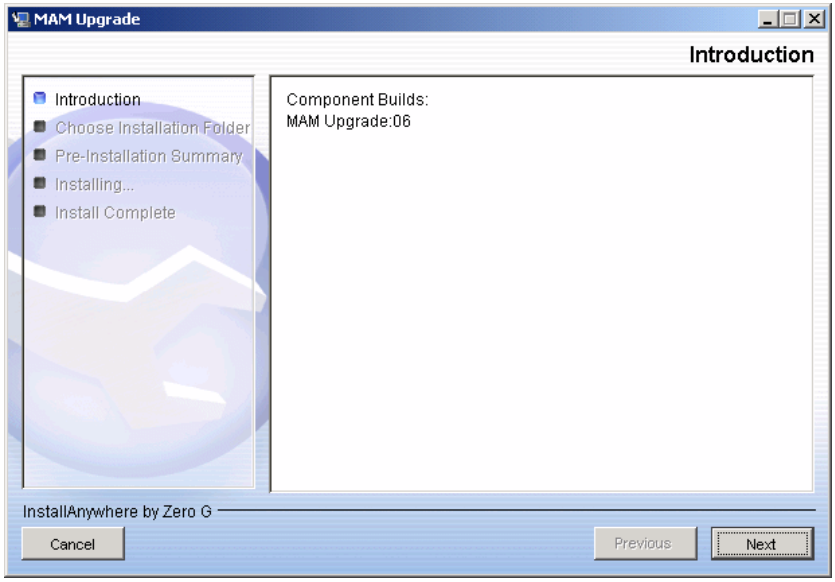
Installing the Upgrade Application

The first step of the procedure for upgrading Mercury Application Mapping is to install the upgrade application. You install the upgrade application on any machine that has a connection to the Mercury Application Mapping server.

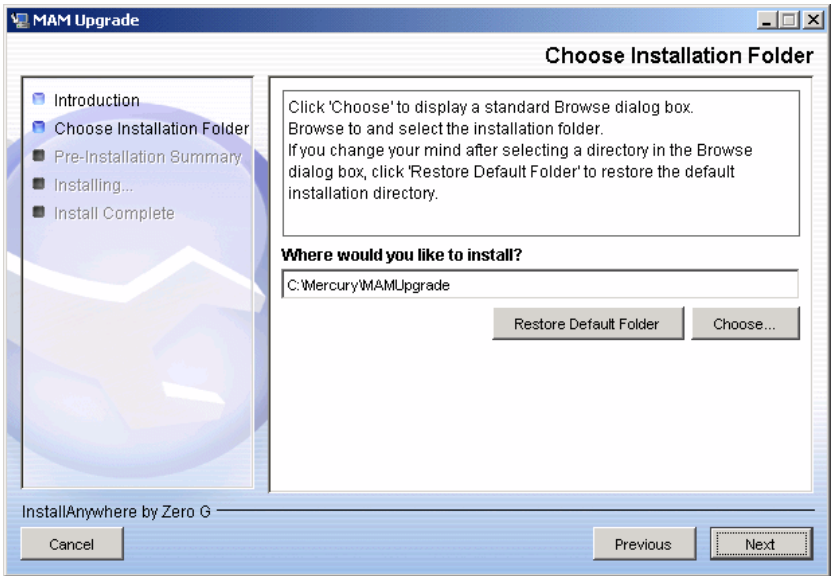
To install the upgrade application:

1. Insert the **Mercury Application Mapping 6.5 Setup Windows** CD-ROM into the drive of the machine on which you want to install. If you are installing from a network drive, connect to it.
2. Double-click the **<CD-ROM root folder>\MAM65\MAMUpgrade.exe** file.

   A progress bar is displayed. Once the initial process is complete, the Introduction dialog box opens.



3 Click **Next** to open the Choose Installation Folder dialog box.

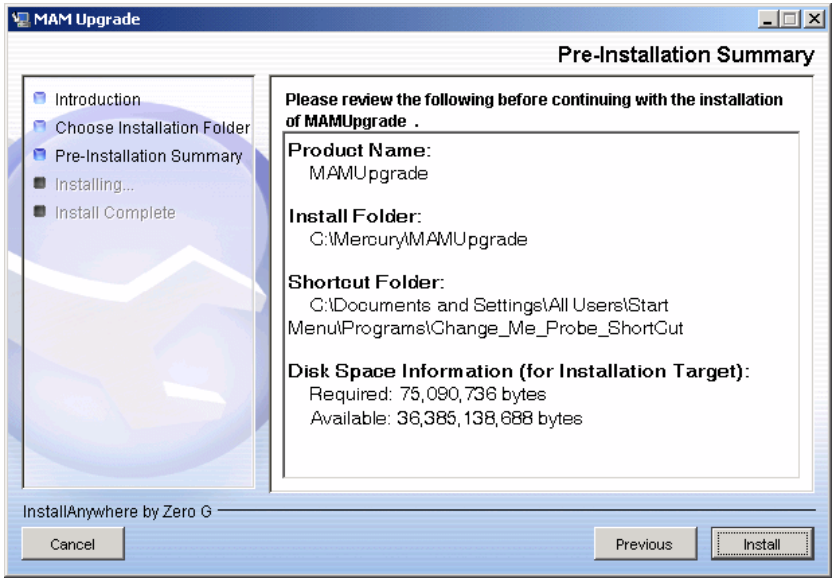


Accept the default entry or click **Choose** to display a standard Browse dialog box. To install to a different directory, browse to and select the installation folder.

Tip: To display the default installation folder again, click **Restore Default Folder**.

---

4 Click **Next** to open the Pre-Installation Summary dialog box that lists the installation options you have selected.



5 If you are satisfied with the summary, click **Install**. A message is displayed indicating that the installation is currently being performed. When the installation is complete, Setup displays the Installation Completed dialog box.

6 Click **Done**.

The next stage of the upgrade procedure is to access the upgrade application. For details, see the next section.

Running the Upgrade Application to Migrate Mercury Application Mapping

The second stage in the procedure to upgrade Mercury Application Mapping is to run the upgrade application.

To migrate Mercury Application Mapping from version 3.0 to 6.5:

1 Locate the **runGUIUpgrade.cmd** file in **<root folder>\Mercury\MAMUpgrade\scripts**.

Note: The **runUpgrade.cmd** file is intended for internal HP use only.

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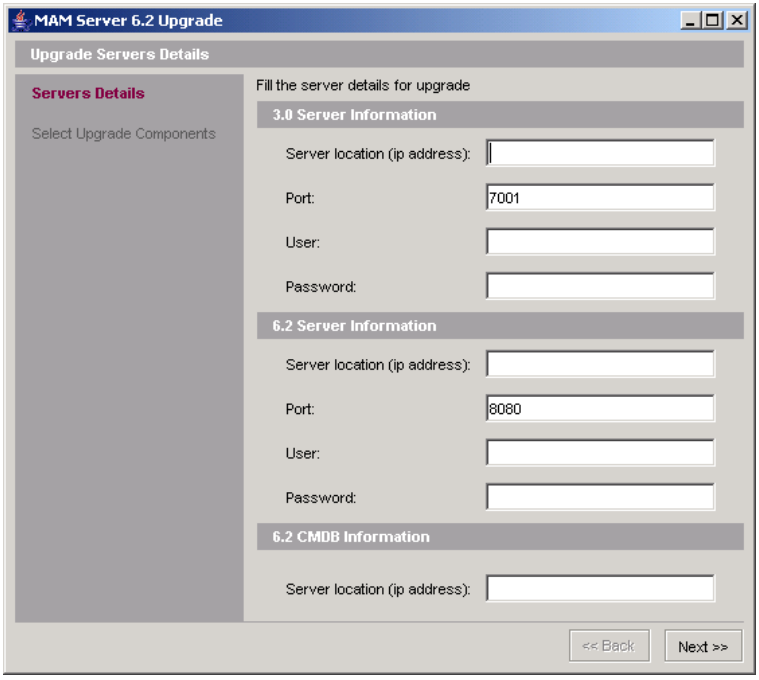
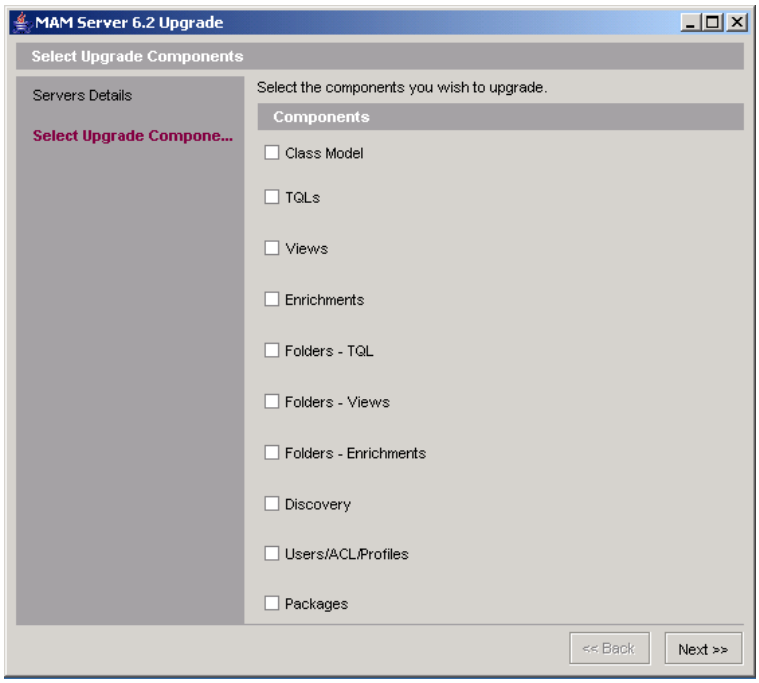
2 Double-click the file to display the upgrade wizard.



3 Enter the IP, port, and user and password (if necessary) of the machines running versions 3.0 and 6.5. Enter the IP of the machine on which the CMDB server is installed.

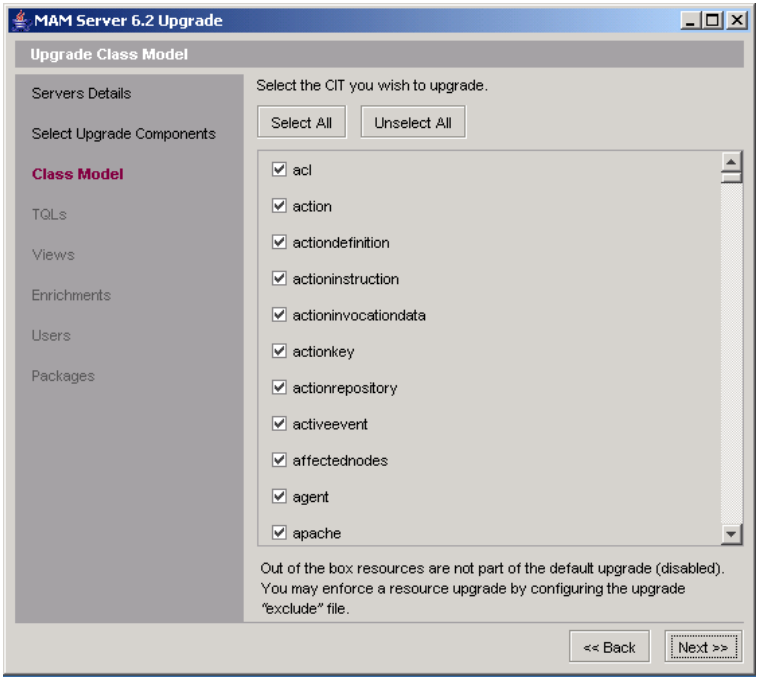
When you run the upgrade program for the first time, these fields are empty (apart from the port fields). On subsequent occasions the fields contain the values you are entering now. You may need to change the values if you are upgrading further Mercury Application Mapping resources.

4 Click **Next** to open the Select Upgrade Components dialog box.



All components that can be upgraded are listed.

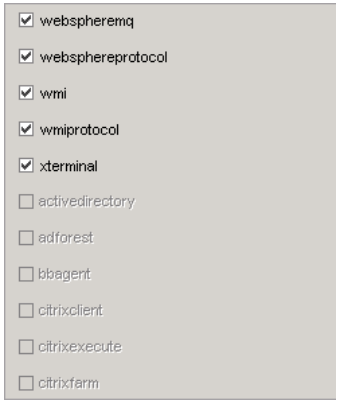
5 Select the component to be upgraded, and click **Next** to open the Upgrade dialog box.



Depending on which component you chose in the previous step, Upgrade displays all resources of the component that is to be upgraded. All resources are selected by default.

You can clear all resources by clicking **Unselect All**.

Resources that will not be upgraded, because they are out of the box resources, are displayed at the end of the list and are disabled:



You can upgrade these excluded resources. For details, see "Including Resources Previously Excluded" on page 117. For a complete list of resources that are not upgraded, see "Non-Migrated Resources" on page 118.

Note the following:

- **Class Model.** Although class models are out of the box components and, therefore, should be excluded from upgrade, they are not disabled. This is because users may have added attributes to the class models, or other changes may have been made. Only the changes are migrated to the new version.
- The site class cannot be migrated because this class no longer exists in version 6.5.
- **Users.** All users are migrated to the new version with the permissions that were defined for them in version 3.0. The exception is the Administrator user, which is excluded from the migration. You can change Administrator user permissions only in version 6.5.
- All users are migrated as is, with their given permissions except Administrator which is excluded and remains as defined in version 6.5.
- **Packages.** Before upgrading packages, you must upgrade the class, TQL, enrichment, and view resources that are included in a package. If a package includes resources that are not being upgraded, the resources do not appear in the version 6.5 package.

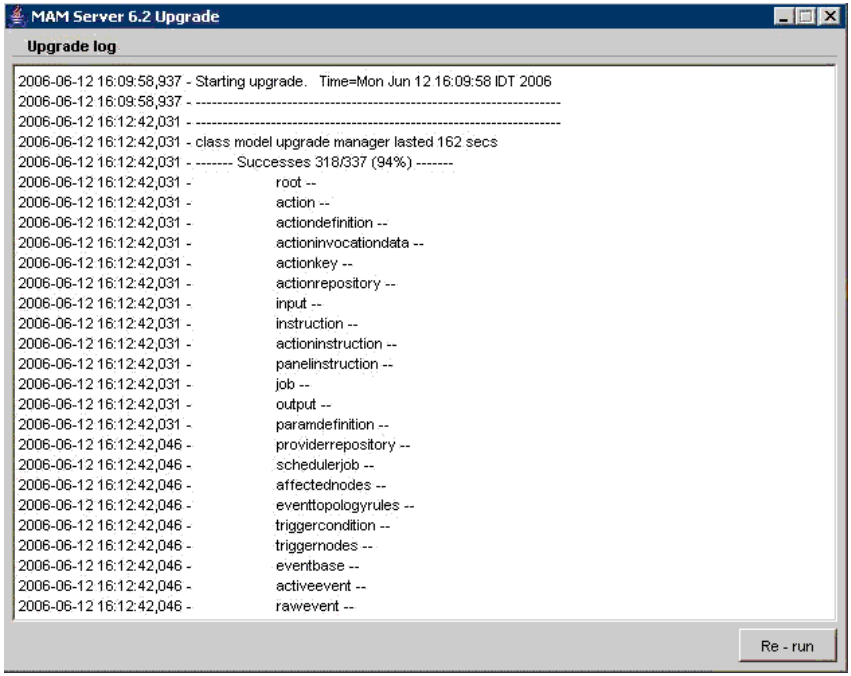
- Class, TQL, enrichment, and view resources are upgraded in a package. Resources from other subsystems are not upgraded.

Example of package migration from test to production environment and from version 3.0 to version 6.5: Mercury Application Mapping is being run in two environments: test and production. You want to migrate packages from the version 3.0 test environment to the version 6.5 test environment:

- Place the version 3.0 packages in the following folder on the version 6.5 server machine: **<root folder>:\Mercury\MAMUpgrade\packages30**.
- Migrate the Mercury Application Mapping version 3.0 test environment to a version 6.5 test environment.
- Migrate the packages by running the upgrade procedure and entering the IP addresses of the test machines.
- Perform a version 6.5 production installation.
- Import the package contents to the version 6.5 production environment.
- Package contents must be migrated before the packages themselves. Certain package resources are not migrated.
- Import the packages to the version 6.5 production environment.

6 Click **Upgrade**. Answer **Yes** to the message that is displayed. The upgrade process may take a few minutes, depending on the number of resources in the system that must be migrated.

At the end of the upgrade process, a report displays the results of the process, that is, the status of each component, as follows:



- **Success.** The resource was migrated successfully to version 6.5.
- **Warning.** The resource could not be migrated because of an error. However, once you fix the error, you can rerun the upgrade process and migrate the resource.
- **Failed.** The resource could not be migrated. For example, the site class cannot be migrated because this class no longer exists in version 6.5. Once you fix a failure error, you can rerun the upgrade process. For example, a view is not upgraded because it includes a TQL that cannot be upgraded. Fix the TQL error, upgrade the TQL, and migrate the view again.

The Warning and Failed categories include the reason for the non-migration.

You can also view this information in the **<root folder>:\Mercury\MAMUpgrade\log\upgrade.log** log file.

Note: The upgrade process creates other log files which contain more detailed data about each component. These log files are generally intended for internal HP use.

---

7 To run the upgrade process again, without making any changes, click **Rerun** in the report window. However, if the report includes warnings about resource errors and you fix the errors, do not click the Rerun button as your changes will not be included in the upgrade. For your changes to be loaded into the upgrade application, close it and open it again.

Upgrade displays the Upgrade wizard again and you can begin to upgrade another version 3.0 installation.

The next stage in the procedure is to fix the errors (for which a warning appears in the log file). For details, see the next section.

Preparing Resources with Errors for Migration

The next stage in the migration process is to decide whether any of the resources that did not migrate should be repaired and the migration process rerun. Resources that did not migrate appear in the Warning list at the end of a migration run and in the **<root folder>:\Mercury\MAMUpgrade\log\upgrade.log** log file.

This section includes the following topics:

Including Resources Previously Excluded

Resources that have been excluded from migration are recorded in the **.excluded** files in the **<root folder>:\Mercury\MAMUpgrade\excluded** folder. (For a complete list of resources that are not upgraded, see "Non-Migrated Resources" on page 118.)

Usually these resources are out of the box resources and, as they exist in Mercury Application Mapping version 6.5, there is no need to migrate them. However, you can include a resource in the upgrade process by deleting it from the exclude file and rerunning the upgrade process. For example, an out of the box class host may include customized attributes or classes that you want to migrate.

To include a class attribute in a migration run:

1. Display the **classes.excluded** file in a text editor.
2. Locate the class and its attribute that you want to migrate.
3. Delete the attribute from the file.
4. Run the migration process.

Migrated Resources

The following resources are upgraded.

- Class Model
- TQLs
- Views
- Enrichments
- TQL folders
- Views folders
- Enrichment folders
- Discovery and Dependency Mapping
- Users/ACL/Profiles
- Packages

Non-Migrated Resources

The following resources are not upgraded:

- CI instances
- Snapshots
- Reports
- Correlations
- Events
- Server scheduling
- DDM patterns
- Out of the box components (for examples of resources that are not upgraded, see the contents of the files in **<root folder>:\Mercury\MAMUpgrade\excluded**)
- The Administrator user

File Locations

The upgrade process creates the following folders in the **<root folder>:\Mercury\MAMUpgrade** folder that enable you to migrate resources:

- **excluded.** The *.excluded files contain all resources that must not be migrated.
- **included.** The *.included files contain all resources that have been upgraded.
- **packages30.** Version 3.0 packages are placed here to be upgraded.
- **log.** This folder contains all logs connected with the upgrade process. The main log is upgrade.log.
- **upgradedPackages.** The upgrade application moves upgraded packages to this folder.
- **namesMaps.** The *.map files contain name mapping for all types of resources. A resource's version 3.0 name is mapped to its new name in version 6.5.

Notes and Limitations

A TQL cannot be migrated to version 6.5 under the following condition: If a TQL relationship is configured with a join_f condition on the root_id attribute, the upgrade application cannot migrate the TQL. This is because version 6.5 does not include the root_id attribute.

9

Upgrading Mercury Application Mapping from Version 6.x to Version 6.5

This chapter explains how to upgrade Mercury Application Mapping from version 6.x to 6.5.

This chapter includes:

Upgrading Mercury Application Mapping: Version 6.x – 6.5

This section explains how to upgrade Mercury Application Mapping from version 6.x to version 6.5.

Note: As part of the upgrade procedure you are required to remove existing version 6.2 **process** and **webservice** CIT instances from the CMDB. This is required because the definitions of those CI types were changed in version 6.5. After installing version 6.5, you must run DDM for Web services (UDDI module) and processes (Host resource package) to recreate the instances in your 6.5 CMDB.

To upgrade HP Universal CMDB:

1. Back up all Mercury Application Mapping databases.

2 Back up any Mercury Application Mapping 6.x configuration files that have been modified by users. For details, see "Backing Up Configuration Files" on page 125.

3 Verify the number of process CIT instances in the system via the JMX console:

a Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080
```

where **<machine name or IP address>** is the machine on which Mercury Application Mapping is installed.

b Click the JMX Console link. You may have to log in with the user name and password.

You can also log in with the following URL: **http://<machine name or IP address>:8080/jmx-console**.

c Click the **Topaz** > **service=CMDB Model Services** link.

d In the JMX MBEAN View page, locate the following operation: **retriveObjectCounts**

e In the customerID field, enter **1;** in the type field, enter **process**; select **true** for isDerived.

f Click **Invoke**. A message is displayed showing the number of processes in the system. Record this number for later reference.

4 Install Mercury Application Mapping version 6.5. For details, see the relevant sections in the *Mercury Application Mapping Installation Guide*.

Note: Do not start the Mercury Application Mapping server before performing the steps below.

---

5 Using the modified configuration files that you backed up in step 2 as a reference, manually update the 6.5 configuration files similarly (if required). If a modified file appears in multiple locations, make the change in all instances of the file.

Important: Do not copy any configuration files from previous versions on top of 6.5 configuration files.

---

6 If the number of process CIT instances in the system, as calculated in step 3 above, is greater than 10,000, and an Oracle Server database is being used, perform the following steps to remove them:

a Make sure the Mercury Application Mapping server is not running.

b Run from the command line **65_upgrade.bat process**. The batch file is located in **\MAM-V6.5\MAMServer\j2f\cmdb\dbscripts\oracle**.

Note: Do not use the **65_upgrade.bat** script to remove any other type of CIT instance.

---

7 Restart the Mercury Application Mapping server.

8 Remove **webservice** CIT instances:

a Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080
```

where **<machine name or IP address>** is the machine on which Mercury Application Mapping is installed.

b Click the **JMX Console** link. You may have to log in with the user name and password.

c Click the **Topaz** > **service=CMDB Model Services** link.

d In the JMX MBEAN View page, locate the following operation:

deleteByClassType()

e In the classType field, enter **webservice** as the class type to be removed and click **Invoke**. A message is displayed, signifying that the operation is successful.

9 If the number of **process** CIT instances in the system, as calculated in step 3 above, is less than 10,000, perform the following steps to remove them:

a Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080
```

where <**machine name or IP address**> is the machine on which Mercury Application Mapping is installed.

b Click the JMX Console link. You may have to log in with the user name and password.

c Click the **Topaz** > **service=CMDB Model Services** link.

d In the JMX MBEAN View page, locate the following operation: **deleteByClassType()**

e In the classType field, enter **process** as the type to be removed; in the chunkSize field, enter **500** (recommended); click **Invoke**. A message is displayed, signifying that the operation is successful.

10 Redeploy all packages. For details, see "Redeploying and Undeploying Packages" on page 126.

Note: If your pre-version 6.5 Mercury Application Mapping database included the IIS topology view, verify that it is not corrupted after the upgrade procedure. If it is, manually undeploy the IIS discovery package before redeploying all packages. For details, see "Redeploying and Undeploying Packages" on page 126.

---

11 Reactivate the active DDM jobs, so that newly installed Probes receive their tasks.

Backing Up Configuration Files

Before you install Mercury Application Mapping 6.5, back up the configuration files that you have modified to another directory.

Note: If a change has been made to one of these files, repeat the change in the version 6.5 file.

CMDB Configuration Files

- ..\MAMServer\j2f\conf\cmdb.conf
- ..\MAMServer\j2f\conf\core\Tools\log4j\EJB\cmdb.properties
- .. \MAMServer\j2f\conf\core\Tools\log4j\PlainJava\cmdb.properties
- ..\MAMServer\scripts\install\J2F\conf\core\Tools\log4j\EJB\cmdb.properties
- ..\MAMServer\scripts\install\J2F\conf\core\Tools\log4j\PlainJava\cmdb.properties

Server Configuration Files

- ..\MAMServer\root\lib\server\appilogConfig.properties
- ..\MAMServer\root\lib\server\backup.properties
- ..\MAMServer\root\lib\server\collectorsConfig.properties
- ..\MAMServer\root\lib\server\dbupgrade.properties
- ..\MAMServer\root\lib\server\icon.properties
- ..\MAMServer\root\lib\server\jms.properties
- ..\MAMServer\root\lib\server\mam4j-dbcreator.properties
- ..\MAMServer\root\lib\server\mam4j-scripts.properties
- ..\MAMServer\root\lib\server\mam4j-simulator.properties
- ..\MAMServer\root\lib\server\mam4j_db.properties
- ..\MAMServer\root\lib\server\scripts_db.properties

- ..\MAMServer\root\lib\server\shape.properties
- ..\MAMServer\root\lib\server\mam4bac4j.properties
- ..\MAMServer\root\lib\server\mam4j-debug.properties
- ..\MAMServer\root\lib\server\mam4j-non-debug.properties
- ..\MAMServer\root\lib\server\mam4j-stat.properties

Application Configuration Files

- ..\MAMServer\j2f\EJBContainer\server\mercury\tmp\deploy\tmp<###>mam.war\appilog\gui\server.properties
- ..\MAMGUI\root\lib\gui\mam4j_gui.properties
- ..\MAMServer\root\lib\web\gui.properties – located under a specific server

DDM Probe Configuration Files

- ..\MAMDiscoveryProbe\root\lib\collectors\discoveryProbe.properties

Redeploying and Undeploying Packages

Use the below procedures to redeploy or undeploy DDM packages:

To redeploy packages:

1. Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080
```

   where **<machine name or IP address>** is the machine on which Mercury Application Mapping (or the Business Availability Center Modeling Data Processing Server, in the case of a shared CMDB environment) is installed.

2. Click the JMX Console link. You may have to log in with the user name and password.
3. Click the **MAM** > **service=Package manager** link.
4. In the JMX MBEAN View page, locate the following operation: **deployPackages**

5 In the customerID field, enter **1**; in the packageNames field, enter the package name—to redeploy all packages, enter ***.***; ignoreTimestamp should be set to **true**.

6 Click **Invoke**. A message is displayed, signifying that the operation is successful.

To undeploy packages:

1 Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080
```

where <**machine name or IP address**> is the machine on which Mercury Application Mapping (or the Business Availability Center Modeling Data Processing Server, in the case of a shared CMDB environment) is installed.

2 Click the JMX Console link. You may have to log in with the user name and password.

3 Click the **MAM** > **service=Package manager** link.

4 In the JMX MBEAN View page, locate the following operation: **undeployPackage**

5 In the customerID field, enter **1**; in the packageNames field, enter the name of the package to undeploy.

To undeploy the IIS discovery package, enter **IIS.zip**.

6 Click **Invoke**. A message is displayed, signifying that the operation is successful.

10

Upgrading HP Universal CMDB to Version 7.0

This chapter explains how to upgrade HP Universal CMDB from version 6.x to 7.0.

This chapter includes:

Tasks

Reference

Upgrade Workflow

This section describes the workflow for upgrading HP Universal CMDB from version 6.x to version 7.0.

To perform the upgrade:

1 **Run the upgrade tool.**

For details on changes that are made during the upgrade to the customer environment, see "Version 7.0 Upgrade Tool" on page 130.

Important: You must run the upgrade tool in version 6.x before moving to version 7.0.

---

2 **Perform the upgrade procedure.**

For details, see "Upgrade Procedure" on page 132.

3 **View upgraded components.**

For details, see "Upgrade Contents" on page 134.

4 **Validate success.**

For details, see the classModelDiffs.log file in "CIT Log Files" on page 142.

The upgrade runs automatically when the CMDB starts running for the first time after installation of version 7.0. Upgrade uses the 6.x framework as its basis. Before and after each Manager startup, the relevant upgrade runs. A successful upgrade is one in which all the upgrade processes finish successfully.

Version 7.0 Upgrade Tool

Important: Run this procedure on the 6.x environment.

During upgrade, run this procedure to collect the following information about the upgrade process:

- The differences between the version 6.x CIT model (the factory CIT model in the customer environment) and the version 7.0 CIT model.
- Patterns, enrichments, and CIs that use attributes and CIs that no longer exist in version 7.0.
- Data on Link Nodes to Application CI views that are to be used later (in the version 7.50 upgrade) to manually define application enrichment.

To run the upgrade tool:

1. Locate the following service archive files (.sar) on the **Tools and Utilities\CmdbUpgrade** directory on the HP Universal CMDB CD-ROM, version 7.0:
   - Business service view service archive (**cmdb-bs-preupgrade-services.zip**)
   - Class model differences and dependencies service archive (**cmdb-cm-preupgrade-services.zip**)
2. Copy the files to the **<HP Universal CMDB root directory>\j2f\AppServer\mbeans** folder on the version **6.x** environment.
3. Change the extension from **zip** to **sar**.
4. Restart the server.
5. Invoke the following JMX functions:
   - Business Service View pre upgrade Services (you may have to log in with the user name and password)

     Important: Save the output for this service to use when upgrading Business Service Views in version 7.50.

   - CMDB Class Model pre upgrade Services

Important: Save the output for this service to use in validating success. For details, see the classModelDiffs.log file in "CIT Log Files" on page 142.

Upgrade Procedure

The following procedure explains how to upgrade HP Universal CMDB from version 6.x to 7.0.

For details on changes that are made during the upgrade, see "Version 7.0 Upgrade Tool" on page 130.

To upgrade HP Universal CMDB:

1 After installing version 7.0 and before starting up HP Universal CMDB for the first time:

a Back up the databases.

b Delete all process instances: Depending on whether you are using an Oracle Server schema or Microsoft SQL Server database, run **delete cis by type.bat** from:

- **<HP Universal CMDB root directory>\j2f\cmdb\dbscripts\oracle**
- **<HP Universal CMDB root directory>\j2f\cmdb\dbscripts\ms_200x**

For more details, see "CMDB Deletion Utility" on page 135.

c If necessary, for a large deployment (that is, more than 5 MB of MIs), you may need to change configuration settings. For details, see "Large Deployments" on page 141.

Note: Do not make any changes without consulting HP Software Support.

---

d Start the server.

2 Verify that all services are up including the HP Universal CMDB packager service.

3 Force deploy all packages:

a Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080/jmx-console
```

where <**machine name or IP address**> is the machine on which HP Universal CMDB is installed. You may have to log in with the user name and password.

b Click the **MAM** > **service=Package Manager** link.

c In the JMX MBEAN View page, locate the following operation: **deployPackages()**.

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

e Click **Invoke**.

To confirm that the forced deployment is finished, open the file **mam.packaging.log** and verify that no more lines are being added to it.

4 Run the Discovery and Dependency Mapping upgrade:

a Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080/jmx-console
```

where <**machine name or IP address**> is the machine on which HP Universal CMDB is installed. You may have to log in with the user name and password.

b Click the **MAM** > **service=Discovery manager** link.

c In the JMX MBEAN View page, locate the following operation: **isUpgradeRequired()**.

d In the **ParamValue** box for the parameter **customerId**, enter **1** and click **Invoke**.

e If **True** is returned, perform the upgrade, otherwise, skip to step 5 on page 134.

f Locate **runDiscoveryUpgrader()** and enter the following information:

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

5 Export all user defined packages:

a Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080/jmx-console
```

where **<machine name or IP address>** is the machine on which HP Universal CMDB is installed. You may have to log in with the user name and password.

b Click the **MAM** > **service=Package manager** link.

c In the JMX MBEAN View page, locate the following operation: **exportPackage()**.

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

e Click **Invoke**.

Upgrade Contents

This section explains which components are upgraded.

CITs

- The JVM class heapsize attribute is changed from int to long.
- Duplicate attributes are removed. That is, if an attribute exists in a parent CIT, its definition is removed from the current CIT.
- All CITs are upgraded to version 7.0. Any attributes, CIs, or valid links that cannot be removed are marked as being created by the user. The result of this action is a CMDB that includes version 7.0 CITs as well as user additions that are marked as such.
- User packages are updated. This is carried out through a JMX invocation and not as part of the automatic upgrade, by export.
- The list of factory packages resides in **<HP Universal CMDB server>\root\lib\server\factory_packages.txt**.

Configuration

- View profiles links are deleted.
- Scheduled job definitions are upgraded in the Scheduler.

Note: TQLs, enrichments, and views may still include version 6.5 definitions so there is no need to perform upgrade on these components.

Data

- A link is added for the Gold Master report from the root report.

Deployment

- History database: A customer ID column is added to the raw events and active events tables.
- The ID_CATALOG CMDB content is copied to the Foundation database > Management ID_CATALOG table.
- The Settings Manager table is populated with the CMDB_SYS_VER content.

CMDB Deletion Utility

The Delete per Type Utility is a Java tool for deleting instances of CI types from the CMDB model. It operates on a CMDB customer context. You delete instances in step b on page 132 of the upgrade procedure.

The tool input parameters are:

- CMDB type (matching one of the CITs in the CMDB class model)
- CMDB customer ID
- Connection details to the CMDB database.

The tool's main use cases are:

- 7.0 upgrade process
- Customer environments where a certain CIT instance needs to be removed from the model.

  For example, the tool can delete all instances of the nt CIT and all the links that hold nt instances on either side.

Database Prerequisites

On the database server where the CMDB schema is located, the following prerequisites should be carried out, prior to operation of the tool:

Backup

Back up the CMDB schema (or perform a full backup of the database) before operating this utility.

Database Statistics

Update all database statistics against the CMDB schema. Current statistics are essential for the database server to choose the best execution of SQL statements.

RECYCLEBIN System Parameter on Oracle 10g Server

If the database server is an Oracle 10g Server, it is recommended to turn off the RECYCLEBIN System database parameter. This parameter controls whether dropped tables can be restored and may affect performance.

This utility in particular may be affected by this parameter if set to ON.

The general recommendation for the databases is to set RECYCLEBIN to OFF.

Recovery Procedure

The **delete overall** utility goes through all the relevant CDM tables and deletes the instances of the input CI Type.

If the utility fails at some stage, recovery steps are probably needed to keep the model in consistent mode. Use case: Instances must be deleted from five CDM tables and there is a failure after the first table; in this case, the model is inconsistent until the instances are deleted from the rest of the tables.

If the process does not complete successfully, perform the following steps:

1 Identify the point of failure using the log.

The first step after a crash or failure is to read the output log and locate the point of failure within the **delete overall** process. The log file is located in the following folder: **<HP Universal CMDB root directory>\j2f\log**.

Note: In versions 7.0 and 7.01, the log file name is **ucmdb_all.log**. In versions 7.02 or later, the log file name is **cmdb.util.log**.

Since the delete process works per CDM table, it is important to:

- Identify the participating CDM tables
- Identify the active table during the failure and/or the last table successfully processed

For an example of an output log, see "Example of Output Log" on page 140. The log specifies the list of CDM tables from which the CMDB instances of the input type should be deleted.

On a successful execution, for each of the CDM tables the log contains the following lines at the beginning and at the end of the delete process:

```
deleting data of <type> from <CDM table>
deleted data from <CDM table>
```

In case of a failure, use the log to:

- Map all the tables that appear in the CDM tables list output but do not include the above two lines: From each of these tables, perform a manual delete as specified in the next step.
- In case of failure during processing a table, the first line appears but not the last. In this case, use the log file to recover the last active table as specified in the next step.

2 Perform recovery using recovery tables.

If deletion is not completed successfully, you can use one of the following two tables in the CMDB schema for performing the recovery process:

- **temp_ids.** This table holds all the IDs of objects and links to be deleted.

  According to the point of failure detected, apply the following recovery steps:

  Use **temp_ids** to delete the IDs from all tables not processed by the utility. For example, if CDM_SYSTEM_1 appears in the log list but is not processed before the failure, use the following statement to delete the IDs:

  ```
  DELETE FROM CDM_SYSTEM_1 C WHERE EXISTS (SELECT 1 FROM TEMP_IDS
  T WHERE T.CMDB_ID=C.CMDB_ID)
  ```

  Perform **commit**.

  Note: Deleting many IDs can be time consuming.

- **cmdb_del_recovery_log.** If the failure occurs during table processing, use this table (that holds DDL commands) to be applied on the last active table. This table is empty if the failure did not occur during table processing.

  Use the **cmdb_del_recovery_log** table for applying the missing DDL commands against the last active table. This is necessary only if the failure occurred in the middle of processing a CDM table.

Select the **ddl_cmd** column for outputting all commands and run them against the last active table. The last active table also appears in the table_name column of **cmdb_del_recovery_log**.

Note: If the tool completes successfully, no such tables remain in the schema.

Example of Output Log

```
Deleting instances of process from CMDB database
---->temp_ids has 3169223 CMDB Ids
---->List of tables is created. The CDM tables to delete from are :
Table to delete process instances : CDM_IT_WORLD_LINKS_1

Table to delete process instances : CDM_PROCESS_1

Table to delete process instances : CDM_DATA_1

Table to delete process instances : CDM_HOSTRESOURCE_1

Table to delete process instances : CDM_PROGRAM_1

Table to delete process instances : CDM_SYSTEM_1

Table to delete process instances : CDM_OBJECT_1

Table to delete process instances : CDM_CONTAINER_F_1

Table to delete process instances : CDM_LINK_1

Table to delete process instances : CDM_IT_WORLD_1

Table to delete process instances : CDM_ROOT_1

Table to delete process instances : CDM_LIST_ATTR_PRIMITIVE_1

deleting data of process from CDM_IT_WORLD_LINKS_1
Saved DDL statements for CDM_IT_WORLD_LINKS_1 in cmdb_del_recovery_log
Saved DDL statements for CDM_IT_WORLD_LINKS_1 in cmdb_del_recovery_log
Running DDL statements against CDM_IT_WORLD_LINKS_1.....->

  ALTER TABLE "CMDB2"."CDM_IT_WORLD_LINKS_1" ADD CONSTRAINT
"PK_CDM_IT_WORLD_LINKS_1" PRIMARY KEY ("CMDB_ID")
  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS
2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL DEFAULT)
  TABLESPACE "CMDBDATA"  ENABLE
```

```
deleted data from CDM_IT_WORLD_LINKS_1
 delete took: 201.0 seconds.
deleting data of process from CDM_PROCESS_1
Saved DDL statements for CDM_PROCESS_1 in cmdb_del_recovery_log
Saved DDL statements for CDM_PROCESS_1 in cmdb_del_recovery_log
Running DDL statements against CDM_PROCESS_1.....->

...


deleted all instances of process
 delete took: 7740.0 seconds.

Process finished with exit code 0
```

Large Deployments

The following list of settings may need to be changed for large deployments (after consulting with HP Software Support):

- **HeldTimeoutMillis in pool.properties**. The connection timeout. This setting determines how long a connection can remain open against the database. The default is 5 minutes but for a large deployment you may need to change it to 30 minutes.
- **server.sync.session.timeout in cmdb.xml.** The CMDB session timeout. This setting determines for how long a CMDB operation can run till a timeout exception is thrown. The default is 10 minutes but for a large deployment you may need to change it to 60 minutes.
- **quota.name.customer.model.objects in cmdb.xml.** The maximum number of CIs. This setting determines the upper threshold for the number of CIs in the model.
- **quota.name.customer.tql.active in cmdb.xml.** The maximum number of active TQLs. This setting determines the upper threshold for the number of active TQLs. This settings must not be changed without consulting HP Software Support.
- **Maximum number of patterns from group allowed being active.** Appropriate numbers should be increased for all the group types.

CIT Log Files

Once the version 7.0 environment has started running and to validate upgrade success, check the following logs:

➤ **classModelDiffs.log**. Check this file for the differences between the version 7.0 factory CITs and the version 6.x factory CITs (the factory CITs in the customer environment).

Note:

➤ This log ignores changes to the CITs made by the user.

➤ You define the location of this log file during the running of the upgrade tool.

The following is an excerpt from a classModelDiffs.log file:

```
classmodel Comparison Result:
From version 6.5
Classes: 572 TypeDefs: 36 ValidLinks: 454
To version 7.0
Classes: 612 TypeDefs: 42 ValidLinks: 464


Valid Links:
------------

Removed: (9)
--------
valid link: class name [patternstats], end1 [discoverypattern], end2 [cmdbclass]
valid link: class name [discovers], end1 [discoverypattern], end2 [cmdbclass]
valid link: class name [discoverydest], end1 [discoverypattern], end2 [object]
valid link: class name [triggers], end1 [discoverytql], end2 [discoverypattern]
valid link: class name [triggers], end1 [cmdbclass], end2 [discoverypattern]
valid link: class name [depend], end1 [discoverypattern], end2 [discoverytql]
valid link: class name [container_f], end1 [snmp], end2 [mibtree]
valid link: class name [depend], end1 [webservice], end2 [iiswebdir]
valid link: class name [viewprofile], end1 [user], end2 [mapview]
Added: (19)
------
```

```
valid link: class name [fcmdb_conf_aggregation], end1 [fcmdb_configuration], end2
[fcmdb_configuration]
valid link: class name [fcmdb_conf_composition], end1 [fcmdb_configuration], end2
[fcmdb_configuration]

valid link: class name [fcmdb_info_composition], end1 [fcmdb_info], end2 [fcmdb_info]
valid link: class name [member], end1 [host], end2 [host]
valid link: class name [member], end1 [vmserver], end2 [hostresource]
valid link: class name [depends_on], end1 [object], end2 [logical_application]
valid link: class name [applicationLink], end1 [object], end2 [logical_application]
valid link: class name [patternstats], end1 [discoveryjob], end2 [cmdbclass]
valid link: class name [discoverydest], end1 [discoveryjob], end2 [object]
valid link: class name [triggers], end1 [discoverytql], end2 [discoveryjob]
valid link: class name [notification_template_of], end1 [alert_recipient], end2

[notification_template]
valid link: class name [alert_recipient_of], end1 [alert], end2 [alert_recipient]
valid link: class name [link], end1 [offering_level], end2 [schedule]
valid link: class name [offering_dimension_of], end1 [offering_level], end2 [dimension]
valid link: class name [offering_of], end1 [object], end2 [offering_level]
valid link: class name [sla_offering_of], end1 [object], end2 [offering_level]
valid link: class name [history_link], end1 [it_world], end2 [HistoryChange]
valid link: class name [acl_attachment], end1 [user], end2 [acl_role]
valid link: class name [contains], end1 [iiswebdir], end2 [webservice]

Changed: (0) & (445)-unchanged
--------

Type Defs:
----------

Removed: (0)
--------

Added: (6)
------
statusaccounting_enum
concrete_synch_config_status
synch_config_unit_status
synch_unit_state
history_attribute_types
history_change_type_list

Changed: (2) & (34)-unchanged
--------
```

```
Item:
alert_context_type
Changes:
Add Enum Entry: Enum entry [3, event]

Item:
notification_type
Changes:
Add Enum Entry: Enum entry [0, message]

Classes:
--------
Removed: (3)
--------
class: name [discovers] super class [configuration_links] type [LINK] isFactory [true]
isUserUpdated [false]
class: name [dispatched] super class [configuration_links] type [LINK] isFactory [true]
isUserUpdated [false]
class: name [mibtree] super class [hostresource] type [OBJECT] isFactory [true]
isUserUpdated [false]

Added: (43)
------
class: name [fcmdb_configuration_link] super class [configuration_links] type [LINK]
isFactory [true] isUserUpdated [false]
class: name [fcmdb_conf_aggregation] super class [fcmdb_configuration_link] type
[LINK] isFactory [true] isUserUpdated [false]
class: name [fcmdb_conf_composition] super class [fcmdb_configuration_link] type
[LINK] isFactory [true] isUserUpdated [false]
class: name [fcmdb_info_composition] super class [fcmdb_configuration_link] type
[LINK] isFactory [true] isUserUpdated [false]
class: name [offering_dimension_of] super class [configuration_links] type [LINK]
isFactory [true] isUserUpdated [false]

...
```

➤ **cmdb.info log.** Check that the CMDB version is set to 7.0 (if errors are reported, check the **cmdb.upgrader.log** file).

- **mam.Packaging log.** Check this file for errors. The only acceptable errors are 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.
- **mam.scheduler.log.** Check this file to verify that all scheduled jobs are upgraded successfully.

Note:

- To export updated packages, run JMX from the packages service.
- The upgrade status is available in **cmdb.upgrade.log** or from a JMX invocation in **cmdb dal services**: getCmdbVersion.
- If necessary, for a large deployment (that is, more than 5 MB of MIs), you may need to change configuration settings. For details, see "Large Deployments" on page 141.

Upgrade Limitations

- There is no automatic upgrade for Business Service views. You manually upgrade the views during the upgrade procedure for version 7.50. For details, see "Upgrade Business Service View (From Version 6.x to 7.50)" on page 152.
- During upgrade the CMDB compares a CIT from both versions, and tries to apply the differences to the version 7.0 CIT.

  Differences that cannot be applied are marked as user differences. Differences in the remove attribute, remove class, and remove or add qualifiers remain because of their possible use by TQLs or enrichment, or the existence of CI instances.

  If a version 7.0 factory CI has the same name as a version 6.x user CI, it is not updated, that is, the user CI remains untouched.

- There is no upgrade for factory packages that were edited by the user in version 6.x. Only user packages are upgraded.

  If a user creates a package and does not update the factory package, a JMX invocation repacks the user package.

  In addition, if factory values for the Display Name value, Description value, and so on, were changed by the factory initiator, they are updated according to version 7.0 factory values. For example, if the description of an attribute is changed for an attribute that was created by factory and the changer of the description was factory, then it is changed again in the 7.0 description.

  To upgrade 6.5 packages, deploy them in the 6.5 environment. Any packages not deployed will not be compatible with version 7.0.

- The CMDB SOAP API for version 6.5 is not compatible with the version 7.0 API.

- The following scheduled jobs are not upgraded:

  SchedulableDeployPackages. Deploy this package through the application.

  SchedulableRebuildViews.

  SchedulableRunCorrelation.

  SchedulableRunTql.

  The Scheduler upgrade occurs during system startup. Its status is available at **mam.scheduler.log** and not as part of the upgrade log.

- The following configuration files are installed with factory values:

  cmdb.conf

  gui.properties. This file contains values such as the number of objects in a layer, the pooling delay of the UI, and so on.

- The script to delete process instances is not supported for consolidated tables (HP Software-as-a-Service Support only).

- Menus that were edited by the user are not upgraded. The factory definitions overwrite them.

11

Upgrading HP Universal CMDB to Version 7.50

This chapter explains how to upgrade HP Universal CMDB from version 7.0x to 7.50 (and from version 6.x to version 7.50).

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

This chapter includes:

Tasks

Upgrade to Version 7.50 from Version 7.0x

The following procedure explains how to upgrade HP Universal CMDB from version 7.0x to 7.50. For the procedure for upgrading from version 6.x to 7.0x, see Chapter 10, "Upgrading HP Universal CMDB to Version 7.0."

To upgrade from version 7.0x to version 7.50:

1. Back up the CMDB, History and Foundation databases.
2. Install HP Universal CMDB version 7.50. For details, see Part II, "Installation."
3. During installation, you are asked for details of the Foundation, CMDB, and History databases (in the UCMDB Server Configuration Wizard). Enter the names of the version **7.0x** databases.

Note:

- ➤ Make sure you use the same Foundation schema that you created during the version 7.0x installation.
- ➤ Do not start the HP Universal CMDB server.
- ➤ For details on connecting to the databases, see Chapter 6, "Setting Database Parameters."

---

4. To upgrade the database schema, run the **cmdbDbUpgrade** tool . For details, see "The cmdbDbUpgrade Tool" on page 156.
5. Start the HP Universal CMDB server.
6. Verify that all services are up including the HP Universal CMDB MAMPACKAGER service.
7. If you have used scheduled reports in version 6.x or 7.0x, invoke a JMX that converts the already-saved reports to the new format:
   - **a** Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080/jmx-console
```

where <**machine name or IP address**> is the machine on which HP Universal CMDB is installed. You may have to log in with the user name and password.

b Click the **MAM** > **service=MAM Report Services** link.

c In the JMX MBEAN View page, locate the following operation: **upgradeReportsFrom70()**.

d In the **customerID** field, enter **1;** in the **subversion** field, enter a number to represent the version of 7.x from which you are upgrading. For example, if you are upgrading from version 7.01, enter **1**.

e Click **Invoke**. A message is displayed showing the updated status of the reports.

8 If you have used the Add to Application functionality in View Manager in version 7.00, continue with the procedure in "Upgrade Application View (From Version 7.00 to 7.50)" on page 150.

9 You can now begin working with version 7.50.

Upgrade to Version 7.50 from Version 6.x

- Perform the upgrade procedure from version 6.x to 7.0. For details, see Chapter 10, "Upgrading HP Universal CMDB to Version 7.0."
- Perform the upgrade procedure from 7.0x to 7.50. For details, see "Upgrade to Version 7.50 from Version 7.0x" on page 148.
- If you have used the Add to Business Service functionality in View Manager in version 6.x, continue with the procedure in "Upgrade Business Service View (From Version 6.x to 7.50)" on page 152.

Upgrade Application View (From Version 7.00 to 7.50)

You should run the following procedure if you have used the **Add to Applications** functionality in View Manager.

Note: Do not run this procedure if you are upgrading from version 7.01, 7.02, and so on, to version 7.50.

To upgrade Application views:

1 Obtain the list of views 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>:8080/jmx-console
```

   where <**machine name or IP address**> is the machine on which HP Universal CMDB is installed. You may have to log in with the user name and password.

   b Click the **Topaz service=CMDB Business View Enrichment Services** link.

   c In the JMX MBEAN View page, locate the following operation: **retrieveAllEnrichmentNames()**.

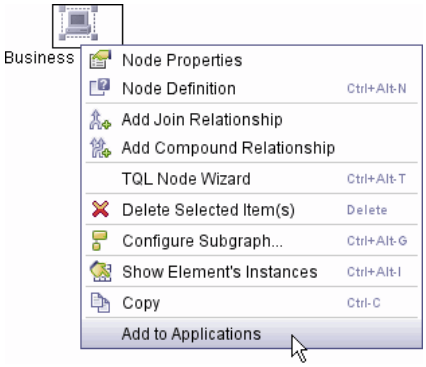
   d In the **customerID** field, enter **1**.

   e Click **Invoke**. A message is displayed showing the names of the views.

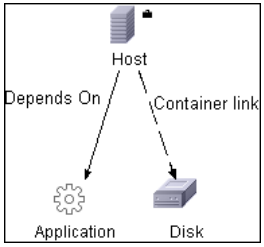
2 Apply the following manual procedure:

a For each view that has a node connected to an application, identify the relevant nodes, right-click the node and choose **Remove from Applications**.

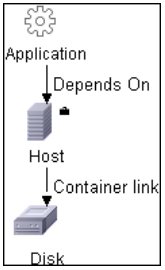
b Choose **Add to Applications**:



3 Refer to the list you created in step 1 on page 150 to update the queries, views, and other TQL-based resources that are using **Applications** in their conditions: Reverse the direction of the **depends on** link. For example, in version 7.00, the TQL condition was Host **Depends On** Application:



Now in version 7.50, the condition should say Application **Depends On** Host:



Upgrade Business Service View (From Version 6.x to 7.50)

You should run the following procedure if you have used the **Add to Business Service** functionality in View Manager in version 6.x.

To upgrade Business Service views:

1 Delete the Business Service views instances:

a Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080/jmx-console
```

where <**machine name or IP address**> is the machine on which HP Universal CMDB version 7.50 is installed. You may have to log in with the user name and password.

b Click the **Topaz service=CMDB Class Model Services** link.

c In the JMX MBEAN View page, locate the following operation: **deleteByClassType()** and enter the following information:

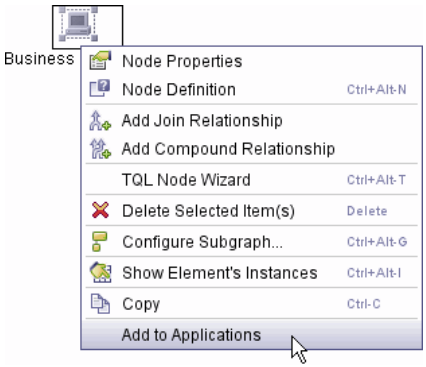
- In the ParamValue box for the parameter **customerId**, enter **1**.
- In the classType parameter, enter **BusinessService**.
- In the chunkSize parameter, enter **1000**.
- In the **isDerived** parameter, enter **true**.

d Click **Invoke**.

2 Log in to HP Universal CMDB version 7.50. Access View Manager. Locate the relevant views according to the Business Service view report (for details, see step 1 on page 131). The report consists of all version 6.x Business Service views. Each Business Service view consists of:

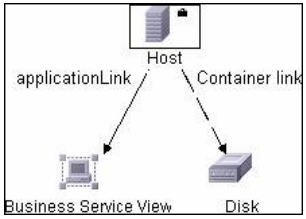
- The view name on which the Business Service view is defined.
- The full path of the view in the View Explorer tree.
- The node numbers and CI Type names of each node that is included in the Application view.
- The pattern definition for which the view is defined.

3 For each view, identify the relevant nodes, right-click each node and choose **Add to Application**:

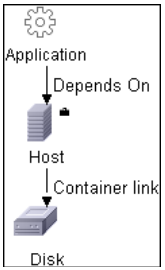


Enter the Application name in the box and click **OK**. For details, see "Link Nodes to Application CI" in *Model Management*.

4 Update the queries, views, and other TQL-based resources that are using the Business Service View CIT: Replace **link with Business Service Views** with **links with Application**. For example, if, in version 6.x, there is a TQL condition Host linked by **applicationLink** to Business Service View:



now the condition should say Application **Depends On** Host:



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.
- This procedure is relevant for 7.x versions earlier than 7.50 .

To upgrade out of the box adapters:

1. Before uninstalling 7.x versions (earlier than 7.50), save any Service Desk or Generic database adapter configuration files to which you made changes.
2. Install HP Universal CMDB version 7.50. For details, see Part II, “Installation.”

3 Copy the saved configuration files to their original location, as follows:

- **Service Desk adapter.** Save the **serviceDeskConfiguration.xml** file in the **<HP Universal CMDB root directory>\UCMDBServer\j2f\fcmdb\CodeBase\ServiceDeskAdapter** folder.
- **Generic database adapter.** Save the files in the **<HP Universal CMDB root directory>\UCMDBServer\j2f\fcmdb\CodeBase\GenericDBAdapter\META-INF** folder.

Proprietary Adapters

Note: This procedure is relevant if you created your own federated CMDB adapters in a 7.x version earlier than 7.50.

There is no backward compatibility for the adapters that were written for version 7.x (earlier than 7.50). You should rewrite these adapters by implementing the new adapter interface provided in UCMDB 7.50.

The cmdbDbUpgrade Tool

The **cmdbDbUpgrade** tool upgrades the static tables in the version 7.0x database to the target version database (version 7.50) according to XML descriptors (that describe the desired database state).

Note:

- The static tables in the database that are upgraded are:
  * all the tables in the Foundation schema
  * only the CCM_xxx tables in the CMDB schema
  * all the tables in the History schema
- The **cmdbDbUpgrade** tool upgrades Oracle and Microsoft SQL Server databases only.
- Data upgrade is performed during the first start up of the HP Universal CMDB Server. Therefore, the schema version is updated to 7.50 only after data upgrade has completed. For details on obtaining the version number, see step a on page 159.
- Before the database upgrade is run, the History database is upgraded to the version 7.00 baseline.

To run the cmdbDbUpgrade tool:

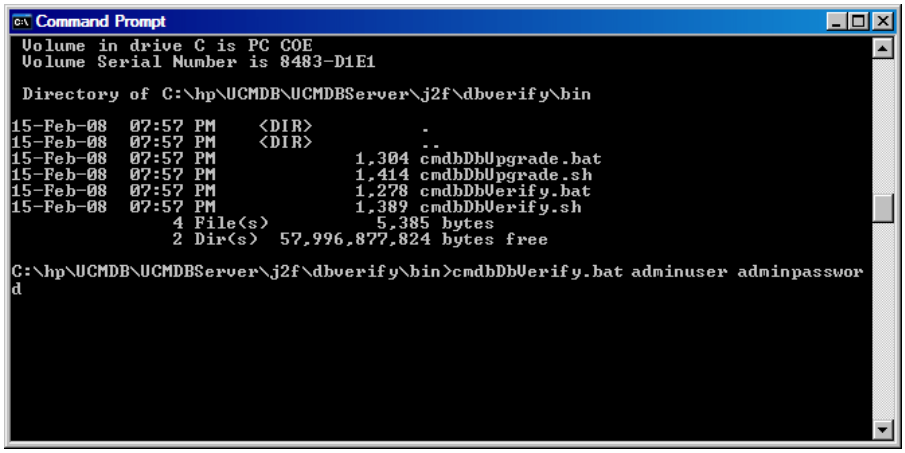
1. In Windows, open the Command Prompt window and navigate to the following directory: **<HP Universal CMDB root directory>\UCMDBServer\j2f\dbverify\bin**.
2. Type **cmdbDbUpgrade.bat**, followed by the user name and password parameters, depending on your database deployment, that is, depending on which database the Foundation, CMDB, and History databases are installed. Possible usages are as follows:
3. **If the Foundation, CMDB, and History schemas reside on Oracle**:

   In most cases, when all three schemas reside on the same Oracle instance, you should run **cmdbDbUpgrade** with just two parameters – the user name of a database user with admin privileges (for example, system) and the password.

However, if the Foundation, CMDB, and History schemas reside on different Oracle instances, you should specify the admin user name and password for each Oracle instance where the schema is located, in the following order:

- Foundation schema
- CMDB schema
- History schema

For example:



Note: If you do not want to supply your database administrator account user name and password, you can create a user name with the minimum privileges required for the cmdbDbUpgrade tool to operate. For details on how to create this user, see "Creating Database Users for the Verify Procedure" in the *HP Universal CMDB Database Guide* PDF (this procedure is also appropriate for the upgrade procedure).

---

4 If the Foundation, CMDB, and History schemas reside on Microsoft SQL Server: Run **cmdbDbUpgrade.bat** with no parameters.

5 For UNIX:

a Move to the <**HP Universal CMDB root directory**>/**UCMDBServer/j2f/dbverify/bin** directory.

b Run the command: **./cmdbDbUpgrade.sh**.

Troubleshooting and Limitations

You can use the following components to check for problems during the upgrade:

➤ **Log files.**

➤ The **mam.packaging.log** file is located in:<**HP Universal CMDB root directory**>**UCMDBServer\j2f\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 Universal CMDB root directory**>**UCMDBServer\j2f\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).

➤ **cmdb.upgrader.log** file is located in:<**HP Universal CMDB root directory**>**UCMDBServer\j2f\log\cmdb**. This file contains information about the CMDB data upgrade that occurs during the first start up of the HP Universal CMDB version 7.50 server.

➤ **dbverify.log** file is located in:<**HP Universal CMDB root directory**>**UCMDBServer\j2f\log**. This file contains information written by the **cmdbDbUpgrade** and **cmdbDbVerify** tools.

Note: If a **log\mam** or a **log\cmdb folder** does not exist, look for the log files under **log\EJBContainer**.

➤ **JMX.** Check that the version number is correct:

a Launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080/jmx-console
```

where **<machine name or IP address>** is the machine on which HP Universal CMDB is installed. You may have to log in with the user name and password.

b Click the **Topaz service=CMDB Dal services** link.

c In the JMX MBEAN View page, locate the following operation: **getCmdbVersion()**.

d In the **customerID** field, enter **1**. In the **detailed** field, choose **false**.

e Click **Invoke**. A message is displayed showing the version number. If upgrade succeeded, the displayed value is 7.5.0.0.

Limitations

Note the following limitations:

➤ There is no automatic upgrade for reports created by the Scheduler in versions 6.x or 7.0x. For details on the manual procedure, see "Upgrade to Version 7.50 from Version 7.0x" on page 148.

➤ There is no automatic upgrade for queries using the Application CI type in version 7.00. For the manual upgrade see "Upgrade Application View (From Version 7.00 to 7.50)" on page 150.

➤ If you have configured a CI Type icon to change according to its CI attribute values, the definition is reset to the default icon after upgrade to version 7.50. To restore the specific non-default icon behavior, you must redefine the icon in the CI Type Manager in version 7.50. For details, see "Icon Page" in *CI Attribute Customization*.

➤ For details on version 7.0 limitations, see "Upgrade Limitations" on page 145.

Part IV

Hardening HP Universal CMDB

12

Introduction to Hardening

This chapter introduces the concept of a secure HP Universal CMDB application and discusses the planning and architecture required to implement security. It is strongly recommended that you read this chapter before proceeding to the hardening discussion in the following chapters.

This chapter includes:

Hardening Overview

HP Universal CMDB is designed so that it can be part of a secure architecture, and can therefore meet the challenge of dealing with the security threats to which it might be exposed.

The hardening guidelines deal with the configuration required to implement a more secure (hardened) HP Universal CMDB. The hardening guidelines relate to both single machine and distributed deployments of HP Universal CMDB.

The hardening information provided is intended primarily for HP Universal CMDB administrators who should familiarize themselves with the hardening settings and recommendations prior to beginning the hardening procedures.

It is strongly recommended that you use a reverse proxy with HP Universal CMDB to achieve a secure architecture. For details on configuring a reverse proxy for use with HP Universal CMDB, see Chapter 13, "Using a Reverse Proxy."

If you must use another type of secure architecture with HP Universal CMDB, contact HP Software Support to determine which architecture is the best one for you to use.

Important:

- The hardening procedures are based on the assumption that you are implementing only the instructions provided in these chapters, and that you are not performing other hardening steps documented elsewhere.
- Where the hardening procedures focus on a particular distributed architecture, this does not imply that this is the best architecture to fit your organization's needs.
- It is assumed that the procedures included in the following chapters are to be performed on machines dedicated to HP Universal CMDB. Using the machines for other purposes in addition to HP Universal CMDB may yield problematic results.
- The hardening information provided in this section is not intended as a guide to making a security risk assessment for your computerized systems.

Hardening Preparations

- Evaluate the security risk/security state for your general network, and use the conclusions when deciding how to best integrate HP Universal CMDB into your network.
- Develop a good understanding of the HP Universal CMDB technical framework and HP Universal CMDB security capabilities.
- Review all the hardening guidelines.

- Verify that HP Universal CMDB is fully functioning before starting the hardening procedures.
- Follow the hardening procedure steps chronologically in each chapter. For example, if you decide to configure the HP Universal CMDB server to support SSL, read Chapter 14, "Enabling Secure Sockets Layer (SSL) Communication" and then follow all the instructions chronologically.
- HP Universal CMDB does not support basic authentication with blank passwords. Do not use a blank password when setting basic authentication connection parameters.

Tip: Print out the hardening procedures and check them off as you implement them.

Deploying HP Universal CMDB in a Secure Architecture

Several measures are recommended to securely deploy your HP Universal CMDB servers:

- **DMZ architecture using a firewall**

  The secure architecture referred to in this document is a typical DMZ architecture using a device as a firewall. The basic concept of such an architecture is to create a complete separation, and to avoid direct access between the HP Universal CMDB clients and the HP Universal CMDB server.

- **Secure browser**

  Internet Explorer in a Windows environment and FireFox in a Solaris environment must be configured to securely handle Java scripts, applets, and cookies.

- **SSL communication protocol**

  Secure Sockets Layer protocol secures the connection between the client and the server. URLs that require an SSL connection use a secure version (HTTPS) of the Hypertext Transfer Protocol.

- **Reverse proxy architecture**

  One of the more secure and recommended solutions suggests deploying HP Universal CMDB using a reverse proxy. HP Universal CMDB fully supports secure reverse proxy architecture.

Security Settings Configuration Instructions

Instructions for configuring security settings can be found in the appropriate Web server documentation, available at the following sites:

- **for IIS 5.0/6.0.** The Microsoft's Web site (support.microsoft.com/default.aspx?scid=kb;EN-US;298805)
- **for Apache.** The Apache Jakarta Web site (tomcat.apache.org/tomcat-5.0-doc/ssl-howto.html)
- **for Sun Java System Web Server.** The Sun Web site (docs.sun.com).

13

Using a Reverse Proxy

This chapter describes the security ramifications of reverse proxies and contains instructions for using a reverse proxy with HP Universal CMDB. Security aspects of a reverse proxy are discussed but not other aspects such as caching and load balancing.

This chapter includes:

Concepts

Tasks

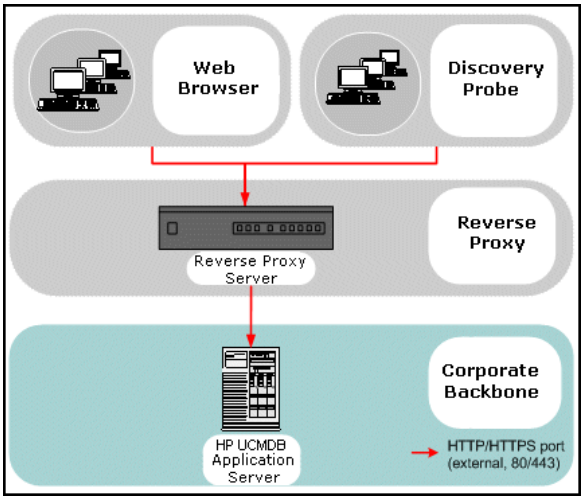
Reference

Reverse Proxy Overview

A reverse proxy is an intermediate server that is positioned between the client machine and the Web servers. To the client machine, the reverse proxy appears to be a standard Web server that serves the client machine's HTTP protocol requests.

The client machine sends ordinary requests for Web content, using the name of the reverse proxy instead of the name of a Web server. The reverse proxy sends the request to one of the Web servers. Although the response is sent back to the client machine by the reverse proxy, it appears to the client machine as if it is being sent by the Web server.

HP Universal CMDB supports a reverse proxy in DMZ architecture. The reverse proxy is an HTTP mediator between the Discovery and Dependency Mapping (DDM) Probe and the Web client and the HP Universal CMDB server.



Note: Different types of reverse proxies require different configuration syntaxes. For an example of an Apache 2.0.x reverse proxy configuration, see "Apache 2.0.x – Example Configuration" on page 173.

Security Aspects of Using a Reverse Proxy Server

A reverse proxy server functions as a bastion host. The proxy is configured to be the only machine addressed directly by external clients, and thus obscures the rest of the internal network. Use of a reverse proxy enables the application server to be placed on a separate machine in the internal network.

This section discusses the use of a DMZ and reverse proxy in a back-to-back topology environment.

The following are the main security advantages of using a reverse proxy in such an environment:

- No DMZ protocol translation occurs. The incoming protocol and outgoing protocol are identical (only a header change occurs).
- Only HTTP access to the reverse proxy is allowed, which means that stateful packet inspection firewalls can better protect the communication.
- A static, restricted set of redirect requests can be defined on the reverse proxy.
- Most of the Web server security features are available on the reverse proxy (authentication methods, encryption, and so on).
- The reverse proxy screens the IP addresses of the real servers as well as the architecture of the internal network.
- The only accessible client of the Web server is the reverse proxy.
- This configuration supports NAT firewalls (as opposed to other solutions).
- The reverse proxy requires a minimal number of open ports in the firewall.
- The reverse proxy provides good performance compared to other bastion solutions.

Configure a Reverse Proxy Using Infrastructure Settings Manager

The following procedure explains how to access the Infrastructure Settings Manager to enable a reverse proxy configuration:

To enable a reverse proxy configuration:

1. Access the Infrastructure Settings Manager (**Admin** > **Settings** > **Infrastructure Settings Manager**).
2. In the Applications box, select **mamProxy**.
3. In the **mamProxy - General** table, locate the UCMDB proxy server field. To enter the address of the proxy server, click the **Edit** button. Enter the address in the dialog box that opens. For example, enter **https://my_proxy_server:443**.
4. Change UCMDB connected to proxy server to **true**.

Important: Once you have made this change, you cannot access the HP Universal CMDB server directly through a client. However, you can change the reverse proxy configuration using the JMX console on the server machine. For details, see the next section.

Configure a Reverse Proxy Using the JMX Console

The following procedure explains how to make changes to the reverse proxy configuration by using the JMX console on the HP Universal CMDB server machine.

To change a reverse proxy configuration:

1. On the HP Universal CMDB server machine, launch the Web browser and enter the following address:

```
http://<machine name or IP address>:8080/jmx-console
```

where <**machine name or IP address**> is the machine on which HP Universal CMDB is installed. You may have to log in with the user name and password.

2. Click the **Foundations** > **service=Infrastructure Settings Manager** link.
3. To verify the status of the HP Universal CMDB installation, in the JMX MBEAN View page, locate the **java.lang.String getGlobalSettingsValues()** operation.
4. In the contextName field, enter **mamProxy**.
5. Click **Invoke**.

   A table is displayed with the status of the HP Universal CMDB server:

   - **mam.proxy.server.path**: The address of the HP Universal CMDB server. If this field is empty, the address has not been defined.
   - **mam.proxy.has.proxy**: **false**: the HP Universal CMDB server is not set up to work with a reverse proxy.
6. To make changes to the status of the HP Universal CMDB server, in the JMX MBEAN View page, locate the **void setGlobalSettingValue()** operation.
7. In the contextName field, enter **mamProxy**.
8. In the settingName field, enter:

   - **mam.proxy.server.path** to define the address of the HP Universal CMDB server

     or

   - **mam.proxy.has.proxy** to determine whether HP Universal CMDB should work with a reverse proxy
9. In the newValue field:

   - If you entered **mam.proxy.server.path** in the settingName field, enter the address of the HP Universal CMDB server.
   - If you entered **mam.proxy.has.proxy** in the settingName field, enter **false** or **true**.
10. Click **Invoke**.

    A table is displayed with the new status of the HP Universal CMDB server.

Connect the Discovery and Dependency Mapping Probe by Reverse Proxy

Perform the following procedure to connect the DDM Probe by reverse proxy.

To configure the DDM Probe to work against a reverse proxy:

1. Edit the **discoveryProbe.properties** file (located in **<DDM Probe root directory>\hp\DDM\DiscoveryProbe\root\lib\collectors**).
2. Set the **serverIP** property to the reverse proxy server's IP or DNS name.
3. Save the file.

The following configuration is required if DDM Probes only are connected via a reverse proxy to HP Universal CMDB:

Requests for... on the Reverse Proxy Server	Proxy Request to be Served by:
/mam-collectors/*	http://[HP Universal CMDB server]/mam-collectors/*

Connecting the DDM Probe and Web Clients by Reverse Proxy

The following configuration is required if both DDM Probes and application users are connected via a reverse proxy to HP Universal CMDB:

Requests for... on the Reverse Proxy Server	Proxy Request to be Served by:
/mam/*	[HP Universal CMDB server]/mam/*
/mam_images/*	[HP Universal CMDB server]/mam_images/*
/mam-collectors/*	[HP Universal CMDB server]/mam-collectors/*
/ucmdb/*	[HP Universal CMDB server]/ucmdb/*
/site	[HP Universal CMDB server]/site/*

Apache 2.0.x – Example Configuration

Below is a sample configuration file that supports the use of an Apache 2.0.x reverse proxy in a case where both DDM Probes and application users connect to HP Universal CMDB.

Note:

- In the example below, the HP Universal CMDB machine's DNS name is **MAM_server**.
- Only users with a knowledge of Apache administration should make this change.

---

1. Open the <**Apache machine root directory**>**Webserver****conf****httpd.conf** file.
2. Enable the following modules:
   - LoadModule proxy_module modules/mod_proxy.so
   - LoadModule proxy_http_module modules/mod_proxy_http.so

3 Add the following lines:

```
ProxyRequests off
<Proxy *>
      Order deny,allow
      Deny from all
      Allow from all
</Proxy>
ProxyPass          /mam                    http://MAM_server/mam
ProxyPassReverse/mam                       http://MAM_server/mam
ProxyPass          /mam_images             http://MAM_server/mam_images
ProxyPassReverse/mam_images                http://MAM_server/mam_images
ProxyPass          /mam-collectors         http://MAM_server/mam-collectors
ProxyPassReverse/mam-collectors            http://MAM_server/mam-collectors
ProxyPass          /ucmdb                  http://MAM_server/ucmdb
ProxyPassReverse /ucmdb                    http://MAM_server/ucmdb

ProxyPass          /site                   http://MAM_server/site
ProxyPassReverse/site                      http://MAM_server/site
```

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Enabling Secure Sockets Layer (SSL) Communication

This chapter explains how to configure HP Universal CMDB to support communication using the Secure Sockets Layer (SSL) channel.

This chapter includes:

Enabling SSL on the Tomcat Web Server

HP Universal CMDB uses the Tomcat 5 HTTP Coyote connector as the default Web server. A complete guide to enabling SSL on Tomcat 5 using the Coyote connector can be found at **http://tomcat.apache.org/tomcat-5.0-doc/ssl-howto.html**.

The HP Universal CMDB keystore (JKS type) should be placed at **<HP Universal CMDB server root directory>\j2f\EJBContainer\server\mercury\conf**.

To enable SSL on the Tomcat Web server using a self-signed certificate:

1 Create a keystore (JKS type) with a self-signed certificate and matching private key:

```
%JAVA_HOME%\bin\keytool -genkey -alias MAMserver -keyalg RSA -keystore
MAMkeystore
```

A console dialog box opens.

- ➤ Enter the keystore password.
- ➤ Choose a password that you will use when exporting the self-signed certificate (<your password>).
- ➤ To answer the question **What is your first and last name?** enter the HP Universal CMDB Web server name.

  Enter the other parameters according to your organization.
- ➤ Enter a key password, or press ENTER to cause the key password to be the same as the keystore password chosen above.

  A JKS keystore is created named MAMkeystore.

2 Export the self-signed certificate.

For every client that needs to communicate with HP Universal CMDB over SSL using this self-signed certificate, place this certificate in the client's trusted stores:

```
%JAVA_HOME%\bin\keytool -export -alias MAMserver -keystore MAMkeystore -
storepass <your password> -file MAMCert
```

A certificate named MAMCert is created. This certificate can be sent or imported by all clients that need to communicate with HP Universal CMDB over SSL.

3 Copy the created keystore (MAMkeystore) to **<HP Universal CMDB server root directory>\j2f\EJBContainer\server\mercury\conf**.

4 Edit the Tomcat 5 Coyote connector configuration file:

- ➤ Open the **server.xml** file located at <HP Universal CMDB server root directory>\j2f\EJBContainer\server\mercury\deploy\jbossweb-tomcat50.sar.

➤ Locate:

```
<!-- SSL/TLS Connector configuration using the admin devl guide keystore
    <Connector port="8443" address="${jboss.bind.address}"
        maxThreads="100" minSpareThreads="5" maxSpareThreads="15"
        scheme="https" secure="true" clientAuth="false"
        keystoreFile="${jboss.server.home.dir}/conf/chap8.keystore"
        keystorePass="rmi+ssl" sslProtocol = "TLS" />
    -->
```

➤ Replace with:

```
 <!-- SSL/TLS Connector configuration using the admin devl guide keystore-->
<Connector port="8443" address="${jboss.bind.address}"
maxThreads="100" minSpareThreads="5" maxSpareThreads="15"
scheme="https" secure="true" clientAuth="false"
keystoreFile="conf/MAMkeystore" keystorePass="<your password>"
sslProtocol = "TLS" />
```

➤ Replace the **keystorePass** value with the password that you defined when creating a keystore in step 1.

5 Save the file and restart Tomcat.

Enabling SSL on the DDM Probe

If the certificate used by the HP Universal CMDB Web server is issued by a well-known Certificate Authority (CA), it is most likely that you do not have to perform the following procedure. To validate trust, try connecting to the HP Universal CMDB Web server using SSL and check whether the certificate is already trusted.

To enable SSL on the DDM Probe:

1 Open the **<DDM Probe root directory>\root\lib\collectors \discoveryProbe.properties** file and set the following values:

```
appilog.agent.probe.protocol = HTTPS
serverPortHttps = 8443
```

2 Import the certificate (for example, MAMCert) into the trusted store used by the DDM Probe at **<DDM Probe root directory>\jre\lib\security \cacerts**.

The following example demonstrates how to import the MAMCert certificate created in step 2 on page 176:

```
%JAVA_HOME%\bin\keytool -import -file MAMCert –Keystore
<DDM probe root directory>\jre\lib\security\cacerts –alias
mamcert -storepass changeit
```

3 When asked by the keytool to approve the certificate's import into the Trust store, enter **Y.** For example:

```
Owner: CN=MAMserver.com, OU=MY_UNIT , O=ME , L=Odessa, ST=Ukraine, C= UA
Issuer: CN= MAMserver.com, OU=MY_UNIT, O=ME, L=Odessa, ST=Ukraine, C =UA
Serial number: 456d836b Valid from: Wed Nov 29 14:56:11 EET 2006 until: Tue Feb 27
14:56:11 EET 2007 Certificate fingerprints:
MD5: 8A:60:F7:4B:91:4A:B5:11:9C:12:44:49:7E:BE:4E:9B
SHA1: 5D:30:31:16:A3:64:99:44:43:BA:79:16:3B:02:56:30:DA:50:A4:2B
Trust this certificate? [no]: Y
```

4 The certificate is added to the keystore.

5 Save the file and restart the DDM Probe.

Enabling SSL on the Client Machines

If the certificate used by the HP Universal CMDB Web server is issued by a well-known Certificate Authority (CA), it is most likely that your Web browser can validate the certificate without any further action.

If the CA is not trusted by the Web browser, you should either import the entire certificate trust path or import the certificate used by HP Universal CMDB explicitly into the browser's trust store.

The following example demonstrates how to import the self-signed MAMCert certificate into the Windows trust store to be used by Internet Explorer.

To import a certificate into the Windows trust store:

1. Locate and rename the MAMCert certificate to **MAMCert.cer**.

   In Windows Explorer, the icon shows that the file is a security certificate.

2. Double click **MAMCert.cer** to open the Internet Explorer Certificate dialog box.

3. Follow the instructions for enabling trust by installing the certificate with the Certificate Import Wizard.

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Hardening Discovery and Dependency Mapping

This chapter focuses on the securing of external credentials with a domain scope document (DSD) used by HP Universal CMDB when performing discovery.

This chapter includes:

Overview

External credentials entered into the Domain Configuration window are saved in an encrypted file termed a domain scope document (DSD). This DSD contains discovery domain data. Each discovery domain entry in the document contains the network scope for the domain's Probes and the credentials the Probes may use.

Note: Security features related to HP Universal CMDB user management—for example, authentication and authorization—are not discussed here.

This section includes the following topics:

- "HTTPS\SSL Configuration" on page 183

Basic Security Assumptions

Note the following security assumptions:

- You have secured the Server and Probe file systems for authorized access only.
- You have secured the HP Universal CMDB Server JMX console to enable access to HP Universal CMDB system administrators only, preferably only through localhost access.

Credentials Encryption Management

Note the following guidelines for managing credential encryption:

- The DSD file is encrypted for both transfer and persistency processes.
- The DSD file should be encrypted to the data stores using standard, symmetric encryption.
- A default, symmetric key is distributed with the HP Universal CMDB installation. As all default keys are identical, you should replace this key with a locally-generated binary file.
- The DSD file is exportable and importable in encrypted file form. To import a file you should supply the matching key used for the encryption of the file. Perform the import and export operations through the server's JMX console (the Discovery Manager service). For details, see "DSD Export and Import" on page 185.
- You can exchange the key while the system is up to keep the consistency of the system without losing any data. This is managed through the DDM JMX console.
- When a key is updated, you can automatically distribute the key to Probes. This option is easier to deploy but is considered less secure.

HTTPS\SSL Configuration

The DSD file can be managed using either HTTP or HTTPS (for secure mode). You can configure communication between the HP Universal CMDB server and the DDM Probe to use HTTPS\SSL. This enables better DSD security during transit.

Note: As a result of using SSL, other aspects of the HP Universal CMDB product may become more secure.

Domain Scope Document (DSD) Management

This section explains how to manage the DSD file.

This section includes the following topics:

Viewing the DSD File (Data Direction: Server to Client)

Passwords are not sent from the server to the application. That is, HP Universal CMDB displays asterisks (*) in the password field, regardless of content.

Updating the DSD File (Data Direction: Client to Server)

- All communication in this direction is not encrypted using a secure key. You must install the DDM Probe with a secure communication using HTTPS\SSL.
- The symmetric key encryption ensures that passwords are not being sent as clear text on the network. This encryption does not use a strong cipher.
- The password field is limited to 40 characters. The length of the password is not limited in other ways since it is saved only in a file.
- You can use special characters and non-English characters as passwords.

DSD Distribution to Probes

The DSD file (**DomainScopeDocument.bin**) is downloaded to the Probe as part of the downloading mechanism for Probe configuration files.

The symmetric encryption key is located both on the Probe and server file systems.

By default, the Probe keeps a copy of the DSD file on its file system. You can change this default so that the DSD file is held in the Probe's memory only and is not stored on its file system. In this case, each time the Probe comes up, it must retrieve the DSD file from the server. To change this default so that the DSD file is not stored on the Probe's file system, access the DiscoveryProbe.properties file (located in **\<DDM Probe root folder>\root\lib\collectors**) and set appilog.collectors.storeDomainScopeDocument to **false** (the default is **true**).

Encryption Key Management

You can distribute the encryption key to Probes either offline or online (while the system is running). The key file is a 3DES, 192 bits, binary file.

To distribute the encryption key offline:

1. Shut down the HP Universal CMDB server and Probes.
2. Replace the key file on the server and Probe file systems.
3. Reactivate the HP Universal CMDB server and Probes.

The locations of the key are as follows:

- Server: root/lib/server/discovery/customer_1/key.dat
- Probe: root/lib/collectors/probeManager/binaryData/key.dat

To update the encryption key online:

1. Launch the Web browser and enter the following address: http://localhost:8080/jmx-console.

   You may have to log in with a user name and password.

2. Under MAM, click **service=Discovery manager** to open the JMX MBEAN View page.
3. Locate the **changeEncryptionKey** operation and enter the new key file name.
4. Click **Invoke** to update the encryption key.

DSD Export and Import

You can export and import DSD files in encrypted format. (You would probably import a DSD file during recovery following a system crash or during upgrade.)

To export or import a DSD file:

1. Launch the Web browser and enter the following address: http://localhost:8080/jmx-console.

   You may have to log in with a user name and password.

2. Under MAM, click **service=Discovery manager** to open the JMX MBEAN View page.
3. Locate the **ExportDomainScopeDocument** or **importDomainScopeDocument** operation and enter the new file name.
4. Click **Invoke** to export or import the encryption key.

Part V

Disaster Recovery

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Disaster Recovery

This chapter explains how to set up and activate (when necessary) a Disaster Recovery (DR) system for HP Universal CMDB.

This chapter includes:

Introduction to Disaster Recovery

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

Note:

- This chapter is a high level guide to introduce concepts of enabling disaster recovery.
- Disaster Recovery involves manual steps in moving various configuration files and updates to the HP Universal CMDB database schemas. This procedure requires at least one HP Universal CMDB administrator and one database administrator who is familiar with the HP Universal CMDB databases and schemas.
- There are a number of different possible deployment and configurations for HP Universal CMDB. To validate that the Disaster Recovery 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 Disaster Recovery scenario.

Preparing the Disaster Recovery Environment

Preparing the Disaster Recovery environment comprises the following stages:

- "Installing HP Universal CMDB Software in the Failover Environment" on page 191
- "System Configuration Backup and Data Backup Configuration" on page 191

Installing HP Universal CMDB Software in the Failover Environment

Install a second instance of HP Universal CMDB that matches your current production environment.

- Install exactly the same version of HP Universal CMDB 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.
- 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 Universal CMDB production environment. The hardware, deployment, and versions should all be matched to prevent any loss of functionality when moving to the Failover system.

System Configuration Backup and Data Backup Configuration

This stage includes copying configuration directories to the Failover instance and configuring database log file shipping.

Copying Configuration Directories to the Failover Instance

Copy from the HP Universal CMDB Production instance to the same server type in the Failover instance, any files changed in the following directories:

- j2f/conf
- j2f/cmdb
- root/lib/packages
- root/lib/packages_undeployed

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

Note: It is recommended to have at least daily backups of HP Universal CMDB servers. Depending on the number 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.

Microsoft SQL Server–Configure Database Log File 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 must be configured for the following HP Universal CMDB databases:

- HP Universal CMDB Foundation database
- HP Universal CMDB database
- HP Universal CMDB History database

This section does not contain the specific steps to configure log file shipping. The HP Universal CMDB 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 Universal CMDB environment:

Microsoft SQL Server 2000:

- support.microsoft.com/default.aspx?scid=http://support.microsoft.com/support/sql/content/2000papers/LogShippingFinal.asp
- www.microsoft.com/technet/prodtechnol/sql/2000/maintain/logship1.mspx

Microsoft SQL Server 2005:

- msdn2.microsoft.com/en-us/library/ms188625.aspx
- msdn2.microsoft.com/en-us/library/ms190016.aspx
- 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 at 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 Universal CMDB 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 Universal CMDB Failover database should be synchronized with the HP Universal CMDB Production database.

Preparing the HP Universal CMDB Failover Instance for Activation

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

- 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 Before Startup Cleanup Procedure (for details, see page 194) to remove any localization in the databases.

Before Startup Cleanup Procedure

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 Universal CMDB Administrator should ensure that the appropriate license has been applied to 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 Foundation database.

---

1 HAC Tables

a Empty the HAC tables:

- 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_FK2;
- ALTER TABLE HA_SERVICES DROP CONSTRAINT HA_SERVICES_FK1;
- TRUNCATE TABLE HA_BACKUP_PROCESSES
- TRUNCATE TABLE HA_PROC_ALWD_SERVICES
- TRUNCATE TABLE HA_SRV_ALLWD_GRPS
- TRUNCATE TABLE HA_SERVICES_DEP
- TRUNCATE TABLE HA_SERVICES
- TRUNCATE TABLE HA_SERVICE_GRPS
- TRUNCATE TABLE HA_TASK_ASSIGN
- 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_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 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'
```

3 Setting Manager Values

Update the URLS in the SETTING_PARAMETERS table.

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>'
```

4 Server and Database Configuration utility

Run the Server and Database Configuration utility on each machine to reinitialize the needed tables in the database. To run the Server and Database Configuration utility, select **Start** > **Programs** > **HP UCMDB** > **Start UCMDB Configuration Wizard**.

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 the utility is run on the Production instance.
- When prompted for the databases by the Server and Database Configuration utility, ensure that you enter the names of the new databases in the Failover environment.

---

5 Bring up the Backup Environment

Start HP Universal CMDB in the Failover environment.

Part VI

Accessing HP Universal CMDB

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Start Menu

During the installation of HP Universal CMDB, a start menu for HP Universal CMDB is added to the settings of the machine on which the installation is made.

This chapter includes:

HP Universal CMDB Start Menu

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

- **Start UCMDB Server Configuration Wizard.** Enables you to run the wizard to connect to an existing database or schema or to create a new database or schema. For details, see "Choosing the Database or Schema" on page 68.
- **Start UCMDB Server.** Click to start the server service.
- **Stop UCMDB Server.** Click to stop the server service.
- **Uninstall UCMDB Server.** Click to uninstall the server.

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Initial Login to HP Universal CMDB

This chapter describes how to log in to HP Universal CMDB for the first time.

This chapter includes:

Viewing HP Universal CMDB

You view HP Universal CMDB within a supported Web browser. To access HP Universal CMDB, the client machine must have a network connection (intranet or Internet) to the HP Universal CMDB server. For details on Web browser requirements as well as minimum requirements to successfully view HP Universal CMDB, see "Hardware and Software Requirements" on page 27.

Logging In

You log in to HP Universal CMDB from the login page. To set up an LDAP authentication method for logging in, see "Authentication for HP Universal CMDB Login" in *Reference Information*.

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

To access the HP Universal CMDB login page and log in for the first time:

1. In a Web browser, enter the URL of the HP Universal CMDB server, for example, **http://hp_ucmdb_server:8080/ucmdb**.
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. (Recommended) Change the superuser password immediately to prevent unauthorized entry. For details on changing the password, see "Change Password Dialog Box" in *Model Management*.
4. (Recommended) Create additional administrative users to enable HP Universal CMDB administrators to access the system. For details on creating users in the HP Universal CMDB system, see "User Manager Window" in *Model Management*.

Note:

- For login troubleshooting information, see "Troubleshooting and Limitations" in *Reference Information*.
- For details on setting login credentials, see "Authentication Options" on page 34.
- For details on accessing HP Universal CMDB securely, see Part IV, "Hardening HP Universal CMDB."

Logging Out

When you have completed your session, it is recommended that you close HP Universal CMDB to prevent unauthorized entry.

To log out:

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

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