HP Change Control Management

for the Windows® 2000 Server Service Pack 4 and
Windows® 2003 Enterprise Edition Service Pack 1 operating systems

Software Version: 3.00

Installation and Configuration Guide

hp

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Table of Contents

Welcome to This Guide

Welcome to the *HP Change Control Management Installation and Configuration Guide*, which explains how to install and configure HP Change Control Management software. Using HP Change Control Management, those involved in the change process and the Change Advisory Board can make more informed, and therefore more accurate, decisions regarding the approval of planned changes, thereby minimizing the business risks and costs associated with the change process. In addition, HP Change Control Management facilitates the change approval process itself.

How This Guide Is Organized

This guide contains the following parts:

Part I   Introduction

Provides an overview of HP Change Control Management.

Part II   Installation and Deployment

Describes the HP Change Control Management installation and deployment process and contains information on working with HP Change Control Management's identity management solution.

Part III   Configuration

Describes how to approach HP Change Control Management configuration and provides detailed instructions for each part of the configuration process.

Part IV   Appendixes

Contains appendixes on password encryption, GMT time zones, preconfigured change request fields, log files, database configuration and maintenance, and HP Change Control Management utilities.

Who Should Read This Guide

This guide is intended for the HP service engineers who are responsible for installing and configuring HP Change Control Management. The chapter that describes how to configure various elements of the HP Change Control Management application is written for the application administrator. Regular users of the HP Change Control Management application—that is, those involved in the change process and members of the Change Advisory Board—need not read this guide.

HP Change Control Management Documentation

HP Change Control Management comes with the following documentation:

HP Change Control Management Installation and Configuration Guide explains how to install HP Change Control Management and configure the various parts of the HP Change Control Management system. This guide is accessible in the following formats, from the following locations:

➤ in PDF format on the HP Change Control Management CD-ROM

➤ in both PDF format and online HTML help format by selecting **Help** > **HP Change Control Management Documentation Library** from the HP Change Control Management application

➤ in HTML help format, from specific HP Change Control Management application windows, by clicking in the window and pressing F1, or clicking the **Help** button

HP Change Control Management User's Guide explains how to use the HP Change Control Management application. This guide is accessible in the following formats, from the following locations:

➤ in PDF format on the HP Change Control Management CD-ROM

➤ in both PDF format and online HTML help format by selecting **Help** > **HP Change Control Management Documentation Library** from the HP Change Control Management application

➤ in HTML help format, from specific HP Change Control Management application windows, by clicking in the window and pressing F1, or clicking the **Help** button

HP Change Control Management API Reference explains how to work with HP Change Control Management's API. The API Reference is available in CHM format on the HP Change Control Management CD-ROM, or from the HP Change Control Management application by selecting **Help** > **HP Change Control Management Documentation Library**.

HP Change Control Management Readme provides information on what's new in the current version of the product as well as comprehensive information on known problems and limitations. The Readme is available in HTML format on the HP Change Control Management CD-ROM, or from the HP Change Control Management application by selecting **Help** > **HP Change Control Management Documentation Library**.

Note: Anything published in PDF format can be read and printed using Adobe Reader, which can be downloaded from the Adobe Web site (http://www.adobe.com).

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Customer Support Web site uses your default Web browser to open the Mercury Customer Support Web site. This site enables you to browse the Mercury Support Knowledge Base and add your own articles. You can also post to and search user discussion forums, submit support requests, download patches and updated documentation, and more. Choose **Help** > **Customer Support Web site**. The URL for this Web site is http://support.mercury.com.

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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 Change Control Management

This chapter provides an overview of HP Change Control Management.

This chapter describes:	On page:
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Working with HP Change Control Management

HP Change Control Management supports an organization's change management process by consolidating requests for change from various sources, calculating the risk involved in the implementation of each change, providing insight into the potential impact of each change, and identifying collisions between concurrently scheduled changes. This information is then used to evaluate the way in which to proceed with each planned change.

HP Change Control Management's collaboration feature enables those involved in the change process to conduct virtual discussions about a planned change, create action items from the change, and, ultimately, approve or reject the change. As a result, the Change Advisory Board's actual meeting time can be significantly minimized, with most of the issues having been previously resolved virtually, via HP Change Control Management.

The HP Change Control Management work process involves the following steps:

➤ the conversion of HP Change Control Management-relevant service desk application requests (BMC Remedy Action Request System, HP ServiceCenter, Mercury IT Governance Center, or other third-party application requests) to generic requests that can be processed by the HP Change Control Management server.

➤ the identification of configuration items (CIs) within the collected requests, based on specified analysis rules. If your service desk application is synchronized with the CMDB server, HP Change Control Management can locate CIs using the CI or change request IDs. A configuration item, in this case, represents a physical or logical entity in your IT environment, such as a server or service. If your service desk application is not synchronized with the CMDB server, HP Change Control Management locates CIs within specified request fields. A configuration item, in this case, can represent only a physical entity, such a server or host machine.

➤ an impact analysis of the identified CIs, using Mercury Application Mapping software.

➤ a calculation of a relative risk value for each request.

➤ the identification of requests involving common key elements that are scheduled to take place over the same or adjacent time periods (colliding requests).

➤ a calculation of the compliance of each change request that fits the configured time period categories with the rules pertaining to these categories.

➤ the discovery of actual changes to your environment.

➤ the automatic creation of action items for certain requests.

➤ the presentation of impact analysis calculation results, risk analysis calculations, time period compliance results, colliding requests, detected changes, and automatically created action items in the HP Change Control Management Web-based application.

➤ the online discussion of requests and assigning of action items relating to the approval/rejection of these requests by those involved in the change process.

➤ the approval or rejection of requests from the HP Change Control Management Web-based application.

➤ the sending of e-mail notifications for created action items as well as user-selected change requests and action items.

The following diagram illustrates the way in which HP Change Control Management operates:
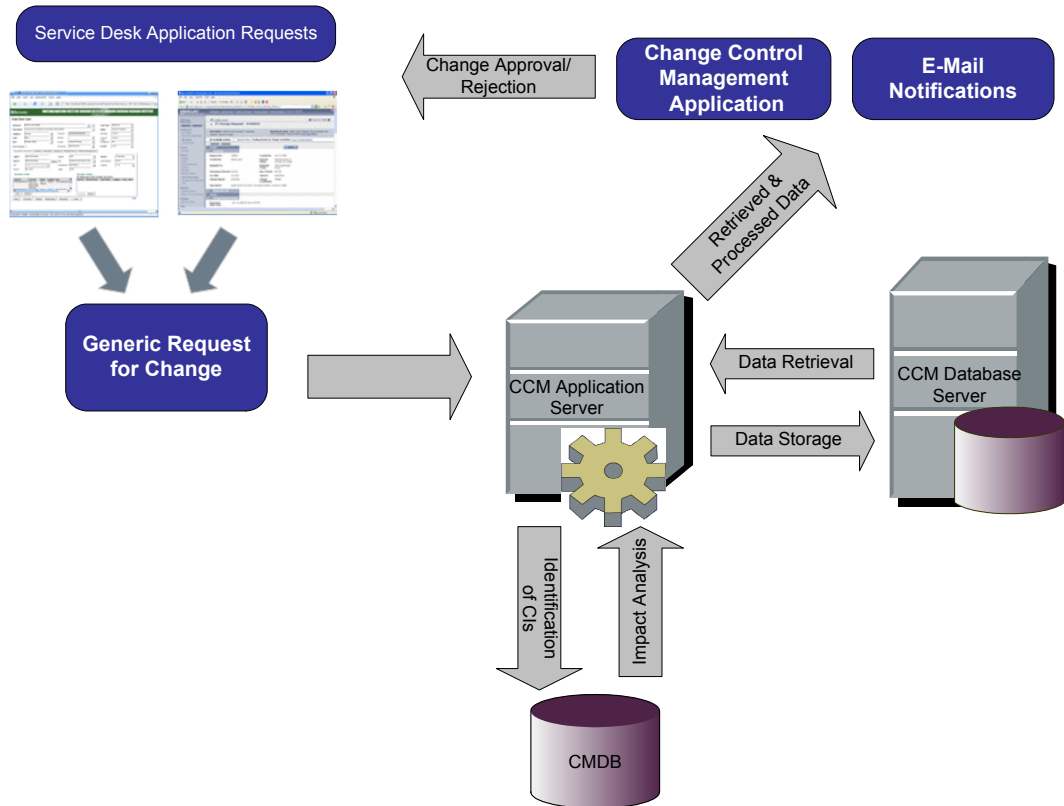
Part II

Installation and Deployment

2

Installing HP Change Control Management

This chapter provides an explanation of the installation and post-installation procedures you must perform in order to work with HP Change Control Management. It also describes the HP Change Control Management system requirements.

This chapter describes:	On page:
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Installation Procedures	25
Post-Installation Procedures	34

System Requirements

The following table describes the system requirements for working with HP Change Control Management:

CPU	Windows Pentium 4
Memory (RAM)	Minimum of 2 GB
Free Disk Space	Minimum of 5 GB
Machine	➤ VMware ➤ Physical
Operating System	➤ Windows 2000 Server Service Pack 4 ➤ Windows 2003 Server Enterprise Edition Service Pack 1
Database	➤ Microsoft SQL Server 2000 Enterprise Edition Service Pack 4 ➤ Oracle 9.2.0.6, 10.2.0.1.0
Mercury Application Mapping (MAM)	➤ **Certified:** Version 6.5 (Typical and Shared CMDB Installations) ➤ **Supported:** Versions 6.2 (Typical Installation), 6.6 (Typical Installation) For a full list of system requirements for each of these versions, refer to the Mercury Application Mapping documentation.
Browser	➤ Mozilla Firefox 1.0 or later ➤ Microsoft Internet Explorer 6.0, 7.0

Note: For a list of the service desk applications supported, see "About Converting Requests" on page 72.

Installation Procedures

You install HP Change Control Management using the InstallShield Wizard for HP Change Control Management.

To install HP Change Control Management:

1 Click the **setup.exe** file located in the **disk1** folder of your HP Change Control Management CD-ROM. The InstallShield Wizard for HP Change Control Management opens.
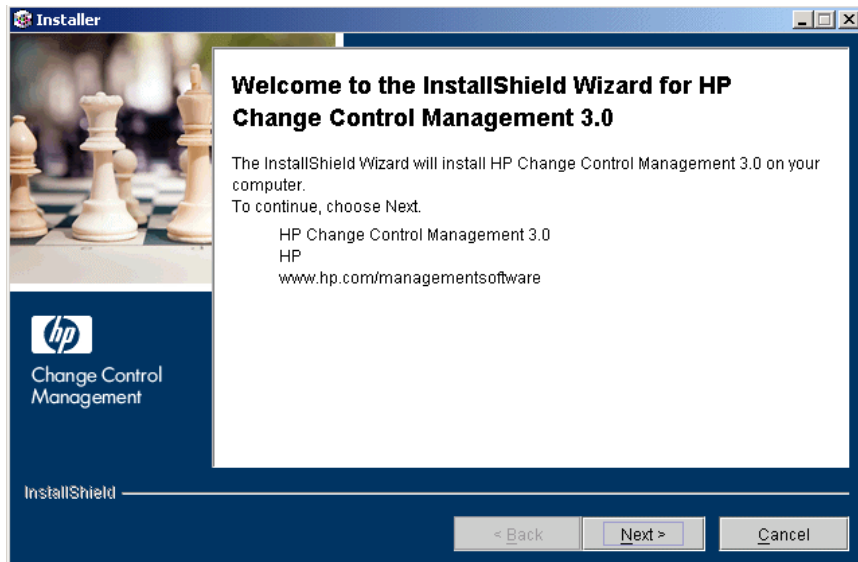
Click **Next**.

2 Accept the terms of the software license agreement that is displayed.
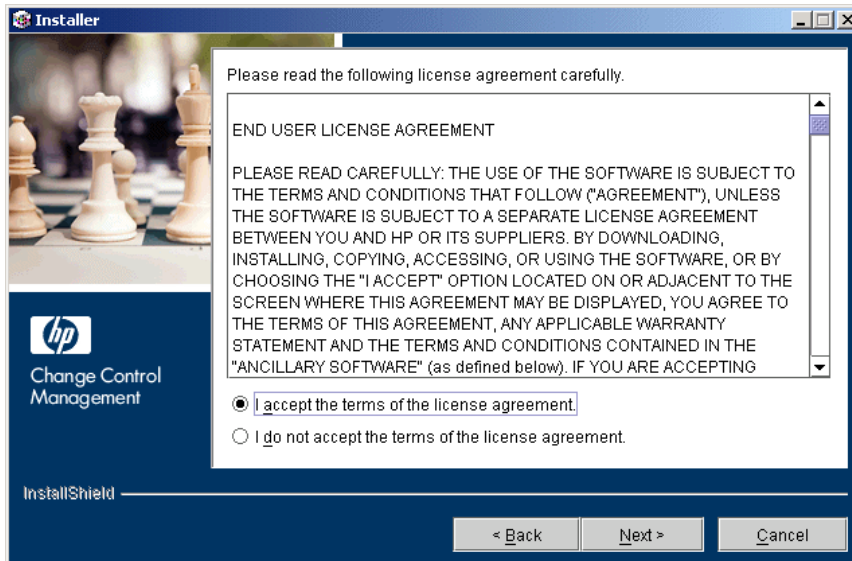
Click **Next**.

3 In the following screen, accept the default installation directory or click **Browse** to select a different directory. Note that the directory you select cannot contain spaces.
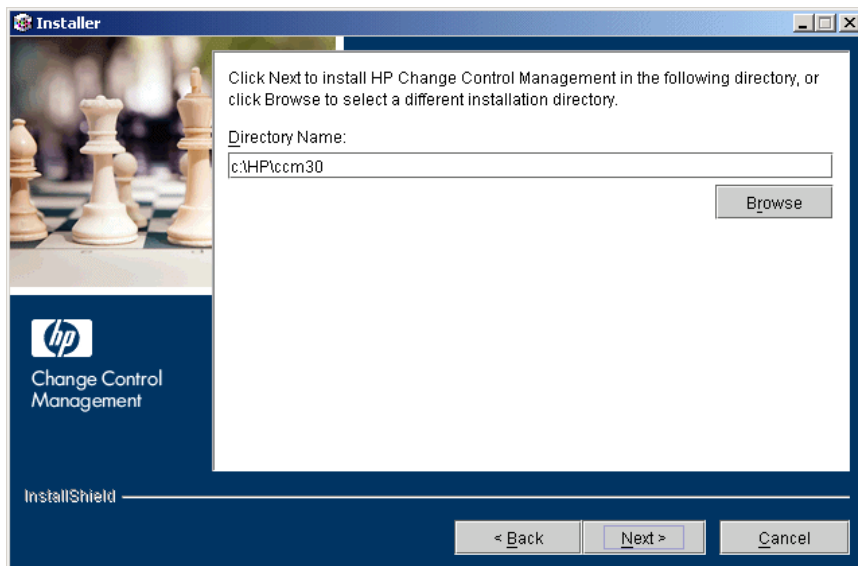
Click **Next**.

 4 In the Web Server Configuration screen, select a Web server—**Microsoft IIS**
 or **Apache**—to be used by HP Change Control Management. If you want to
 work with HP Change Control Management without a Web server, select the
 Do not use a Web server option.
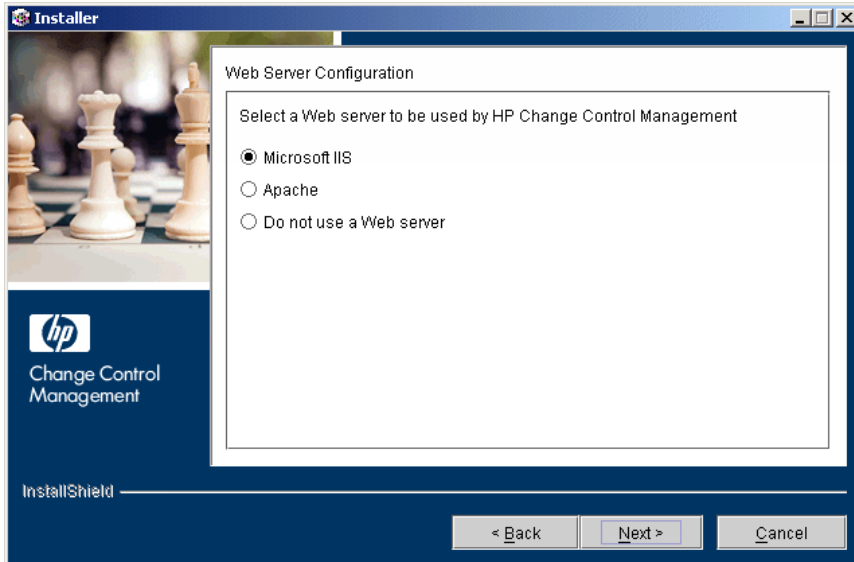
 Notes:

 ➤ It is assumed that Microsoft IIS is already installed on the HP Change
 Control Management server machine.

 ➤ If you select **Apache**, the Apache Web server is installed as a Windows
 service (**Apache2**) on the HP Change Control Management server
 machine during HP Change Control Management installation.

 ➤ If you select **Do not use a Web server**, the Tomcat server is used, with a
 default port of 8080. (Note that the Tomcat server is always installed,
 under the name **Apache Tomcat**.)

 ➤ If you are working with HP Change Control Management's identity
 management solution, you must select a Web server to be used by
 HP Change Control Management.

Click **Next**. If you selected **Microsoft IIS**, proceed to step 5. If you selected **Apache**, proceed to step 6. If you selected **Do not use a Web server**, proceed to step 7.

5 If you selected Microsoft IIS in the Web Server Configuration screen, you are prompted to select the Microsoft IIS Web site under which you want to install the Microsoft IIS Web server virtual directories.
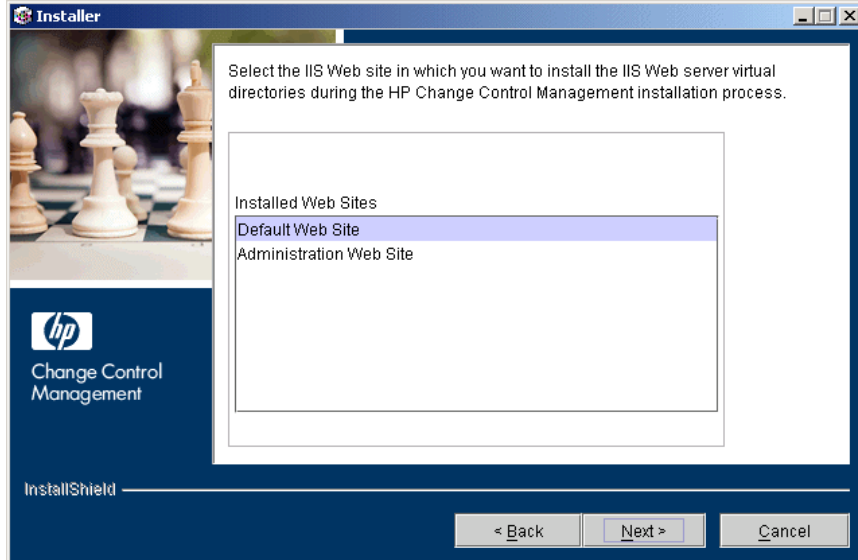
Select the required IIS Web site and click **Next**. Proceed to step 7.

6 If you selected Apache in the Web Server Configuration screen, you are prompted to enter the Apache server port through which you want the Apache Web server to communicate with the HP Change Control Management server, as well as the Apache Web server administrator's e-mail address.
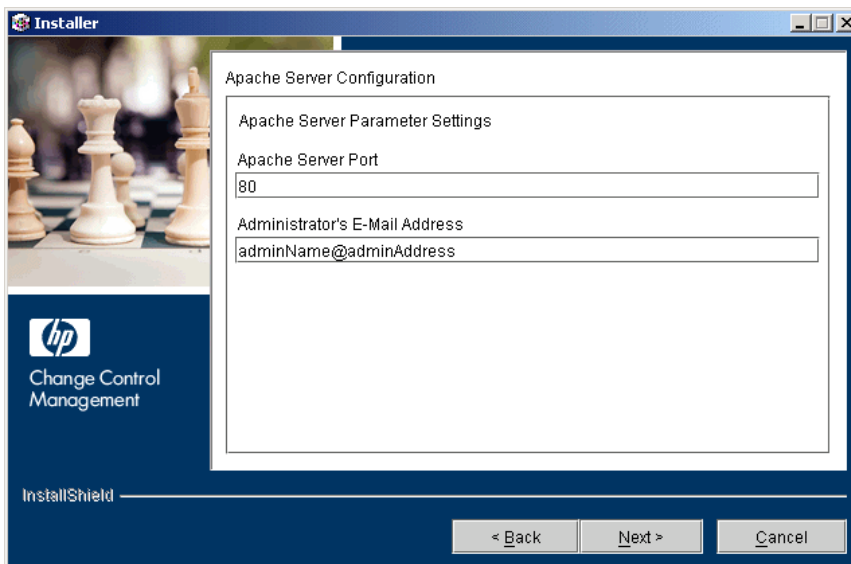
Click **Next**.

7 In the following screen, select the version of Mercury Application Mapping (MAM) that you want to use with HP Change Control Management. Note that some versions are supported and others are certified. For details, see "System Requirements" on page 24.
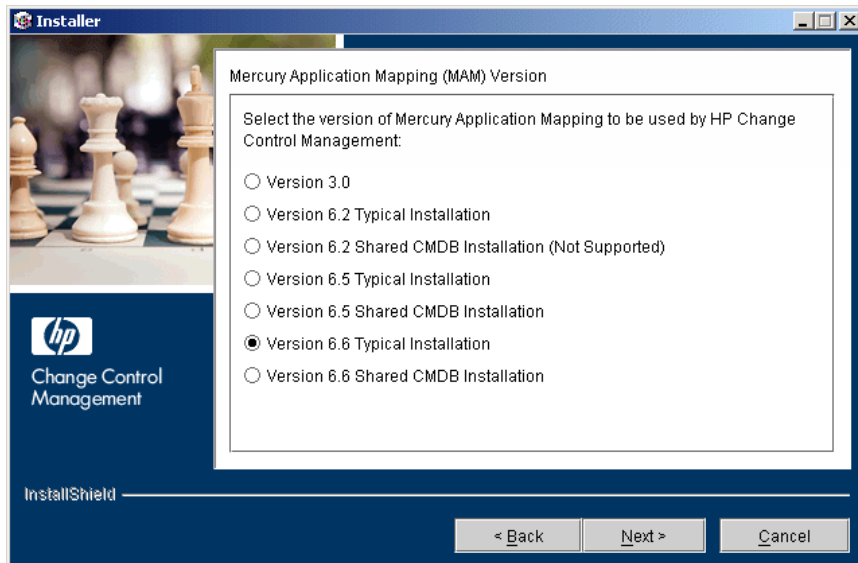
Click **Next**.

8 Ensure that the information in the summary screen is correct.
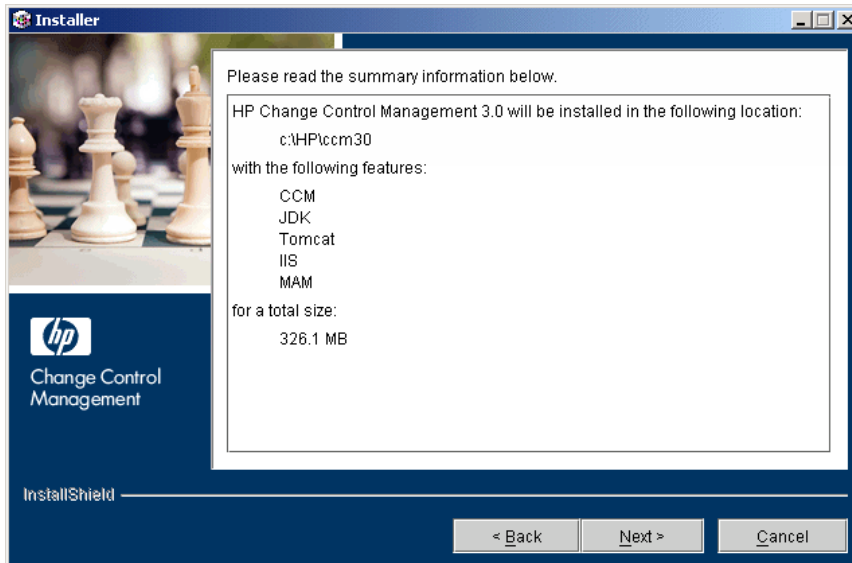
To review or change any settings, click **Back**. To accept the settings and begin installing HP Change Control Management, click **Next**.

9 When the installation process has successfully been completed, click **Finish** in the final InstallShield Wizard screen.
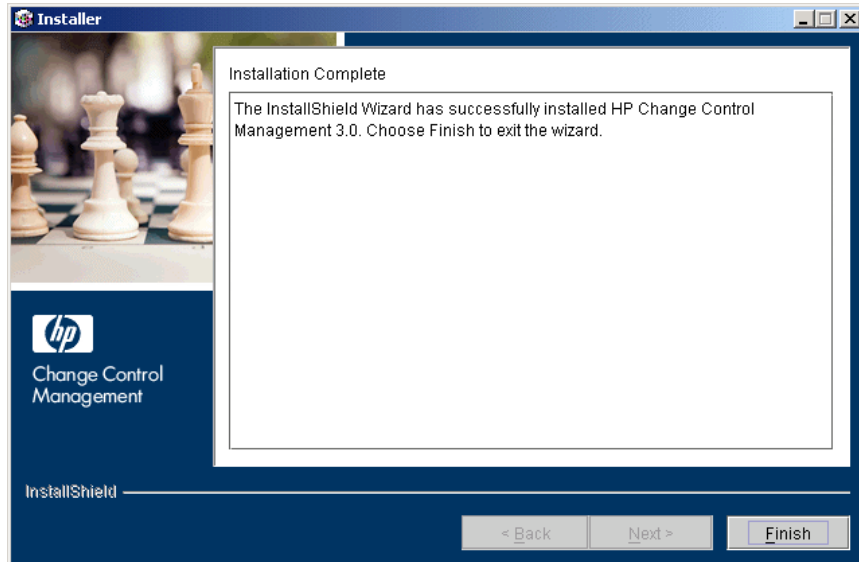
Post-Installation Procedures

After you have finished installing HP Change Control Management, you must perform the following post-installation procedure before you can begin working with HP Change Control Management.

To enable HP Change Control Management:

1 Create a database or user schema and configure database connection properties as described in "Configuring the Database or User Schema" on page 212.

2 If you are working with Mercury Application Mapping 3.0, copy the **weblogic.jar** file from the **bea81\weblogic81\server\lib** directory on the Mercury Application Mapping server to the **<HP Change Control Management installation directory>\tomcat\common\lib** directory.

If you are working with Mercury Application Mapping 6.2 or later, deploy the **<HP Change Control Management installation directory>\MAM\<version number>\extension\ccm_package.zip** package as described in "Configuring Mercury Application Mapping Settings When Working with Mercury Application Mapping 6.x" on page 168.

3 Configure a user or an instance view within Mercury Application Mapping, as described in "Configuring HP Change Control Management Views in Mercury Application Mapping" on page 164.

4 After configuring HP Change Control Management, change the command line directory to **<HP Change Control Management installation directory>\tomcat\webapps\ccm** and run the following command:

```
populate.bat -ir
```

5 Start the HP Change Control Management service (**Start** > **Programs** > **HP Change Control Management 3.0** > **Start Service ccm30**).

6 Configure the user authentication mode, as described in "Configuring the User Authentication Mode" on page 217, and enter the appropriate URL to access HP Change Control Management.

7 Log in to HP Change Control Management with the user name **ccmadmin** and the password **ccmadmin**. Ensure that you change this password once you log in. For details on changing your password and creating HP Change Control Management users, see "Configuring Users" on page 180.

Note: If you are working with HP Change Control Management's identity management solution, see Chapter 3, "Working with Identity Management," for details on adding an administrator and users to HP Change Control Management.

3

Working with Identity Management

This chapter describes how to work with HP Change Control Management's identity management solution.

This chapter describes:	On page:
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HP Change Control Management's Identity Management Mode Architecture	39
Configuring HP Change Control Management to Work in Identity Management Mode	40
Working with an LDAP System	43
Working with HP Select Access	48
Working with CA SiteMinder	50
Using the Regular Authentication Mode When Identity Management Fails	52

About Working with Identity Management

Identity management systems enable organizations to maintain user account information in order to control login access to applications. If an identity management system is in place and a user attempts to access an application, the identity management system first authenticates the user by requesting credentials, such as a user name and password. If the user is authenticated, the identity management system authorizes the appropriate amount of access to the application based on the user's identity and permissions. In this manner, critical data is protected with appropriate authorizations, while end-user identity information is properly stored.

Identity management systems work together with LDAP (Lightweight Directory Access Protocol). User information is stored in the LDAP information directory and an LDAP server is used to process queries and updates to this directory.

HP Change Control Management integrates with both identity management systems and LDAP systems.

➤ **identity management systems.** HP Change Control Management supports the following identity management systems:

   ➤ HP Select Access 6.2. For details on working with HP Select Access in conjunction with HP Change Control Management, see "Working with HP Select Access" on page 48.

   ➤ CA SiteMinder 6.0. For details on working with CA SiteMinder in conjunction with HP Change Control Management, see "Working with CA SiteMinder" on page 50.

➤ **LDAP systems.** If your organization has an LDAP system, but does not have an identity management system, HP Change Control Management will be provided together with HP Select Access. You install both products and configure them to work with your LDAP system. For details on working with an LDAP system in conjunction with HP Change Control Management, see "Working with an LDAP System" on page 43.

HP Change Control Management's Identity Management Mode Architecture

The following diagram illustrates HP Change Control Management's identity management mode architecture.

Web Agent

Client Browser

Web Server

CCM Server

LDAP

Identity Management
System
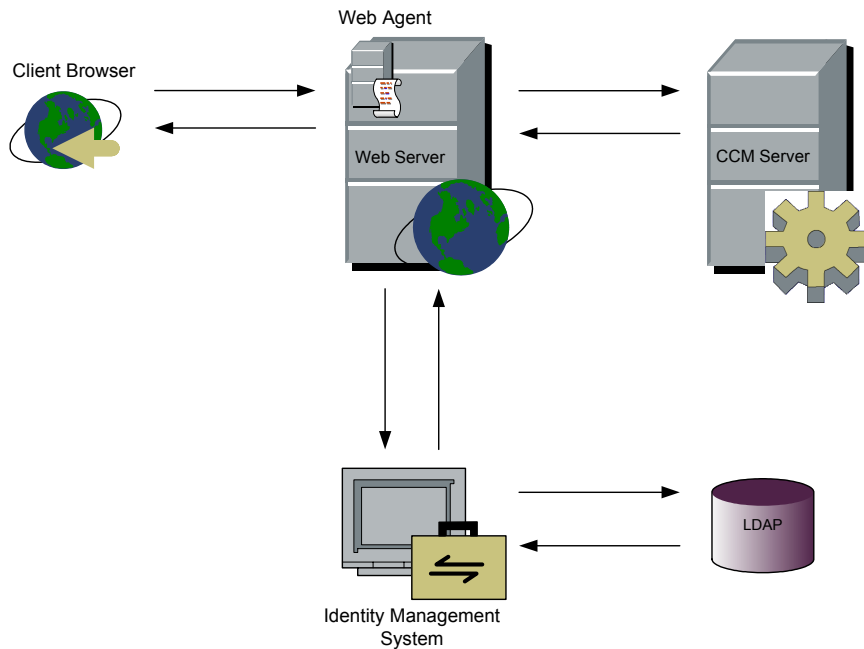
To work with identity management in conjunction with HP Change Control Management, you must instruct HP Change Control Management to use a Web server. During the HP Change Control Management installation process, you can instruct HP Change Control Management to use either an Apache or a Microsoft IIS Web server. For details, see "Installation Procedures" on page 25.

The identity management Web agent is installed on the Web server and used as the single access point for all Web clients. The Web agent intercepts all incoming requests and ensures that they are authenticated. Only authenticated requests are then transferred to HP Change Control Management.

Configuring HP Change Control Management to Work in Identity Management Mode

To work with HP Change Control Management in conjunction with an LDAP or identity management system, you must:

➤ configure HP Change Control Management to work with the LDAP or identity management system.

  ➤ If you are working with an LDAP system, see "Configuring HP Change Control Management to Work with an LDAP System" on page 44.

  ➤ If you are working with HP Select Access, see "Configuring HP Change Control Management to Work with HP Select Access" on page 48.

  ➤ If you are working with CA SiteMinder, see "Configuring HP Change Control Management to Work with CA SiteMinder" on page 50.

➤ add your organization's administrator to HP Change Control Management, as described in "Adding Your Organization's Administrator to HP Change Control Management" on page 42.

➤ access HP Change Control Management via the following URL: http://<server name>/ccm.

When you work in identity management mode, your identity management system (or the identity management system provided to you with HP Change Control Management, if your organization has an LDAP system only) authenticates all users. If a user has been successfully authenticated, the identity management system returns the user name, first name, last name, and e-mail address user properties in the HTTP header request. HP Change Control Management checks whether this user already exists in HP Change Control Management. If so, the user's first name, last name, and e-mail address are updated, if necessary. If not, the user is added to HP Change Control Management as a regular user (**User** role), with the properties returned from the identity management system.

Note:

➤ The created user is unable to log in to HP Change Control Management using the regular authentication mode until the HP Change Control Management administrator provides the user with an HP Change Control Management password. For details, see "Using the Regular Authentication Mode When Identity Management Fails" on page 52.

➤ If you want to perform an operation that is user-centric (such as assigning an action item to a user) before the user exists in HP Change Control Management, you can add the user to HP Change Control Management using the user importer utility. For details on this utility, see "User Importer" on page 240.

When working in identity management mode, the following user and HP Change Control Management administrator restrictions exist:

➤ Users are unable to modify their user names, passwords, first names, last names, or e-mail addresses.

➤ The HP Change Control Management administrator is unable to add users to HP Change Control Management using the Administration module.

➤ The HP Change Control Management administrator is unable to update the user name, password, first name, last name, or e-mail address of any user within HP Change Control Management.

All of the above functions must be performed in the LDAP directory.

It is possible, however, to add users to HP Change Control Management using the user importer utility. For details on this utility, see "User Importer" on page 240.

Adding Your Organization's Administrator to HP Change Control Management

By default, HP Change Control Management includes one user, **ccmadmin**, with administrative privileges. This user, however, does not exist in the LDAP information directory. Your organization's real HP Change Control Management administrator, whose properties are stored in the LDAP directory, does not initially exist in HP Change Control Management and must be added using the following bootstrap procedure.

To add your organization's administrator to HP Change Control Management:

1 Set the HP Change Control Management authentication mode to **IMMode** (in the <**HP Change Control Management installation directory**>**conf**\ **security.settings** file) and restart the Tomcat server.

2 Log in to HP Change Control Management (http://<server name>/ccm) using the identity management credentials of your organization's administrator. Your organization's administrator is added to HP Change Control Management as a regular user (**User** role).

3 Set the HP Change Control Management authentication mode to **DBMode** (in the <**HP Change Control Management installation directory**>**conf**\ **security.settings** file) and restart the Tomcat server.

4 Log in to HP Change Control Management (http://<server name>:<Tomcat server port>/ccm) using **ccmadmin** as the user name and password.

5 Assign your organization's administrator the role of **Administrator** (in the Administration module's Users tab – see the "Configuring Users" on page 180 for details).

6 Optionally, change the **ccmadmin** user's password.

7 Return the HP Change Control Management authentication mode to **IMMode** and restart the Tomcat server.

Note:

➤ You can close the Tomcat server port (by default, 8080) once you have performed the above procedure. For details, contact HP Professional Services.

➤ It is recommended that you do not remove the **ccmadmin** user from HP Change Control Management. If you did remove the **ccmadmin** user, you can restore this user by changing the command line directory to **<HP Change Control Management installation directory>\utilities\ AddAdminUser** and running the following: **addAdminUser.bat**

Working with an LDAP System

To integrate your LDAP system with HP Change Control Management, you must install HP Select Access and configure both HP Change Control Management and HP Select Access.

This section describes:

➤ "Configuring HP Change Control Management to Work with an LDAP System" on page 44

➤ "Installing and Configuring HP Select Access to Work with HP Change Control Management" on page 44

Configuring HP Change Control Management to Work with an LDAP System

To work with HP Change Control Management in conjunction with an LDAP system, the HP Change Control Management administrator must perform the following procedure.

To configure HP Change Control Management to work with an LDAP system:

1 Copy the files located in the **<HP Change Control Management installation directory>\examples\identity-management-examples\Select-Access\CCM** directory to the HP Change Control Management installation directory.

2 Restart the HP Change Control Management Tomcat server.

Installing and Configuring HP Select Access to Work with HP Change Control Management

To integrate your LDAP system with HP Change Control Management, you must install the HP Select Access Server and configure HP Select Access to use your organization's LDAP system. For details, refer to the *HP Select Access Installation Guide*.

Once you have installed HP Select Access, you must:

➤ install and configure the Web agent

➤ configure personalization

➤ configure the login page

➤ configure the logout page

Installing and Configuring the Web Agent

Install the Web agent on the HP Change Control Management server machine and configure the agent to protect the HP Change Control Management resource. Only users who are authorized to work with HP Change Control Management should be allowed access to the HP Change Control Management resource.

For details on installing the Web agent and configuring the agent to protect resources, refer to the *HP Select Access Installation Guide*.

Configuring Personalization

Configure HP Select Access to add the following headers to the HTTP header request that is returned following a successful authentication:

➤ **uid.** Containing the user's login name.

➤ **firstName.** Containing the user's first name.

➤ **lastName.** Containing the user's last name.

➤ **eMail.** Containing the user's e-mail address.

The following is an example of a configured personalization:

Configuring the Login Page

HP Select Access should be configured to use the HP Change Control Management login page. All files located in the **<HP Change Control Management installation directory>\examples\identity-management-examples\Select-Access\Select-Access-Content** directory should be copied to the **<HP Select Access installation directory>\Select Access\content** directory.

The Select-Access-Content directory contains the following files:

➤ **ccm_login_form_authfail.html.** This is the customized HP Change Control Management login page that is used by HP Select Access when a user logs in to HP Change Control Management. This page can be modified if required.

➤ **post_accepted.html and accepted.html.** These pages are used by HP Select Access when it accepts a user's credentials and forwards the user's request to the HP Change Control Management application. These pages can be modified if required.

➤ **deny.html.** This page is used by HP Select Access when a resource fails. It can be modified if required.

In addition, the resources located under **/ccm/imresources** in the Resource Access tree should be enabled and granted access to **Unknown identities**. This enables access to the required files during the HP Change Control Management login process.

Configuring the Logout Page

HP Select Access should be configured to use the HP Change Control Management logout page, **ccmLogout.html**, located under **/ccm/imresources** in the Resource Access tree. In addition, HP Select Access should be configured to use a logout rule when accessing **ccmLogout.html**.

The logout rule should be configured and the identity management session key removed as illustrated below.
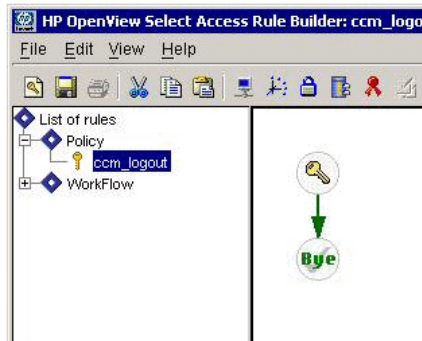
After the login and logout page have been configured, the policy should be similar to the one in the following illustration:
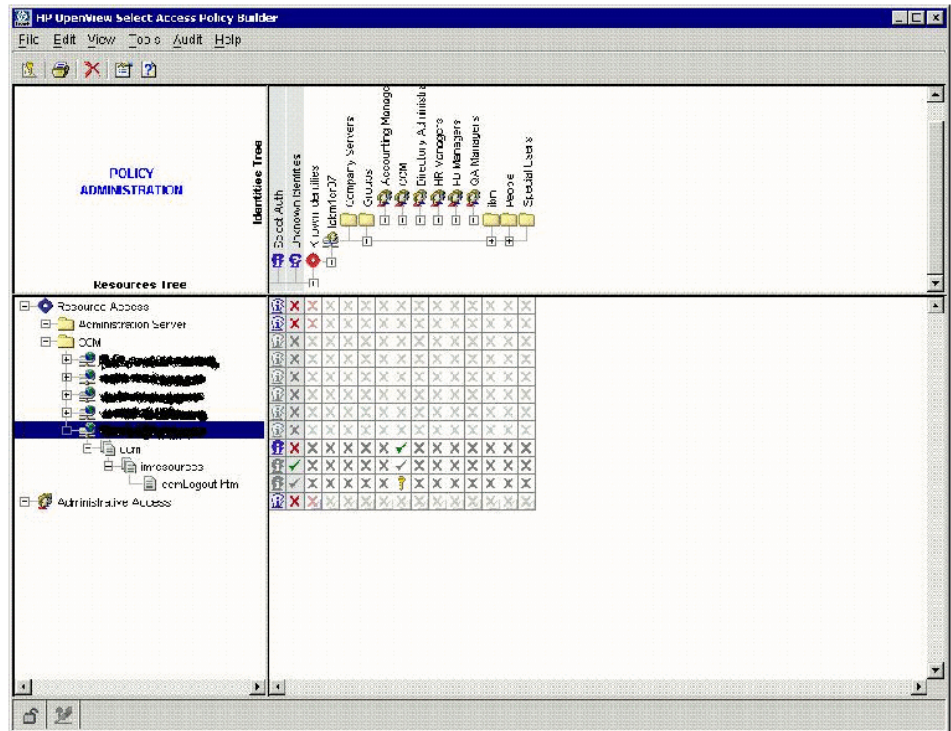
Working with HP Select Access

To work with HP Change Control Management in conjunction with HP Select Access, you must configure both HP Change Control Management and HP Select Access.

This section describes:

➤ "Configuring HP Change Control Management to Work with HP Select Access" below

➤ "Configuring HP Select Access to Work with HP Change Control Management" on page 49

Configuring HP Change Control Management to Work with HP Select Access

To work with HP Change Control Management in conjunction with HP Select Access, the HP Change Control Management administrator must perform the following procedure.

To configure HP Change Control Management to work with HP Select Access:

1 Copy the files located in the **<HP Change Control Management installation directory>\examples\identity-management-examples\Select-Access\CCM** directory to the HP Change Control Management installation directory.

2 If your organization has a logout page, ask the HP Select Access administrator to provide you with an HP Change Control Management logout URL. In the **<HP Change Control Management installation directory>\conf\security.settings** file, set the **logout-url** field to the value provided.

3 Restart the HP Change Control Management Tomcat server.

Configuring HP Select Access to Work with HP Change Control Management

To work with HP Select Access in conjunction with HP Change Control Management, the HP Select Access administrator must:

➤ install and configure the Web agent

➤ configure personalization

➤ configure the login page

➤ configure the logout page

Installing and Configuring the Web Server Agent

Install and configure the Web agent as described in "Installing and Configuring the Web Agent" on page 44.

Configuring Personalization

Configure HP Select Access personalization as described in "Configuring Personalization" on page 45.

Configuring the Login Page

If your organization does not have its own login page, HP Select Access should be configured to use the HP Change Control Management login page. For details on configuring the HP Change Control Management login page, see "Configuring the Login Page" on page 46.

Configuring the Logout Page

If your organization does not have its own logout page, HP Select Access should be configured to use the HP Change Control Management logout page. For details on configuring the HP Change Control Management logout page, see "Configuring the Logout Page" on page 46.

Working with CA SiteMinder

To work with HP Change Control Management in conjunction with CA SiteMinder, you must configure both HP Change Control Management and CA SiteMinder.

This section describes:

➤ "Configuring HP Change Control Management to Work with CA SiteMinder" below

➤ "Configuring CA SiteMinder to Work with HP Change Control Management" on page 51

Configuring HP Change Control Management to Work with CA SiteMinder

To work with HP Change Control Management in conjunction with CA SiteMinder, the HP Change Control Management administrator must perform the following procedure.

To configure HP Change Control Management to work with CA SiteMinder:

1 Copy the files located in the **<HP Change Control Management installation directory>\examples\identity-management-examples\Site-Minder\CCM** directory to the HP Change Control Management installation directory.

2 If your organization has a logout page, ask the CA SiteMinder administrator to provide you with an HP Change Control Management logout URL. In the **<HP Change Control Management installation directory>\conf\ security.settings** file, set the **logout-url** field to the value provided.

3 Restart the HP Change Control Management Tomcat server.

Configuring CA SiteMinder to Work with HP Change Control Management

To work with CA SiteMinder in conjunction with HP Change Control Management, the CA SiteMinder administrator must:

➤ install and configure the Web agent

➤ configure personalization

➤ configure the logout page

Installing and Configuring the Web Agent

Install the Web agent on the HP Change Control Management server machine and configure the agent to protect the HP Change Control Management resource. Only users who are authorized to work with HP Change Control Management should be allowed access to the HP Change Control Management resource.

For details on installing the Web agent and configuring the agent to protect resources, refer to the *eTrust SiteMinder Web Agent Installation Guide*, available from CA.

Configuring Personalization

Configure CA SiteMinder to add the following headers to the HTTP header request that is returned following a successful authentication:

➤ **uid.** Containing the user's login name.

➤ **firstName.** Containing the user's first name.

➤ **lastName.** Containing the user's last name.

➤ **eMail.** Containing the user's e-mail address.

Configuring the Logout Page

If your organization does not have a logout page, CA SiteMinder should be configured to use the HP Change Control Management logout page, **ccmLogout.html**, located under **/ccm/imresources** in the Resource Access tree.

Using the Regular Authentication Mode When Identity Management Fails

If HP Change Control Management's identity management solution is not working properly, you can revert to working with HP Change Control Management's regular authentication mode.

To revert to the regular authentication mode:

1 If you previously closed the Tomcat server port (by default, 8080), reopen it.

2 Set the HP Change Control Management authentication mode to **DBMode** (in the **<HP Change Control Management installation directory>\conf\ security.settings** file) and restart the Tomcat server.

3 Log in to HP Change Control Management (http://<server name>:<Tomcat server port>/ccm) using **ccmadmin** as the user name and password.

4 Add users as required, providing these users with an initial password. You can also configure passwords for the users added while working in identity management mode. These users will be able to log in to HP Change Control Management using HP Change Control Management's regular authentication mode.

Once the identity management solution has been restored, you can resume working in identity management mode by setting the HP Change Control Management authentication mode to **IMMode** in the **<HP Change Control Management installation directory>\conf\security.settings** file and accessing HP Change Control Management via the following URL: http://<server name>/ccm. You can then disable the DB authentication mode by closing the Tomcat server port.

Part III

Configuration

4

Introduction to HP Change Control Management Configuration

This chapter provides an overview of the HP Change Control Management configuration process and describes the preparatory steps you should take before beginning the configuration process.

This chapter describes:	On page:
Overview of the HP Change Control Management Configuration Process	56
Preparing to Configure HP Change Control Management	62

Note: The first section in this chapter outlines the HP Change Control Management configuration process. The second section provides step-by-step information on collecting the data necessary to begin the configuration process.

Overview of the HP Change Control Management Configuration Process

The HP Change Control Management configuration process includes the following:

➤ Configuring the conversion of service desk application requests – For an overview, see below.

➤ Configuring the way in which requests are processed – For an overview, see page 57.

➤ Configuring the change request approval/retraction operation – For an overview, see page 58.

➤ Configuring Mercury Application Mapping-related settings – For an overview, see page 58.

➤ Configuring HP Change Control Management application settings – For an overview, see page 60.

➤ Configuring HP Change Control Management system preferences – For an overview, see page 61.

Configuring the Conversion of Service Desk Application Requests

For requests to be processed by HP Change Control Management, they must be converted from their service desk application formats to a generic format. You must therefore configure a conversion policy containing a detailed service desk application field to generic field mapping scheme for standard, predefined fields, including an enumeration field value mapping scheme. In addition, your conversion policy should specify a list of service desk application customized fields to be included as additional fields in the generic request.

For details on configuring the conversion of service desk application requests to generic requests, see Chapter 5, "Configuring the Conversion of Requests."

Configuring HP Change Control Management's Processing of Requests

HP Change Control Management's processing of the converted, generic requests includes the following steps:

➤ the collection of generic requests. You specify the frequency with which you want the HP Change Control Management server to collect the generic requests.

➤ the analysis of the collected requests. You specify the analysis rules that you want HP Change Control Management to use in order to locate the CIs within the fields of each generic request.

➤ the calculation of impact analysis for the requests. You configure the script that determines the points at which HP Change Control Management calculates the impact of the identified CIs on the various components of your IT system.

➤ the automatic creation of action items. You configure the script that automatically creates action items from certain change requests and assigns these items to specific HP Change Control Management users.

➤ the calculation of risk analysis for the requests. You configure the risk factors that you want HP Change Control Management to take into account when performing a risk analysis on each generic request.

➤ the calculation of time period compliance. You configure time period categories and the rules that pertain to these categories so that HP Change Control Management can calculate whether a generic request fits into a defined time period category and complies with its rules.

➤ the calculation of collisions for the requests. You configure the way in which HP Change Control Management identifies collisions between requests and calculates the severity of the identified collisions.

➤ the discovery of actual changes in your environment. If you are working with Mercury Application Mapping 6.5 or later, you can configure Mercury Application Mapping to periodically discover actual changes to your environment and send data about these changes to HP Change Control Management.

➤ the calculation of pre- and post-request processing factors. You can use the functions provided to configure certain pre-change request processing and/or post-change request processing factors that you want to include in other calculations.

➤ the sending of e-mail notifications. You can configure customized e-mail notifications to be sent to specific HP Change Control Management users, under certain circumstances.

For details on configuring each of the above HP Change Control Management request processing components, see Chapter 6, "Configuring the Processing of Requests."

Configuring the Change Request Approval/Retraction Operation

HP Change Control Management contains a feature that allows users to approve and, if necessary, retract the approval of, change requests. The approval/retraction of a request within HP Change Control Management results in an updated status of the request within the service desk application.

For details on configuring this operation, see Chapter 7, "Configuring Operations."

Configuring Mercury Application Mapping-Related Settings

Mercury Application Mapping (MAM) is a key component in the processing of HP Change Control Management requests. To work with Mercury Application Mapping:

➤ Configure an instance view to include all the CIs that represent all of your IT applications, if you are working with Mercury Application Mapping 6.2 or later, or a user to include all the views that represent all your IT applications, if you are working with Mercury Application Mapping 3.0. For details, see "Configuring HP Change Control Management Views in Mercury Application Mapping" on page 164.

➤ Specify certain Mercury Application Mapping properties within the HP Change Control Management configuration files. For details, see "Configuring Mercury Application Mapping Properties in HP Change Control Management" on page 164.

➤ Configure your Mercury Application Mapping correlation rules to properly reflect your IT system. For details on configuring Mercury Application Mapping, refer to the Mercury Application Mapping documentation.

Note: If you are working with Mercury Application Mapping 6.2 or later, HP Change Control Management uses only a specific subset of correlation rules, by default, in performing an impact analysis. If required, you can instruct HP Change Control Management to use additional or alternative correlation rules. For details, see "Configuring Correlation Rules" on page 172.

If you are working with Mercury Application Mapping 3.0, HP Change Control Management uses all the defined correlation rules in performing an impact analysis, unless you have marked specific correlation rules as inactive.

➤ If you are working with Mercury Application Mapping 6.2 or later, install an HP Change Control Management package on your Mercury Application Mapping server and configure connections between hosts (or other CITs) and business services within your Mercury Application Mapping view(s). For details, see "Configuring Mercury Application Mapping Settings When Working with Mercury Application Mapping 6.x" on page 168.

➤ If you are working with Mercury Application Mapping 6.5 or later, configure the settings of the latent changes feature. For details, see "Configuring the Latent Change Feature Properties" on page 150.

➤ Optionally, reconfigure the following to better reflect your IT system:

  ➤ preconfigured CITs (or class types) and attributes according to which you want HP Change Control Management to locate changed CIs in order to perform an impact analysis on them

  ➤ preconfigured CITs and their attributes that can be included in the results of an impact analysis

  ➤ HP Change Control Management–Mercury Application Mapping impact severity mappings

For details, see "Reconfiguring HP Change Control Management–Mercury Application Mapping Integration Settings" on page 169.

Configuring the HP Change Control Management Application

To work with the HP Change Control Management application, you must configure the following:

➤ user settings

➤ the association of applications with specific users and the association of users with specific applications

➤ the way in which customized change request fields are displayed, the filter categories in which they are included, and the analysis rules that apply to them

If required, you can also reconfigure the following:

➤ user name and password constraints

➤ the HP Change Control Management user login settings

➤ the default Grid view display settings, the default Request Details tab display settings, and the default Change Request Filter dialog box settings

➤ the default Calendar view display settings

➤ the way in which enumeration fields are displayed

In addition, if you changed certain default enumeration fields in the enumeration field configuration file, you must update the dashboard settings file with your changes.

For details on configuring the above elements of the HP Change Control Management application, see Chapter 9, "Configuring Application-Related Settings."

Configuring HP Change Control Management System Preferences

To work with HP Change Control Management, you must:

➤ configure the HP Change Control Management database or user schema and define connection properties for this database/user schema.

➤ configure the SMTP mail server responsible for sending HP Change Control Management e-mail notifications.

If required, you can reconfigure the following:

➤ the HP Change Control Management application server address

➤ the predefined HP Change Control Management log file properties

➤ the authentication mode, if you are working with an identity management solution

For details on configuring the above properties, see Chapter 10, "Configuring System Preferences."

Preparing to Configure HP Change Control Management

Before you begin the HP Change Control Management configuration process, you must collect certain information regarding the change requests for which you want HP Change Control Management to perform impact analysis and make decisions as to how to configure HP Change Control Management based on the information collected.

This section describes how to approach HP Change Control Management configuration, outlining the pre-configuration steps that you must perform in order to be able to properly configure HP Change Control Management. It also provides examples of how to work with change requests in order to collect the information to be used in the HP Change Control Management configuration process.

The following steps outline the HP Change Control Management configuration preparation process:

1 Analyze the types of change requests that exist in the service desk application and identify the types for which you want HP Change Control Management to perform impact analysis.

Your service desk application may contain a number of different types of change requests. For some of these change requests, such as a request from product marketing to modify a feature, impact analysis may be highly beneficial and you will want to ensure that HP Change Control Management performs an impact analysis on these requests.

2 Analyze the processing workflow of the change requests for which you want HP Change Control Management to perform impact analysis.

Once you have identified the types of change requests for which you want HP Change Control Management to perform impact analysis, it is important that you attend a Change Advisory Board meeting to gain a better understanding of the way in which change requests are managed in the organization.

After you have gained an understanding of the way in which the organization manages its change requests, you can more effectively analyze the processing workflow of the requests for which you want to perform impact analysis and determine the points in the workflow at which it would be beneficial to perform impact analysis. Note that these impact analysis points may be related to request field changes, or they may be associated with certain steps in the workflow.

The following is an example of a typical change request workflow:
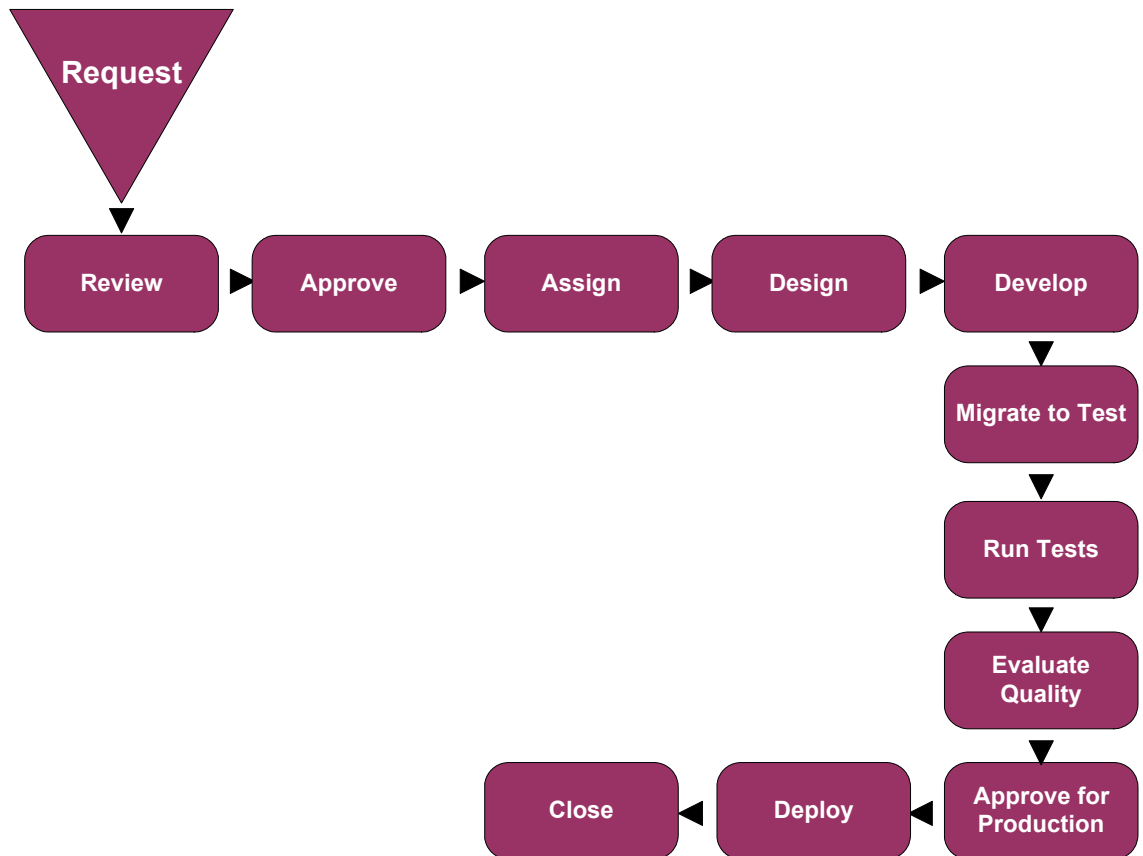
In this case, it would be beneficial to have HP Change Control Management perform an impact analysis before the change is approved for production.
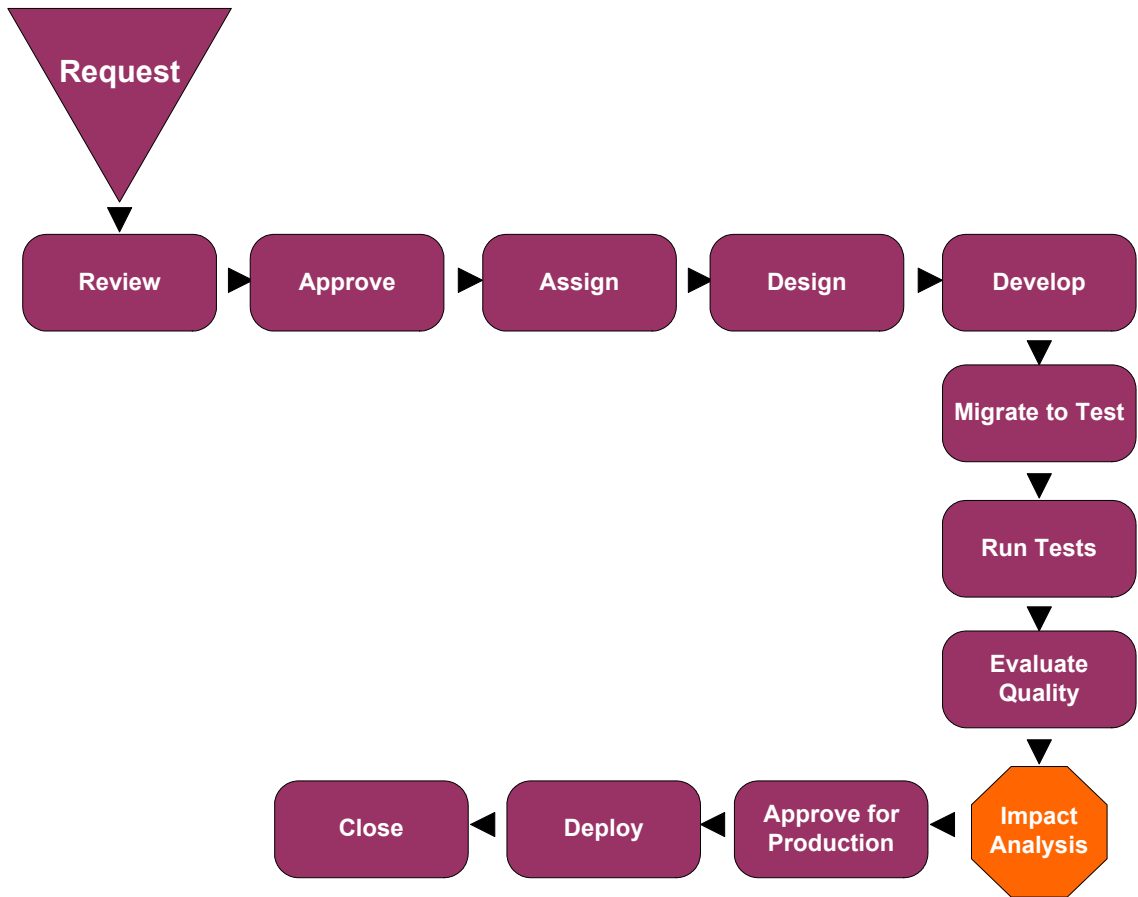
Running an impact analysis before a software or hardware change is approved for production provides you with an indication of the effect the change will have on your production environment. This allows you to ensure that any modifications that may have been made to your system's infrastructure during development will not have an adverse effect on your system once the change is deployed in production.

3 Consider the pre- and post-conversion filters you want to use.

Once you have determined the points in the workflow at which you want HP Change Control Management to perform impact analysis, it is recommended that you decide how to filter out the requests or request updates that you want HP Change Control Management to ignore. This helps ensure that the HP Change Control Management server will not be overloaded with unnecessary request data. For example, you could set a filter that prevents requests that are of the status **New** or **Assigned** from reaching the HP Change Control Management server if you are interested in performing an impact analysis on requests that have at least reached the **Pending Approval** stage.

You can use either a pre-conversion or a post-conversion filter for this purpose. A pre-conversion filter is written using the terminology of the service desk application. If a request does not meet the filter requirements, it is not converted to a generic request. A post-conversion filter is written using HP Change Control Management request terminology and operates on requests once they have been converted from service desk application-specific to generic requests.

4 Analyze the service desk application's request fields and the values that can be assigned to each field.

In particular, ensure that you identify the following types of fields:

➤ standard ITIL fields (predefined fields in HP Change Control Management). These include fields such as the request ID number and open/updated dates, as well as enumeration fields, such as the priority, severity, and status fields, which contain values.

➤ fields that will serve as input for the impact analysis. These can include both standard and customized fields that contain information on the system's impacted CIs, such as servers, routers, or host machines.

➤ fields that decision-makers will want to view in the HP Change Control Management application.

➤ fields that will serve as the data sources for the risk factors that you define.

5 Determine how to map the service desk application enumeration fields and field values to the generic enumeration fields and field values.

For each of the enumeration fields, determine which fields and field values in your service desk application requests should be mapped to each generic request field and field value. For example, you might determine that both the **High – 2** and **Urgent – 3** priority field values in your service desk application requests should be mapped to the **Immediate – 3** generic request priority field value. You might also determine that two different fields in your service desk application (for example, the status field and the approval field) should be mapped to a single generic request field (for example, the status field).

6 Analyze the way in which the CIs appear in the service desk application requests.

You instruct HP Change Control Management to identify and use CIs in impact analysis by specifying analysis rules for these values. In order to specify analysis rules, you must first identify the location and format of the CIs in the service desk application requests. For example, it is important to note the field in which a machine host name appears and the pattern that the host name follows (such as **US_CA_DOCTEAM_1**). You can then create an analysis rule that instructs HP Change Control Management to locate this host name and use it within an impact analysis.

7 Determine when you want HP Change Control Management to calculate the impact of the identified CIs on the components of your IT system.

HP Change Control Management performs impact analysis according to a calculation rule that you configure. A calculation rule determines the point or points at which an impact analysis is performed, such as when a certain step in the workflow is reached or a certain field is changed. For example, you can create a calculation rule that instructs HP Change Control Management to perform an impact analysis if a change is made to a request's Change Process field.

 8 **Analyze your IT system to ensure that your Mercury Application Mapping-related settings are configured to properly reflect your system.**

HP Change Control Management locates impacted CIs, presents a list of changed and affected CIs, and calculates impact severity based on the user or instance view that you configured within Mercury Application Mapping, your Mercury Application Mapping correlation rules, and the Mercury Application Mapping configuration settings within HP Change Control Management properties files. All of these settings should therefore be configured to accurately reflect your IT system. If necessary, you can define additional views or application CIs (in Mercury Application Mapping 6.2 or later) to ensure that all the applications in your system are properly reflected.

 9 **Determine the conditions for which action items should be automatically created.**

By default, HP Change Control Management automatically creates action items for change requests with a status of **Pending Approval** whose impact severity was equal or greater than **Low** and whose calculated risk value was above **0**. The action items are assigned to the users associated with the applications affected by the change requests. You can modify these conditions, however, as required.

 10 **Determine whether customized notifications should be sent.**

By default, HP Change Control Management sends automatic e-mail notifications only. However, you can configure customized notifications to be sent to users who do not regularly work with HP Change Control Management and are therefore unlikely to view and monitor action items that are created as a result of an impact analysis.

 11 **Determine the risk factors upon which the risk analysis calculation will be based.**

HP Change Control Management calculates risk based on risk factors that you define for **Probability of Failure** and **Potential Damage**. For each risk factor that you define, you must determine the data source for the factor (such as a request field), the mapping rules that you want to use to translate the source data into factor values between 0 and 10, and the weight you want to assign to the factor.

12 **Determine the time period categories that your system should include and the rules that should apply to each category.**

HP Change Control Management calculates the compliance of change requests with the rules pertaining to the time period categories in which the requests fit. You must determine the Change Allowed and Changes Not Allowed time periods for each category of changes, as well as the criteria by which HP Change Control Management determines whether a change request is included in a defined time period category.

13 **Determine the criteria that should be met in order for a change request to be included in the collision calculation.**

By default, HP Change Control Management calculates collisions for change requests of all statuses. You can choose to exclude change requests of a certain status from the collision calculation, or define other criteria that should be met in order for a change request to be included in the collision calculation.

5

Configuring the Conversion of Requests

This chapter describes how to convert change requests that originate in various service desk applications to generic requests that can be processed by HP Change Control Management. It also describes how to customize HP Change Control Management fields.

Customizing HP Change Control Management Fields

Before you can begin converting service desk application requests to HP Change Control Management requests, you must define the fields you want to include in your HP Change Control Management requests. These include both standard ITIL, predefined fields and customized fields, which you define in the Fields tab of the HP Change Control Management application's Administration module. For details on customizing fields, see "Configuring Change Request Field Settings" on page 191.

In addition, you must define the enumeration fields to be used by HP Change Control Management in the **<HP Change Control Management installation directory>\conf\enumerations.settings** file. The **enumerations.settings** file contains a default list of the following:

➤ status levels

➤ priority levels

➤ request (parent/child) levels

➤ severity levels

➤ estimated risk levels

➤ voting options

➤ request types (a classification of requests that assists HP Change Control Management in matching actual changes in your environment with scheduled changes)

➤ action item priority levels

The numeric values determine the order in which the enumeration levels are displayed in the HP Change Control Management application. You can modify all of the settings in this file as required, except for the request level settings. For example, if you want HP Change Control Management to use the status **Completed** instead of **Closed**, you would change the following:

```
<entry>
 <name>CLOSED</name>
 <value>4</value>
</entry>
```

to:

```
<entry>
 <name>COMPLETED</name>
 <value>4</value>
</entry>
```

Notes:

➤ After the HP Change Control Management server is launched, an **<id>** element is added to each enumeration entry. This element should not be modified or removed.

➤ If you add or modify an enumeration setting, you must configure the way in which the enumeration setting is displayed in the HP Change Control Management application. You do so within the **<HP Change Control Management installation directory>\conf\enumeration-labels.properties** file. For details on configuring the **enumeration-labels.properties** file, see "Configuring Enumeration Field Display Settings" on page 209. If you do not configure the way in which the enumeration setting is displayed, a warning message is recorded in the HP Change Control Management log files.

➤ If you modify an enumeration setting, all the conversion scripts that refer to this enumeration setting must be modified accordingly. For details on referring to enumeration settings within conversion scripts, see "Writing the Conversion Scripts" on page 103. If you modify the way in which the enumeration setting is displayed in the HP Change Control Management application, you need not modify your conversion scripts.

➤ If you add or modify a severity enumeration setting, you must modify the corresponding severity enumeration setting in the **<HP Change Control Management installation directory>\conf\mam-integration.settings** file. For details on configuring the impact severity level settings in the **mam-integration.settings** file, see "Mapping HP Change Control Management–Mercury Application Mapping Severity Levels" on page 174.

About Converting Requests

Change requests are converted from their service desk application formats to a generic format using service desk application-specific adapters. The generic requests are then organized according to their original change/task (top-level/second-level) hierarchy and transferred to the HP Change Control Management server.

The following diagram illustrates the service desk application request conversion process performed by the Service Desk Integration module:
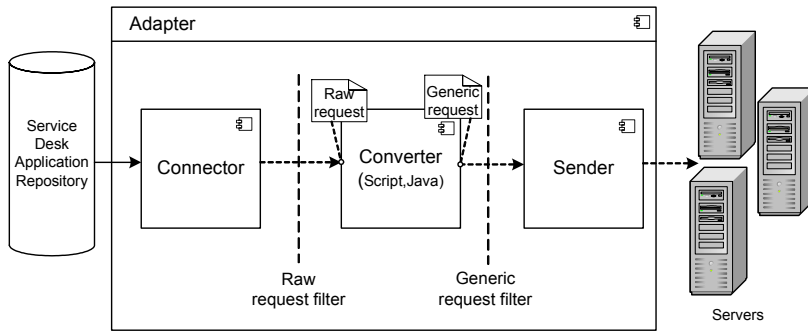
Each service desk application-specific adapter contains two single-level adapters—one to convert top-level changes, and the other to convert second-level changes. As shown above, each single-level adapter contains the following three subcomponents:

➤ **Connector**. Collects new top-level/second-level change requests from the service desk applications.

➤ **Converter**. Converts the top-level/second-level change requests from their service desk application formats to a generic format that HP Change Control Management can recognize.

➤ **Sender**. Organizes the converted top-level/second-level change requests according to their original parent/child hierarchy and transfers them to the HP Change Control Management server.

Each single-level adapter also contains a **pre-conversion filter** and a **post-conversion filter**. Using these filters, you can control which requests are sent to the HP Change Control Management server. The pre-conversion filter filters requests before they are converted to a generic format, while the post-conversion filter filters requests after conversion, but before they are transferred to the HP Change Control Management server.

The Service Desk Integration module supports the following service desk applications:

Application	Version
BMC Remedy Action Request System	5.0
Mercury IT Governance Center	➤ 6.0 Service Pack 14 – Web Services ➤ 7.0 – Web Services ➤ 5.5 and later – RML (RML must be enabled)
HP ServiceCenter	➤ 6.1 Service Pack 1 ➤ 6.2
HP Service Desk	4.5

Overview of Adapter Configuration

To convert service desk application requests using the Service Desk Integration module, you must configure the appropriate adapter for each service desk application.

To configure an adapter, you must:

➤ set up the adapter configuration file

➤ write the conversion scripts to be used by the adapter

Note: You can configure more than one adapter per service desk application. This enables you to import requests from several servers of the same service desk application.

Adapter Configuration File

The adapter configuration file is an XML file that contains the following:

➤ The adapter attributes, such as the adapter name, the name of the service desk application in which the requests were created, the number of requests to be processed at one time, the frequency with which the adapter polls the service desk application, and the request types to be converted.

For details on configuring the adapter attributes, see "Configuring the Common Adapter Attributes" on page 76.

➤ The connector attributes, which enable the adapter to connect to the service desk application. You specify the connector attributes separately for each single-level adapter—that is, for each request type included in the adapter configuration file.

For details on configuring the connector attributes, see "Configuring the Connector Attributes" on page 81.

➤ The converter attributes, which call the conversion script files where the field mapping and filter functions are defined. The converter attributes differ for each single-level adapter.

For details on configuring the converter attributes, see "Configuring the Converter Attributes" on page 102.

Conversion Scripts

Conversion scripts are called by the adapter and are responsible for the actual conversion of change requests from their service desk application format to a generic format.

Each script must contain certain functions. For a detailed list and explanation of these functions, see "Writing the Conversion Scripts" on page 103.

Location and Naming Conventions of Service Desk Integration Files

The Service Desk Integration files are located in the **<HP Change Control Management installation directory>\examples\service-desk-examples** directory. This directory contains the following:

➤ A configuration file for each adapter. This file must have a **.settings** extension. In addition, it is recommended that the name of the configuration file be identical to the name defined for the adapter within the configuration file, as follows:

```
<adapter name>.settings
```

For example, if the name defined for the adapter is **servicecenter-adapter**, the configuration file name should be **servicecenter-adapter.settings**.

➤ A subdirectory for each adapter configuration file. The subdirectory holds the conversion scripts responsible for the actual conversion of requests from their service desk application format to a generic format.

The name of the subdirectory must be identical to the name defined for the adapter in the configuration file and must have a **.ext** extension, as follows:

```
<adapter name>.ext
```

Following the example above, there must be a subdirectory called **servicecenter-adapter.ext** to hold all the conversion script files for the HP ServiceCenter adapter.

After you have properly named the adapter configuration file and subdirectory, you must move both of these entities to the **<HP Change Control Management installation directory>\conf** directory.

Configuring the Common Adapter Attributes

The top section of the adapter configuration file contains the following adapter attributes, which are common to all service desk applications:

Property Name	Description	Default Value
adapter-name (mandatory)	A logical name that represents the adapter's name within the HP Change Control Management system. For example: servicecenter-adapter **Note:** This name is also used for the scripts (**.ext**) directory, as explained in "Location and Naming Conventions of Service Desk Integration Files" on page 75. In addition, this name is used to identify the adapter in the log files.	—
version (mandatory)	The version of the adapter, which is identical to the version of HP Change Control Management that you are using. **Note:** This property should not be modified.	—

Property Name	Description	Default Value
service-desk-application (mandatory)	A unique, logical name for the service desk system that you are using. This can be any name you select. For example: Service Center **Note:** This is the name that will be used for the service desk within the HP Change Control Management application.	—
number-of-tickets	Sets the number of requests that are processed at a time, ensuring that HP Change Control Management and service desk application resources, such as memory and network bandwidth, are not over-used. The **number-of-tickets** can be as high as required, although you should be careful not to overload HP Change Control Management or your service desk application. It should be high enough to retrieve all requests from the service desk application and should exceed the expected number of requests that the service desk application updates in one measurement time slot. For example, if the service desk application updates 50 requests in one second, the **number-of-tickets** should exceed 50. In processing requests, HP Change Control Management attempts to use the **number-of-tickets**, but may return more or fewer requests from the service desk application. **Note:** To determine the **number-of-tickets**, consult with the people responsible for the service desk application(s) within your organization.	**50**

Property Name	Description	Default Value
polling-schedules	A list of cron expressions separated by the new line character. Format: 30 * * * * <new line> 0 * * * *	—
polling-frequency	The frequency (in seconds) with which the service desk application is polled for change requests.	If **polling-schedules** and **polling-frequency** are undefined, then the default is **30 seconds**.
initial-load-state	If you specify a string date, the adapter collects all requests from the specified creation date through the current date, at one time and does not continue to collect new or updated requests. Format: MM/dd/yy HH:mm:ss z	**null**
request-types (mandatory)	Lists all request types that the adapter collects, including all request type levels. By default, level 1 is used for changes are and level 2 is used for tasks. (For details on configuring request type levels, see "Customizing HP Change Control Management Fields" on page 70.) For an explanation of the request type properties and operation properties to be included as part of the **<request-type>** element, see "Request Type Properties" on page 79.	—

Property Name	Description	Default Value
sender	Specifies where requests should be sent. In the **<sender>** section, you specify where requests should be sent by setting the **<sender-type>** element to one of the following values: ➤ **sender.** Requests are sent to the HP Change Control Management server. ➤ **xmlsender.** Requests are sent to XML files (used for debugging) rather than the HP Change Control Management server.	**sender**

Request Type Properties

The **<request-type>** element includes the following properties:

Property Name	Description	Default Value
connection-properties	Lists the common properties for polling and operation connectors so that these properties do not have to be duplicated.	—
connector (under polling-operation) (mandatory)	Includes the **connector-type** and connector **properties**. To configure the **connector-type** and its **properties**, refer to the documentation for the specific service desk application (see "Configuring the Connector Attributes" on page 81).	—
converter (under polling-operation) (mandatory)	Includes the **converter-type** and converter **properties**. The converter properties are defined within a script.	—

The **<operation>** element (under **<operations>** within **<request-type>**) includes the following operation properties:

Property Name	Description	Default Value
name (mandatory)	The operation name to be used in locating the operation. The following operations are currently supported: ➤ canApprove ➤ approve ➤ canRetract ➤ retract For details on these operations, see Chapter 7, "Configuring Operations."	—
operation-type (mandatory)	Defines the type of operation to be performed.	—
connector (under operation) (mandatory)	Defines the operation connector to be used for the execution of the operation.	—
sender-properties	Overrides the default properties that are used when initializing a sender for the operation.	—

Note: Refer to the **<HP Change Control Management installation directory>\examples\service-desk-examples** directory for examples of **<request-type>** configuration.

Configuring the Connector Attributes

The connector attributes, which enable the adapter to connect to the service desk application, differ according to the service desk application from which you are converting requests.

Note: You must specify the connector attributes separately for each request type included in the adapter configuration file.

This section describes:

➤ "BMC Remedy Action Request System Connector Settings" below

➤ "XML Connector Settings" on page 83

➤ "HP ServiceCenter Connector Settings" on page 84

➤ "HP Service Desk Connector Settings" on page 90

➤ "IT Governance Center Web Services Connector Settings" on page 92

➤ "IT Governance Center RML Connector Settings" on page 94

➤ "Database Connector Settings" on page 96

➤ "Oracle Database Connector Settings" on page 100

BMC Remedy Action Request System Connector Settings

To connect to the BMC Remedy Action Request System service desk application, you must first ensure that certain BMC Remedy Action Request System files are accessible to the HP Change Control Management server.

➤ Copy **arapi50.dll**, **arjni50.dll**, **arrpc50.dll**, and **arutl50.dll** from the BMC Remedy Action Request System installation directory to an arbitrary directory on the HP Change Control Management server machine. Set the **PATH** environment variable to point to this directory.

➤ Copy **arapi50.jar** and **arutil50.jar** from the BMC Remedy Action Request System installation directory to the **<Tomcat server installation directory>\ common\lib** directory.

The following connector attributes must then be configured in the BMC Remedy Action Request System adapter configuration file (by default, **remedy-adapter.settings**):

Property Name	Description	Default Value
connector-type (mandatory)	The logical name of the adapter. This must be set to remedy.	—
serverName (mandatory)	The name of the BMC Remedy Action Request System server.	—
serverTcpPort	The TCP port of the BMC Remedy Action Request System server.	**0**
serverRpcNum	The RPC number of the BMC Remedy Action Request System server.	**0**
userName (mandatory)	The user name with which HP Change Control Management connects to the BMC Remedy Action Request System server.	—
userPassword (mandatory)	The password with which HP Change Control Management connects to the BMC Remedy Action Request System server. Note that the password should be encrypted. For details on encrypting passwords, see Appendix A, "Password Encryption."	—
schemaName (mandatory)	The name of the schema containing the required change requests.	—
field-names (mandatory)	A comma-separated list of request fields to retrieve. Use ***** to collect all request fields.	—

XML Connector Settings

The following XML connector attributes must be configured in the XML adapter configuration file (by default, **demo-xml-adapter.settings**):

Property Name	Description	Default Value
connector-type (mandatory)	This must be set to: xmlFolderWatcher	—
idPropertyName (mandatory)	The property name of the request's ID in each XML file to which service desk application requests are sent.	—
creationDatePropertyName (mandatory)	The property name of the request's **creation-date** value in the XML file. If the **creation-date** is an XML element, use the element's name. For example, you would use the property name **creation-date** for the following: <change-request> <creation-date>01/01/01</creation-date> </change-request> If the **creation-date** is an attribute of the request's XML element, use **@<element name>**. For example, you would use the property name **@creation-date** for the following: <change-request creation-date="01/01/01"> </change-request>	—
dateFormat (mandatory)	The format of the **creation-date** value in the XML file.	—

Property Name	Description	Default Value
directoryName (mandatory)	The path of the shared directory in which the service desk application requests are placed in XML file format.	—
pattern	The file name pattern as a regular expression. For more details, see http://java.sun.com/j2se/1.4.2/docs/api/java/util/regex/Pattern.html	No pattern - all files will be read.

Note: Ensure that the HP Change Control Management user has read permissions to the directory in which the service desk application requests are placed in XML file format.

HP ServiceCenter Connector Settings

The following HP ServiceCenter connector attributes must be configured in the HP ServiceCenter adapter configuration file (by default, **servicecenter-ws-adapter.settings**):

Property Name	Description	Default Value
connector-type (mandatory)	For top-level requests, this must be set to: ServiceCenterChange For second-level requests, this must be set to: ServiceCenterTask	—
idProperty (mandatory)	The property name of the ID field in the instance returned from the HP ServiceCenter Web service.	—

Property Name	Description	Default Value
lastUpdatedPropertyForQuery (mandatory)	The property name of the **last-update** field used to query the HP ServiceCenter Web service (the field name used in an expert search on the HP ServiceCenter client machine).	—
creationDatePropertyForQuery (mandatory)	The property name of the **creation-date** field used to query the HP ServiceCenter Web service.	—
lastUpdatedPropertyForResult (mandatory)	The property name of the **last-update** field in the instance returned from the HP ServiceCenter Web service (usually the field name exposed as API).	—
creationDatePropertyForResult (mandatory)	The property name of the **creation-date** field in the instance returned from the HP ServiceCenter Web service.	—
keyMethodName (mandatory)	The name of the method for request keys (usually the ID field name).	—
timeZone (mandatory)	The HP ServiceCenter server time zone, used for converting the last updated time of a request from HP ServiceCenter. **Note:** To handle Daylight Savings Time, use an area time zone instead of specifying a time relative to GMT.	—

Property Name	Description	Default Value
wsDateFormatPattern (mandatory)	The date format used in the HP ServiceCenter Web service answer. For available formats, see: http://java.sun.com/j2se/1.4.2/docs/api/java/text/SimpleDateFormat.html	—
queryDateFormatPattern (mandatory)	The date format used for querying the HP ServiceCenter system (as used in the UI expert search). For available formats, see: http://java.sun.com/j2se/1.4.2/docs/api/java/text/SimpleDateFormat.html	—
serviceUrl (mandatory)	The Web service URL.	—
userName (mandatory)	The user name with which HP Change Control Management connects to the HP ServiceCenter system.	—
password (mandatory)	The password with which HP Change Control Management connects to the HP ServiceCenter system. Note that the password should be encrypted. For details on encrypting passwords, see Appendix A, "Password Encryption."	—

Note: HP ServiceCenter requests are not always sorted by the last modification or creation date when they are returned, which is necessary in order for the HP ServiceCenter adapter to work correctly. You must therefore apply the following workaround to return HP ServiceCenter requests sorted by the last modification or creation date:

In the HP ServiceCenter database table, under **System definition** > **Tables** > **<request table name>** > **Keys**, click **New** and add a **not null: <last updated field name>** key constraint. Click **New** again, and add a **not null: <creation date>** key constraint.

To verify that the workaround yields the required results, run an expert search by entering a query for requests that are newer than a specific modification or creation date, and ensure that the requests are returned sorted.

Using HP ServiceCenter, you can modify the availability of request fields. Each time you modify these settings, a new WSDL is created and you must regenerate the Web Services stub (**.jar**) file from the new WSDL.

To generate the .jar file:

1 Locate the **create-servicecenter-jar.bat** script in the **<HP Change Control Management installation directory>\utilities\servicecenter-wsdl-generator** directory and activate it using the following command:

create-servicecenter-jar <WSDL URL>

2 Copy the **servicecenter-changeRequestClient.jar** file from the **<HP Change Control Management installation directory>\utilities\servicecenter-wsdl-generator** directory and place it in the **<HP Change Control Management installation directory>\tomcat\webapps\ccm\WEB-INF\lib** directory.

Generating an HP ServiceCenter URL

To be able to link to a change request in HP ServiceCenter from HP Change Control Management, you must configure HP ServiceCenter to provide the URL link. The HP ServiceCenter configuration procedure differs depending on whether HP ServiceCenter is deployed with additional security for URL queries.

Using a Non-Secure Query

If no URL security mechanism is in place, you add the following URL:

```
http://<HP ServiceCenter Web application URL>/index.do?ctx=docEngine
&amp;file=cm3r&amp;query=number=%22%%<request-id%>%%22
```

to the HP ServiceCenter request conversion script, as follows:

```
genericRFC.setField("origin-url", <URL>);
```

When defining the **Value type** of the field from whose display in the Request Details tab you want to link to the original HP ServiceCenter request, you select **Link** and define **%%<request-id%>%** as the **Value format**. For details, see step 4 on page 197.

Using a Secure Query

If a URL security mechanism is in place, the URL query must contain a hash (generated by HP ServiceCenter) that is dependent on both the HP ServiceCenter Web server's name and the query.

To generate a secure URL query:

1 Add a new change request field that contains a URL linking to the change request itself. This configuration should be performed by the HP ServiceCenter administrator.

  a Add the field to requests using **System Definition** > **Tables** > **cm3r/cm3t** > **Fields**.

  b Include the field in the HP ServiceCenter request conversion script so that the field will be included in the requests that are converted to HP Change Control Management.

2 Create a trigger that will generate the URL within this field when a change request is created or modified.

   a Select **Utilities> Tools > Document Engine> Objects**.

   b Locate the **cm3r** object.

   c Add the following to the object table:

```
add: true
update: true
calculation [all in the same row]:
$query="number=\""+number in $file+"\"";$title="Change Request Details";
url in $file=jscall("urlCreator.getURLFromQuery", "cm3r", $query, $title)
```

   d Save your modifications to the object table.

3 Check the exact machine name (**My Computer** > **Properties** > **Computer Name**) and ensure that the exact machine name (which is case-sensitive) is properly defined in the following places:

   ➤ On the HP ServiceCenter client machine, select **Utils > Admin > Info > System Information Record** and click the **Active** tab. Ensure that the Web server URL (http://<Web server name:port>/sc/index.do) is properly defined.

   ➤ In the Web server's **web.xml** file, ensure that the Web server URL is properly defined under the **sc.host** property.

The URL is automatically generated when a change request is created or updated.

Note:

➤ You must regenerate the Web Services stub (**.jar**) file from the new WSDL as described above.

➤ Map the URL field you created to an HP Change Control Management field in the HP ServiceCenter conversion script. In HP Change Control Management, define the **Value type** of this field as **Link** and define **%%<request-id%>%** as the **Value format**. (For details, see "Valid Field Value Formats" on page 202.)

HP Service Desk Connector Settings

The following HP Service Desk connector attributes must be configured in the HP Service Desk adapter configuration file (by default, **hpsd-adapter.settings**):

Property Name	Description	Default Value
connector-type (mandatory)	For top-level requests, this must be set to: hpsdChange For second-level requests, this must be set to: hpsdWorkOrder	—
idProperty (mandatory)	The property name of the ID field in the instance returned from HP Service Desk.	—
lastUpdatedProperty (mandatory)	The property name of the **last-update** field.	—
createdProperty (mandatory)	The property name of the **creation-date** field.	—

Property Name	Description	Default Value
serviceUrl (mandatory)	The URL of the Web service. Format: [<HP Service Desk server IP address>:<HP Service Desk server port>] **Note:** The server port is generally 30999	—
userName (mandatory)	The user name with which HP Change Control Management connects to HP Service Desk.	—
password (mandatory)	The password with which HP Change Control Management connects to HP Service Desk. Note that the password should be encrypted. For details on encrypting passwords, see Appendix A, "Password Encryption."	—

IT Governance Center Web Services Connector Settings

This section describes how to connect to the IT Governance Center Web Services service desk application.

To connect to the IT Governance Center Web Services service desk application:

1 Copy the following files to: **<HP Change Control Management installation directory>\tomcat\webapps\ccm\WEB-INF\classes**

➤ If you are working with IT Governance Center 6.x, copy the **<HP Change Control Management installation directory>\examples\service-desk-examples\itg-ws-adapter.ext\itg6\itg-wss-config.wsdd** file.

➤ If you are working with IT Governance Center 7.0, copy the **<HP Change Control Management installation directory>\examples\service-desk-examples\itg-ws-adapter.ext\itg7\itg-wss-config.wsdd** file.

2 In the **<HP Change Control Management installation directory>\examples\service-desk-examples\itg-ws-adapter.ext** directory:

➤ Modify the LINK variable in both scripts to point to your IT Governance Center server.

➤ Modify both scripts to use the IT Governance Center tokens that are relevant to your IT Governance Center request types.

3 For each change request level (top-level and second-level), the following connector attributes must be configured in the IT Governance Center Web Services adapter configuration file (by default, **itg-ws-adapter.settings**):

Property Name	Description	Default Value
connector-type (mandatory)	This must be set to: itg	—
requestTypeName (mandatory)	The name of the IT Governance Center request type to be retrieved. Note that this field is case-sensitive.	—

Property Name	Description	Default Value
parentRequestTypeName (mandatory, if the request is a second-level requests with a parent request)	The name of the IT Governance Center parent request type to be retrieved, if the request is a second-level request (meaning it has a parent request associated with it).	—
username (mandatory)	The user name with which HP Change Control Management connects to IT Governance Center.	—
password (mandatory)	The password with which HP Change Control Management connects to IT Governance Center. Note that the password should be encrypted. For details on encrypting passwords, see Appendix A, "Password Encryption."	—
serviceUrl (mandatory)	The URL of the IT Governance Center Web service.	—

4 Add a new change request field named **mam-ticket-id** of type **text**. Apply the analysis rule **mam-ticket** to this field with the analysis rule level set to **All**.

For information about creating new change request fields and applying analysis rules, see "Creating or Modifying Change Request Fields" on page 193.

IT Governance Center RML Connector Settings

To work with the IT Governance Center RML adapter, you must first enable RML. For details on enabling RML when working with IT Governance Center, refer to the IT Governance Center documentation.

The following connector attributes must then be configured in the IT Governance Center RML adapter configuration file (by default, **itg-rml-adapter.settings**):

Property Name	Description	Default Value
connector-type (mandatory)	This must be set to: rmlItgConnector	—
dbUrl (mandatory)	The URL of the IT Governance Center database.	—
userName (mandatory)	The user name with which HP Change Control Management connects to the IT Governance Center database. **Note:** The HP Change Control Management user should have read permissions to the database schema.	—
password (mandatory)	The password with which HP Change Control Management connects to the IT Governance Center database. Note that the password should be encrypted. For details on encrypting passwords, see Appendix A, "Password Encryption."	—
driverClassName	The name of the JDBC driver. Ensure that the driver exists in the **<Tomcat server installation directory>\common\lib** directory.	**oracle.jdbc. OracleDriver**

Property Name	Description	Default Value
sqlQueryByLastUpdate (mandatory)	The SQL query that returns the change request set according to the requests' **last-update** field values. **Note:** SQL queries must have one parameter which is the **last-update** field value. Query results must be sorted according to the **last-update** values.	—
sqlQueryByCreationDate (mandatory)	The SQL query that returns the change request set according to the requests' **creation-date** field values. **Note:** SQL queries must have one parameter which is the **creation-date** field value. Query results must be sorted according to the **creation-date** values.	—
lastUpdatedFieldName	The name of the column in the result set that contains the **last-update** field value.	**LAST_UPDATE_ DATE**
lastUpdatedFieldType	One of the following values: **time**, **timestamp**, **date**, **milliseconds**, or **seconds**	**timestamp**
creationDateFieldName	The name of the column in the result set that contains the **creation-date** field value.	**CREATION_ DATE**
creationDateFieldType	One of the following values: **time**, **timestamp**, **date**, **milliseconds**, or **seconds**	**timestamp**
idFieldName	The name of the column in the result set that contains the ID field value.	**REQUEST_ ID**

Property Name	Description	Default Value
dbHelper-class-name	The class name used for the db helper.	**com.mercury. onyx.sdi.sdk. db. DBHelperImpl**
connectionProperties	The IT Governance Center database properties, in java.util.Properties format. For example: key1=value1; key 2=value2	**oracle.jdbc.V8 Compatible= true**
connectionPoolProperties	The IT Governance Center database pool connection properties, in java.util.Properties format. For possible values, see: http://www.mchange.com/projects/ c3p0/index.html	—
maxRowsToReturn	A limitation on the number of rows a request query should return. Not currently for use.	The working bulk size set in the adapter.

Database Connector Settings

The following database connector attributes must be configured in the appropriate database adapter configuration file:

Property Name	Description	Default Value
connector-type (mandatory)	This must be set to: dbConnector	—
dbUrl (mandatory)	The URL of the database.	—
userName (mandatory)	The user name with which HP Change Control Management connects to the database.	—

Property Name	Description	Default Value
password (mandatory)	The password with which HP Change Control Management connects to the database. Note that the password should be encrypted. For details on encrypting passwords, see Appendix A, "Password Encryption."	—
driverClassName (mandatory)	The name of the JDBC driver. Ensure that the driver exists in the **<Tomcat server installation directory>\common\lib** directory.	—
sqlQueryByLastUpdate (mandatory)	The SQL query that returns the change request set according to the requests' **last-update** field values. To make use of a stored procedure, use the following syntax: { call <procedure_name> (?) } **Note:** Both SQL queries and stored procedures must have one parameter which is the **last-update** field value. Query results must be sorted according to the **last-update** values.	—

Property Name	Description	Default Value
sqlQueryByCreationDate (mandatory)	The SQL query that returns the change request set according to the requests' **creation-date** field values. To make use of a stored procedure, use the following syntax: { call <procedure_name> (?) } **Note:** Both SQL queries and stored procedures must have one parameter which is the **creation-date** field value. Query results must be sorted according to the **creation-date** values.	—
lastUpdatedFieldName (mandatory)	The name of the column in the result set that contains the **last-update** field value.	—
lastUpdatedFieldType (mandatory)	One of the following values: **time**, **timestamp**, **date**, **milliseconds**, or **seconds**	—
creationDateFieldName (mandatory)	The name of the column in the result set that contains the **creation-date** field value.	—
creationDateFieldType (mandatory)	One of the following values: **time**, **timestamp**, **date**, **milliseconds**, or **seconds**	—
idFieldName (mandatory)	The name of the column in the result set that contains the ID field value.	—
dbHelper-class-name	The class name used for the db helper.	**com.mercury. onyx.sdi.sdk. db. DBHelperImpl**

Property Name	Description	Default Value
connectionProperties	The database properties, in java.util.Properties format. For example: key1=value1; key 2=value2	Empty properties
connectionPoolProperties	The database pool connection properties, in java.util.Properties format. For possible values, see: http://www.mchange.com/projects/c3p0/index.html	—
maxRowsToReturn	A limitation on the number of rows a request query should return. Not currently for use.	The working bulk size set in the adapter.

Note: A sample database adapter configuration file, **sample-db-adapter.settings**, is available in the **<HP Change Control Management installation directory>\examples\service-desk-examples** directory.

Oracle Database Connector Settings

The Oracle database connector attributes are identical to the above database connector attributes, except for the following:

Property Name	Description	Default Value
connector-type (mandatory)	This must be set to: oracleDbConnector	—
sqlQueryByLastUpdate (mandatory)	The SQL query that returns the change request set according to the requests' **last-update** field values. To make use of a stored procedure, use the following syntax: { ? = call <procedure_name> (?) } **Note:** Both SQL queries and stored procedures must have one parameter which is the **last-update** field value. Query results must be sorted according to the **last-update** values. Stored procedures should return a **REF CURSOR** type.	—

Property Name	Description	Default Value
sqlQueryByCreationDate (mandatory)	The SQL query that returns the change request set according to the requests' **creation-date** field values. To make use of a stored procedure, use the following syntax: { ? = call <procedure_name> (?) } **Note:** Both SQL queries and stored procedures must have one parameter which is the **creation-date** field value. Query results must be sorted according to the **creation-date** values. Stored procedures should return a **REF CURSOR** type.	—
dbHelper-class-name	The class name used for the db helper.	**com.mercury. onyx.sdi.sdk.db. OracleDB ConnectorHelper**

Note: A sample Oracle database adapter configuration file, **sample-db-oracle-adapter.settings**, is available in the **<HP Change Control Management installation directory>\examples\service-desk-examples** directory.

Configuring the Converter Attributes

The converter attributes, which call the conversion script files where the field mapping and filter functions are defined, must be configured separately for each request type included in the adapter configuration file.

You configure the following converter attributes in the adapter configuration file:

Property Name	Description	Default Value
converter-type (mandatory)	This must be set to: scriptConverter	—
scripts (mandatory)	A comma-separated list of script file names. The adapter searches for these files in the adapter's extension subdirectory (**conf\<adapter name>.ext**) or in the **conf** directory. For examples of conversion script files, see the sample scripts in the **<HP Change Control Management installation directory>\examples\service-desk-examples** directory.	—
preFilterMethodName	The name of the pre-filter method in the script.	**preFilter**
postFilterMethodName	The name of the post-filter method in the script.	**postFilter**
convertMethodName	The name of the convert method in the script.	**convert**

Note: If you specify method names, conversion script files can be shared by multiple adapters.

Writing the Conversion Scripts

Conversion scripts are responsible for the field mapping that occurs during the conversion of change requests from their service desk application format to a generic format, as well as for the filtering of requests.

Note: Ensure that no line within a script exceeds 256 characters.

In particular, it is important that the conversion scripts contain a detailed mapping scheme for the service desk application enumeration fields. Note that each HP Change Control Management enumeration field appears by default in the conversion scripts in the following format (upper case letters):

```
<enumeration field type>_<HP Change Control Management enumeration name>
```

For example:

```
genericRFC.setField("priority",PRIORITY_HIGH);
```

If a script refers to an enumeration field that does not exist, an error message will be recorded in the script log file.

For details on customizing the HP Change Control Management enumeration fields to which the service desk application enumeration fields can be mapped, see "Customizing HP Change Control Management Fields" on page 70.

The functions that each script must contain are explained in detail below. For an explanation of the objects that can or should be included in each function, refer to the **GenericTicketImpl** class in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.

➤ **convert.** This function maps the fields of the service desk application to generic request fields. Below is an example of the **convert** function:

```
convert(remedyRFC, genericRFC)
```

> **Note:** For a list of preconfigured change request fields included in HP Change Control Management, see Appendix C, "Preconfigured Change Request Fields."

➤ **preFilter.** This function filters the change requests before they are converted, ensuring that no unnecessary requests are converted and sent to the HP Change Control Management server. The function is written using the terminology of the service desk application. For example, if you do not want to convert requests with a **Low** priority, you could use the following **preFilter** function. This function specifies that BMC Remedy Action Request System requests with a **Low** priority not be converted and that all other requests be converted:

```
function preFilter(remedyRFC){
 if (remedyRFC.get("Request Urgency")==ARS_PRIORITY_LOW)
     return false;
 else
     return true;
```

➤ **postFilter.** This function filters the converted requests, ensuring that only required requests are transferred to the HP Change Control Management server. The function is written using HP Change Control Management request terminology. For example, the following **postFilter** function specifies that only generic requests with the status **Approved** be transferred to the HP Change Control Management server:

```
function postFilter(genericRFC){
 ccmStatus==genericRFC.get("status");
 if (ccmStatus==STATUS_APPROVED)
     return true;
 else
     return false;
```

Notes:

➤ If you are converting requests from IT Governance Center, IT Governance Center RML, or a database service desk application, refer to all column names using lower case letters.

➤ If you are converting requests from BMC Remedy Action Request System, IT Governance Center RML, or a database service desk application, it is recommended that you optimize network load and space consumption by converting only necessary request columns. Specify these columns in your SELECT query or using the relevant connector property.

➤ You can use logging objects in the conversion scripts to log statements from the request conversion process. For details, see "Conversion Script Log Files" below.

Conversion Script Log Files

If you want to view log messages describing the activity taking place during the request conversion process, you can include logging objects in your conversion scripts. During the conversion process, you can view the log messages in the conversion script log files, located in the **<HP Change Control Management installation directory>\script-logs** directory.

A logging object can be included within any of the script functions. Its syntax should be as follows:

```
logger.<type of message>("<log message>");
```

The following message types can be used:

➤ **info.** Records all processing activity that is performed.

➤ **warn.** Records warning messages.

➤ **error.** Records error messages.

For example, you can include a logging object such as the following:

```
logger.info("converting request #3001");
```

If you want the conversion script log files to display a list of all service desk application fields, you can include the following logging object in your conversion script:

```
logger.info(BeanUtils.describe(ticket));
```

If you use the above logging object, ensure that the following line is included at the top of the conversion script:

```
importPackage(Packages.org.apache.commons.beanutils);
```

6

Configuring the Processing of Requests

This chapter describes how to configure the collection of converted change requests, the analysis of collected requests, the calculation of impact analysis, risk analysis, and time period compliance for the requests, the calculation of collisions between requests, the automatic creation of action items, the sending of notifications, the discovery of actual changes to your environment, and the use of the pre- and post-change request processing functions.

About the Processing of Requests

The processing of converted, generic requests by HP Change Control Management involves the following stages:

➤ **Collecting generic requests**

The HP Change Control Management server collects the converted, generic requests according to the collection frequency you specify. For details on configuring the frequency with which HP Change Control Management collects converted requests, see "Configuring the Collection of Converted Requests" on page 110.

➤ **Analyzing the collected requests**

To analyze the collected requests, HP Change Control Management must identify the location and format of the CIs contained in the requests, using specific analysis rules. For details on configuring the analysis rules you want HP Change Control Management to use, see "Configuring the Analysis of Collected Requests" on page 110.

➤ **Calculating impact analysis for the requests**

HP Change Control Management calculates the impact of the CIs identified in the collected requests according to a calculation rule that you configure. For details on configuring a calculation rule that determines the point or points at which an impact analysis is performed, see "Configuring the Impact Analysis of Collected Requests" on page 112.

➤ **Automatically creating action items from change requests**

HP Change Control Management automatically creates action items from change requests and assigns these items to certain HP Change Control Management users. For details on this feature, see "Configuring the Automatic Creation of Action Items" on page 114.

➤ **Sending notifications to users associated with affected applications**

You can configure HP Change Control Management to send notifications to users who are associated with certain affected applications. For details on formatting the notification content and configuring the circumstances under which HP Change Control Management sends notifications, see "Configuring Notifications" on page 115.

➤ **Calculating risk analysis for the requests**

HP Change Control Management calculates the risk involved in the implementation of each request based on risk factors that you define and the risk calculation properties that you configure. For details on defining risk factors and configuring risk calculation properties, see "Configuring Risk Analysis" on page 121.

➤ **Calculating time period compliance for the requests**

HP Change Control Management calculates the compliance of change requests with the rules pertaining to the time period categories in which the requests fit. For details on defining time period categories and rules that pertain to these categories, see "Configuring Time Period Settings" on page 130.

➤ **Calculating request collisions**

HP Change Control Management identifies and calculates collisions between requests according to properties that you define, for the requests that you instruct HP Change Control Management to include in the collision calculation. For details on configuring HP Change Control Management's collision calculations, see "Configuring Collisions" on page 137.

In addition, if you are working with Mercury Application Mapping 6.5 or later, you can configure Mercury Application Mapping to periodically discover actual changes to your environment and send data about these changes to HP Change Control Management. For details on configuring this feature, see "Configuring Latent and Detected Changes" on page 146.

You can also use the **preChangeProcess** and **postChangeProcess** functions to calculate certain pre-change request processing or post-change request processing factors. For details, see "Using the Pre- and Post-Change Request Processing Functions" on page 153.

Configuring the Collection of Converted Requests

After change requests have been converted from their original service desk application formats to a standard, generic format, they can be processed by HP Change Control Management. By default, HP Change Control Management collects the converted requests for processing every 30 seconds. To modify the request collection frequency, you must change the value in the following line of the **<HP Change Control Management installation directory>\conf\change-flow.settings** file:

```
<change-collection-freq>30</change-collection-freq>
```

Configuring the Analysis of Collected Requests

To analyze the impact of the collected change requests, HP Change Control Management must first identify the location and format of the CIs contained in the requests, using specific analysis rules. You specify the analysis rules you want HP Change Control Management to use in the **<rfc-analysis-rules>** section of the **<HP Change Control Management installation directory>\conf\change-flow.settings** file.

Each analysis rule contains the following elements:

➤ **name.** The name of the CIT that you want HP Change Control Management to locate in the collected requests, as well as the logical name of the analysis rule that can be referenced in the field settings (for details, see step 4 on page 200). The name of the CIT must appear as it is defined in the **<HP Change Control Management installation directory>\conf\mam-integration.settings** file.

Note: The **ip-range** analysis rule is an exception to the above specifications, as it corresponds to the **ip** CIT in Mercury Application Mapping.

➤ **pattern.** The format in which the CI appears within the collected requests. HP Change Control Management searches for the CI according to the pattern you define using regular expressions. For details on working with regular expressions, refer to the following URL:
http://java.sun.com/j2se/1.4.2/docs/api/java/util/regex/Pattern.html

You define a pattern using the following two elements:

➤ **match-pattern.** Defines the pattern of the CI, using regular expressions.

➤ **ci-backreferences.** Specifies the exact part of the pattern in which the CI is located, using regular expressions. A value of 1 is used to specify the first group in the pattern, a value of 2 is used to specify the second group in the pattern, and so forth. A value of 0 instructs HP Change Control Management to use the entire pattern in locating the CI.

Note: An analysis rule can have multiple patterns. For example:

```
<rfc-analysis-rule>
      <name>host</name>
      <patterns>
          <pattern>
              <match-pattern>([a-zA-Z][\w-]*)([.][a-zA-Z][\w-]*)*</match-pattern>
              <ci-backreferences>0,1</ci-backreferences>
          </pattern>
          <pattern>
              <match-pattern>IL-([a-zA-Z][\w-]*)</match-pattern>
              <ci-backreferences>0</ci-backreferences>
          </pattern>
      </patterns>
</rfc-analysis-rule>
```

By default, the **change-flow.settings** file contains analysis rules for the **host**, **ip**, and **ip-range** CITs. In addition, there are two predefined, built-in analysis rules that can be used when your service desk application is synchronized with the CMDB server. The **cmdb-object-id** analysis rule locates CIs using the IDs of Mercury Application Mapping CIs. The **mam-ticket** analysis rule locates CIs using change request IDs.

You apply these analysis rules to change request fields in the Administration module's Fields tab. For more information about applying analysis rules, see step 4 on page 200.

Configuring the Impact Analysis of Collected Requests

You use the **shouldCalcImpact** function within the **<HP Change Control Management installation directory>\conf\scripts.ext\change-flow.js** script to configure the rules that determine the points at which HP Change Control Management calculates the impact of the CIs identified in the collected requests.

By default, the **shouldCalcImpact** function instructs HP Change Control Management to compare each new request of a specified status to the version of the request that was previously collected and, if changes were made to fields in which CIs are located, calculate the impact of the request.

```
function shouldCalcImpact (prevChangeInfo, changeInfo)
{
 status= changeInfo.getField("status");
 shouldCalc= (status==STATUS_ASSIGNED || status==STATUS_PENDING_APPROVAL ||
status==STATUS_APPROVED || status==STATUS_CLOSED ||
status==STATUS_IN_PROGRESS);

 shouldCalc= shouldCalc && !(changeInfo.isAnalysisRulesEqual(prevChangeInfo));

 return shouldCalc;
}
```

Alternatively, if you want HP Change Control Management to perform an impact analysis as a result of changes in request status and to exclude requests that are new from its impact calculation, you could customize the **shouldCalcImpact** function as follows:

```
function shouldCalcImpact (prevChangeInfo, changeInfo)
{
 ccmStatus==changeInfo.get("status");
 if (ccmStatus==STATUS_NEW)
      return false;
 else
      return true;

}
```

For a detailed explanation of the objects that can be included in this function, refer to the **GenericRFC** class in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.

In the **<impact-calculation>** section of the **change-flow.settings** file, you can specify whether the impact of CIs in tasks (second-level requests) should be calculated separately from the changes to which the tasks belong, or be included in the impact analysis of the tasks' respective changes. By default, an impact analysis of a task will trigger an impact analysis for the change with which it is associated, and the changed CIs of a task are included in the changed CI list of the task's parent change. To modify this, change the value in the following line to **false**:

```
<aggregate-cis>true</aggregate-cis>
```

Configuring the Automatic Creation of Action Items

By default, HP Change Control Management automatically creates action items from certain change requests and assigns these items to specific HP Change Control Management users. You can modify the conditions for the automatic creation of action items in the <**HP Change Control Management installation directory**>**conf\scripts.ext\change-flow.js** script, using the **addActionItemsOnChange** function.

By default, the **addActionItemsOnChange** function instructs HP Change Control Management to compare each new change request (that is not a surrogate request) of a specified status to the version of the request that was previously collected. If the impact severity of a change was equal or greater than a specified severity and the calculated risk increased beyond a specified threshold, HP Change Control Management is instructed to create an action item for the users associated with the applications affected by the change request.

```
function addActionItemsOnChange(prevChange, newChange, actionItemsContext){
 if(prevChange != null || newChange.getChangeCategory() ==
CHANGECATEGORY_SURROGATE) return;

 statusIsPendingApproval = newChange.getField("status") == STATUS_PENDING_APPROVAL;
 threshold = 0;
 riskAboveThreshold = (newChange.getField("calculated-risk") > threshold);

 if(statusIsPendingApproval && riskAboveThreshold){
     users = newChange.getAffectedUsersAboveSeverityAsArray(SEVERITY_LOW);
     for(i=0; i<users.length; i++){
         assignee = users[i];
         actionItem = newChange.createActionItem(assignee);
         actionItem.setCreator("ccmadmin");
         actionItem.setAutoClose(true);
         actionItem.setDeadlineTimeStamp(newChange.getField("planned-start-time"));
         actionItem.setActionItemPriority(ACTIONITEMPRIORITY_NORMAL);
         actionItem.setSubject("Please check the impact on this change from your side");
         actionItemsContext.addActionItem(actionItem);
     }
 }
}
```

By default, the following properties are assigned to the action item:

➤ assignee = the user associated with the applications affected by the change request

➤ creator = the HP Change Control Management administrator

➤ due date = the planned start time of the new change request

➤ priority = normal

For an explanation of the objects that can be used in the **addActionItemsOnChange** function, refer to the **GenericRFC** class in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.

Configuring Notifications

By default, only automatic e-mail notifications and not customized notifications are sent by HP Change Control Management. It is recommended, however, that you configure notifications to be sent to users who do not regularly work with HP Change Control Management and are therefore unlikely to view and monitor action items that are created as a result of an impact analysis. Using customized e-mail notifications, you can inform these users of change requests that negatively affect the applications with which they are associated. You define the circumstances under which customized notifications should be sent as well as the notification recipients in the **<HP Change Control Management installation directory>\conf\ scripts.ext\change-flow.js** script, using the **getUsersToNotify** function.

You configure the format of the notifications being sent in the FTL files located in the **<HP Change Control Management installation directory>\ conf\notifications.ext** directory. You enable/disable the notification feature and configure other notification properties in the **<notifications>** section of the **<HP Change Control Management installation directory>\conf\change-flow.settings** file.

This section includes the following topics:

➤ "Configuring Notification Rules" below

➤ "Configuring the Format of Notifications" on page 118

➤ "Configuring Other Notification Properties" on page 121

Configuring Notification Rules

You use the **getUsersToNotify** function in the **<HP Change Control Management installation directory>\conf\scripts.ext\change-flow.js** script to define the following:

➤ the circumstances under which notifications should be sent

➤ the recipients of the notifications

➤ the content of the notification messages

When enabled, the **getUsersToNotify** function, by default, instructs HP Change Control Management to compare each new change request of a specified status to the version of the request that was previously collected and ascertain whether the calculated risk increased beyond a specified threshold.

```
function getUsersToNotify(prevChange, newChange, notificationContext) {


    statusIsPendingApproval = (newChange.getField("status") ==
                    STATUS_PENDING_APPROVAL);

    message = "";
    riskStatusStr = "is ";

    riskIncreased = true;

    if (prevChange != null) {
        riskIncreased = (newChange.getField("calculated-risk") >
                    prevChange.getField("calculated-risk"));
        if (riskIncreased) {
            riskStatusStr = "has increased to ";
        }
    }

    threshold = 0;
    riskAboveThreshold = (newChange.getField("calculated-risk") > threshold);
```

Note: For details on risk calculations, see "Configuring Risk Analysis" on page 121.

If the calculated risk did increase beyond the specified threshold, the default version of the **getUsersToNotify** function instructs HP Change Control Management to notify all the users associated with the affected applications whose impact severity level exceeded the specified level.

```
if (statusIsPendingApproval && riskIncreased && riskAboveThreshold) {
message = "The current status of the request is " +
        newChange.getField("status").name +
        " and the calculated risk level of the request " +
        riskStatusStr +
        " " +
        newChange.getField("calculated-risk") +
        ".";
notificationContext.addUsers(newChange.getAffectedUsersAboveSeverity(SEVERITY_LOW));
```

If there are no users associated with these applications, the default version of the **getUsersToNotify** function instructs HP Change Control Management to notify the administrator.

```
} else {
notificationContext.addUsersByRole("Administrator");
message = "HP Change Control Management has not identified specific users that" +
        "will be notified regarding this request. " +
        "You are receiving this notification due to your role" +
        "as an HP Change Control Management administrator.\n" +
        message;
}
```

For an explanation of the objects that can be used in the **getUsersToNotify** function, refer to the **notificationContext** and **GenericRFC** classes in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.

Configuring the Format of Notifications

You configure the format of the notifications that HP Change Control Management sends in the **ftl** files, located in the **<HP Change Control Management installation directory>\conf\notifications.ext** directory.

➤ **mailSubject.ftl.** Defines the subject line of a notification e-mail. By default, HP Change Control Management displays **<request-id> – <request summary>** (for example, **C-10020 – Upgrade database server**) as the subject line of the notification.

➤ **mailbody-text.ftl.** Defines the content of a notification sent in text format.

➤ **mailbody-html.ftl.** Defines the content of a notification sent in HTML format.

➤ **user-mailbody-text.ftl.** Defines the content of the e-mail that a user sends by clicking the **Send E-Mail** button in the Change Requests pane.

➤ **user-mailbody-html.ftl.** Defines the content of the e-mail (in HTML format) that a user sends by clicking the **Send E-Mail** button in the Change Requests pane.

➤ **free-text-only-html.ftl.** Defines the content of the e-mail (in HTML format) that a user sends by clicking the **Send E-Mail** button in the Collaboration tab's Discussion view.

➤ **free-text-only-text.ftl.** Defines the content of the e-mail that a user sends by clicking the **Send E-Mail** button in the Collaboration tab's Discussion view.

➤ **user-action-item-html.ftl.** Defines the content of the e-mail (in HTML format) that a user sends by clicking the **Forward by E-Mail (FYI)** button in the Action Items pane.

➤ **user-action-item-text.ftl.** Defines the content of the e-mail that a user sends by clicking the **Forward by E-Mail (FYI)** button in the Action Items pane.

➤ **subscribe-ai-modified-htmlbody.ftl.** Defines the content of the e-mail (in HTML format) sent to a user who subscribed to receive notification of updates to an action item.

➤ **subscribe-ai-modified-textbody.ftl.** Defines the content of the e-mail sent to a user who subscribed to receive notification of updates to an action item.

➤ **subscribe-ai-modified-subject.ftl.** Defines the subject line of the e-mail sent to a user who subscribed to receive notification of updates to an action item.

➤ **subscribe-cr-modified-htmlbody.ftl.** Defines the content of the e-mail (in HTML format) sent to a user who subscribed to receive notification of updates to a change request.

➤ **subscribe-cr-modified-textbody.ftl.** Defines the content of the e-mail sent to a user who subscribed to receive notification of updates to a change request.

➤ **subscribe-cr-modified-subject.ftl.** Defines the subject line of the e-mail sent to a user who subscribed to receive notification of updates to a change request.

By default, the above files make use of the following HP Change Control Management objects:

Object	Description
notificationRuleSummary	References the message included in the **change-flow.js** script's **getUsersToNotify** function explaining why the user is receiving a notification.
freeTextBody	The text entered by the user when sending an e-mail from the Change Requests pane of the HP Change Control Management application.
ScriptingActionItem	The action item object for which the notification is being sent. Using this object, you can reference all of the action item properties. For details of the methods that can be used for this object, refer to the **ScriptingActionItem** class in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.
request	The request object for which the notification is being sent. Using this object, you can reference all of the request fields. For details of the methods that can be used for this object, refer to the **GenericRFC** class in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.
affectedCIs	Returns a list of the CIs that are impacted by a change request.

Object	Description
viewCis	Returns information about CIs in the context of an impact analysis of a specific change request. For details of the methods that can be used for this object, refer to the **CI** class in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.
affectedViews	Returns a list of the applications that are impacted by a change request.
viewInfo	Returns information about applications that are associated with the affected user(s), in the context of an impact analysis of a specific change request. For details of the methods that can be used for this object, refer to the **ViewInfo** class in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.

Notes:

➤ The FTL files are written using FreeMarker syntax. For details on using FreeMarker, refer to http://freemarker.sourceforge.net/docs/index.html.

➤ For a detailed explanation of the objects that can be used in the FTL files, refer to the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.

➤ The HP Change Control Management fields that can be used in the FTL files are those that are defined in the Fields tab of the Administration module. For more information, see "Configuring Change Request Field Settings" on page 191.

Configuring Other Notification Properties

By default, the notification feature is enabled. You can disable this feature and modify the notification sender and frequency in the **<notifications>** section of the **<HP Change Control Management installation directory>\ conf\change-flow.settings** file.

To disable the HP Change Control Management notification mechanism:

Change the value of the **<send-notification-email-enabled>** element to **false**. When you change the value of this element, no notifications are sent by HP Change Control Management.

To modify the notification sender:

Enter a different value for the **<notification-sender-email>** element.

To modify notification frequency:

Change the value of the **<send-notifications-frequency>** element (in seconds) as required.

Configuring Risk Analysis

HP Change Control Management performs risk analysis on each change request, enabling change managers to compare change requests in terms of the risks involved in their implementation. This section includes the following topics:

➤ "Understanding Risk Analysis" below

➤ "Example of Risk Analysis Calculation" on page 123

➤ "Defining Risk Factors" on page 126

➤ "Configuring Risk Calculation Properties" on page 128

Understanding Risk Analysis

For each change request, HP Change Control Management calculates a relative risk value using the following formula:

Calculated Risk = **Potential Damage** x **Probability of Failure**

where:

➤ **Calculated Risk** is a relative value between 0 and 100, with a higher number indicating a higher relative level of risk. The risk value does not reflect an objective, universal risk level. Rather, it indicates the risk level of the selected change request relative to the other change requests.

➤ **Potential Damage** represents the potential damage that may result from the implementation of the requested change. Potential Damage is calculated as a weighted value between 0 and 10, with a higher number indicating a higher degree of damage.

➤ **Probability of Failure** represents the probability that the implementation of the change request will fail to some degree and cause possible damage as a result. Probability of Failure is calculated as a weighted value between 0 and 10, with a higher number indicating a higher probability of failure.

Potential Damage and Probability of Failure are calculated based on risk factors that are defined by the HP Change Control Management administrator during the configuration process.

For example, the administrator could define a Probability of Failure risk factor called **New_technology**, which reflects the amount of time that the technology involved in the change request has been used in the organization.

As part of creating a new risk factor, the administrator defines the source of the data (for example, a field in the integrated service desk application), defines mapping rules that translate the source data into factor values between 0 and 10, and assigns a weight to the factor.

The administrator can also define override rules for the risk calculation. For example, the administrator can determine that if the change request involves a technology that is new to the organization, the risk level is automatically set at 100, regardless of the actual risk calculation.

Example of Risk Analysis Calculation

This section provides a detailed example of the process involved in calculating the risk value for change requests.

During the configuration process, the HP Change Control Management administrator defines a risk factor called **New_technology.** This will be one of the factors used to measure Probability of Failure for every change request processed by HP Change Control Management.

The data source for the New_technology risk factor is a required field in the integrated service desk application, which reads as follows: **How long (in months) has the technology involved in this change been used in your organization?** Accepted values are any number between 1 and 36.

The administrator assigns the following mapping rules for the New_technology risk factor that translate the source data into factor values between 0 and 10:

Original Data (Range)	Factor Score
1-12 months	10
12-24 months	5
24-36 months	0

For example, if the technology was introduced 18 months ago, the New_technology risk factor receives a score of 5.

The administrator assigns a weight of 4 to the New_technology risk factor.

The administrator then defines three more risk factors to measure Probability of Failure. The following table summarizes the Probability of Failure risk factors defined by the administrator and their assigned weights:

Factor Name	Weight
New_technology	4
QA_approval	8
Affected_CIs	6

Factor Name	Weight
Duration_of_change	2
	Total weight = 20

After defining the risk factors used to measure Probability of Failure for each change request, the administrator performs the same process to define a separate set of risk factors that will be used to measure Potential Damage for each change request.

Now assume that a particular change request involving a fairly new technology is processed by HP Change Control Management and receives the following Probability of Failure risk factor scores:

Factor Name	Factor Score
New_technology	10
QA_approval	4
Affected_CIs	2
Duration_of_change	0

HP Change Control Management calculates a weighted value for each factor using the following formula:

Weight/Total Weight x Score = Weighted Value

where:

➤ **Weight** is the weight assigned to the risk factor during the HP Change Control Management configuration process.

➤ **Total Weight** is the sum of all the weights assigned the risk factors.

➤ **Score** is the score of the risk factor as translated from the source data. The mapping used to translate source data into a score is defined during the HP Change Control Management configuration process.

Substituting the values for the New_technology risk factor (Weight=4, Total Weight=20, Factor Score=10) into this formula, you arrive at a weighted value of 2:

```
4/20 x 10 =2
```

Weighted values are calculated for all the Probability of Failure risk factors as illustrated below:

Factor Name	Factor Score	Weight	Weighted Value
New_technology	10	4	2
QA_approval	4	8	1.6
Affected_CIs	2	6	0.6
Duration of Change	0	2	0
		Total weight=20	**Probability of Failure=4.2**

The Probability of Failure score is the sum of all the weighted values and amounts to 4.2, as illustrated in the above table.

Using the same method (with separately defined risk factors), the Potential Damage score is calculated and amounts to 5.

The final risk score, calculated using the original risk analysis formula, amounts to 21:

```
Probability of Failure (4.2) X Potential Damage (5) = Calculated Risk (21)
```

As illustrated in this example, the final risk score for the change request incorporates all the risk factors which influence both the probability of failure and the potential damage of this change request.

Defining Risk Factors

You use the Administration module's Risk Factors tab to define risk factors to be used in the risk calculation. The Risk Factors tab is divided into the following sections:

➤ **Factors table.** Contains a list of the available risk factors. When you select a risk factor in the table, the definitions of that risk factor are displayed in the Factor Definition pane. For a risk factor to be included in the risk calculation, the check box next to the risk factor must be selected.

➤ **Factor weight distribution pie chart.** Displays the weight of each factor in the risk calculation.

➤ **Factor Definition pane.** You define the properties of each risk factor in this pane.

➤ **Mapping Definition section.** You define mapping rules for the selected risk factor that translate the source data into factor values between 0 and 10.

To modify or create a risk factor:

1 Above the Factors table, select either the **Damage Factors** or **Failure Probability** tab, depending on the type of risk factor you want to create or modify.

2 Select an existing risk factor from the Factors table, or click the **Add Factor** button to create a new risk factor.

3 Define or modfiy the following risk factor properties in the Factor Definition pane:

Property	Description
Name	The name of the risk factor. This is the name displayed in the Change Analysis module's Risk tab.
Description	A description of the risk factor to be displayed in the Potential Damage or Probability of Failure section of the Change Analysis module's Risk tab.
Weight	The relative weight of the risk factor to be used in the risk calculation.

Property	Description
Source	You can choose one of the following sources of data: ➤ **Field.** A specific change request field whose data originates in the service desk application. ➤ **Planned Duration (Hours).** The planned duration of the change request (from the planned start to the planned end). This is calculated by HP Change Control Management. ➤ **Number of CCIs.** The number of CIs that will be directly affected as a result of the change request. This is calculated by HP Change Control Management. ➤ **Importance of directly affected applications.** The overall importance of the applications that are directly affected by the change. ➤ **Importance of indirectly affected applications.** The overall importance of the applications that are indirectly affected by the change. **Note:** An importance level is assigned to each application in the Administration module's Applications tab. For details, see "Assigning Importance Levels to Applications" on page 187.
Field name	The name of the change request field (if you selected **Field** as your data source).
Map by	You can either map by range or by value. When you map by value, you map a factor value for each possible source value. When you map by range, you map a factor value for each range of source values.

4 In the **Mapping Definition** section, map the source values or ranges to risk factor values between 1 and 10.

To add a new mapping definition entry, click the **Add Entry** button and define the mapping definitions in the new row that is created in the Mapping Definition section.

5 In the **Default Mapping** list, select a default risk factor value for cases in which the field value is not mapped. To ignore the risk factor in such a case, select **Disregard**.

6 Ensure that you are satisfied with all your changes.

➤ If you are not satisfied with your changes, you can undo any changes you made by clicking the **Refresh and Undo Modifications** button before you save your changes.

Note: When you click the **Refresh and Undo Modifications** button, all the changes you made since the last time you saved your settings are lost.

➤ If you are satisfied with your changes, you can commit the changes to the server by clicking the **Save Settings** button. A message opens asking you to confirm that you want to save these changes. Bear in mind that once you save these changes, they cannot be undone. Click **Yes** to save the changes.

You can recalculate the risk for all change requests based on your new settings by clicking the **Recalculate Risk** button. A message opens informing you of the number of change requests for which risk will be recalculated. Confirm that you want to continue recalculating the risk.

Note: If you click the **Recalculate Risk** button during the risk recalculation process, a message opens informing you of the remaining number of change requests for which risk still needs to be recalculated.

Configuring Risk Calculation Properties

By default, risk is calculated for change requests that have the default statuses defined in the **HP Change Control Management installation directory>\conf\enumerations.settings.** You can change the definitions for which risk should be calculated using the **shouldCalcRisk** function in the **HP Change Control Management installation directory>\conf\scripts.ext\ change-flow.js** script.

For example, you can instruct HP Change Control Management not to calculate risk for change requests that have been approved or closed by not including these statuses in the **shouldCalcRisk** function:

```
function shouldCalcRisk(prevChangeInfo, changeInfo)
{
 status= changeInfo.getField("status");
 shouldCalc= (status==STATUS_ASSIGNED || status==STATUS_PENDING_APPROVAL
||status==STATUS_IN_PROGRESS);
 return shouldCalc;
}
```

If required, you can instruct HP Change Control Management to calculate risk for new changes requests that have entered HP Change Control Management by including the following lines as part of the **shouldCalcRisk** function:

```
if (prevChangeInfo==null)
      shouldCalc= true;
```

You can use the **overrideRisk** function in the **change-flow.js** script to instruct HP Change Control Management to override the standard risk calculation. For example, you can instruct HP Change Control Management to assign the maximum risk value to a change request that affects a specific application, as the following script illustrates:

```
function overrideRisk(prevChangeInfo, changeInfo, analysis, result)
{
      if (changeInfo.getField("is-sox-app-involved").equalsIgnoreCase("Yes")){
            result.addRule("Sox Application - max risk");
            result.risk= 100;
      }
}
```

For an explanation of the objects that can be included in both the **shouldCalcRisk** and **overrideRisk** functions, refer to the **RiskAnalysis**, **RawRiskFactorCalculationResult**, and **OverrideRulesResult** classes in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.

Configuring Time Period Settings

You can configure the following types of time periods in HP Change Control Management:

➤ **Changes Allowed.** A period of time within which requests must be executed.

➤ **Changes Not Allowed.** A period of time within which requests cannot be executed.

➤ **Neutral to Changes.** A period of time indicating an external event, such as a holiday, which has no direct bearing on request execution.

For example, to ensure that your company's service level agreements are upheld, you may determine that changes to your corporate Web site may only take place between the hours of 12:00 AM and 6:00 AM Eastern Standard Time. Changes that are not made within this period would be considered abnormal.

Likewise, you may determine that changes to the Web site may not take place on Monday mornings from 3:00 AM to 6:00 AM Eastern Standard Time. Changes that are made within this period would also be considered abnormal.

For a request to be considered normal, it must be executed completely within a **Changes Allowed** period and outside a **Changes Not Allowed** period. Neutral periods do not affect a request's normality status.

You configure different types of time periods and group these periods into categories in the Administration module's Time Periods tab. HP Change Control Management assigns processed change requests to the defined categories based on criteria that you define within the **time-periods.js** script, as described below.

To configure time period settings:

1 **Configure general time period settings.**

In the Time Periods pane, select **General Settings**. Define the following properties in the right pane:

Property	Description
Time period duration	The number of days for which the time period settings should be calculated. The time periods for these days are calculated on a daily basis by HP Change Control Management so that the duration is always applied from the current date. For example, if you define a time period duration of 200 days, each day you log in to HP Change Control Management you can view the defined time periods for the following 200 days in the Change Analysis module's Timeline, Application, Implementer, and Calendar views. Incoming requests are analyzed based on these time periods.
Pattern for Changes Allowed period	The background pattern that HP Change Control Management's Change Analysis module should use to display a defined Changes Allowed period in the Timeline, Application, Implementer, and Calendar views. You can select the following background patterns: ➤ **Plain.** The Change Analysis module displays the Changes Allowed period using a solid color background. ➤ **Waves.** The Change Analysis module displays the Changes Allowed period using a wavy color background. ➤ **Lines.** The Change Analysis module displays the Changes Allowed period using a background of colored lines. ➤ **Squares.** The Change Analysis module displays the Changes Allowed period using a background of colored squares.

Property	Description
Pattern for Changes Not Allowed period	The background pattern that HP Change Control Management's Change Analysis module should use to display a defined Changes Not Allowed period in the Timeline, Application, Implementer, and Calendar views. You can select one of the background patterns delineated above.
Pattern for Neutral to Changes period	The background pattern that HP Change Control Management's Change Analysis module should use to display a defined Neutral to Changes period in the Timeline, Application, Implementer, and Calendar views. You can select one of the background patterns delineated above.

2 Configure time period categories.

In the Time Periods pane, click the **Add Time Period Category** button. A new time period category appears in the Time Periods pane. Define the following properties of the new category in the right pane:

Property	Description
Name	A descriptive name for the new time period category. For example, if you are defining a category that is to include all change requests involving your corporate Web site, you might enter Corporate Web site as the name of the new time period category. This is the name with which the category will be displayed in the Change Analysis module's Change Request Filter dialog box and Change Requests pane.

Property	Description
Script function name	The function name is automatically created by HP Change Control Management in the **<HP Change Control Management installation directory>\conf\ scripts.ext\time-periods.js** script. You configure this function to include the criteria by which HP Change Control Management determines whether a change request is included in the newly defined category.
	For example, if your change requests have a **time-period** field (that was mapped in the service desk application to generic request conversion process), you can stipulate that requests with the **time-period** value of **network** be included in a newly created **Network** time period category. You do so by configuring the automatically created **isEligibleFor_network** function as follows:
	function isEligibleFor_network(change, timePeriodId) { return (change.getField("time-period").equals(timePeriodId)); }
	change = the current change
	timePeriodId = the ID of the current time period, which is always identical to the part of the string that follows isEligibleFor_
	For a detailed explanation of the objects that can be included in the automatically created function, refer to the **GenericRFC** class in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.
Color	The color to be assigned to the new time period category. This is the color that HP Change Control Management uses to display the category in the Change Analysis module.

3 Configure time period recurrence rules.

In the Time Periods pane, select the category for which you want to define a recurrence rule and click the **Add Time Period Recurrence Rule** button. A new time period recurrence rule appears in the Time Periods pane. Define the following properties of the new rule in the right pane:

Property	Description
Name	A descriptive name for the new time period recurrence rule. For example, if you are defining a Changes Allowed period that comprises specific weekends, you might enter weekends as the name of the new time period rule.
Type	The type of time period—**Changes Allowed**, **Changes Not Allowed**, or **Neutral to Changes**—to be created by the rule. For explanations of each of these time period types, see page 130.
Recurrence pattern	The pattern for the time period's recurrence. You can choose to apply the time period once or on a daily, weekly, monthly, or yearly basis.
Recurs every X days/weeks/months/years	If you selected a **Daily**, **Weekly**, **Monthly**, or **Yearly** pattern for the time period's recurrence, you can select the frequency with which you want the pattern to recur. For example, if you selected a **Daily** pattern for the time period's recurrence and select **3** from the **Recurs every X days** box, the time period will recur every 3 days.

Property	Description
Start time	The **Start time** options differ depending on the pattern you selected for the time period's recurrence. ➤ If you selected **Once**, enter the date and time for the time period's commencement. ➤ If you selected **Daily**, enter the time at which you want the time period to begin. ➤ If you selected **Weekly**, choose the day(s) of the week and enter a time of day for the time period's commencement. ➤ If you selected **Monthly**, either enter a date and time, or select the week of the month, the day of the week, and the time, for the time period's commencement. ➤ If you selected **Yearly**, either enter a date and time, or select the week of the month, the day of the week, the month of the year, and the time, for the time period's commencement.
End time	The following three **End time** options exist: ➤ A text box in which you enter the date and time for the time period's completion. ➤ **On the same day at X.** You select the time of day at which you want the time period to end. ➤ **After X days at X.** You select the number of days after the start time as well as the time of day for the time period's completion. One or more of the above options may be grayed out, depending on the **Recurrence pattern** and **Start time** you selected.
Effective from	The point in time at which the rule begins to take effect. Enter a date and time of day.
Expires on/Never expires	The point in time at which the rule ceases to be in effect. Enter a date and time of day. Alternatively, you can select the **Never expires** check box if you do not want to fix a time limit for the rule's effect.

4 Save your configuration settings.

In the Time Periods pane, click the **Save Settings for All Fields** button. A message opens asking you to confirm that you want to save your configuration settings. Bear in mind that once you save these settings, they cannot be undone. Click **Yes** to save the settings.

The save process can take a few minutes. If users log in to HP Change Control Management during this process, they will need to refresh their Change Analysis views in order to view the updated time period settings.

Note: Before you save your settings, you can undo your general setting, category, and rule configurations by clicking the **Refresh and Undo Modifications** button. The Time Periods tab is restored to its most recent saved settings.

To calculate the status of change requests based on updated Time Period configuration settings:

Click the **Recalculate Abnormality** button. HP Change Control Management calculates the compliance of the change requests that fit the configured categories with the rules pertaining to these categories.

Change requests whose execution is not planned within the configured Changes Allowed periods are marked as abnormal in the Change Analysis module. Likewise, change requests whose execution is planned within the configured Changes Not Allowed periods are marked as abnormal. In the Change Analysis Grid and Calendar view, these requests' Summary icons are marked with red exclamation points. In the other views, these requests are marked with a black frame.

Change requests whose execution is planned within the configured Changes Allowed periods are marked as normal and appear with a white frame in the Timeline, Application, and Implementer views.

Note: If you defined time period-related risk factors and then updated the time period settings, you must click the **Recalculate Risk** button in the Risk Factors tab to calculate risk based on the new time period settings.

Configuring Collisions

HP Change Control Management automatically identifies change requests involving common key elements, that are scheduled to take place over the same or adjacent time periods.

Change requests are defined as colliding when:

➤ an application or configuration item (CI) is involved in more than one change over the same time period or adjacent time periods.

➤ the same implementer is responsible for implementing more than one change over the same time period or adjacent time periods.

HP Change Control Management measures collisions in terms of their proximity level and the cause of the collision.

You can configure the way in which HP Change Control Management identifies and calculates collisions. This section includes:

➤ "Configuring Collision Calculation Properties" below

➤ "Including Change Requests in Collision Calculations" on page 145

Configuring Collision Calculation Properties

You customize the way in which HP Change Control Management identifies and calculates collisions in the **<collision-calculation>** section of the **HP Change Control Management installation directory>\conf\change-flow.settings** file.

This section explains how to configure the collision calculation properties in the **change-flow.settings** file's **<collision-calculation>** section and includes the following sections:

➤ "Configuring the Collision Proximity Level" below

➤ "Configuring the Collision Severity Level" on page 140

➤ "Configuring the Change Request Statuses to be Included in the Collision Calculation" on page 144

Configuring the Collision Proximity Level

The proximity level of two change requests can be defined as either **Overlap** or **Overlap Warning**:

➤ **Overlap.** The two change requests have overlapping schedules.
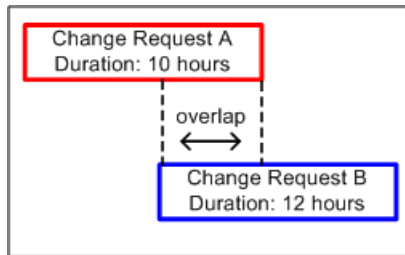
➤ **Overlap Warning.** In reality, planned changes often exceed their original planned duration, which can result in an unforeseen overlap between two change request schedules. In certain cases, if two change requests are scheduled in close proximity to one another, their proximity level is defined as **Overlap Warning**.

By default, change requests are considered to be within close proximity of one another when the time gap between the first and second change requests is shorter than 10% of the duration of the first change request.

An example of Overlap Warning between Change Request A and Change Request B is illustrated below, where the gap between the two change requests is 30 minutes, which is less than 10% of the duration of Change Request A (10 hours).
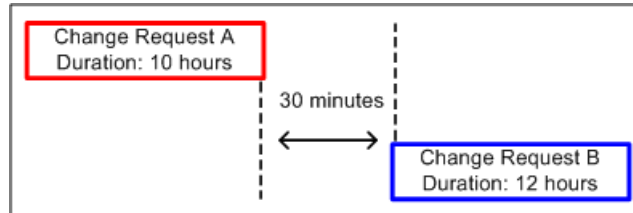
You configure the definition of an **Overlap Warning** in the **<warning-ratio>** element of the **change-flow.settings** file's **<collision-calculation>** section.

```
<collision-calculation version="3.0">
   ...
 <warning-ratio>1.1</warning-ratio>
```

By setting a value for the **<warning-ratio>** element, you define the time gap according to which HP Change Control Management determines that two change requests are in close proximity (proximity level of **Overlap Warning**).

The default warning ratio is **1.1**. This means that the change requests are considered to be within close proximity when the time gap between the first and second change requests is shorter than 10% of the duration of the first change request.

If, for example, you wanted to increase the proximity time gap to 25% of the duration of the first change request, you would set the warning ratio to **1.25**.

Configuring the Collision Severity Level

If two change requests overlap, there is not necessarily a collision between them. They could be taking place at the same time without having any effect on one another. HP Change Control Management only defines change requests as colliding if they share one of the following elements:

➤ **Configuration Item (CI).** Two change requests involve at least one common CI.

If a CI is changed as a direct result of a change request, it is referred to as a changed CI (CCI). If a CI is not directly involved in the change request, but may be affected as a result, it is referred to as an affected CI (ACI).

For example, if a change request involves increasing the memory on Server A, Server A is referred to as a CCI. If Host Machine B is connected to Server A, but is not directly involved in the change request, it is referred to as an ACI.

➤ **Affected Application.** Two change requests affect at least one common application.

If at least one of the CIs associated with an application is a CCI, the application is referred to as a directly affected application (DAA). If all of the CIs associated with an application are ACIs, the application is referred to as an indirectly affected application (IAA).

➤ **Implementer.** The same implementer is responsible for implementing both change requests.

HP Change Control Management determines a collision severity level for each collision based on the cause of the collision and the proximity level of the change requests.

By default, HP Change Control Management determines the following collision severity levels for each combination of collision cause and proximity level:

	Proximity Level	
Cause	**Overlap**	**Overlap Warning**
CCI-CCI	Critical	Critical
CCI-ACI	High	High
ACI-ACI	(Not defined as a collision)	(Not defined as a collision)
DAA-DAA	High	High
IAA-DAA	Medium	Medium
IAA-IAA	Low	Low
Implementer	Medium	Very Low

For example, change requests that share a common **CCI** (changed CI) and whose proximity level is defined as **Overlap**, would have a **Critical** collision severity level.

Note: If there is more than one cause for a collision, the collision severity level is determined by the cause with the highest severity.

You can change the way in which HP Change Control Management determines the severity level for any combination of collision cause and proximity level in the **<collision-types>** element of the **change-flow.settings** file's **<collision-calculation>** section.

```
<collision-calculation version="3.0">
    ...
 <collision-types>
     <collision-type>
         <type-name>CCI_CCI</type-name>
         <proximity-severity-correlations>
             <proximity-severity-correlation>
                 <proximity>OVERLAP</proximity>
                 <severity>CRITICAL</severity>
             </proximity-severity-correlation>
             <proximity-severity-correlation>
                 <proximity>OVERLAP_WARNING</proximity>
                 <severity>CRITICAL</severity>
             </proximity-severity-correlation>
         </proximity-severity-correlations>
     </collision-type>
```

The **<collision-type>** element includes the following sub-elements:

➤ **type-name.** The cause of the collision. The following collision causes can be defined:

Cause	Description
CCI_CCI	Two change requests involve at least one common CCI (Changed CI).
CCI_ACI	The same CI is affected by one change and changed by another.
ACI_ACI	Two change requests involve at least one common ACI (Affected CI)
IAA_IAA	Two change requests indirectly affect at least one common application (IAA).
IAA-DAA	The same application is indirectly affected by one change and directly affected by another.

Cause	Description
DAA-DAA	Two change requests directly affect at least one common application (DAA).
IMPLEMENTOR	The same implementer is responsible for implementing both change requests.

Note: You can exclude a particular **type-name** from collision calculations by commenting out the **<collision-type>** element containing that **type-name**. By default, the **<collision-type>** element containing the **ACI_ACI** type-name is commented out. This means that if two change requests involve a common ACI, HP Change Control Management will not necessarily define these two change requests as colliding.

➤ **proximity-severity-correlations.** For each collision cause that you defined in the **<type-name>** element, you specify a proximity level and an associated severity level by defining the following sub-elements:

   ➤ **proximity.** the proximity level of the colliding change requests. This can be defined as either **OVERLAP** or **OVERLAP_WARNING**. For more information about collision proximity levels, see "Configuring the Collision Proximity Level" on page 138.

   ➤ **severity.** The severity level that you want HP Change Control Management to define for the combination of collision cause and proximity level defined above. The severity level can be defined as one of the following: **CRITICAL**, **HIGH**, **MEDIUM**, **LOW**, or **VERY_LOW**.

The following definition stipulates that if the cause of the collision was two change requests directly affecting a common application (DAA_DAA) and the proximity level of the collision was **Overlap**, then the collision severity level should be defined as **Critical**.

```
<collision-types>
    <collision-type>
        <type-name>DAA_DAA</type-name>
        <proximity-severity-correlations>
            <proximity-severity-correlation>
                <proximity>OVERLAP</proximity>
                <severity>CRITICAL</severity>
            </proximity-severity-correlation>
        </proximity-severity-correlations>
    </collision-type>
```

Configuring the Change Request Statuses to be Included in the Collision Calculation

You define the statuses of the change requests to be included in the collision calculation within the **<statuses>** element of the **change-flow.settings** file's **<collision-calculation>** section.

```
<collision-calculation version="3.0">
    <statuses>
        <status>ASSIGNED</status>
        <status>PENDING_APPROVAL</status>
        <status>APPROVED</status>
        <status>IN_PROGRESS</status>
        <status>CLOSED</status>
    </statuses>
```

By default, change requests of all statuses are included in the collision calculation. However, you may want to exclude change requests of a certain status from the collision calculation.

For example, if you want to exclude change requests with the status of **Closed** from collision calculations, you would remove the following sub-element:

```
<status>CLOSED</status>
```

Including Change Requests in Collision Calculations

You define which change requests are included in the collision calculation using the **shouldCalcCollision** function in the **HP Change Control Management installation directory>\conf\scripts.ext\change-flow.js** script.

The main use of this function is to exclude problematic or irrelevant change requests from the collision calculation. For example, a change request may have a particularly long duration because a mistake was made entering the start or finish time. You can exclude such change requests from the collision calculation, thereby avoiding misleading results and a lot of unnecessary overhead on the system.

By default, the function excludes any change request with a duration of over eight weeks, as illustrated in the following example:

```
function shouldCalcCollision(prevChangeInfo, changeInfo){
    eightWeeks = 1000*60*60*24*7*8;
plannedStartTime= changeInfo.getField("planned-start-time");
plannedEndTime= changeInfo.getField("planned-end-time");
changeDuration = plannedEndTime - plannedStartTime;
if (changeDuration > eightWeeks){
    return false;
}

return true;
```

You can use the function to define whatever other criteria should be met in order for a change request to be included in the collision calculation.

For a detailed explanation of the objects that can be included in the **shouldCalcCollision** function, refer to the **GenericRFC** class in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.

Configuring Latent and Detected Changes

HP Change Control Management contains all the changes that are scheduled to take place in your environment.

If you are working with Mercury Application Mapping 6.5 or later, you can configure Mercury Application Mapping to periodically discover actual changes to your environment and send data about these changes to HP Change Control Management.

The latent changes feature enables you to determine whether changes discovered in your environment (**discovered changes**) correspond to changes that which were already scheduled in HP Change Control Management (**scheduled changes**).

This section includes:

➤ "Understanding Latent and Detected Changes" on page 147

➤ "Configuring the Latent Change Feature Properties" on page 150

Understanding Latent and Detected Changes

Important: There are different ways that you can work with the latent changes feature. This section assumes that the latent changes feature is fully activated (**latent-and-detected** mode). For more information about the different work modes, see "Configuring the Latent Change Feature Properties" on page 150.

When a change is discovered, HP Change Control Management tries to match the discovered change with scheduled changes according to the following criteria:

1 Time period. HP Change Control Management checks whether the discovered change took place during the same time period as a scheduled change.

Regarding the time period of the scheduled change, HP Change Control Management first checks the actual time of the scheduled change. If there is no actual time recorded, it checks the planned time.

2 Host. If the discovered change took place during the same time period as a scheduled change, HP Change Control Management checks whether Changed CIs (CCIs) in the discovered change and in the scheduled change are linked to a common host.

3 Change type. If the discovered change and a scheduled change share the above criteria (time and host), HP Change Control Management checks whether the discovered change and the scheduled change are of the same change type. The change type can be one that involves adding either hardware or software.

The type of the discovered change is determined by Mercury Application Mapping. The type of the scheduled change is determined by the information in the **change-types-orig** field. This field contains the change type assigned to a change request as defined in the original service desk application.

Note: To enable HP Change Control Management to use the change type criterion, you need to have a field in your service desk application in which you identify the change request's change type. You then need to map this field to the **change-types-orig** field. For more information about converting and mapping service desk application fields, see Chapter 5, "Configuring the Conversion of Requests."

Handling the Discovered Change

HP Change Control Management handles the discovered change in one of the following ways, depending on the extent to which the above matching criteria were met:

➤ **HP Change Control Management displays the change as a detected change.**

When a discovered change matches a scheduled change according to all of the above criteria (time, host, and change type), it is defined by HP Change Control Management as a **detected change**. Detected changes are displayed with the corresponding change request in the Change Analysis module's Detected Changes tab.

➤ **HP Change Control Management displays the change as a latent change.**

When a discovered change does not match any scheduled change, or if it only matches the scheduled change according to some of the above criteria, it is defined by HP Change Control Management as a **latent change**.

Note: The exception to this rule is when the change type is unknown. See the case below ("HP Change Control Management disregards the change.").

For example, if the discovered change took place during the same period as the scheduled change but they do not share a common host, the discovered change is defined as latent.

Latent changes are displayed as separate changes in the Change Analysis module's Change Requests pane.

➤ **HP Change Control Management disregards the change.**

If the discovered change matches the scheduled change according to the first two criteria (time and host), but the scheduled change does not include information regarding its **change type** (meaning that the change type is unknown), HP Change Control Management will disregard the discovered change and the change will not be displayed.

The following flow chart summarizes the way in which HP Change Control Management handles a discovered change:
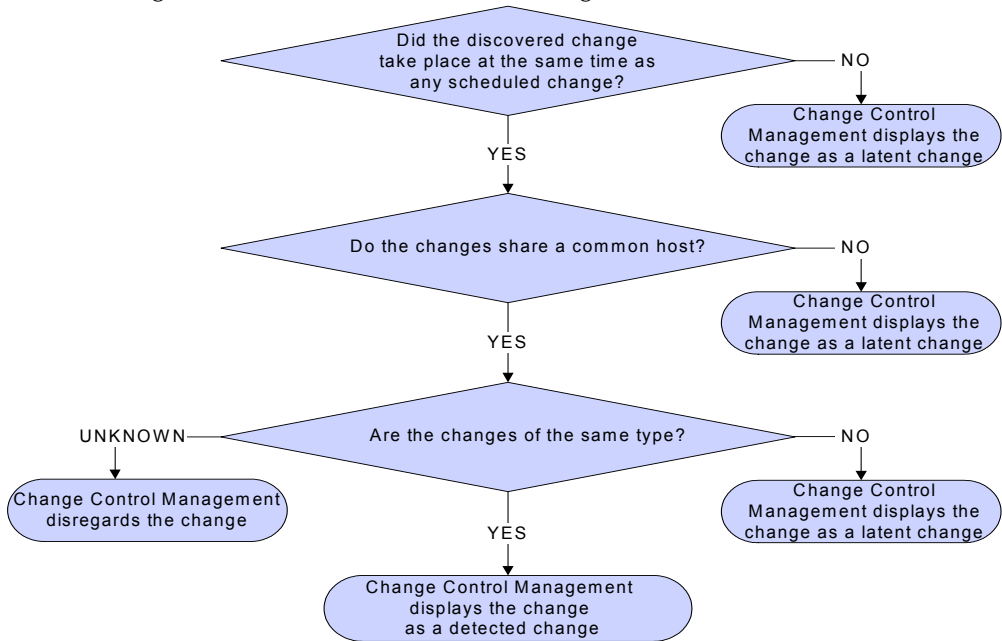
Example

Assume, for example, that **NewChange** is the name of a discovered change that was detected by Mercury Application Mapping and **CCMrequest1**, **CCMrequest2**, and **CCMrequest3** are all the scheduled changes included in HP Change Control Management.

HP Change Control Management tries to match the discovered change, **NewChange**, with existing scheduled changes (**CCMrequest1**, **CCMrequest2**, and **CCMrequest3**) according to the criteria described above.

If **NewChange** and **CCMrequest2** took place over the same time period, HP Change Control Management checks whether **NewChange** and **CCMrequest2** have changed CIs that share a common host. If they do, HP Change Control Management checks the change type.

➤ If **NewChange** and **CCMrequest2** have the same change type (both involve adding hardware), **NewChange** is defined as a **detected change**.

➤ If **NewChange** and **CCMrequest2** have different change types (one involves adding hardware and one involves adding software), **NewChange** is defined as a **latent change**.

➤ If HP Change Control Management cannot identify the change type of **CCMrequest2**, then **NewChange** is disregarded and is not displayed anywhere.

Configuring the Latent Change Feature Properties

You configure the latent changes feature in the **<latent-changes>** section of the **HP Change Control Management installation directory>\conf\mam-integration.settings** file.

You can define values for the following elements:

➤ **<latent-changes-mode>.** You choose how to work with the latent changes feature by defining a value for this element. You can define one of the following values:

Value	Description
disabled	The latent changes feature is inactivated. HP Change Control Management does not receive information about new changes in your environment. This is the default setting.
latent-and-detected	The latent changes feature is fully activated. Latent and detected changes are displayed according to the criteria described in "Understanding Latent and Detected Changes" on page 147.

Value	Description
latent-consider-change-types	The latent changes feature is partially activated. Detected changes are ignored and latent changes are displayed. Latent changes detected in your environment are displayed according to the criteria described in "Understanding Latent and Detected Changes" on page 147.
latent-ignore-change-types	The latent changes feature is partially activated. Detected changes are ignored and latent changes are displayed. In this mode, the **change type** criteria is not taken into account when identifying latent changes. The difference between **latent-ignore-change-types** mode and **latent-consider-change-types** mode can be illustrated in the following example: If a discovered change matches one of the scheduled changes according to the first two criteria (time and host) but the change types are different, then: ➤ in **latent-ignore-change-types** mode, the change would not be defined as latent. ➤ in **latent-consider-change-types** mode, the change would be defined as latent.

➤ **<detect-changes-schedule>.** Define the schedule for HP Change Control Management's request of information from Mercury Application Mapping about newly discovered changes. This value is entered as a cron expression.

➤ **<detect-changes-duration-in-hours>.** Define the block of time for which HP Change Control Management requests information from Mercury Application Mapping about newly discovered changes.

➤ **<detect-changes-recovery-duration-in-hours>.** When the HP Change Control Management server starts up, it searches for cases in which there were problems encountered during the calculation of detected changes (for example, if the server stopped during the calculation process). In this element, you define how far back in time HP Change Control Management should search for such problem cases. The default setting is one month.

➤ **<latent-change-level>.** Latent changes are displayed as separate changes in the Change Analysis module. Define whether you want latent changes to be displayed as top-level (parent) change requests or second-level (child) requests.

➤ **<latent-change-ref-id>.** Latent changes are displayed as separate changes in the Change Analysis module. Define a format for the request ID assigned to the latent changes by defining a value for the following sub-elements:

  ➤ **<initial-counter-value>.** The number that will be included in the Request ID for the first latent change recorded in your system.

  ➤ **<format>.** The format of the latent change request ID.

➤ **<detected-changes-query>.** HP Change Control Management uses the **ccmDetectedChangesRule** TQL to describe the type of CIs in which Mercury Application Mapping should search for changes.

➤ **<host-grouping-query>.** Define values for the following sub-elements:

  ➤ **<name>.** The name of the TQL in Mercury Application Mapping that describes the relationship between the searched CIs and their hosts.

  ➤ **<cis-list-object-name>.** The label of the CI in the TQL that represents the CCI.

Note: For more information about TQLs, refer to the Mercury Application Mapping documentation.

Using the Pre- and Post-Change Request Processing Functions

You can use the **preChangeProcess** and **postChangeProcess** functions in the **<HP Change Control Management installation directory>\conf\scripts.ext\ change-flow.js** script to calculate certain pre-change request processing or post-change request processing factors.

For example, if you want to define a risk factor based on the amount of time that a change request is in the HP Change Control Management system without being processed, you can use the **preChangeProcess** function to calculate the time at which the change request first enters HP Change Control Management. To do so, you would define a custom field called **first-time** that would be configured to the time at which the change request enters HP Change Control Management. You would then instruct HP Change Control Management to calculate the **first-time** value as follows:

```
function preChangeProcess(prevChange, newChange)
{
    If (prevChange == null) {
        var now = java.lang.System.currentTimeMillis();
        newChange.setField("first-time", now);
    }
    else {
        var firstTime = prevChange.getField("first-time");
        newChange.setField("first-time", firstTime);

    }
}
```

You can use the **postChangeProcess** function in a similar manner to calculate factors relating to steps within the request processing itself, such as the calculation of risk or collisions.

For a detailed explanation of the objects that can be included in these functions, refer to the **GenericRFC** class in the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.

7

Configuring Operations

This chapter describes how to configure the change request approval/retraction operation.

About Approving Requests

HP Change Control Management contains a feature that allows users to approve and, if necessary, retract the approval of, change requests. The approval/retraction of a request within HP Change Control Management results in an updated status of the request within the service desk application.

To enable this feature, you must:

➤ assign **Approver** status in HP Change Control Management to the users who are meant to approve requests – For details, see "Assigning Approver Status to a User" on page 157.

➤ configure both HP Change Control Management and the service desk application to check whether a request can be approved/retracted – For details, see "Enabling the Possibility of Request Approval/Retraction" on page 157.

➤ configure both HP Change Control Management and the service desk application to execute request approval/retraction – For details, see "Enabling the Execution of Request Approval/Retraction" on page 161.

Note:

➤ To check whether your service desk application supports this feature, contact customer support.

➤ If you do not want to configure your service desk application to check whether a request can be approved/retracted, or if your service desk application does not support this operation, you can use a script to perform the **canApprove** and **canRetract** operations. For details, see "Configuring HP Change Control Management" on page 157.

Assigning Approver Status to a User

In order for a user to be able to approve change requests in HP Change Control Management, the user must first be assigned **Approver** status by the HP Change Control Management administrator.

To assign Approver status to a user:

 1 In the Administration module, click the **Users** tab.

 2 Select the user to whom you want to grant **Approver** status and click the **Edit** button. The User Settings dialog box opens.

 3 Under **Approver**, select **Yes** and click **OK**. The user will now be able to approve change requests using HP Change Control Management.

Enabling the Possibility of Request Approval/Retraction

Before executing a request approval or retraction operation, HP Change Control Management and your service desk application must determine that the request can, in fact, be approved or retracted at the current time by the current user.

You must configure both HP Change Control Management and the service desk application to check whether a request can be approved/retracted. This section provides configuration instructions for both HP Change Control Management and HP ServiceCenter.

Configuring HP Change Control Management

You configure HP Change Control Management to check whether a request can be approved/retracted within the adapter configuration file.

To configure HP Change Control Management to check whether a request can be approved/retracted:

 1 Open the adapter configuration file (**servicecenter-ws-adapter.settings** file, by default, for HP ServiceCenter).

 2 Locate the **canApprove** and **canRetract** operations.

3 Ensure that the appropriate service desk application connectors are included in the appropriate **<connector-type>** elements:

➤ To enable HP Change Control Management to check whether a top-level or parent change request can be approved/retracted in HP ServiceCenter, ensure that:

    ➤ **<connector-type>ServiceCenterChangeCanApprove</connector-type>** is included in a **canApprove** operation

    ➤ **<connector-type>ServiceCenterChangeCanRetract</connector-type>** is included in a **canRetract** operation

➤ To enable HP Change Control Management to check whether a second-level or child change request can be approved/retracted in HP ServiceCenter, ensure that:

    ➤ **<connector-type>ServiceCenterTaskCanApprove</connector-type>** is included in a **canApprove** operation

    ➤ **<connector-type>ServiceCenterTaskCanRetract</connector-type>** is included in a **canRetract** operation

➤ To avoid having to configure your service desk application, you can use the **canApproveScriptingConnector** and **canRetractScriptingConnector** connector types and instruct HP Change Control Management to use a script in order to check whether a request can be approved/retracted. If you use this method, HP Change Control Management does not need to access the service desk application itself.

```
<connector-type>canApproveScriptingConnector</connector-type>
<properties>
     scripts=canApproveChange.js
</properties>

<connector-type>canRetractScriptingConnector</connector-type>
<properties>
     scripts=canRetractChange.js
</properties>
```

The following API can be used in the **canApproveChange.js** script:

```
function canApprove(rawTicket,genericRFC,userLoginName)
{
 return true;
}
```

The following API can be used in the **canRetractChange.js** script:

```
canRetract(rawTicket,genericRFC,userName)
{
 return true;
}
```

The **rawTicket** class relates to the service desk application change request before its conversion to an HP Change Control Management format. The **genericRFC** class relates to the service desk application change request after its conversion to an HP Change Control Management format. The **userLoginName** class relates to the user name of the user logging in to the service desk application.

For a detailed explanation of the objects that can be included in each class, refer to the **API_Reference.chm** file, located in the **docs\pdfs** directory of the HP Change Control Management CD-ROM.

4 Save the changes you made to the adapter configuration file.

Configuring HP ServiceCenter

If you did not use the scripting option above, you must configure HP ServiceCenter to allow HP Change Control Management to check whether requests can be approved/retracted. This configuration should be performed by the HP ServiceCenter administrator.

To configure HP ServiceCenter:

1 Load HP ServiceCenter's **ccm_can_approve_operations** unload file, located in the <**HP Change Control Management installation directory**>\ **examples\service-desk-examples\ServiceCenter\6.1\extensions** directory. (Follow the instructions provided by HP ServiceCenter for loading unload files.)

Note: If the **ccm_can_approve_operations** file fails to load, create the following two processes:

➤ **ccm.check.retract.** Set the initial expression to:

$L.void=rtecall("intersect", $L.err, $L.retract.intersect, approval.groups in $L.env, approved.groups in $L.file)

if (lng($L.retract.intersect)>0 and open in $L.file=true or approve.override in $L.env) then ($can.retract="normal") else ($can.retract="no auth")

Set the Final Expression to:

$L.exit=$can.retract

➤ **ccm.check.retract.** Set the initial expression to:

$L.void=rtecall("intersect", $L.err, $L.approval.intersect, approval.groups in $L.env, current.pending.groups in $L.file)

if (lng($L.approval.intersect)>0 and open in $L.file=true or approve.override in $L.env) then ($can.approve="normal") else ($can.approve="no auth")

Set the Final Expression to:

$L.exit=$can.approve

---

2 Associate a display action with each of the two new processes, **ccm.check.approval** and **ccm.check.retract**:

a Open the Document Engine.

b Open the **Objects** menu and select the **cm3r** object.

c Choose the default state.

d Associate the **checkapproval** display action with the **ccm.check.approval** process.

e Associate the **checkretract** display action with the **ccm.check.retract** process.

f Repeat steps (b) through (e) for the **cm3t** object.

3 In WSDL Configuration, add the following four actions:

Object Name	Allowed Action	Action Name
cm3r	checkapproval	CheckApproval
cm3r	checkretract	CheckRetract
cm3t	checkapproval	CheckApproval
cm3t	checkretract	CheckRetract

Enabling the Execution of Request Approval/Retraction

You must configure both HP Change Control Management and the service desk application to execute the approval/retraction of requests. This section provides configuration instructions for both HP Change Control Management and HP ServiceCenter.

Configuring HP Change Control Management

You configure HP Change Control Management to approve/retract a request within the adapter configuration file.

To configure HP Change Control Management to approve/retract a request:

1 Open the adapter configuration file (**servicecenter-ws-adapter.settings** file, by default, for HP ServiceCenter).

2 Locate the **approve** and **retract** operations.

3 Ensure that the appropriate service desk application connectors are included in the appropriate **<connector-type>** elements:

➤ To enable HP Change Control Management to approve/retract a top-level or parent change request in HP ServiceCenter, ensure that:

➤ <connector-type>**ServiceCenterChangeApprove**</connector-type> is included in an **Approve** operation

➤ <connector-type>**ServiceCenterChangeRetract**</connector-type> is included in a **Retract** operation

➤ To enable HP Change Control Management to approve/retract a second-level or child change request in HP ServiceCenter, ensure that:

➤ **<connector-type>ServiceCenterTaskApprove</connector-type>** is included in an **Approve** operation

➤ **<connector-type>ServiceCenterTaskRetract</connector-type>** is included in a **Retract** operation

4 To ensure that the updated approved/retracted requests are of a high priority in the queue of requests being sent to HP Change Control Management, specify **updateOperation=true** within the **<sender-properties>** element.

5 Save the changes you made to the adapter configuration file.

Configuring HP ServiceCenter

You must configure HP ServiceCenter to allow HP Change Control Management to approve/retract requests. This configuration should be performed by the HP ServiceCenter administrator.

To configure HP ServiceCenter:

1 In WSDL Configuration, select the **ChangeManagement** Web service and ensure that the approve/retract action is allowed for the **cm3r** and **cm3t** objects.

2 Ensure that the SOAP API is enabled for each user with HP Change Control Management **Approver** status.

8

Configuring Mercury Application Mapping-Related Settings

This chapter describes how to configure Mercury Application Mapping (MAM) to work with HP Change Control Management and how to configure Mercury Application Mapping properties within HP Change Control Management configuration files. It also describes how to configure Mercury Application Mapping if you are working with version 6.x, and how to reconfigure the default HP Change Control Management–Mercury Application Mapping integration settings, if required.

Note: This chapter uses Mercury Application Mapping 6.x terminology. Objects are therefore referred to as CIs and class types as CITs.

This chapter describes:	On page:
Configuring HP Change Control Management Views in Mercury Application Mapping	164
Configuring Mercury Application Mapping Properties in HP Change Control Management	164
Configuring Mercury Application Mapping Settings When Working with Mercury Application Mapping 6.x	168
Reconfiguring HP Change Control Management–Mercury Application Mapping Integration Settings	169

Configuring HP Change Control Management Views in Mercury Application Mapping

Mercury Application Mapping is a key component in the processing of HP Change Control Management requests. To work with Mercury Application Mapping in the context of HP Change Control Management, you must configure the following within Mercury Application Mapping:

➤ If you are working with Mercury Application Mapping 3.0, configure a user to include all the views that represent all the IT applications affected by the change requests to be processed by HP Change Control Management.

➤ If you are working with Mercury Application Mapping 6.2 or later, configure an instance view to include all the CIs that represent all of the IT applications affected by the change requests to be processed by HP Change Control Management.

Note: For your convenience, all of the CIs that represent IT applications are grouped together under a view entitled **AllApplicationsCis**, located in the **CCM** directory.

For details on creating views within Mercury Application Mapping, refer to the Mercury Application Mapping documentation.

Configuring Mercury Application Mapping Properties in HP Change Control Management

To enable HP Change Control Management to work with Mercury Application Mapping, you must configure certain Mercury Application Mapping-related properties within HP Change Control Management's **mam-integration.settings** file.

To configure Mercury Application Mapping properties in HP Change Control Management:

1 Open the <**HP Change Control Management installation directory**>**conf****mam-integration.settings** file.

2 If you are working with Mercury Application Mapping 6.2 or later, locate the **<applications-view>** section and enter the name of the HP Change Control Management view you created in Mercury Application Mapping, as follows:

```
<applications>
 <applications-view>
     <name>[view name]</name>
 </applications-view>
</applications>
```

This instructs HP Change Control Management to use the display labels of the CIs included in the view as the names of the applications.

If you want HP Change Control Management to use a different attribute value as the name of an application, add the following element to the **<applications-names-attribute>** section of the **mam-integration.settings** file:

```
<application-name-attribute>
 <class-type>[name of class type representing the application]</class-type>
 <attribute-name>[attribute name]</attribute-name>
</application-name-attribute>
```

In addition, you must add the following to the **<ci-class-attributes>** section of this file:

```
<ci-class-attributes>
      <class-type>[name of class type representing the application]</class-type>
      <attributes>
          <attribute-name>[attribute name]</attribute-name>
      </attributes>
</ci-class-attributes>
```

3 Specify the following properties in the **<mam-connection>** section:

Property	Description
mam-version	The version of Mercury Application Mapping—3.0, 6.2, 6.5, or 6.6—that is being used. **Note:** The value of this property should not be modified.
mam-server	The name of the Mercury Application Mapping server to which HP Change Control Management should connect.
cmdb-server (versions 6.x only)	The name of the Mercury Application Mapping CMDB server to which HP Change Control Management should connect. (The Mercury Application Mapping server and Mercury Application Mapping CMDB server may be installed on separate machines.)
port	The port through which HP Change Control Management should connect to Mercury Application Mapping.
username	The user name required to connect to Mercury Application Mapping.
password	The password required to connect to Mercury Application Mapping. If the password must be encrypted, see Appendix A, "Password Encryption" for details on encrypting passwords.

Property	Description
installation-type (versions 6.x only)	The type of Mercury Application Mapping installation you have. The following installation types exist: ➤ **typical.** Both the Mercury Application Mapping server and CMDB server are located on the same machine. ➤ **distributed.** The Mercury Application Mapping server and CMDB server are located on separate machines. ➤ **shared.** The Mercury Application Mapping CMDB server is shared with Business Availability Center.
view-refresh-schedule (versions 6.x only)	The time at which HP Change Control Management accesses Mercury Application Mapping to refresh the HP Change Control Management views. It is recommended that a refresh be performed once a day, after Mercury Application Mapping discovery has been completed, when a minimal number of users are connected to Mercury Application Mapping. By default, a view refresh takes place at 4 A.M. **Note:** You define the **view-refresh-schedule** using cron expressions.

4 Save your settings and close the **mam-integration.settings** file.

Configuring Mercury Application Mapping Settings When Working with Mercury Application Mapping 6.x

When working with Mercury Application Mapping 6.x, you must configure connections between hosts (or other CITs) and business services within the Mercury Application Mapping view that reflects all the HP Change Control Management-related applications. If a CIT is directly linked to a business service, the CIT will be displayed in HP Change Control Management only under the application with which its business service is directly associated. If a CIT is not linked to a business service, the CIT will be displayed in HP Change Control Management under each application with which the business services of its parent CITs (the CITs with which it is associated in HP Change Control Management) are directly associated.

To configure settings for Mercury Application Mapping 6.x:

1 Copy the **<HP Change Control Management installation directory>\ MAM\<version number>\extension\ccm_package.zip** package to:

➤ the **<Mercury Application Mapping server>\root\lib\packages** directory, if you are working with a typical or distributed Mercury Application Mapping installation. Mercury Application Mapping then automatically loads the package.

➤ the **<Business Availability Center Data Processing Modeling Server>\ mam_lib\packages** directory, if you are working with a shared Mercury Application Mapping installation. Instruct Mercury Application Mapping to load the new package by opening the Business Availability Center Data Processing Modeling Server console (**http://<Business Availability Center server>:8080/jmx-console/**), selecting **MAM > Service=Package manager > deployPackages**, specifying 1 under **customerId** and ccm_package.zip under **packagesNames**, and clicking the **Invoke** button.

2 Increase the maximum number of business service links that can be created by changing the value of **appilog.map.BusinessService.MaxLinksInView** in the **appilogConfig.properties** file to **5000**. For details on the location of this file, refer to the Mercury Application Mapping documentation.

3 Open the Mercury Application Mapping Service View Manager. Within each view definition, locate the hosts or other CITs that you want to link to a business service. Right-click each host or CIT and select **Add to Business Service**. For more information on linking CITs to business services, refer to the Mercury Application Mapping documentation.

Note: If you linked CITs other than hosts to a business service, you must add these CITs to the **appilog.map.BusinessService.Classes** section of both the **appilogConfig.properties** file and the **<MAM installation directory>\root\lib\web\gui.properties** file. Use commas to separate the CITs you add. For details on the location of the **appilogConfig.properties** file, refer to the Mercury Application Mapping documentation.

---

4 If you are working with a shared Mercury Application Mapping installation, update your Mercury Application Mapping settings by opening the Business Availability Center Data Processing Modeling Server console, selecting **MAM** > **Service=View System** > **reloadServerConfiguration**, and clicking the **Invoke** button. Refer to the Mercury Application Mapping documentation for instructions on accessing the console.

Reconfiguring HP Change Control Management–Mercury Application Mapping Integration Settings

The **<HP Change Control Management installation directory>\conf\mam-integration.settings** file contains the following preconfigured settings:

➤ the frequency of HP Change Control Management and Mercury Application Mapping CMDB synchronization – For details, see "Configuring Synchronization Frequency" on page 170.

➤ the Mercury Application Mapping CMDB initialization delay (Mercury Application Mapping 3.0 only) – For details, see "Configuring Initialization Delay" on page 171.

➤ the Mercury Application Mapping correlation rules that you want
HP Change Control Management to use in performing an impact analysis
(Mercury Application Mapping 6.2 or later) – For details, see "Configuring
Correlation Rules" on page 172.

➤ a list of Mercury Application Mapping CITs and attributes according to
which you want HP Change Control Management to locate changed CIs in
order to perform an impact analysis on them – For details, see "Configuring
CI Search Directives" on page 173.

➤ HP Change Control Management–Mercury Application Mapping impact
severity mappings – For details, see "Mapping HP Change Control
Management–Mercury Application Mapping Severity Levels" on page 174.

➤ a list of preconfigured CITs and their attributes that can be included in the
results of an impact analysis – For details, see "Configuring CITs and
Attributes for Impact Analysis Results" on page 175.

If required, the above settings can be reconfigured to more accurately reflect
your IT system.

Configuring Synchronization Frequency

By default, HP Change Control Management is synchronized with the
Mercury Application Mapping CMDB every 7200 seconds—that is, every
two hours. To make this synchronization more or less frequent, modify the
value in the following line of the **mam-integration.settings** file's **<cmdb-
synchronizations>** section:

```
<cmdb-sync-frequency>7200</cmdb-sync-frequency>
```

Configuring Initialization Delay

When working with Mercury Application Mapping 3.0, HP Change Control Management waits 1200 seconds, by default, for Mercury Application Mapping views to be loaded before impact analysis calculations are begun. To lengthen or shorten the Mercury Application Mapping initialization delay, modify the value in the following line of the **mam-integration.settings** file's **<cmdb-synchronizations>** section:

```
<cmdb-init-views-delay>1200</cmdb-init-views-delay>
```

Configuring Correlation Rules

When working with Mercury Application Mapping 6.2 or later, HP Change Control Management performs an impact analysis, by default, using only correlation rules with the prefix **ccm**. If you want HP Change Control Management to use additional or alternative correlation rules, you must define these rules in the **<patterns>** element of the **mam-integration.settings** file's **<correlation-rules>** section, using regular expressions.

For example, if you want to define alternative correlation rules to be used, you could modify the **<patterns>** element as follows, using regular expressions:

```
<patterns>   operations.*
             database.*
</patterns>
```

Each expression you use should appear on a separate line. For details on working with regular expressions, refer to the following URL:
http://java.sun.com/j2se/1.4.2/docs/api/java/util/regex/Pattern.html

You can also modify the **<patterns>** element without using regular expressions, or using a combination of regular expressions and actual correlation rule names. For example:

```
<patterns>   weblogic
             j2ee
             database.*
</patterns>
```

Configuring CI Search Directives

By default, HP Change Control Management searches for changed CIs that belong to either the **host** or **ip** CIT and whose format matches one of the Mercury Application Mapping attributes listed in the **<cmdb-lookup-attributes>** section of the **mam-integration.settings** file. An impact analysis is then performed on the located CIs.

If you want HP Change Control Management to search for CIs that belong to a different CIT, you must add this CIT and its relevant attributes to the **mam-integration.settings** file. You do so by including an additional **<lookup-directive>** element in the **<cmdb-lookup-attributes>** section of this file, as follows:

```
<lookup-directive>
 <class-type>[class type name]</class-type>
      <attributes>
           <attribute>[attribute name]</attribute>
           <attribute>[attribute name]</attribute>
      </attributes>
</lookup-directive>
```

Notes:

➤ Use only key attributes by which the CIT is defined.

➤ The "first found" matching attribute is used in locating CIs.

To specify an additional format by which you want to locate a **host** or an **ip** CIT, you must add the relevant attribute to the CIT's **<lookup-directive>**. For example, to locate an **ip** CIT by domain, in addition to locating it by address or DNS name, you would add **<attribute>ip_domain</attribute>** to the **ip** CIT **<lookup-directive>**, as follows:

```
<lookup-directive>
 <class-type>ip</class-type>
     <attributes>
         <attribute>ip_address</attribute>
         <attribute>ip_dnsname</attribute>
         <attribute>ip_domain</attribute>
     </attributes>
</lookup-directive>
```

Mapping HP Change Control Management–Mercury Application Mapping Severity Levels

By default, HP Change Control Management uses the following scheme in mapping HP Change Control Management impact severity levels to Mercury Application Mapping severity levels:

➤ a value of **Very Low** in HP Change Control Management = **2 or below** in Mercury Application Mapping

➤ a value of **Low** in HP Change Control Management = **3 or 4** in Mercury Application Mapping

➤ a value of **Medium** in HP Change Control Management = **5 or 6** in Mercury Application Mapping

➤ a value of **High** in HP Change Control Management = **7 or 8** in Mercury Application Mapping

➤ a value of **Critical** in HP Change Control Management = **9** in Mercury Application Mapping

To modify this mapping scheme, change the maximum Mercury Application Mapping impact severity values you want to map to each HP Change Control Management severity level. For example, if you want to map the Mercury Application Mapping impact severity value of **8** to the HP Change Control Management severity level **Critical**, you would change the following lines in the **<enum-mappings>** section of the **mam-integration.settings** file:

```
<entry-name>High</entry-name>
<high-value>8</high-value>
```

to:

```
<entry-name>High</entry-name>
<high-value>7</high-value>
```

Note: The default mapping scheme should be modified only if the HP Change Control Management impact severity levels or Mercury Application Mapping severity levels have changed.

Configuring CITs and Attributes for Impact Analysis Results

The **<ci-classes-attributes>** section of the **mam-integration.settings** file contains a list of CITs and attributes belonging to each CIT. This list indicates which CITs and attributes are to be included in the results of an impact analysis. These are also the CITs and attributes that will be displayed in the HP Change Control Management application for each changed or affected CI.

For example, the following attributes will be included in the impact analysis results of a **host** CIT and are displayed for a changed or affected host machine, which belongs to the **host** CIT:

This display is based on the following definition in the **<ci-classes-attributes>** section of the **mam-integration.settings** file:

```
<ci-class-attributes>
      <class-type>host</class-type>
      <attributes>
          <attribute-name>host_hostname</attribute-name>
          <attribute-name>host_dnsname</attribute-name>
          <attribute-name>host_model</attribute-name>
          <attribute-name>host_os</attribute-name>
          <attribute-name>host_snmpsysname</attribute-name>
          <attribute-name>host_vendor</attribute-name>
      </attributes>
</ci-class-attributes>
```

Note: The HP Change Control Management application also displays the attributes of the CIT based on the Mercury Application Mapping CIT hierarchy. For example, if the displayed CIT is a router, the attributes of the router's host are also displayed.

If you are working with Mercury Application Mapping 3.0 and have configured CITs for which a lot of CIs will be collected, it is recommended that you improve HP Change Control Management's performance by choosing to view these CIs under the applications with which the parent CIs are associated. To do so, add the following line to the relevant CITs in the <**ci-classes-attributes**> section of the **mam-integration.settings** file:

```
<view-resolution-method>inherit-from-parent</view-resolution-method>
```

For example, to view a CI that is a disk under the applications with which its relevant host is associated, you would specify the following in the **mam-integration.settings** file:

```
<ci-class-attributes>
 <class-type>disk</class-type>
 <attributes>
     <attribute-name>data_name</attribute-name>
 </attributes>
 <view-resolution-method>inherit-from-parent</view-resolution-method>
</ci-class-attributes>
```

This instructs HP Change Control Management to display the disk CI under the application with which its host is associated, even though the disk itself is not associated with this application.

9

Configuring Application-Related Settings

This chapter describes how the HP Change Control Management application administrator should configure various elements of the HP Change Control Management application.

Note: For information on defining risk factors and time period categories, see Chapter 6, "Configuring the Processing of Requests."

Configuring Users

You configure user settings for new HP Change Control Management users, edit the settings of existing users, and delete users in the Administration module's Users tab.

This section includes:

➤ "Configuring User Settings" below

➤ "Modifying User Settings" on page 183

➤ "Deleting Users" on page 184

Configuring User Settings

You define a new user by configuring settings—including basic user details and associated applications—for the user.

Note: If you are working in identity management mode, you cannot add users in the Administration module. For details on working in identity management mode, see "Working with Identity Management" on page 37.

To configure user settings:

1 In the Administration's module **Users** tab, click the **New** button in the top right corner. The User Settings dialog box opens.

2 Enter the following user settings:

Column	Description
User login name	The user name by which the user will be able to log in to HP Change Control Management.
First name	The first name of the user you are defining.
Last name	The surname of the user you are defining.
E-Mail address	The e-mail address of the user you are defining. This is the e-mail address to which notifications will be sent for this user.
Password	The password by which the user will be able to log in to HP Change Control Management.
Retype password	Confirms the password entered in the previous box.

3 From the **User role** box, select **Administrator** or **User** to define the type of user you want to create. Note that only the administrator has administrative privileges.

4 Under **Approver** select **Yes** or **No**, depending on whether you want the user you are creating to be able to approve and/or retract change requests in the Change Analysis module's Collaboration tab. (For details on this feature, refer to the *HP Change Control Management User's Guide*.)

5 To associate applications with the user you are defining, click the **User Applications** tab.
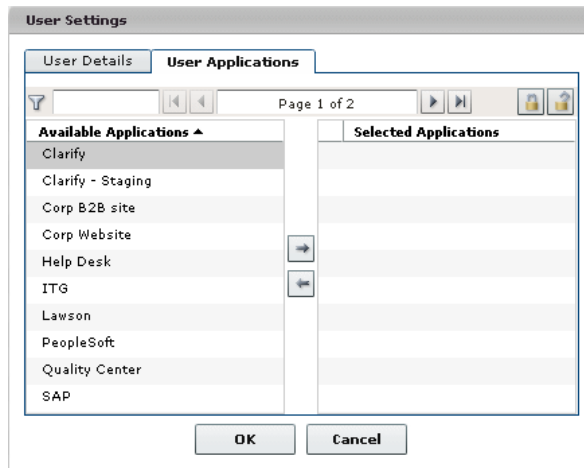
6 In the **Available Applications** list, select the application(s) you want to associate with the user. If the list of available applications is lengthy, you can use the filter box to display only those applications that match the text you enter in the filter box. In addition, you can use the **First**, **Previous**, **Next**, and **Last** buttons to locate an application. You can select multiple applications using the CTRL key.

7 Click the top arrow to move the application(s) to the **Selected Applications** list.

8 To ensure that the user will not be able to remove the association with a specific application, select the application and click the **Enforce Application** button.

To restore the user's ability to remove the association with this application, select the application and click the **Stop Enforcing Application** button.

9 Click **OK** to save your settings and close the User Settings dialog box. The new user is added to the HP Change Control Management database and is listed in the Users tab.

Modifying User Settings

As an administrator, you can modify the settings of an existing HP Change Control Management user.

To modify user settings:

1 In the Administration module's **Users** tab, select the user whose settings you want to modify. If the list of users is lengthy, you can use the filter box and/or the **First**, **Previous**, **Next**, and **Last** buttons to locate a user.

2 Click the **Edit** button in the top right corner. The User Settings – <Name of User> dialog box opens.

User Settings - John Doe

| User Details | User Applications |

User login name: * ccm
First name: * John
Last name: * Doe
E-Mail address: * ccm@hp.com
Password: * ************************
Retype password: * ************************
User role: * User
Approver: ● Yes ○ No

OK   Cancel

3 Modify the user details and applications associated with the user as required. For a description of user settings, see "Configuring User Settings" on page 180.

Note: If you are working in identity management mode, you cannot modify the user's login name, password, first name, last name, or e-mail address. For details on working in identity management mode, see "Working with Identity Management" on page 37.

---

4 Click **OK** to save your changes and close the User Settings – <Name of User> dialog box.

Deleting Users

You can delete any previously defined HP Change Control Management users.

To delete users:

1 In the Administration module's **Users** tab, select the user(s) you want to delete and click the **Delete** button in the top right corner.

2 Click **Yes** to confirm deletion. HP Change Control Management deletes the user(s) from the database.

Configuring User Name and Password Constraints
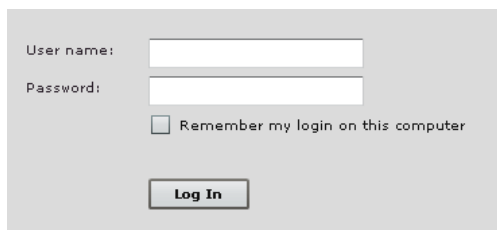
You can configure the following HP Change Control Management application user name and password constraints and properties in the **<HP Change Control Management installation directory>\conf\ application.settings** file:

➤ **minimum length.** Specify the minimum number of characters the user name/password can contain. By default, a user name/password must contain at least one character.

➤ **maximum length.** Specify the maximum number of characters the user name/password can contain. By default, a user name/password can contain no more than 50 characters.

➤ **pattern.** Using regular expressions, specify the characters that each user name/password can contain. For example, use the following expression to indicate that a user name/password can be any upper-case or lower-case letter, as well as any digit: ^[A-Z,a-z,0-9]$

➤ **pattern error message.** Specify the type of error message to be displayed if the user name/password contains a character that is not allowed. You can enter the error text itself here, or **properties-file** if you want to reference a properties file for the error message. If you reference a properties file, the error message text itself should be written in the **onyxCommonResources.properties** file.

Configuring User Login Settings

When users log in to HP Change Control Management from the opening page, they can select **Remember my login on this computer** so that the next time they log in from the same computer, they do not need to enter a user name and password.

User name:

Password:

☐ Remember my login on this computer

Log In

You can disable the **Remember my login on this computer** option in the **<HP Change Control Management installation directory>\conf\ security.settings** file by setting the value of the **<remember-me-enabled>** element to **false** and then restarting the HP Change Control Management server**.**

```
<settings>
 <session-settings version="3.0">
     <remember-me-enabled>false</remember-me-enabled>
 </session-settings>
</settings>
```

The **Remember my login on this computer** option no longer appears on the opening screen.

To restore the **Remember my login on this computer** option, set the value of the **<remember-me-enabled>** element to **true** and restart the HP Change Control Management server.

Configuring IT Applications

You view details of the IT applications affected by the change requests that HP Change Control Management processes, assign importance levels to these applications, and associate specific users with them in the Administration module's Applications tab.

This section includes:

➤ "Viewing Application Details" below

➤ "Assigning Importance Levels to Applications" on page 187

➤ "Associating Applications with Users" on page 189

Viewing Application Details

You can view details of the IT applications included in the Mercury Application Mapping view(s) that you defined for HP Change Control Management.

To view application details:

1 In the Administration module's **Applications** tab, select the application whose details you want to view. If the list of applications is lengthy, you can use the filter box and/or the **First**, **Previous**, **Next**, and **Last** buttons to locate the application.

2 Click the **Edit** button in the top right corner. The Application Properties –
<Application Name> dialog box opens, displaying a description of the
application as well as other Mercury Application Mapping-related details of
the application.

Application Properties - SAP	
Application Details	Application Users

Application name: SAP

Application importance: | 6 | ▼ |

Description:

HP CMDB owner:

Service name:

Organization name:

| OK | Cancel |

Assigning Importance Levels to Applications

As part of the HP Change Control Management risk analysis configuration,
you assign relative levels of importance to your applications. Each
application can be assigned an importance level between 1 and 10. Change
requests that affect applications with higher importance levels will be
marked by HP Change Control Management as having a higher risk.

To assign importance levels to applications:

1 In the Administration module's **Applications** tab, select the application for
which you want to assign an importance level. If the list of applications is
lengthy, you can use the filter box and/or the **First**, **Previous**, **Next**, and **Last**
buttons to locate an application.

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2 Click the **Edit** button in the top right corner. The Application Properties – <Application Name> dialog box opens.

Application Properties - SAP

| **Application Details** | Application Users |

Application name: SAP

Application importance: 6   ▼

Description:

HP CMDB owner:

Service name:

Organization name:

OK   Cancel

3 From the **Application importance** list, select an application importance level between 1 and 10.

Note: If you do not assign an importance value to an application, the default importance value assigned to the application is zero.

In this case, the default mapping is used for the **application importance** risk factor in the risk calculation. For more information about defining risk factors, see "Defining Risk Factors" on page 126.

---

4 Click **OK** to save your settings and close the Application Properties – <Application Name> dialog box.

Associating Applications with Users

You can associate specific HP Change Control Management users with each application.

To associate HP Change Control Management users with an application:

1 In the Administration module's **Applications** tab, select the application you want to associate with one or more users. If the list of applications is lengthy, you can use the filter box and/or the **First**, **Previous**, **Next**, and **Last** buttons to locate the application.

2 Click the **Edit** button in the top right corner. The Application Properties – <Application Name> dialog box opens.

3 Click the **Application Users** tab. A list of the HP Change Control Management users previously defined by the administrator is displayed in the **Available Users** column.

Application Properties - SAP

Application Details	**Application Users**

First Name ▲	Last Name		Selected Users
Bob	Smith		
John	Doe		
ccmadmin	ccmadmin		
Jane	Jefferson	→	
		←	

OK   Cancel

4 Select the users you want to associate with the application from the **Available Users** list. If the list of users is lengthy, you can use the filter box to display only those users that match the text you enter in the filter box. In addition, you can use the **First**, **Previous**, **Next**, and **Last** buttons to locate a user. You can select multiple users using the CTRL key.

→ **5** Click the top arrow. The users appear in the **Selected Users** list.
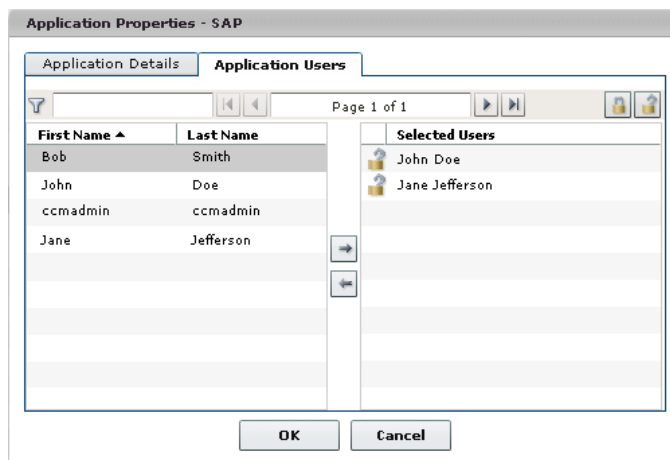
6 To ensure that a user will not be able to remove the association with this application, select the user and click the **Enforce Application** button.

To restore the user's ability to remove the association with this application, select the user and click the **Stop Enforcing Application** button.

7 Click **OK** to save your settings and close the Application Properties – <Application Name> dialog box. Your modifications will take effect when you next log in to HP Change Control Management.

Configuring Change Request Field Settings

This section describes how to configure change request fields for which you want to view data in the HP Change Control Management application.

Note: For a list of preconfigured change request fields included in HP Change Control Management, see Appendix C, "Preconfigured Change Request Fields."

This section includes the following topics:

➤ "Understanding the Fields Tab" on page 192

➤ "Creating or Modifying Change Request Fields" on page 193

➤ "Deleting a Change Request Field" on page 204

➤ "Customizing the Grid View" on page 205

➤ "Customizing the Request Details Tab" on page 206

Understanding the Fields Tab

In the Administration module's Fields tab, you configure change request fields for which you want to view data in the HP Change Control Management application. You can define the properties of each field and the way in which the field appears in your application.
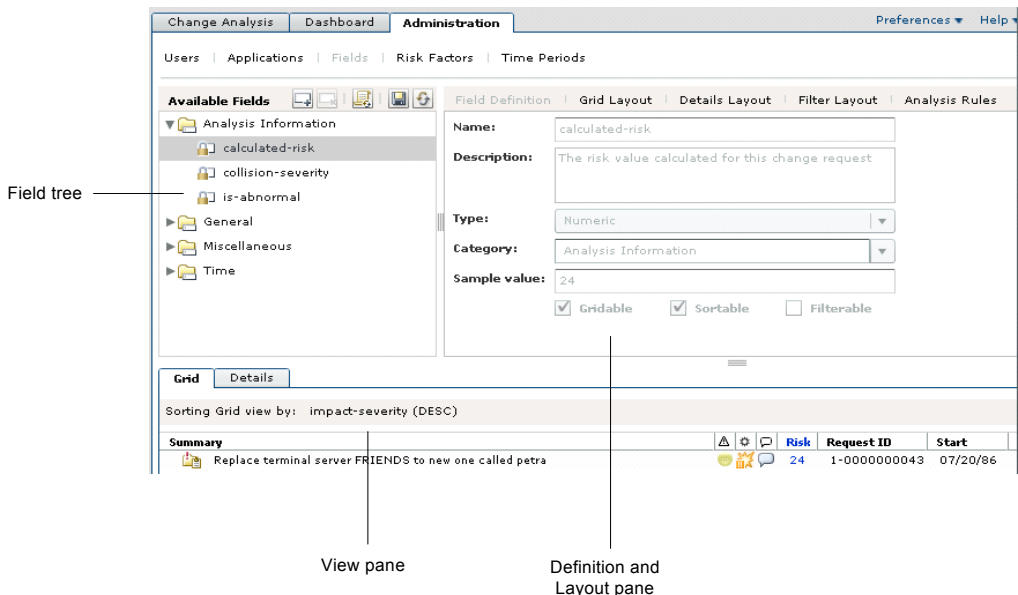
The Fields tab is divided into the following three sections:

➤ **Field tree**. Contains a list of all the change request fields. A field selected in the Field tree can be modified in the Definition and Layout pane. For filtering purposes, fields are organized into four default categories: **Analysis Information**, **General**, **Miscellaneous**, and **Time**. Fields defined as filterable will appear in the Change Request Filter dialog box, under the category that is defined here in the Field tree. You can create new categories when you create a new field.

➤ **Definition and Layout pane.** You define or modify the properties of the selected change request field in the Definition and Layout pane. This pane is divided into the following tabs: **Field Definition**, **Grid Layout**, **Details Layout**, **Filter Layout**, and **Analysis Rules**. In each tab, you configure a different aspect of the field.

➤ **View pane.** In the View pane, you can see a preview of the selected field as it will appear in the Change Analysis module's Grid view and Request Details tab. You can also customize the general layout of the Grid view and the Request Details tab as they appear in the Change Analysis module.

Creating or Modifying Change Request Fields

You create new change request fields and modify existing ones in the Administration module's Fields tab.

To create or modify change request fields:

1 Click the **Add Field** button to create a new field, or select an existing field that you want to modify.

There are two types of change request fields that appear in the Field tree:

➤ **Predefined fields.** Fields based on ITIL standards, which are common to most service desk applications. Some of these fields are integral to the proper functioning of the HP Change Control Management application and you therefore cannot remove predefined fields or change their basic properties. The only aspect of these fields that is customizable is the way in which they appear in your application.

➤ **Custom fields**. Fields that are recommended for use in order to optimize HP Change Control Management analysis features, or any new fields added by users. These fields can be changed or deleted.

2 In the **Field Definition** tab, define or modify basic properties of the field.

Note: You cannot change the name or type of an existing field. Instead, you can delete the existing field, save your settings, and then recreate a new field, with a different name, based on the same properties.

You can define the following properties:

Property	Description
Name	The name used to define the field for various configuration purposes. This is not the name that appears in the application.
	If you are defining a customized field, the name should be unique and in the format **[a-zA-Z][a-zA-Z0-9-]***. The name is not case-sensitive.
	Note that when you define a customized field (except for fields of type **Long Text**), a new column is added to the HP Change Control Management database for this field. Data for **Long Text** fields is stored in a different table.
	Note: Once a new field has been saved, its name cannot be modified.
Description	A short description of the field that serves to remind administrators about the usage of the field. The field's description does not appear anywhere in the application.
Type	The field's value type. The following value types are available:
	➤ **Short Text.** The request field's value is a simple text string, up to 64 characters.
	➤ **Long Text.** The request field's value is a simple text string with an unlimited number of characters. Note that fields of this type cannot be displayed in the Grid view and you cannot sort or filter according to this field.
	➤ **Boolean.** The request field's value is boolean (true/false; yes/no; 1/0).
	➤ **Date.** The request field's value is a date. Note that you cannot filter according to fields of this type.
	➤ **Numeric.** The request field's value is a numeric string.

Property	Description
Category	The filter category in which the customized field is to be included. To create a new category, type a unique category name in the **Category** box. The category name is not case-sensitive. The new category is automatically added to the Field tree.
	Since the filter categories and the fields they include are predefined and non-configurable, you cannot include a customized field in an existing filter category (**General**, **Analysis Information**, **Time**). Instead, you must either select **Miscellaneous** or create a new filter category for the customized field.
Sample value	Enables HP Change Control Management to display a preview of the field, with the sample value, in the View pane's **Grid** tab and/or **Details** tab. Note that you will see a preview only if you configure the field to be displayed in the Change Analysis module's Grid view and/or Request Details tab (in the Grid Layout or Details Layout tabs).
Sortable	Indicates whether HP Change Control Management can sort according to the selected field.
	The only fields that can be made sortable are those that can be displayed in the Change Analysis module's Grid view. If a field cannot be displayed in the Grid view, the **Sortable** option is disabled.
Filterable	Indicates whether the field is to be used as one of the filter criteria. In the **Filter Layout** tab, you define the way in which the field should appear in the Change Analysis module's Change Request Filter dialog box.
Gridable (not editable)	Indicates whether the selected field is of a type that can be displayed in the Change Analysis module's Grid view. This check box is not editable.

3 If the **Gridable** check box in the Field Definition tab is selected, click the **Grid Layout** tab to define the way in which the field will appear in the Change Analysis module's Grid view. You can define the following properties:

Property	Description
Header	The text to appear in the header of the column in which the change request field value is to be displayed.
Header tooltip	The text of the tooltip that will appear when you hold your mouse on the column header. **Note:** If this element is left unspecified, the name of the header is displayed as the tooltip.
Value type	The type of value that will be displayed for the selected field. The following value types are available: ➤ **Short Text.** The value is displayed as simple text. ➤ **Boolean.** The value is displayed as a check box (supports true/false, yes/no, and 1/0). ➤ **Date.** The value is displayed as a date. You customize the way the value appears in the **Value format** box.
Value format	The format in which the field will appear. For information about valid formats for each value type, see "Valid Field Value Formats" on page 202. **Note:** You cannot define a value format for Boolean value types.
Tooltip value type	The type of value that will be displayed in the tooltip describing the selected field. The following value types are available: ➤ **Short Text.** The value is displayed as simple text. ➤ **Date.** The value is displayed as a date. You can use the value tooltip to describe the information that appears in the Grid view in a different way. You use the **Tooltip value format** box, described below, to customize the way in which the tooltip value type appears.

Property	Description
Tooltip value format	The text and format of the tooltip that will appear when you hold your mouse over the field value. For information about valid formats for each value type, see "Valid Field Value Formats" on page 202.
Resizable	Indicates whether the column width is resizable. For more information about resizing columns, see "Customizing the Grid View" on page 205.
Show in Grid view	Indicates whether the field should be displayed in the Change Analysis module's Grid view. **Note:** If you select **Show in Grid view**, the View pane displays a preview of the way in which the field will appear in Grid view. To see how a sample value is displayed, type a sample value in the Field Definition tab's **Sample value** box.

4 Click the **Details Layout** tab to define the way in which the field will appear in the Change Analysis module's Request Details tab. You can define the following properties:

Property	Description
Label	The text to appear as the label preceding the displayed field value in the Request Details tab.

Property	Description
Value type	The type of value that will be displayed in the Request Details tab for the selected field. The following value types are available: ➤ **Short Text.** The value is displayed as simple text, adjacent to the label. ➤ **Long Text.** The value is displayed as simple text, underneath the label. Where necessary, the text will wrap. ➤ **Boolean.** The value is displayed as a check box (supports true/false, yes/no, and 1/0). ➤ **Date.** The value is displayed as a date. ➤ **Link.** Displays the name of another field, which contains a URL. Clicking on this field name takes you to the destination specified in the URL. You customize the way the value appears in the **Value format** box.
Value format	The format in which the field will appear. For information about valid formats for each value type, see "Valid Field Value Formats" on page 202. **Note:** You cannot define a value format for Boolean or Long Text value types.
Tooltip	The text of the tooltip that will appear when you hold your mouse over the label.
Show in Request Details tab	Indicates whether the field should be displayed in the Change Analysis module's Request Details tab. **Note:** If you select **Show in Request Details tab**, the View pane displays a preview of the way in which the field will appear in Request Details tab. To see how a sample value is displayed, type a sample value in the Field Definition tab's **Sample value** box.

5 If the **Filterable** check box in the Field Definition tab is selected, click the **Filter Layout** tab to define the way in which the field will appear in the Change Analysis module's Change Request Filter dialog box. You can define the following properties:

Property	Description
Label	The text to appear as the label preceding the displayed field value in the Change Request Filter dialog box.
Tooltip	The text of the tooltip that will appear when you hold your mouse over the label.
Type	Determines the way in which the selected field will operate as a filter. The options that are available in the **Type** list depend on the field type you defined in the Field Definition tab.
	The following possible options exist:
	➤ **Numeric.** Users can filter by specific numbers.
	➤ **Numeric Range.** Users can filter by a numeric range. If you select this option, you need to specify the range in the relevant boxes below the **Type** list.
	➤ **Boolean.** Users can filter by boolean value. You assign a label to each boolean value in the **'True' Label** and **'False' Label** boxes below the **Type** list. These are the labels that will appear in the Change Request Filter dialog box.
	➤ **Short Text.** Users enter a string that matches the filter value. An asterisk (*) can be used to match a string to several possible values. (For example, if you use the string Da*, both David and Danny will match.)
	➤ **Selection.** Users can select only one filter value option from a drop-down list box.
	➤ **Multi Selection.** Users can select multiple filter value options from a drop-down list box.

Property	Description
Type (cont'd)	If you select **Selection** or **Multi Selection** from the **Type** list, a table is displayed below the **Type** list, enabling you to add the filter value options you want to use.
	To add a new filter value option: 1 Click the **Add Filter Value** button [icon] .
	2 In the boxes below the table, enter the value of the option in the **Value** column and the way in which you want the value to be displayed in the **Display** column.
	3 To change the order in which the filter values will appear in the Change Request Filter dialog box, select the relevant filter value and click the **Move Up** or **Move Down** button [icon] [icon] .
	To delete an option: Select the option and click the **Delete Filter Value** button [icon] .
Show in Filter	Indicates whether the field will appear as one of the filter criteria in the Change Request Filter dialog box.

 4 Click the **Analysis Rules** tab to apply analysis rules to the change request field. These are the rules according to which you want HP Change Control Management to identify the location and format of CIs contained in the field's text.

Note: This step only applies to change request fields of type **Short Text** or **Long Text**. For other types of fields, continue with step 5 on page 202.

The Analysis Rules tab contains all the analysis rules specified in the **change-flow.settings** file. (For details on this file, see "Configuring the Analysis of Collected Requests" on page 110.) When you add a rule to the **change-flow.settings** file, it appears as the last rule in the Analysis Rules tab.

To apply analysis rules to the selected change request field, select the check boxes next to the appropriate analysis rules. By default, the following analysis rules are available:

Rule	Description
cmdb-object-id	A predefined, built-in analysis rule that can only be used when your service desk application is synchronized with the CMDB server. This rule locates CIs using Mercury Application Mapping configuration item IDs.
mam-ticket	A predefined, built-in analysis rule that can only be used when your service desk application is synchronized with the CMDB server. This rule locates CIs using change request IDs.
host	Identifies hosts within the selected field.
ip	Identifies IP addresses within the selected field.
ip-range	Identifies IP addresses within the selected field from a range of IP addresses that you define.

For each analysis rule that you selected, choose the level at which you want to apply the rule:

➤ **Change.** The analysis rule is applied to the field only when the field belongs to a top-level request.

➤ **Task.** The analysis rule is applied to the field only when the field belongs to a second-level request.

You can select both **Change** and **Task** if you want the analysis rule to apply to all requests in which the selected field appears.

Note: The names of the top-level and second-level requests are configurable in the **enumeration-labels.properties file**. For more information see "Configuring Enumeration Field Display Settings" on page 209.

By default, the **host**, **ip**, and **ip-range** analysis rules are applied to the **changed-ci-list** field, at both the **Change** and **Task** levels.

5 Ensure that you are satisfied with your Fields tab settings. Before you save your settings, you can undo any changes you made by clicking the **Refresh and Undo Modifications** button in the Field tree. This restores the fields to their most recent saved settings.

To save your changes and commit these changes to the server, click the **Save Settings for All Fields** button in the Field tree. A message opens asking you to confirm that you want to save these changes. Bear in mind that once you save these changes, they cannot be undone. Click **Yes** to save the changes.

The save process can take a few minutes, during which time users cannot log in to HP Change Control Management. Once the changes have been saved, users logging in to HP Change Control Management will view the new changes.

Note: After you have updated your adapter conversion scripts with the new fields that you created or modified, you can apply these updates to your adapter by clicking the **Reload Adapters** button.

Valid Field Value Formats

In the Fields tab, there are a number of places where you must define the format in which a specific field will appear. For each field value type, a different value format applies. The following table describes valid formats for each value type:

Value Type	Value Format
Short Text	If you selected **Short Text** as the value type, you can include parameters that contain the names of defined fields. Each field must contain two percentage signs on either side of it.
	For example, if you defined your value format as **Please contact %%contact-person%%**, the parameter **%%contact-person%%** would return the name of the contact person for the request (from the **contact-person** field).

Value Type	Value Format
Date	If you selected **Date** as your value type, you can specify the way in which the date should be displayed by making use of letter patterns containing the following letters: ➤ **Y.** Year ➤ **M.** Month ➤ **D.** Day in the month ➤ **E.** Day of the week ➤ **A.** AM/PM indicator ➤ **J.** Hour of the day (0-23) ➤ **H.** Hour of the day (1-24) ➤ **K.** Hour in the AM/PM (0-11) ➤ **L.** Hour in the AM/PM (1-12) ➤ **N.** Minute in the hour ➤ **S.** Second in the minute For example, to display **Sat 04 Mar 2006 09:43AM**, you would use the following date format: EEE DD MMM YYYY LL:NNA
Link	If you selected **Link** as your value type, you must specify the name of a field that contains a URL. You enter the field as a parameter that contains the name of the field, surrounded by two percentage signs on each side of the field (**%%field_name%%)**. The value displayed for this format is the value of the current field (not the field that contains the URL) and the tooltip of this value is the URL. Clicking on the field leads you to the URL destination.

Note: You cannot define a value format for **Boolean** or **Long Text** value types.

Deleting a Change Request Field

You can delete Custom fields that are provided by default or manually added by the user.

Predefined fields, which are integral to the proper functioning of the HP Change Control Management application, cannot be deleted.

Important: When you delete a change request field, all data related to the field is removed.

To delete a change request field:

1 In the Administration module's **Fields** tab, select the field that you want to delete.

2 Click the **Delete Field** button in the Field tree. A message opens asking you to confirm that you want to delete this change request field.

3 Click **Yes** to confirm.

Note: The field is only deleted once you save your field setting changes (see step 5 on page 202 for instructions on saving your settings). Before you save your field settings, you can still undo the delete action by clicking the **Refresh and Undo Modifications** button in the Field tree. This restores the fields to their most recent saved settings.

Customizing the Grid View

In the Administration module's Fields tab, you can customize the layout of the Change Analysis module's Grid view.

To customize the Grid view:

In the View pane, select the **Grid** tab. A preview of the fields for which you selected **Show in Grid view** (in the Grid Layout tab) are displayed.

You can customize the following:

➤ the width of the columns. To adjust the column width, rest the pointer on the column boundary you want to move until it becomes a resize pointer, and then drag the boundary until the column is at the required width. Note that you can adjust the width of the column only if you selected **Resizable** for the selected column in the Grid Layout tab.

➤ the order of appearance of the columns. You can move the columns to the left or to the right by selecting the relevant column header and clicking either the **Move Column Right** or **Move Column Left** button.

➤ the column by which the Grid view should be sorted by default. To sort the Grid view according to a specific column, click the relevant column heading twice. An arrow is displayed next to the column header to indicate that the Grid view is sorted by this column. To change the sorting order, click the column heading again. The arrow points in the opposite direction. Note that you can select a column to sort by only if you selected **Sortable** for the column in the Grid Layout tab.

Customizing the Request Details Tab

In the Administration module's Fields tab, you can customize the layout of the Change Analysis module's Request Details tab.

To customize the Request Details tab:

In the View pane, select the **Details** tab. A preview of the fields for which you selected **Show in Request Details tab** (in the Details Layout tab) are displayed.

You can perform the following:

➤ **Add or remove columns.**

You can add additional empty columns to be displayed in the Request Details tab. To add a new column, click the **Add Column** button. An empty column is added on the right. You can then move different fields to the new column as explained below.

To delete a column, select the relevant column by clicking inside the column—but not on a particular field—until the whole column is highlighted. Click the **Remove Column** button. The fields that were included in this column move over to another column.

➤ **Change the order of appearance of the fields.**

To move the field to a different column, select the relevant field and click the **Move Right** or **Move Left** button. You can also move an entire column to the left or to the right by selecting a whole column and using the **Move Right** or **Move Left** button.

Configuring Calendar Settings

By default, the Calendar view in the Change Analysis module displays Monday as the first day of the week and the color of the impact severity level as the color of the change request heading. However, you can modify these settings in the **<calendar-settings>** section of the **<HP Change Control Management installation directory>\conf\application.settings** file.

For example, if you would like to display Sunday as the first day of the week, you would change the value of the **<start-day-of-week>** element from **2** to **1**:

```
<start-day-of-week>1</start-day-of-week>
```

You can also associate the header color with a field other than the impact-severity field. For example, you could associate the header color with the **contact-person** field (using the name of the field that you defined in the Fields tab) and map different contact people to different colors, as follows:

```
<header-line-color>
        <data-field-name>contact-person</data-field-name>
        <data-type>enumeration</data-type>
        <values>
            <map-value source="Steve" target="yellow"/>
            <map-value source="David" target="0x00ff00"/>
        </values>
        <unknown-value>0xffffff</unknown-value>
    </header-line-color>
```

Note: The **<unknown-value>** element defines the color to be displayed when the value of the field does not match any of the mapped values.

Configuring Dashboard Settings

The **<HP Change Control Management installation directory>\conf\ dashboard.settings** file maps the two types of roles in HP Change Control Management—**user** and **administrator**—to the **users** and **administrators** Dashboard groups, respectively, and defines the privileges granted to each group. This file also contains other definitions related to the display of Dashboard pages and portlets.

Note: The definitions in this file should not be modified.

The **<HP Change Control Management installation directory>\conf\ Dashboard_Objects_Export.xml** file contains definitions for the HP Change Control Management Default Page in the Dashboard. If you changed the **Pending Approval** or **Closed** status in the **<HP Change Control Management installation directory>\conf\enumerations.settings** file, you must update the **Dashboard_Objects_Export.xml** file with the alternative status or statuses that you are using.

To update the Closed status:

1 Locate the following line within the **Dashboard_Objects_Export.xml** file:

```
[CLOSED][Closed]
```

Note that there are two occurrences of this line in the file.

2 Replace **[CLOSED]** with the alternative status defined in the **<HP Change Control Management installation directory>\conf\enumerations.settings** file. For details on configuring the **enumerations.settings** file, see "Customizing HP Change Control Management Fields" on page 70.

3 Replace **[Closed]** with the label you assigned to the above status in the **<HP Change Control Management installation directory>\conf\ enumeration-labels.properties** file. For details on configuring the **enumeration-labels.properties** file, see "Configuring Enumeration Field Display Settings" on page 209.

To update the Pending Approval status:

1 Locate the following line within the **Dashboard_Objects_Export.xml** file:

```
[PENDING_APPROVAL][Pending_Approval]
```

Note that there are four occurrences of this line in the file.

2 Replace **[PENDING_APPROVAL]** with the alternative status defined in the **<HP Change Control Management installation directory>\conf\ enumerations.settings** file. For details on configuring the **enumerations.settings** file, see "Customizing HP Change Control Management Fields" on page 70.

3 Replace **[Pending_Approval]** with the label you assigned to the above status in the **<HP Change Control Management installation directory>\conf\ enumeration-labels.properties** file. For details on configuring the **enumeration-labels.properties** file, see "Configuring Enumeration Field Display Settings" below.

After you have updated the **Dashboard_Objects_Export.xml** file with the alternative status or statuses that you are using, you must run the **populate_dashboard.bat** command from the **<HP Change Control Management installation directory>\tomcat\webapps\ccm** command line directory. Note that when you run this command, any previous Dashboard data that you configured is automatically deleted.

Configuring Enumeration Field Display Settings

The **<HP Change Control Management installation directory>\conf\ enumeration-labels.properties** file contains a default application display mapping scheme for the configured enumeration fields. You can modify the way in which the HP Change Control Management application displays each of the enumeration fields listed in this file.

For example, you may want to display the status **Closed** as **Completed**. To do so, you would change the line:

```
StatusEnum.CLOSED=Closed
```

to:

```
StatusEnum.CLOSED=Completed
```

You can also modify the icon color that corresponds to each severity level. For example, to display a red icon rather than an orange icon for a severity level of **High**, you would change the line:

```
SeverityEnum.High.color=orange
```

to:

```
SeverityEnum.High.color=red
```

Note: You cannot modify the color icons themselves; red, orange, yellow, green_yellow, green, and gray are the only colors available.

By default, top-level or parent change requests are referred to as **changes** and second-level or child change requests are referred to as **tasks** in the HP Change Control Management application. Other request hierarchy levels are referred to as **unknown**. You can modify this terminology by changing the following lines in the **enumeration-labels.properties** file:

```
LevelEnum.1=Change
LevelEnum.2=Task
LevelEnum.Level.UNKNOWN=Unknown
```

10

Configuring System Preferences

To work with HP Change Control Management, you must create a database or user schema, configure the connection properties for the HP Change Control Management database or user schema, and configure the SMTP mail server responsible for sending HP Change Control Management e-mail notifications. In addition, you can reconfigure the HP Change Control Management application server address, predefined log file properties, and the user authentication mode, if required.

This chapter describes:	On page:
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Configuring the SMTP Mail Server	214
Configuring the HP Change Control Management Server	214
Configuring Log File Properties	215
Configuring the User Authentication Mode	217

Configuring the Database or User Schema

To work with HP Change Control Management, you must create either a Microsoft SQL Server database or an Oracle Server user schema (see "System Requirements" on page 24 for MS SQL Server and Oracle Server system requirements). You then configure connection properties for the HP Change Control Management database or user schema.

Note: For information and guidelines about configuring and maintaining MS SQL and Oracle Server databases, see Appendix E, "Database Configuration and Maintenance."

Microsoft SQL Server

After you have created an MS SQL Server database, copy the contents of the **<HP Change Control Management installation directory>\examples\ database-config-examples\database.properties.mssql** file to the **<HP Change Control Management installation directory>\conf\ database.properties** file and configure the following properties:

➤ **server name.** Specify the name of the MS SQL Server.

➤ **database name.** Specify the name of the MS SQL Server database.

➤ **password.** Specify the password required to connect to the MS SQL Server database. If the password must be encrypted, see Appendix A, "Password Encryption" for details on encrypting passwords.

➤ **user name.** Specify the user name required to connect to the MS SQL Server database.

Oracle Server

After you have created an Oracle Server user schema, copy the contents of the **<HP Change Control Management installation directory>\examples\database-config-examples\database.properties.oracle** file to the **<HP Change Control Management installation directory>\conf\database.properties** file and configure the following properties:

➤ **server name.** Specify the name of the Oracle Server.

➤ **service name.** Specify the service name for the Oracle Server user schema.

➤ **password.** Specify the password required to connect to the Oracle Server user schema. If the password must be encrypted, see Appendix A, "Password Encryption" for details on encrypting passwords.

➤ **user name.** Specify the user name required to connect to the Oracle Server user schema.

Database Pool Configuration Settings

You can modify the database pool configuration settings for an MS SQL or Oracle Server database or user schema, if required. For details on configuring database pool settings, refer to the following URL:
http://www.mchange.com/projects/c3p0/index.html

By default, HP Change Control Management does not log MS SQL or Oracle Server database statements. To modify this default setting, change the following line in the **database.properties** file:

```
hibernate.show_sql=false
```

to:

```
hibernate.show_sql=true
```

Note: No other settings in the **database.properties** file should be modified.

Configuring the SMTP Mail Server

To work with HP Change Control Management, you must configure connection properties for the SMTP mail server responsible for sending HP Change Control Management e-mail notifications. The following are the properties you must configure in the **<HP Change Control Management installation directory>\conf\integrations.settings** file:

➤ **user name.** Specify the user name required to connect to the SMTP mail server, if one is required.

➤ **password.** Specify the password required to connect to the SMTP mail server, if one is required. If the password must be encrypted, see Appendix A, "Password Encryption" for details on encrypting passwords.

➤ **SMTP host.** Specify the host name of the SMTP mail server machine.

➤ **SMTP port.** Specify the port to be used to connect to the SMTP mail server.

Configuring the HP Change Control Management Server

The HP Change Control Management application server name and address are configured automatically during the HP Change Control Management installation process. HP Change Control Management uses these settings to create links to requests in the HP Change Control Management application from e-mail notifications.

If the links from the e-mail notifications to the HP Change Control Management application are not working properly, this may be a result of DNS resolution problems. To try and resolve this issue for future notifications that are sent, change the server machine name in the following line of the **<HP Change Control Management installation directory>\conf\server.settings** file to the server IP address.

For example, change:

<server-address>http://server1:8080/ccm</server-address>

to:

<server-address>http://198.10.20.1:8080/ccm</server-address>

Configuring Log File Properties

The **<HP Change Control Management installation directory>\conf\ ccmlog4j.properties** file contains a list of log file definitions, some of which you may want to modify.

Modifying the Types of Messages Displayed

The following three types of log message commands can be used:

➤ **WARN.** Warning and error messages are displayed.

➤ **INFO.** Info messages that record the processing activity that the system performs are displayed, in addition to warning and error messages.

➤ **DEBUG.** All types of log messages are displayed.

The HP Change Control Management log files are located in the **<HP Change Control Management installation directory>\logs** directory. For a description of each of the log files contained in this directory, see Appendix D, "Log Files."

The Tomcat server log files are located in the **<HP Change Control Management installation directory>\tomcat\logs\stdout.log** file.

Modifying File Size and Backup Policy

By default, the maximum size of a log file is set to 4000 KB. To change this setting for all log files, modify the following line at the top of the **ccmlog4j.properties** file:

```
def.file.max.size=4000KB
```

By default, there are 10 backup log files at any given time. To change this setting for all log files, modify the following line at the top of the **ccmlog4j.properties** file:

```
def.files.backup.count=10
```

Modifying Time Zones

By default, log messages are recorded using the GMT time zone. To use a different time zone, specify the required zone in the following line at the bottom of the **ccmlog4j.properties** file:

```
ConversionPattern=%d{ISO8601} [%t] %-5.5p %C{1} -  %m%n
```

For example, if you want to use Eastern Standard Time, you would specify the following:

```
ConversionPattern=%d{ISO8601@EST} [%t] %-5.5p %C{1} -  %m%n
```

For a list of GMT time zones for locations throughout the world, see Appendix B, "GMT Time Zones."

Configuring the User Authentication Mode

You can configure HP Change Control Management to work in either one of the following user authentication modes:

➤ **Regular mode.** HP Change Control Management does not work with an identity management system and HP Change Control Management authenticates all users. This mode is used when the authentication mode is set to **DBMode** (the default option) in the **<HP Change Control Management installation directory>\conf\security.settings** file and HP Change Control Management is accessed via the following URL: http://<server name>:<Tomcat server port>/ccm

➤ **Identity management mode.** HP Change Control Management works with an identity management system that authenticates all users. This mode is used when the authentication mode is set to **IMMode** in the **<HP Change Control Management installation directory>\conf\security.settings** file and HP Change Control Management is accessed via the following URL: http://<server name>/ccm. When you work in this mode, users are unable to modify their passwords and the HP Change Control Management administrator is unable to add users to HP Change Control Management or update the user name, password, first name, last name, or e-mail address of any user within HP Change Control Management. These functions must be performed in the LDAP directory.

For more information on working with HP Change Control Management and identity management, see Chapter 3, "Working with Identity Management."

Note: If you try to access http://<server name>/ccm, you will be forwarded to the identity management login screen, even if you set the authentication mode to **DBMode** in the **security.settings** file.

Part IV

Appendixes

A

Password Encryption

All HP Change Control Management passwords may be encrypted, if required.

To encrypt a specific password:

1 In the **<HP Change Control Management installation directory>\utilities\ security** directory, run the following:

```
EncryptPassword.bat <password to encrypt>
```

2 Copy and paste the generated encrypted password (**{ENCRYPTED} <encrypted password>**) into the appropriate HP Change Control Management configuration file.

To encrypt all the passwords in a file:

1 Ensure that the each password in the file is on a separate line, as in the following example:

```
<password1>
<password2>
<password3>
```

2 In the **<HP Change Control Management installation directory>\utilities\ security** directory, run the following:

```
EncryptPassword.bat -f <file name>
```

A file with the same name and the extension **.enc** is created. This file includes an encrypted password for each password included in the original file.

3 Copy and paste each generated encrypted password (**{ENCRYPTED}** **<encrypted password>**) into the appropriate HP Change Control Management configuration file.

B

GMT Time Zones

The following list describes GMT time zones for locations throughout the world.

(GMT -11) Pacific/Niue
(GMT -11) Pacific/Apia
(GMT -11) MIT
(GMT -11) Pacific/Pago_Pago
(GMT -10) Pacific/Tahiti
(GMT -10) Pacific/Fakaofo
(GMT -10) Pacific/Honolulu
(GMT -10) HST
(GMT -10) America/Adak
(GMT -10) Pacific/Rarotonga
(GMT -9) Pacific/Marquesas
(GMT -9) Pacific/Gambier
(GMT -9) America/Anchorage
(GMT -9) AST
(GMT -8) Pacific/Pitcairn
(GMT -8) America/Vancouver
(GMT -8) America/Tijuana
(GMT -8) America/Los_Angeles
(GMT -8) PST
(GMT -7) America/Dawson_Creek
(GMT -7) America/Phoenix
(GMT -7) PNT
(GMT -7) America/Edmonton
(GMT -7) America/Mazatlan
(GMT -7) America/Denver
(GMT -7) MST
(GMT -6) America/Belize
(GMT -6) America/Regina
(GMT -6) Pacific/Galapagos
(GMT -6) America/Guatemala
(GMT -6) America/Tegucigalpa
(GMT -6) America/El_Salvador
(GMT -6) America/Costa_Rica
(GMT -6) America/Winnipeg
(GMT -6) Pacific/Easter
(GMT -6) America/Mexico_City
(GMT -6) America/Chicago
(GMT -6) CST
(GMT -5) America/Porto_Acre
(GMT -5) America/Bogota
(GMT -5) America/Guayaquil
(GMT -5) America/Jamaica
(GMT -5) America/Cayman
(GMT -5) America/Managua
(GMT -5) America/Panama
(GMT -5) America/Lima
(GMT -5) America/Indianapolis
(GMT -5) IET
(GMT -5) America/Nassau
(GMT -5) America/Montreal

(GMT -5) America/Havana (GMT -5) America/Port-au-Prince
(GMT -5) America/Grand_Turk (GMT -5) America/New_York
(GMT -5) EST (GMT -4) America/Antigua
(GMT -4) America/Anguilla (GMT -4) America/Curacao
(GMT -4) America/Aruba (GMT -4) America/Barbados
(GMT -4) America/La_Paz (GMT -4) America/Manaus
(GMT -4) America/Dominica (GMT -4) America/Santo_Domingo
(GMT -4) America/Grenada (GMT -4) America/Guadeloupe
(GMT -4) America/Guyana (GMT -4) America/St_Kitts
(GMT -4) America/St_Lucia (GMT -4) America/Martinique
(GMT -4) America/Montserrat (GMT -4) America/Puerto_Rico
(GMT -4) PRT (GMT -4) America/Port_of_Spain
(GMT -4) America/St_Vincent (GMT -4) America/Tortola
(GMT -4) America/St_Thomas (GMT -4) America/Caracas
(GMT -4) Antarctica/Palmer (GMT -4) Atlantic/Bermuda
(GMT -4) America/Cuiaba (GMT -4) America/Halifax
(GMT -4) Atlantic/Stanley (GMT -4) America/Thule
(GMT -4) America/Asuncion (GMT -4) America/Santiago
(GMT -3) America/St_Johns (GMT -3) CNT
(GMT -3) America/Fortaleza (GMT -3) America/Cayenne
(GMT -3) America/Paramaribo (GMT -3) America/Montevideo
(GMT -3) America/Buenos_Aires (GMT -3) AGT
(GMT -3) America/Godthab (GMT -3) America/Miquelon
(GMT -3) America/Sao_Paulo (GMT -3) BET
(GMT -2) America/Noronha (GMT -2) Atlantic/South_Georgia
(GMT -1) Atlantic/Jan_Mayen (GMT -1) Atlantic/Cape_Verde
(GMT -1) America/Scoresbysund (GMT -1) Atlantic/Azores
(GMT +0) Africa/Ouagadougou (GMT +0) Africa/Abidjan
(GMT +0) Africa/Accra (GMT +0) Africa/Banjul
(GMT +0) Africa/Conakry (GMT +0) Africa/Bissau
(GMT +0) Atlantic/Reykjavik (GMT +0) Africa/Monrovia
(GMT +0) Africa/Casablanca (GMT +0) Africa/Timbuktu
(GMT +0) Africa/Nouakchott (GMT +0) Atlantic/St_Helena
(GMT +0) Africa/Freetown (GMT +0) Africa/Dakar
(GMT +0) Africa/Sao_Tome (GMT +0) Africa/Lome
(GMT +0) GMT (GMT +0) UTC

(GMT +0) Atlantic/Faeroe
(GMT +0) Atlantic/Canary
(GMT +0) Europe/Dublin
(GMT +0) Europe/Lisbon
(GMT +0) Europe/London
(GMT +1) Africa/Luanda
(GMT +1) Africa/Porto-Novo
(GMT +1) Africa/Bangui
(GMT +1) Africa/Kinshasa
(GMT +1) Africa/Douala
(GMT +1) Africa/Libreville
(GMT +1) Africa/Malabo
(GMT +1) Africa/Niamey
(GMT +1) Africa/Lagos
(GMT +1) Africa/Ndjamena
(GMT +1) Africa/Tunis
(GMT +1) Africa/Algiers
(GMT +1) Europe/Andorra
(GMT +1) Europe/Tirane
(GMT +1) Europe/Vienna
(GMT +1) Europe/Brussels
(GMT +1) Europe/Zurich
(GMT +1) Europe/Prague
(GMT +1) Europe/Berlin
(GMT +1) Europe/Copenhagen
(GMT +1) Europe/Madrid
(GMT +1) Europe/Gibraltar
(GMT +1) Europe/Budapest
(GMT +1) Europe/Rome
(GMT +1) Europe/Vaduz
(GMT +1) Europe/Luxembourg
(GMT +2) Africa/Tripoli
(GMT +1) Europe/Monaco
(GMT +1) Europe/Malta
(GMT +1) Africa/Windhoek
(GMT +1) Europe/Amsterdam
(GMT +1) Europe/Oslo
(GMT +1) Europe/Warsaw
(GMT +1) Europe/Stockholm
(GMT +1) Europe/Belgrade
(GMT +1) Europe/Paris
(GMT +1) ECT
(GMT +2) Africa/Bujumbura
(GMT +2) Africa/Gaborone
(GMT +2) Africa/Lubumbashi
(GMT +2) Africa/Maseru
(GMT +2) Africa/Blantyre
(GMT +2) Africa/Maputo
(GMT +2) Africa/Kigali
(GMT +2) Africa/Khartoum
(GMT +2) Africa/Mbabane
(GMT +2) Africa/Lusaka
(GMT +2) Africa/Harare
(GMT +2) CAT
(GMT +2) Africa/Johannesburg
(GMT +2) Europe/Sofia
(GMT +2) Europe/Minsk
(GMT +2) Asia/Nicosia
(GMT +2) Europe/Tallinn
(GMT +2) Africa/Cairo
(GMT +2) ART
(GMT +2) Europe/Helsinki
(GMT +2) Europe/Athens
(GMT +2) Asia/Jerusalem
(GMT +2) Asia/Amman
(GMT +2) Asia/Beirut
(GMT +1) Europe/Vilnius
(GMT +2) Europe/Riga
(GMT +2) Europe/Chisinau
(GMT +2) Europe/Bucharest
(GMT +2) Europe/Kaliningrad
(GMT +2) Asia/Damascus

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(GMT +2) Europe/Kiev   (GMT +2) Europe/Istanbul
(GMT +2) EET   (GMT +3) Asia/Bahrain
(GMT +3) Africa/Djibouti   (GMT +3) Africa/Asmera
(GMT +3) Africa/Addis_Ababa   (GMT +3) EAT
(GMT +3) Africa/Nairobi   (GMT +3) Indian/Comoro
(GMT +3) Asia/Kuwait   (GMT +3) Indian/Antananarivo
(GMT +3) Asia/Qatar   (GMT +3) Africa/Mogadishu
(GMT +3) Africa/Dar_es_Salaam   (GMT +3) Africa/Kampala
(GMT +3) Asia/Aden   (GMT +3) Indian/Mayotte
(GMT +3) Asia/Riyadh   (GMT +3) Asia/Baghdad
(GMT +2) Europe/Simferopol   (GMT +3) Europe/Moscow
(GMT +3) Asia/Tehran   (GMT +3) MET
(GMT +4) Asia/Dubai   (GMT +4) Indian/Mauritius
(GMT +4) Asia/Muscat   (GMT +4) Indian/Reunion
(GMT +4) Indian/Mahe   (GMT +4) Asia/Yerevan
(GMT +4) NET   (GMT +4) Asia/Baku
(GMT +4) Asia/Aqtau   (GMT +4) Europe/Samara
(GMT +4) Asia/Kabul   (GMT +5) Indian/Kerguelen
(GMT +4) Asia/Tbilisi   (GMT +5) Indian/Chagos
(GMT +5) Indian/Maldives   (GMT +5) Asia/Dushanbe
(GMT +5) Asia/Ashkhabad   (GMT +5) Asia/Tashkent
(GMT +5) Asia/Karachi   (GMT +5) PLT
(GMT +5) Asia/Bishkek   (GMT +5) Asia/Aqtobe
(GMT +5) Asia/Yekaterinburg   (GMT +5) Asia/Calcutta
(GMT +5) IST   (GMT +5) Asia/Katmandu
(GMT +6) Antarctica/Mawson   (GMT +6) Asia/Thimbu
(GMT +6) Asia/Colombo   (GMT +6) Asia/Dacca
(GMT +6) BST   (GMT +6) Asia/Almaty
(GMT +6) Asia/Novosibirsk   (GMT +6) Indian/Cocos
(GMT +6) Asia/Rangoon   (GMT +7) Indian/Christmas
(GMT +7) Asia/Jakarta   (GMT +7) Asia/Phnom_Penh
(GMT +7) Asia/Vientiane   (GMT +7) Asia/Saigon
(GMT +7) VST   (GMT +7) Asia/Bangkok
(GMT +7) Asia/Krasnoyarsk   (GMT +8) Antarctica/Casey
(GMT +8) Australia/Perth   (GMT +8) Asia/Brunei
(GMT +8) Asia/Hong_Kong   (GMT +8) Asia/Ujung_Pandang

(GMT +8) Asia/Macao

(GMT +8) Asia/Manila

(GMT +8) Asia/Taipei

(GMT +8) CTT

(GMT +8) Asia/Irkutsk

(GMT +9) Asia/Pyongyang

(GMT +9) Pacific/Palau

(GMT +9) JST

(GMT +9) Australia/Darwin

(GMT +9) Australia/Adelaide

(GMT +10) Australia/Hobart

(GMT +10) Pacific/Truk

(GMT +10) Pacific/Saipan

(GMT +10) Australia/Brisbane

(GMT +10) Australia/Sydney

(GMT +10) Australia/Lord_Howe

(GMT +11) Pacific/Efate

(GMT +11) SST

(GMT +11) Asia/Magadan

(GMT +12) Pacific/Kosrae

(GMT +12) Pacific/Majuro

(GMT +12) Pacific/Funafuti

(GMT +12) Pacific/Wallis

(GMT +12) Antarctica/McMurdo

(GMT +12) Pacific/Auckland

(GMT +12) Pacific/Chatham

(GMT +13) Pacific/Tongatapu

(GMT +14) Pacific/Kiritimati

(GMT +8) Asia/Kuala_Lumpur

(GMT +8) Asia/Singapore

(GMT +8) Asia/Shanghai

(GMT +8) Asia/Ulan_Bator

(GMT +9) Asia/Jayapura

(GMT +9) Asia/Seoul

(GMT +9) Asia/Tokyo

(GMT +9) Asia/Yakutsk

(GMT +9) ACT

(GMT +9) Australia/Broken_Hill

(GMT +10)
Antarctica/DumontDUrville

(GMT +10) Pacific/Guam

(GMT +10) Pacific/Port_Moresby

(GMT +10) Asia/Vladivostok

(GMT +10) AET

(GMT +11) Pacific/Ponape

(GMT +11) Pacific/Guadalcanal

(GMT +11) Pacific/Noumea

(GMT +11) Pacific/Norfolk

(GMT +12) Pacific/Tarawa

(GMT +12) Pacific/Nauru

(GMT +12) Pacific/Wake

(GMT +12) Pacific/Fiji

(GMT +12) Asia/Kamchatka

(GMT +12) NST

(GMT +13) Pacific/Enderbury

(GMT +13) Asia/Anadyr

C

Preconfigured Change Request Fields

This appendix lists HP Change Control Management's default set of preconfigured change request fields, which includes two types of fields: predefined fields and custom fields.

This appendix describes:	On page:
Predefined Fields	229
Custom Fields	231

Predefined Fields

Predefined fields are fields based on ITIL standards, which are common to most service desk applications. The following **Predefined** fields are included in HP Change Control Management:

Name	Description
actual-end-time	The actual change activity's completion time.
actual-start-time	The actual change activity's start time.
calculated-risk	The risk value calculated for the change request.
change-types-orig	The change types assigned to this request as defined in the original service desk. This data is used during latent and detected change analysis.
collision-severity	The collision severity level evaluated for the request.

Name	Description
contact-email	The e-mail of the contact person designated as responsible for the change request's creation.
contact-location	The location of the contact person designated as responsible for the change request's creation.
contact-person	The person who serves as a contact regarding the change request.
contact-phone	The phone number of the contact person designated as responsible for the change request's creation.
creating-service-desk	The service desk on which this change request was created.
creation-time	The time at which the change request was created.
description	A description of the change request.
ignore-detection	Indicates whether HP Change Control Management should try and detect the change request or skip its detection during the detection stage.
impact-severity	The impact severity level evaluated for the request.
implementor	The person assigned to implement the change.
internal-id	An ID value used internally by HP Change Control Management.
last-impact-time	The last time the change request's impact was calculated.
last-update-time	The last time the change request was updated.
number-of-comments	The number of comments created for the change request.
origin-url	A URL address that points to the original change request in the service desk application.
planned-end-time	The change activity's planned end time.
planned-start-time	The change activity's planned start time.

Name	Description
priority	A priority assigned to the request by the creating user.
request-id	An ID value that originated in the service desk application.
source-itil-entity	The ITIL entity out of which the change request was created (incident, problem, requirement).
status	The current status of the change request.
summary	A short summary of the change request.
user-estimated-risk	The risk level of the change request as evaluated by the creating user.

Custom Fields

Custom fields are fields that are recommended for use in order to optimize HP Change Control Management analysis features. The following **Custom** fields are included in HP Change Control Management:

Name	Description
changed-ci-list	The list of CIs that are part of the planned change.
departments-involved	The number of different departments from which the change implementers emanate.
implementor-experience	The implementer's level of experience regarding the work involved in the change.
involved-users	The number of users using the applications involved in the change.
is-backout-possible	Indicates whether there is a valid backout plan.
is-outage-planned	Indicates whether an outage is planned as part of the change.
is-sox-app-involved	Indicates whether an SOX application is involved in the change.

Name	Description
is-tested	Indicates whether the change was tested in a testing environment.
new-deployment	Indicates whether the change is a deployment of new hardware, a major feature, or an application.
past-experience	The success ratio of similar changes in the past.
recent-incidents	Indicates whether an application involved in the change had major incidents within the two previous weeks.
sla-status	Indicates whether the SLA of an application involved in the change is close to being breached.
technology-experience	The amount of time (in quarters) that has transpired since the technology involved in the change was introduced to the organization.
vip-users	Indicates whether there are any VIP users using applications involved in the change.

D

Log Files

This appendix describes the log files available in HP Change Control Management. These log files are located in the **<HP Change Control Management installation directory>\logs** directory.

The following table describes each of the HP Change Control Management log files:

Log name	Usage
ccm_sdi	Log file for the Service Desk Integration module (SDI). Contains information on the process of collection and conversion of change requests, until they reach the CCM_QUEUED_CHANGES input queue of the HP Change Control Management platform.
ccm_platform	Log file for the main HP Change Control Management platform. Contains information regarding the change request analysis process (for example, impact and collision analysis), notification deliveries, and risk recalculations, as well as other data.
ccm_mam	Log file for the module responsible for interfacing with Mercury Application Mapping.
ccm_client	Log file for requests initiated from the user interface or from Web services.
ccm_datamodel	Log file for most of the interactions between HP Change Control Management and the database.
ccm_hibernate	Log file for the interactions with the database involving the **hibernate** object to database mapper.

Log name	Usage
ccm_c3p0	Log file for the interactions with the database involving the **c3p0** database connection pool.
ccm_genericinfra	Log file for infrastructure utilities such as settings, scripting, and security.
ccm_onyxinfra	Log file for infrastructure utilities that depend on the database and enumerations.

When you are investigating an incident, it is recommended that you begin by looking through the log files for the Service Desk Integration module (**ccm_sdi**) or for the main HP Change Control Management platform (**ccm_platform**), depending on which part of the change request process you want to investigate.

Note: You configure the log file properties in the **<HP Change Control Management installation directory>\conf\ccmlog4j.properties** file. This file contains a list of log file definitions that you can modify. For more information about configuring the log file properties, see "Configuring Log File Properties" on page 215.

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Database Configuration and Maintenance

This appendix provides important guidelines for configuring and maintaining both Microsoft SQL Server and Oracle Server databases.

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Guidelines for MS SQL Server Databases

It is recommended that you design a maintenance plan and update index statistics for the MS SQL Server database as described below.

Data and Index Page Reorganization

The HP Change Control Management database may become fragmented after processing a certain number of requests. To prevent fragmentation from seriously affecting client-side performance, it is recommended that you design a maintenance plan that causes the indexes on the database tables to be dropped and recreated.

To create a maintenance plan:

1 Open the MS SQL Server Enterprise Manager.

2 Under the relevant MS SQL Server registration, select **Management**.

3 Right-click **Database Maintenance Plans** and select **New Maintenance Plan**. The Database Maintenance Plan Wizard opens to guide you through the required definition parameters.

4 Choose the database for which you want to create a maintenance plan and click **Next**.

5 Select the **Reorganize data and index pages** check box and choose the **Change free space per page percentage to** option.

6 Set the free space per page to **10** percent and click **Next**.

7 Accept all the other default settings in the wizard and save your maintenance plan.

Note: After the maintenance plan has been executed, statistics should be updated.

Updating Statistics

MS SQL Server 2000 allows statistical information regarding the distribution of values in a column to be created. This statistical information can be used by the query processor to determine the optimal strategy for evaluating a query. When an index is being created, MS SQL Server automatically stores statistical information regarding the distribution of values in the indexed column(s). The query optimizer in MS SQL Server uses these statistics to estimate the cost of using the index for a query. As the data in a column changes, index and column statistics can become out-of-date and cause the query optimizer to make less than optimal decisions regarding the processing of a query.

It is recommended that you update index statistics to provide the query optimizer with up-to-date information about the distribution of data values in the tables. With more information about the data stored in the database, the query optimizer is able to make better judgments about the best way to access data.

By default, the **auto update statistics** database option is enabled, but if this option has been disabled, it is strongly recommended that you create an automatic task to update statistics for the database on a daily basis, as the data is frequently changed. The job should execute the **sp_updatestats** API against the specific database.

Guidelines for Oracle Server Databases

It is recommended that you set cache attributes and collect statistics for the Oracle Server database as described below.

Setting Cache Attributes

Set the **cache\nocache** attribute of the **CCM_CHANGES** table to **cache** by executing the following statement:

```
alter table CCM_CHANGES cache;
```

Gathering Statistics

It is recommended that you gather statistics once a day. To do so effectively, perform the steps in the following procedure.

To gather statistics once a day:

1 Turn on the **MONITORING** flag to the tables in the HP Change Control Management schema by executing the following:

```
exec dbms_stats.alter_schema_tab_monitoring('<name of oracle schema>',TRUE);
```

2 Create the following job to collect statistics on a daily basis at midnight:

```
declare
 job_num number;
begin
 dbms_job.submit(job_num,'dbms_stats.gather_schema_stats
 (ownname=>"<name of oracle schema>", options=>"GATHER AUTO",
 cascade=>TRUE);', sysdate+1/1440,'trunc(sysdate+1)');
 commit;
end;
/
```

Important:

➤ The **job_queue_processes** parameter must be set to a positive value to allow the job to be executed.

➤ As of Oracle 10g, the statistics gathering process is automated by default. There is an automatic job named **GATHER_STATS_JOB** running on a daily basis and there is therefore no need to perform the actions described in the above procedure.

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Utilities

This appendix describes a number of HP Change Control Management utilities that are available.

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Change Cleaner

The change cleaning utility counts the number of change requests in the database and deletes all these requests from the database.

To count and delete all the requests in the database:

Run the **ChangeCleaner.bat** file located in the **<HP Change Control Management installation directory>\utilities\ChangeCleaner** directory.

User Importer

The user importer utility enables you to import a list of defined users and user properties from a CSV file to HP Change Control Management.

To import users via this utility:

1 Change the command line directory to: **<HP Change Control Management installation directory>\utilities\ImportUsers**

2 Run the following command:

```
ImportUsers [name of CSV file]
```

File Locater

The file locater utility enables you to locate HP Change Control Management configuration files, log files, and/or files that were modified following installation.

To use the file locater utility:

1 Change the command line directory to **<HP Change Control Management installation directory>\utilities\LogGrabber**.

2 Run one of the following commands:

➤ To locate configuration files, run:

```
LogGrabber -c
```

➤ To locate log files, run:

```
LogGrabber -l
```

➤ To locate files that were modified following installation, run:

```
LogGrabber -m
```

➤ To locate a combination of the above, combine the above commands. For example, to locate configuration, log, and modified files, run:

```
LogGrabber -clm
```

Populate Batch File

The populate batch file enables you to create tables in the HP Change Control Management database.

Note: This utility deletes any data that was previously stored in the database.

To use the populate batch file:

1 Change the command line directory to <**HP Change Control Management installation directory**>**tomcat\webapps\ccm**.

2 Run the following command:

```
populate.bat -ir
```

Queue Manager

The queue manager utility enables you to manage the change requests that are waiting to enter HP Change Control Management from the service desk application.

To use the queue manager utility:

 1 Change the command line directory to **<HP Change Control Management installation directory>\utilities\QueueManager**.

 2 Run one of the following commands:

➤ To list all the change requests in the queue, run:

> QueueManager -list

➤ To delete all the change requests in the queue, run:

> QueueManager -remove all

➤ To delete the first change request in the queue, run:

> QueueManager -remove first

Index