HP Change Management Suite

Including HP ServiceCenter, HP Change Control Management, and HP Universal CMDB

Software Version: 3.00

Integration Guide

hp ®

i n v e n t

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To register for an HP Passport ID, go to: **www.managementsoftware.hp.com/passport-registration.html**

Table of Contents

Welcome to This Guide

Welcome to the *HP Change Management Suite Integration Guide*, which explains how to install and configure the products included in the HP Change Management Suite. The HP Change Management Suite is a complete solution for automating, measuring, managing, and governing all the business processes related to change management.

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How This Guide Is Organized

This guide contains the following parts:

Part I   **Introduction**

Provides an overview of the HP Change Management Suite.

Part II   **Installation and Deployment**

Contains information on installing and deploying HP ServiceCenter, HP Change Control Management, and HP Universal CMDB.

Part III   **Configuration**

Describes how to configure the HP Change Management Suite integration features.

Who Should Read This Guide

This guide is intended for the HP service engineers who are responsible for installing and configuring the products that are included in the HP Change Management Suite. Regular users of the products included in the Suite—that is, those involved in the change process and members of the Change Advisory Board—need not read this guide.

HP Change Management Suite Documentation

Each product within the HP Change Management Suite comes with its own documentation.

For a list of the documentation included with HP ServiceCenter, refer to the *HP ServiceCenter Release Notes*, available on the HP ServiceCenter installation CD-ROM.

For a list of the documentation included with HP Change Control Management, select **Help** > **HP Change Control Management Documentation Library** from the HP Change Control Management application.

For a list of the documentation included with HP Universal CMDB, refer to *Getting Started with HP Universal CMDB*, available on the HP Universal CMDB installation CD-ROM.

Additional Online Resources

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 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

Overview of the HP Change Management Suite

This chapter describes the HP Change Management Suite as well as its main features and benefits.

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Introducing HP Change Management Suite

The HP Change Management Suite is a complete solution for automating, measuring, managing, and governing all the business processes related to change management.

The HP Change Management Suite is designed to meet all your Business Technology Optimization needs for managing change. It includes the following products and modules:

➤ HP ServiceCenter (with floating user licenses for the Base, Web and Windows clients, and Change Management modules)

➤ HP Change Control Management (with both foundation and CPU licenses)

➤ HP Universal CMDB (with both foundation and CPU licenses)

Features and Benefits of the HP Change Management Suite

According to a 2006 Gartner poll, change management is a bigger concern than ever for businesses and the IT organizations that support them:

➤ 22% of those polled claimed that the increasing rate of change is the greatest pressure in IT Operations.

➤ 27% of those polled claimed that the increasing rate of change is the second greatest pressure in IT Operations.

➤ 82% of those polled claimed they will have a CMDB project in place or underway by the end of 2008.

➤ 73% of those polled claimed they drive their CMDB initiative from the DataCenter and IT Operations.

These trends are resulting in the emergence of new roles and processes in the business as customers hire change managers and configuration managers, and implement Change Control or Change Approval Boards to deal with the accelerating rate of change.

The need to effectively manage change is high, and is further driven by the requirement to mitigate and reduce the risks associated with non-compliance.

The HP Change Management Suite provides a complete solution to help customers manage and control change, and mitigate the risks associated with unplanned or unapproved changes. It does this by integrating three key applications into one solution:

➤ HP ServiceCenter is a powerful change management tool that utilizes dynamic workflows to provide automation, control, and consistency over the entire change lifecycle. It can accommodate very complex changes with multiple parallel tasks, phases, and dependencies, and enables real-time monitoring of change processes.

➤ Organizations can automate the importing of change requests from HP ServiceCenter into HP Change Control Management.

➤ HP Change Control Management can update HP ServiceCenter with information on whether or not the change request has been approved.

➤ HP Change Control Management aggregates and consolidates change demand, providing the Change Advisory Board (CAB) with the data it requires to make effective and efficient decisions regarding each change request.

➤ HP Universal CMDB provides a central repository of configuration items that is shared by HP Change Control Management and HP ServiceCenter. With its built-in host-level discovery and mapping, it provides information to HP Change Control Management and HP ServiceCenter about what configuration items and applications exist in the environment and could potentially be impacted by a request for change.

The integration between the three applications within the HP Change Management Suite is illustrated in the following diagram:
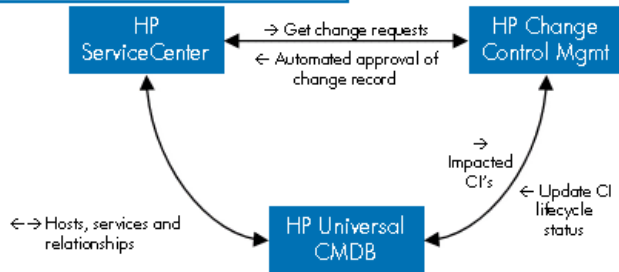
2

Introduction to HP's Change Management Solution

This chapter provides an overview of HP's change management solution, provided with the HP Change Management Suite.

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Working with HP's Change Management Solution

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

The collaboration feature within HP Change Control Management enables those involved in the change process to conduct virtual discussions about a planned change, create action items from the change, and, ultimately, directly approve or reject the change within HP ServiceCenter. 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.

HP's change management solution involves the following work process:

➤ the conversion of change-relevant HP ServiceCenter 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. When HP ServiceCenter is integrated with HP Universal CMDB (for details, see "Installing HP ServiceCenter" on page 26), 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.

➤ an impact analysis of the identified CIs, using HP Universal CMDB.

➤ 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, using HP Universal CMDB.

➤ 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 HP ServiceCenter 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's change management solution operates:
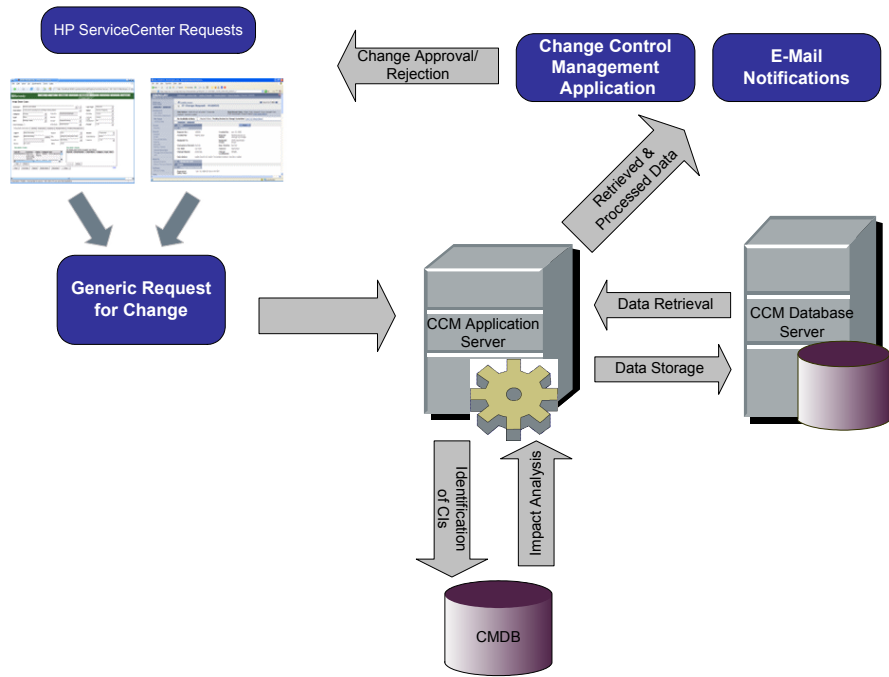
Part II

Installation and Deployment

3

Installing the HP Change Management Suite Components

This chapter provides both installation and system requirement information for the HP Change Management Suite's three component products: HP ServiceCenter, HP Change Control Management, and HP Universal CMDB.

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System Requirements

The HP Change Management Suite includes the following product versions:

HP ServiceCenter	6.2
HP Change Control Management	3.00
HP Universal CMDB	6.5

For a full list of HP ServiceCenter system requirements, refer to the *HP ServiceCenter Installation Guide*.

For a full list of HP Change Control Management requirements, refer to the *HP Change Control Management Configuration and Installation Guide*.

For a full list of HP Universal CMDB requirements, refer to the *HP Universal CMDB Installation Guide*.

Note: The order in which you install the above products does not matter, however you must install each product on a separate system.

Installing HP ServiceCenter

To work with HP ServiceCenter in conjunction with HP Change Control Management and HP Universal CMDB, you must:

➤ install the HP ServiceCenter 6.2 server and client and deploy HP ServiceCenter on a Web server. For information on installing and deploying these components, refer to the *HP ServiceCenter Installation Guide*.

➤ integrate HP ServiceCenter with HP Universal CMDB as described in the *HP ServiceCenter 6.x to uCMDB 6.x Integration Overview* and *HP ServiceCenter 6.x to uCMDB 6.x Integration Deployment Guide*.

Installing HP Change Control Management

To work with HP Change Control Management in conjunction with HP ServiceCenter and HP Universal CMDB, you must install and deploy HP Change Control Management as described in the *HP Change Control Management Configuration and Installation Guide.*

In the following screen within the InstallShield Wizard, select **Version 6.5 Typical Installation**, the version of HP Universal CMDB that is supplied to you as part of the HP Change Management Suite.
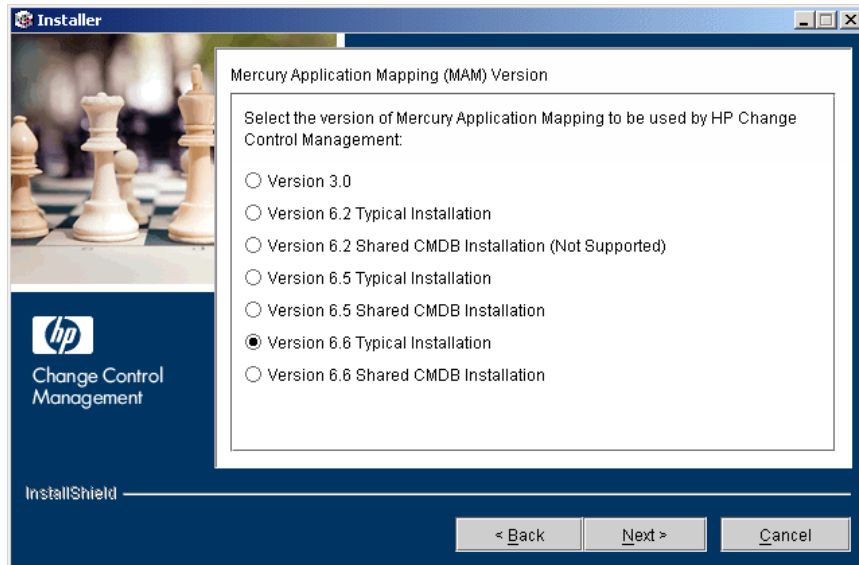
Installing HP Universal CMDB

To work with HP Universal CMDB in conjunction with HP ServiceCenter and HP Change Control Management, you must install HP Universal CMDB as described in the *HP Universal CMDB Installation Guide*.

After you install HP Universal CMDB, follow the instructions in Chapter 6, "Integrating HP Universal CMDB with HP Change Control Management," of this guide in order to configure HP Universal CMDB to work with HP Change Control Management.

Part III

Configuration

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Introduction to HP Change Management Suite Configuration

This chapter provides an overview of the configuration process required to integrate HP ServiceCenter, HP Change Control Management, and HP Universal CMDB.

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Overview of HP Change Management Suite Configuration

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

➤ the integration between HP ServiceCenter and HP Change Control Management – for an overview, see page 32

➤ the integration between HP Universal CMDB and HP Change Control Management – for an overview, see page 32

➤ the integration between HP ServiceCenter and HP Universal CMDB – for an overview, see page 34

Note: For information on configuring the processing of HP Change Control Management requests as well as the change request approval/retraction operation, refer to the *HP Change Control Management Configuration and Installation Guide*.

Configuring the Integration of HP ServiceCenter with HP Change Control Management

To integrate HP ServiceCenter with HP Change Control Management, you must configure the conversion of requests from their HP ServiceCenter format to a generic format that can be recognized and processed by HP Change Control Management. This includes the configuration of a conversion policy containing a detailed HP ServiceCenter field to generic field mapping scheme for standard, predefined fields, as well as an enumeration field value mapping scheme. In addition, the conversion policy should specify a list of HP ServiceCenter customized fields to be included as additional fields in the generic request.

For details, see Chapter 5, "Integrating HP ServiceCenter with HP Change Control Management." This chapter is intended to replace the "Configuring the Conversion of Requests" chapter in the *HP Change Control Management Configuration and Installation Guide*.

Configuring the Integration of HP Universal CMDB with HP Change Control Management

To integrate HP Universal CMDB with HP Change Control Management:

➤ Configure an instance view to include all the CIs that represent all of your IT applications. For details, see "Configuring an HP Change Control Management Instance View" on page 58.

➤ Specify certain HP Universal CMDB properties within the HP Change Control Management configuration files. For details, see "Configuring HP Universal CMDB Properties in HP Change Control Management" on page 58.

➤ Configure your HP Universal CMDB correlation rules to properly reflect your IT system. For details on configuring HP Universal CMDB, refer to the HP Universal CMDB documentation.

Note: 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 64.

➤ Install an HP Change Control Management package on your HP Universal CMDB server and configure connections between hosts (or other CITs) and business services within your HP Universal CMDB instance view. For details, see "Configuring HP Universal CMDB Settings" on page 62.

➤ Configure the settings of the latent changes feature. For details, refer to the *HP Change Control Management Configuration and Installation Guide*.

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

  ➤ preconfigured 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

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

  ➤ HP Change Control Management–HP Universal CMDB impact severity mappings

For details, see "Reconfiguring HP Change Control Management–HP Universal CMDB Integration Settings" on page 63.

Note: Chapter 6, "Integrating HP Universal CMDB with HP Change Control Management," is intended to replace the "Configuring Mercury Application Mapping-Related Settings" chapter in the *HP Change Control Management Configuration and Installation Guide*.

Configuring the Integration of HP ServiceCenter with HP Universal CMDB

To integrate HP ServiceCenter with HP Universal CMDB, you must:

➤ deploy the integration package on the CMDB server and configure HP Universal CMDB

➤ deploy the integration kit's unload file on HP ServiceCenter

➤ load the appropriate scenario into the Connect-IT Scenario Builder and configure Connect-IT

For details on performing the above steps, refer to the *HP ServiceCenter 6.x to uCMDB 6.x Integration Deployment Guide*.

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Integrating HP ServiceCenter with HP Change Control Management

This chapter describes how to convert change requests from their HP ServiceCenter format 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 HP ServiceCenter 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, refer to the *HP Change Control Management Configuration and Installation Guide*.

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, refer to the *HP Change Control Management Configuration and Installation Guide*. 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 52. 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–HP Universal CMDB Severity Levels" on page 66.

About Converting Requests

Change requests are converted from their HP ServiceCenter format to a generic format using an HP ServiceCenter-specific adapter. 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 HP ServiceCenter request conversion process performed by the Service Desk Integration module:
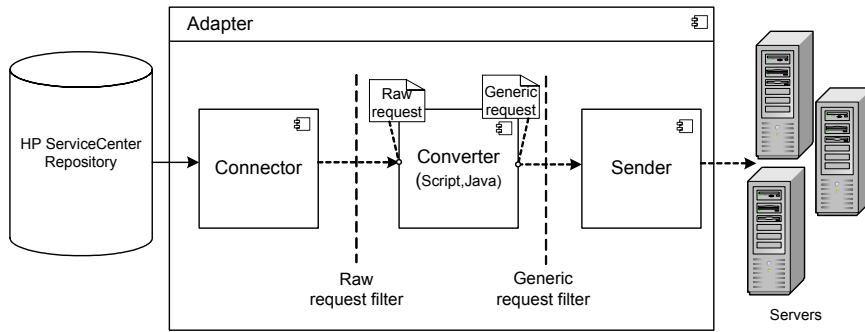
The HP ServiceCenter-specific adapter contains two single-level adapters—one to convert top-level changes, and the other to convert second-level changes. As shown above, each single-level adapter contains the following three subcomponents:

➤ **Connector**. Collects new top-level/second-level change requests from HP ServiceCenter.

➤ **Converter**. Converts the top-level/second-level change requests from their HP ServiceCenter format 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.

Overview of Adapter Configuration

To convert HP ServiceCenter requests using the Service Desk Integration module, you must configure the HP ServiceCenter adapter.

To configure the adapter, you must:

➤ set up the adapter configuration file

➤ write the conversion scripts to be used by the adapter

Note: To import requests from multiple HP ServiceCenter servers, you must configure multiple adapters for HP ServiceCenter.

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 (HP ServiceCenter), 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 41.

➤ The connector attributes, which enable the adapter to connect to the service desk application (HP ServiceCenter). 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 45.

➤ 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 51.

Conversion Scripts

Conversion scripts are called by the adapter and are responsible for the actual conversion of change requests from their HP ServiceCenter 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 52.

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 40. 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 (HP ServiceCenter) 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 HP ServiceCenter 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 HP ServiceCenter 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 HP ServiceCenter. It should be high enough to retrieve all requests from HP ServiceCenter and should exceed the expected number of requests that HP ServiceCenter updates in one measurement time slot. For example, if HP ServiceCenter 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 HP ServiceCenter. **Note:** To determine the **number-of-tickets**, consult with the HP ServiceCenter administrator within your organization.	**50**
polling-schedules	A list of cron expressions separated by the new line character. Format: 30 * * * * <new line> 0 * * * *	—

Property Name	Description	Default Value
polling-frequency	The frequency (in seconds) with which HP ServiceCenter 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 and level 2 is used for tasks. (For details on configuring request type levels, see "Customizing HP Change Control Management Fields" on page 36.) 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 44.	—
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**, see "Configuring the Connector Attributes" on page 45.	—
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, refer to the *HP Change Control Management Configuration and Installation Guide*	—
operation-type (mandatory)	Defines the type of operation to be performed.	—

Property Name	Description	Default Value
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 **<HP Change Control Management installation directory>\examples\service-desk-examples\servicecenter-ws-adapter.settings** for examples of **<request-type>** configuration.

Configuring the Connector Attributes

The connector attributes enable the adapter to connect to HP ServiceCenter. The following HP ServiceCenter connector attributes must be configured for each request type included 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 ServiceCenterWeb 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, refer to the *HP Change Control Management Configuration and Installation Guide*.	—

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://<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, refer to the *HP Change Control Management Configuration and Installation Guide*.

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, refer to the *HP Change Control Management Configuration and Installation Guide*.)

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 HP ServiceCenter 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.	—

Property Name	Description	Default Value
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 HP ServiceCenter 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 HP ServiceCenter 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 HP ServiceCenter enumeration fields can be mapped, see "Customizing HP Change Control Management Fields" on page 36.

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 HP ServiceCenter fields to generic request fields. Below is an example of the **convert** function:

```
convert(scRFC, genericRFC)
```

Note: For a list of preconfigured change request fields included in HP Change Control Management, refer to the *HP Change Control Management Configuration and Installation Guide*.

➤ **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 HP ServiceCenter request terminology. For example, if you do not want to convert requests with a **Low** priority, you could use the following **preFilter** function:

```
function preFilter(scRFC){
 if (scRFC.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;
```

Note: 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
HP ServiceCenter 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);
```

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Integrating HP Universal CMDB with HP Change Control Management

This chapter describes how to configure HP Universal CMDB to work with HP Change Control Management and how to configure HP Universal CMDB properties within HP Change Control Management configuration files. It also describes how to reconfigure the default HP Change Control Management–HP Universal CMDB integration settings, if required.

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Configuring an HP Change Control Management Instance View

HP Universal CMDB is a key component in the processing of HP Change Control Management requests. To work with HP Universal CMDB in the context of HP Change Control Management, you must configure an instance view within HP Universal CMDB that includes 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 HP Universal CMDB, refer to the HP Universal CMDB documentation.

Configuring HP Universal CMDB Properties in HP Change Control Management

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

To configure HP Universal CMDB properties in HP Change Control Management:

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

2 Locate the **<applications-view>** section and enter the name of the HP Change Control Management view you created in HP Universal CMDB, 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 HP Universal CMDB—6.5—that is being used. **Note:** The value of this property should not be modified.
mam-server	The name of the HP Universal CMDB server to which HP Change Control Management should connect.
cmdb-server	The name of the HP Universal CMDB server to which HP Change Control Management should connect. (The HP Universal CMDB server and CMDB server may be installed on separate machines.)
port	The port through which HP Change Control Management should connect to HP Universal CMDB.
username	The user name required to connect to HP Universal CMDB.
password	The password required to connect to HP Universal CMDB. If the password must be encrypted, refer to the *HP Change Control Management Configuration and Installation Guide* for password encryption instructions.

Property	Description
installation-type	The type of HP Universal CMDB installation you have. The following installation types exist: ➤ **typical.** Both the HP Universal CMDB server and CMDB server are located on the same machine. ➤ **distributed.** The HP Universal CMDB server and CMDB server are located on separate machines.
view-refresh-schedule	The time at which HP Change Control Management accesses HP Universal CMDB to refresh the HP Change Control Management views. It is recommended that a refresh be performed once a day, after HP Universal CMDB discovery has been completed, when a minimal number of users are connected to HP Universal CMDB. 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 HP Universal CMDB Settings

To work with HP Universal CMDB, you must configure connections between hosts (or other CITs) and business services within the HP Universal CMDB 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 HP Universal CMDB:

1 Copy the **<HP Change Control Management installation directory>\ MAM\6.5\extension\ccm_package.zip** package to the **<HP Universal CMDB server>\root\lib\packages** directory. HP Universal CMDB then automatically loads the package.

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 HP Universal CMDB documentation.

3 Open the HP Universal CMDB 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 HP Universal CMDB 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 **<HP Universal CMDB 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 HP Universal CMDB documentation.

---

4 Update your HP Universal CMDB settings by opening the jmx console, selecting **MAM** > **Service=View System** > **reloadServerConfiguration**, and clicking the **Invoke** button. Refer to the HP Universal CMDB documentation for instructions on accessing the console.

Reconfiguring HP Change Control Management– HP Universal CMDB 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 HP Universal CMDB CMDB synchronization – For details, see "Configuring Synchronization Frequency" on page 64.

➤ the HP Universal CMDB correlation rules that you want HP Change Control Management to use in performing an impact analysis – For details, see "Configuring Correlation Rules" on page 64.

➤ a list of HP Universal CMDB 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 65.

➤ HP Change Control Management–HP Universal CMDB impact severity mappings – For details, see "Mapping HP Change Control Management–HP Universal CMDB Severity Levels" on page 66.

➤ 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 67.

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 HP Universal 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 Correlation Rules

By default, HP Change Control Management performs an impact analysis 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 HP Universal CMDB 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–HP Universal CMDB Severity Levels

By default, HP Change Control Management uses the following scheme in mapping HP Change Control Management impact severity levels to HP Universal CMDB severity levels:

➤ a value of **Very Low** in HP Change Control Management = **2 or below** in HP Universal CMDB

➤ a value of **Low** in HP Change Control Management = **3 or 4** in HP Universal CMDB

➤ a value of **Medium** in HP Change Control Management = **5 or 6** in HP Universal CMDB

➤ a value of **High** in HP Change Control Management = **7 or 8** in HP Universal CMDB

➤ a value of **Critical** in HP Change Control Management = **9** in HP Universal CMDB

To modify this mapping scheme, change the maximum HP Universal CMDB impact severity values you want to map to each HP Change Control Management severity level. For example, if you want to map the HP Universal CMDB 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 HP Universal CMDB 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:

REGARD - (host)	
DNS Name:	regard.mercury.com
Host Name:	REGARD
Host OS:	Windows 2000
SNMP Name:	REGARD
Vendor:	Intel

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 HP Universal CMDB CIT hierarchy. For example, if the displayed CIT is a router, the attributes of the router's host are also displayed.

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