HP Project and Portfolio Management Center

Software Version: 7.5 SP2

HP Managing Application Change Guide

Software Version: 1.0

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Contents

1 Getting Started with Managing Application Change

HP Managing Application Change (MAC) software is a solution for supporting Change Management and Release Management within your organization. The MAC software provides PPM Center entities that support standard Information Technology Infrastructure Library (ITIL) processes and that can be configured to meet your business needs.

MAC software enables you to integrate PPM Center with:

- Service desk applications, including:
  - HP Service Manager
  - HP ServiceCenter
  - BMC Remedy Action Request System (referred to as Remedy in this guide)
- HP Quality Center
- HP Release Control
- HP Change Control Management
- Mercury Application Mapping

You can also integrate PPM Center with HP Universal Configuration Management Database (HP Universal CMDB), without installing the MAC software.

These integrations help your IT organization standardize and enforce processes that manage application changes throughout the entire software development life cycle, including development, testing, and deployment.

The versions of these products that are supported for integration with PPM Center are described in *Summary of Supported Integrations and Versions* on page 20.

Installing MAC provides all of the entities that are used by any combination of the integrations you choose to configure and use.

For information about how to obtain the MAC software and view or print this guide, see *Overview of Installation and Configuration* on page 31.

Introduction to ITIL and HP Managing Application Change

The Information Technology Infrastructure Library (ITIL) offers the world's most widely accepted approach to IT Service Management (ITSM), furthering the goal of aligning IT with business goals and priorities. ITIL provides frameworks for both the organization of ITSM as well as a cohesive set of industry best practices.

ITIL is a process framework, and HP Project and Portfolio Management Center (PPM Center) is unique in its ability to customize, automate, and digitize processes, simplifying repeatability, enforcement, and measurement.

ITIL defines the Service Support discipline. Building on this advanced-process model, HP Managing Application Change (MAC) uses predefined request types (forms), workflows, and special commands to automate processes and information gathering, and it uses portlets and reports to track key performance indicators (KPIs).

MAC supports the following ITIL processes:

- **Change Management.** *Overview of ITIL Change Management* on page 17 provides an overview of the ITIL Change Management process and how MAC supports it. Chapter 3, *Using MAC Entities,* on page 39 describes the entities provided by MAC for ITIL Change Management.
- **Release Management.** *Overview of ITIL Release Management* on page 18 provides an overview of the ITIL Release Management process and how MAC supports it. Chapter 3, *Using MAC Entities,* on page 39 describes the entities provided by MAC for ITIL Release Management.

MAC can be used as a starting point, and then extended to support the process requirements that meet the specific needs of your organization. Using these tools, MAC helps enforce repeatable ITIL processes to reduce their operating cost and risk.

Chapter 2, *Installing and Setting Up MAC Software,* on page 31 provides instructions for installing MAC and configuring PPM Center to ensure that MAC functions properly.

Chapter 3, *Using MAC Entities,* on page 39 provides information about the MAC entities, except for a few that are used only for integration of PPM Center with HP Quality Center.

MAC enables integration of PPM Center with the HP Service Manager, HP ServiceCenter, and Remedy service desk applications. Using these integrations, service desk application changes can be automatically converted to MAC requests for change and imported into PPM Center. In addition, fields in PPM Center can be configured to send updates back to the originating changes in Service Manager or ServiceCenter. For more information, see:

- *Versions of Service Desk Applications Supported for Integration with PPM Center* on page 20
- *Integration of PPM Center with Service Desk Applications* on page 22
- Chapter 4, *Integration of PPM Center with Service Manager or ServiceCenter,* on page 99
- Chapter 5, *Integration of PPM Center with Remedy,* on page 147

For additional Change Management and Release Management functionality, MAC provides the ability to integrate PPM Center with Mercury Application Mapping, with HP Quality Center, and with HP Change Control Management or its successor product, HP Release Control. (Also, even without using the MAC software, PPM Center can be integrated with HP Universal CMDB, the successor product to Mercury Application Mapping.)

Using these integrations and appropriate approvals throughout the process, the MAC - Request for Change workflow (and the MAC subworkflows it calls) can:

- Use Mercury Application Mapping to perform preliminary impact analysis on a proposed change.

- Automatically create HP Quality Center requirements or defects based on associated PPM Center requests and keep their fields synchronized, providing data visibility in both applications and ensuring that QA personnel create and execute appropriate test plans.
- When adding a package to a release, provide links in a MAC portlet to HP Release Control or HP Change Control Management for that release. HP Release Control or HP Change Control Management displays impact and collision analysis for the release that is poised for deployment to a production (live) system.

For more information about integration of PPM Center with HP Universal CMDB, see:

- *Version of HP Universal CMDB Supported for Integration with PPM Center* on page 20
- *Integration of PPM Center with HP Universal CMDB and/or Mercury Application Mapping* on page 24
- Appendix A, *Integration of PPM Center with Universal CMDB,* on page 269

For more information about integration of PPM Center with Mercury Application Mapping, see:

- *Versions of Mercury Application Mapping Supported for Integration with PPM Center* on page 21
- *Integration of PPM Center with HP Universal CMDB and/or Mercury Application Mapping* on page 24
- Chapter 6, *Integration of PPM Center with Mercury Application Mapping,* on page 169

For more information about integration of PPM Center with HP Quality Center, see:

- *Versions of HP Quality Center Supported for Integration with PPM Center* on page 21
- *Integration of PPM Center with HP Quality Center* on page 25
- Chapter 7, *Integration of PPM Center with Quality Center,* on page 189

For more information about integration of PPM Center with HP Release Control or HP Change Control Management, see:

- *Versions of HP Release Control and HP Change Control Management Supported for Integration with PPM Center* on page 21
- *Integration of PPM Center with HP Release Control or HP Change Control Management* on page 26
- Chapter 8, *Integration of PPM Center with Release Control or Change Control Management,* on page 263

Overview of ITIL Change Management

ITIL defines a *change* as the addition, modification, or removal of an approved, supported, or baselined hardware component, network, software, application, environment, system, or desktop build, or associated documentation. The primary goal of the ITIL Change Management process is to ensure that standardized methods and procedures are used for efficient and prompt handling of all changes, in order to minimize the impact of change-related incidents upon service quality. Although changes often arise as a result of unexpected problems, most changes result from planned requests for change (RFCs) from the business or IT organization.

MAC allows users to submit RFCs along a predefined Request For Change process toward resolution. Portlets provided with MAC can be added to a user's PPM Dashboard to monitor key performance indicators (KPIs) related to the submitted RFCs. Additionally, reports can be run to obtain summaries and scheduling details.

Chapter 3, *Using MAC Entities,* on page 39 discusses the PPM Center entities that MAC provides for use in the ITIL Change Management process, including:

- The Change Management request type, named MAC - Request For Change (RFC)
- The associated Change Management workflow, named MAC - Request For Change

- Associated Change Management portlets
- Associated Change Management reports

These MAC entities simplify each of the supported integrations with PPM Center, as introduced in *Optional Integrations with PPM Center Enabled by MAC* on page 20.

Change Management Roles

The following roles play an active part in the ITIL Change Management process:

- System Owner
- Change Manager
- CAB group (Change Advisory Board) or CAB/EC group (Change Advisory Board – Emergency Committee)
  - Change Manager
  - Customer(s)
  - Applications Development Manager
  - QA Manager
  - Operations Manager (or maintainers where appropriate)
- Change Builder
- Independent Tester
- Applications Development Manager

In addition to being valuable divisions of responsibility, these roles are used to designate user security for the default MAC - Request For Change workflow (see *MAC - Request For Change Workflow* on page 49).

Overview of ITIL Release Management

ITIL defines a *release* as a collection of new and/or changed components that are tested and introduced into the live (production) environment together. The ITIL Release Management process helps to design and implement efficient procedures for the distribution and installation of changes. This process includes coordinating build and testing activities to help ensure that only the authorized and tested versions of changes are implemented in production. Ultimately, releasing a change requires:

- Developing the change
- Designing the change
- Testing the change for functionality, quality, and performance
- Pushing the change into production

MAC makes it easier for users to collect information for a release using a release form, which is submitted along a predefined release management process (see *MAC - Release Request Workflow* on page 83). After the initial release process steps have been completed, the release is created and the RFCs that are being processed along the MAC - Request For Change workflow (see *MAC - Request For Change Workflow* on page 49) can be added to the release in preparation for its deployment to the test and live environments. The release management process then moves through testing and deployment steps toward completion. Portlets provided with MAC can be added to a user's PPM Dashboard to monitor the status of releases. Additionally, reports can be run to obtain release summaries and scheduling details.

Chapter 3, *Using MAC Entities,* on page 39 discusses the PPM Center entities that MAC provides for use in the ITIL Release Management process, including:

- The Release Management request type, named MAC - Release Management
- The associated Release Management workflow, named MAC - Release Request
- Associated Release Management portlets
- Associated Release Management reports

Release Management Roles

The following roles play an active part in the ITIL Release Management process:

- Release Manager
- Test Manager
- Applications Development Manager
- Operations Manager
- Change Manager
- CAB group (Change Advisory Board)

In addition to being valuable divisions of responsibility, these roles are used to designate user security for the default MAC - Release Request workflow (see *MAC - Release Request Workflow* on page 83).

Optional Integrations with PPM Center Enabled by MAC

As described in the following sections, PPM Center version 7.5 can be integrated with various products to enhance the functionality of PPM Center and those products.

Summary of Supported Integrations and Versions

HP strongly recommends that you consult with HP Professional Services before implementing any of these integrations.

PPM Center version 7.5 SP2 or later can be integrated with various products at the versions or releases described in the following sections.

Versions of Service Desk Applications Supported for Integration with PPM Center

MAC supports integration of PPM Center with the following service desk applications at the following versions:

- HP Service Manager 7.00
- HP ServiceCenter 6.2.4.1 or later

HP does not support integrating both HP Service Manager and HP ServiceCenter with one PPM Center instance. HP does support integrating one PPM Center instance with multiple HP Service Manager instances at the same version, or with multiple HP ServiceCenter instances at the same version.

- BMC Remedy Action Request System 5.0 (hereafter referred to as Remedy) with Remedy Help Desk

Integration of PPM Center with Remedy is supported only when PPM Center and Remedy are running on Windows®. For information on the Windows versions that PPM Center can use, see the *System Requirements and Compatibility Matrix*.

For more information, see *Integration of PPM Center with Service Desk Applications* on page 22.

Version of HP Universal CMDB Supported for Integration with PPM Center

Without installing MAC software, integration of PPM Center with HP Universal CMDB is supported for HP Universal CMDB version 7.50.

For more information, see *Integration of PPM Center with HP Universal CMDB and/or Mercury Application Mapping* on page 24.

Versions of Mercury Application Mapping Supported for Integration with PPM Center

MAC supports integration of PPM Center with Mercury Application Mapping at the following versions:

- 6.5
- 6.6

For more information, see *Integration of PPM Center with HP Universal CMDB and/or Mercury Application Mapping* on page 24.

Versions of HP Quality Center Supported for Integration with PPM Center

MAC supports integration of PPM Center with HP Quality Center at the following versions:

- 9.0 patch 25 or later
- 9.2 patch 4 or later

For more information, see *Integration of PPM Center with HP Quality Center* on page 25.

Supported Version of the PPM Center-Quality Center Integration Tool

PPM Center-Quality Center Integration Tool version 1.5 is required to integrate PPM Center with Quality Center. It is provided with PPM Center software.

Versions of HP Release Control and HP Change Control Management Supported for Integration with PPM Center

MAC supports integration of PPM Center with:

- HP Change Control Management version 3.0
- Its successor product, HP Release Control version 4.00

For more information, see *Integration of PPM Center with HP Release Control or HP Change Control Management* on page 26.

Integration of PPM Center with Service Desk Applications

Hereafter in this guide, references to HP Service Manager (the successor product to HP ServiceCenter) also apply to supported versions of HP ServiceCenter, except where distinctions between Service Manager and ServiceCenter are described as needed.

The entities provided with MAC simplify the integration of PPM Center with the HP Service Manager and Remedy service desk applications. These integrations provide the following benefits:

- Changes that originate in the service desk application can be automatically imported into PPM Center as requests that PPM Center manages.

- Changes in the HP Service Manager service desk application can be automatically updated, based on revisions to requests in PPM Center.
- PPM Center acts as a single, comprehensive repository of application change requests collected from throughout IT, including change records (tickets) from the service desk application.

The MAC software provides configurable adapter files that serve as the software interface between PPM Center and the HP Service Manager or Remedy service desk application. An adapter file includes filters and field mappings to convert changes from one data model to the other.

This guide assumes that one of the service desk applications has been installed and is available for integration.

For a list of documents about the service desk integrations, see *HP Service Manager Documentation* on page 28, *HP ServiceCenter Documentation* on page 28, or *Remedy Documentation* on page 29.

For detailed information about configuring and using integration of PPM Center with a service desk application, including details about configuring parameters in the `server.conf` file, see one of the following chapters:

- Chapter 4, *Integration of PPM Center with Service Manager or ServiceCenter,* on page 99
- Chapter 5, *Integration of PPM Center with Remedy,* on page 147

Any request type you use for a service desk integration must include the fields in the **Service Desk System Info** section of the MAC - Request For Change (RFC) request type, as shown in *Table 3-2* on page 43, and those fields must be completed. For detailed request type field specifications, see the MAC - Request For Change (RFC) request type in the PPM Workbench.

Using Integration of PPM Center with HP Quality Center To Enhance Integration of PPM Center with Service Desk Applications

Functionality of integration of PPM Center with a service desk application is enhanced if PPM Center and HP Quality Center are also integrated—you can see HP Quality Center statuses for an RFC in the service desk application and in PPM Center.

For general information about the benefits of integrating PPM Center and HP Quality Center whether or not PPM Center and a service desk application are integrated, see *Integration of PPM Center with HP Quality Center* on page 25.

See *MAC - Request For Change (RFC) Request Type* on page 40 for descriptions of the MAC - Request For Change (RFC) request type fields that are related to integration of PPM Center with HP Quality Center.

Integration of PPM Center with HP Universal CMDB and/or Mercury Application Mapping

PPM Center can be integrated with HP Universal CMDB (which does not require installation of the MAC software) and/or with Mercury Application Mapping, providing the following benefits:

- The Change Advisory Board can use the integration to run an impact analysis in HP Universal CMDB or Mercury Application Mapping, and forecast the effects that each change request will have on the organization's IT environment.

  The resulting report provides the Change Advisory Board with an indication of how the organization's system will cope with each change if it is later developed and deployed, and thus assists the Change Advisory Board in deciding whether to approve certain changes for development.

- Your system infrastructure, such as servers or applications, might get modified while the software change is being developed and evaluated for quality. As a result, the original impact analysis for the change might not be valid. After the change has been evaluated and approved for deployment, you can perform another impact analysis and use the Mercury Application Mapping comparison feature to compare the two impact analysis reports. You can then see whether the infrastructure change will adversely affect the software change that you plan to deploy.

Integrations of PPM Center with both Mercury Application Mapping and its successor product, HP Universal CMDB, can coexist without interfering with each other. Data obtained from the integration with Mercury Application Mapping is not migrated or converted for use by the integration with HP Universal CMDB.

This guide assumes that HP Universal CMDB and Mercury Application Mapping have been installed and are available for integration.

For a list of documents about HP Universal CMDB, see *HP Universal CMDB Documentation* on page 29. For a list of documents about Mercury Application Mapping, see *Mercury Application Mapping Documentation* on page 29.

For detailed information about configuring and using integration of PPM Center with HP Universal CMDB, including details about configuring parameters in the `server.conf` file, see Appendix A, *Integration of PPM Center with Universal CMDB,* on page 269.

For detailed information about configuring and using integration of PPM Center with Mercury Application Mapping, including details about configuring parameters in the `server.conf` file, see Chapter 6, *Integration of PPM Center with Mercury Application Mapping,* on page 169.

Integration of PPM Center with HP Quality Center

PPM Center can be integrated with HP Quality Center to incorporate the quality assurance (QA) process into the change request development process, providing the following benefits:

- Integration and enforcement of QA testing into the change process. The QA process can be initiated when the development process begins, and QA planning activities can proceed in parallel with development. The QA teams can then spend more time testing changes after development has been completed.
- Management and tracking of test requirements, plans, and results in HP Quality Center, with visibility in PPM Center.
- Data sharing between PPM Center and HP Quality Center.

- Automatic activation of HP Quality Center processes by PPM Center. Creating a request in PPM Center can create a requirement or defect in HP Quality Center.
- Automatic ongoing synchronization of defects and requirements in Quality Center with requests in PPM Center, as well as *hierarchical* synchronization of requirements in HP Quality Center with requests in PPM Center.

This guide assumes that HP Quality Center has been installed and is available for integration.

For a list of documents about HP Quality Center, see *HP Quality Center Documentation* on page 30.

For detailed information about configuring and using integration of PPM Center with HP Quality Center, including details about configuring parameters in the `server.conf` file, see Chapter 7, *Integration of PPM Center with Quality Center,* on page 189.

Integration of PPM Center with HP Release Control or HP Change Control Management

PPM Center can be integrated with HP Release Control or HP Change Control Management to assist IT managers and the Change Advisory Board to:

- Assess the business impact of changes that have been developed and tested, and decide whether to approve them for deployment.
- Provide information about the components in the organization's IT environment that will be impacted by the developed changes.
- Proactively send notifications of the business risk involved in each change.
- Identify potential conflicts among concurrently scheduled changes.
- Improve visibility over the change deployment process.

During the impact analysis phase of the Request For Change lifecycle, if PPM Center is integrated with both HP Release Control (or HP Change Control Management) and Mercury Application Mapping, the **Launch HP Release Control** button (or the **Launch HP Change Control Management** button) appears on the request. When launched, HP Release Control (or HP Change Control Management) provides additional impact analysis that helps users assess and approve changes.

For each change request, the MAC - Releases portlet provides a link to log in to HP Release Control (or HP Change Control Management), where various tabs contain information about the change requests.

This guide assumes that HP Release Control or HP Change Control Management has been installed and is available for integration.

For a list of documents about HP Release Control, see *HP Release Control Documentation* on page 30. For a list of documents about HP Change Control Management, see *HP Change Control Management Documentation* on page 30.

For detailed information about configuring and using integration of PPM Center with HP Release Control or HP Change Control Management, including details about configuring parameters in the `server.conf` file, see Chapter 8, *Integration of PPM Center with Release Control or Change Control Management,* on page 263.

Related Information

The following sections categorize documentation that may be useful for MAC deployments.

PPM Center Documentation

The following PPM Center documents provide information that may be useful to you:

- *HP Demand Management User's Guide*
- *HP Demand Management Configuration Guide* (includes information about configuring request types and workflows)
- *Creating Portlets and Modules*
- *Reports Guide and Reference*
- *HP Deployment Management User's Guide*
- *System Administration Guide and Reference*

HP Service Manager Documentation

The following HP Service Manager documents are not directly related to PPM Center or integrations with it, but they may be useful to you:

- *HP Service Manager Installation Guide*
- Service Manager Help system

HP ServiceCenter Documentation

The following HP ServiceCenter documents are not directly related to PPM Center or integrations with it, but they may be useful to you:

- *HP OpenView ServiceCenter Installation Guide*
- ServiceCenter Help system

Remedy Documentation

The following Remedy documents are not directly related to PPM Center or integrations with it, but they may be useful to you:

- *Remedy Help Desk 5.0 User's Guide*

HP Universal CMDB Documentation

The following HP Universal CMDB documents are not directly related to PPM Center or integrations with it, but they may be useful to you:

- *HP Universal CMDB Deployment Guide*
- *HP Universal CMDB Database Guide*
- *HP Universal CMDB Discovery and Dependency Mapping*
- *HP Universal CMDB Model Management*
- *HP Universal CMDB CI Attribute Customization*
- *HP Universal CMDB Glossary*
- *HP Universal CMDB 7.50 Readme*

Mercury Application Mapping Documentation

The following Mercury Application Mapping documents are not directly related to PPM Center or integrations with it, but they may be useful to you:

- *Mercury Application Mapping Installation Guide*
- *Mercury Application Mapping User's Guide*
- *Mercury Application Mapping Administrator's Guide*

HP Quality Center Documentation

The following HP Quality Center documents are not directly related to PPM Center or integrations with it, but they may be useful to you:

- *HP Quality Center Installation Guide*
- *HP Quality Center User's Guide*
- *HP Quality Center Administrator's Guide*

HP Release Control Documentation

The following HP Release Control documents are not directly related to PPM Center or integrations with it, but they may be useful to you:

- *HP Release Control Installation and Configuration Guide*
- *HP Release Control User Guide*

HP Change Control Management Documentation

The following HP Change Control Management documents are not directly related to PPM Center or integrations with it, but they may be useful to you:

- *HP Change Control Management Installation and Configuration Guide*
- *HP Change Control Management User's Guide*

2 Installing and Setting Up MAC Software

Overview of Installation and Configuration

Installing and setting up MAC software includes the following procedures, as described in this chapter:

- Installing the MAC software.
- Configuring particular MAC-related entities in PPM Center.
- Restarting the PPM Server.

Configuration activities that are unique to the integrations with service desk applications, HP Quality Center, HP Change Control Management, and Mercury Application Mapping are described in their respective chapters.

System Requirements

Before you can install and use HP Managing Application Change version 1.0, you must install PPM Center version 7.5.

If you have upgraded or plan to upgrade PPM Center from version 6.0, 7.0, or 7.1, and if Application Change Lifecycle (ACL) products or the IT Service Management (ITSM) Accelerator or service desk adapters are also installed on your PPM Server, contact HP Professional Services for assistance in implementing MAC.

To use the request types and workflows provided by MAC, verify that you have user licenses for PPM Center Demand Management. For information about permissions, configuration, and security, see the *HP Demand Management Configuration Guide* and the *Security Model Guide and Reference*.

Installing HP Managing Application Change

Install HP Managing Application Change as described in the following sections.

General Preparations for Installation or Upgrade

To prepare for installation:

1. Obtain the MAC software.
2. Log on to the PPM Server.
3. Confirm that the system requirements have been met; see *System Requirements* on page 31.
4. Save the MAC installation file (`mitg-750-MAC.jar`) to the `<PPM_Home>` directory. `<PPM_Home>` represents the path where the PPM Center instance is installed. For example: `xyzserver/E/PPMServer`.

You do not need to unpack the installation file. The installation process automatically unpacks it.

Perform Backup and Restart the PPM Server in Restricted Mode

The steps in this section are recommended but not required.

Before installation:

1. Back up the database and file system for the PPM Server.
2. Stop the PPM Server and restart it in restricted mode (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):
   a. Stop the PPM Server.
   b. Run the script:

      ```
      sh ./setServerMode.sh RESTRICTED
      ```

   c. Start the PPM Server.

Run the Installation Script

To run the installation script to install the MAC software:

1. Navigate to the `<PPM_Home>/bin` directory.
2. Run the script:

   ```
   sh ./kDeploy.sh -i MAC
   ```

3. As `kDeploy.sh` runs, respond to its prompts.

   When the installation completes successfully, the following message is displayed:

   ```
   Deployment MAC has been successfully installed.
   ```

The following sections in this chapter describe initial configuration of MAC.

Configuring MAC-Related Entities in PPM Center

After installing MAC software, perform the procedures described in the following sections.

Creating Contact User Data

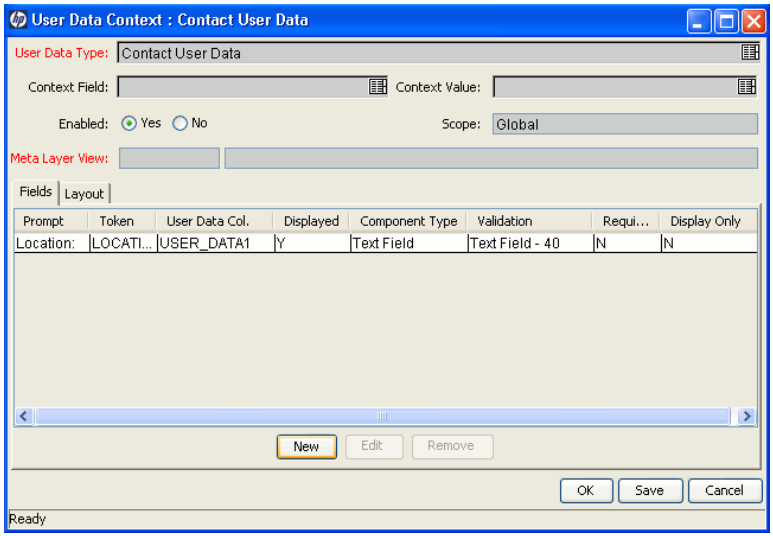
You must create a global user data field of type **Contact User Data,** whether or not you will be establishing any of the integrations of PPM Center with other applications. *Table 2-1* describes the important parameters for this field. *Figure 2-1* shows the User Data Context window.

In the PPM Workbench, select **Configuration > User Data** and select **Contact User Data** to access this window. For more information about creating user data, see the *HP Demand Management Configuration Guide.*

Table 2-1. Contact user data field parameters

Field Name	Value
Prompt	Location:
Token	LOCATION
User Data Column	USER_DATA1
Displayed	Y
Component Type	Text Field
Validation	(any text field of reasonable length)

Figure 2-1. Contact user data field



Configuring the CRT - Priority - Enabled Validation

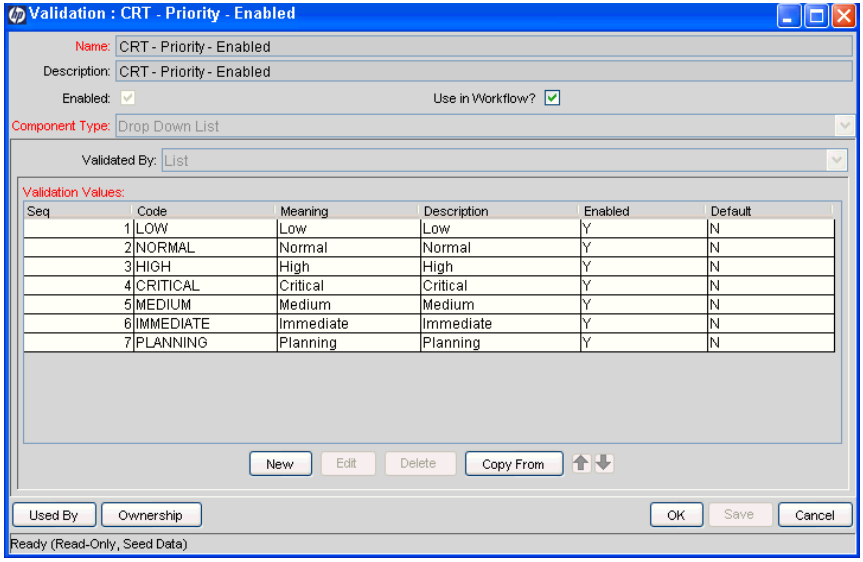
You must add the values listed in *Table 2-2* to the **CRT - Priority - Enabled** validation, whether or not you will be establishing any of the integrations of PPM Center with other applications. *Figure 2-2* shows the Validation window.

In the PPM Workbench, select **Configuration > Validations** and select **CRT - Priority - Enabled** to access this window. For more information about modifying validations, see the *Commands, Tokens, and Validations Guide and Reference.*

Table 2-2. Values to add to CRT - Priority - Enabled validation

Code	Meaning
MEDIUM	Medium
IMMEDIATE	Immediate
PLANNING	Planning

Figure 2-2. CRT - Priority - Enabled validation



Assigning Users to MAC Security Groups

MAC provides the following security groups:

- MAC - Application Developer
- MAC - Applications Development Manager
- MAC - CAB group (Change Advisory Board)
- MAC - Change Builder
- MAC - Change Manager
- MAC - Customer
- MAC - IT Executive Board
- MAC - Independent Tester
- MAC - Operations Manager
- MAC - QA Manager
- MAC - Release Manager
- MAC - SOX - System Owner

Users must belong to an appropriate security group to be able to see particular portlets. Add users to these security groups, whether or not you will be establishing any of the integrations of PPM Center with other applications. In the PPM Workbench, select **Sys Admin > Users,** open a user, and click the **Security Groups** tab. For more information about security groups, see the *Security Model Guide and Reference.*

Assigning Security Groups to MAC Workflows

MAC provides several workflows. The major ones are described in detail in this document. Assign security groups to each workflow step in the manner that best meets your business needs, whether or not you will be establishing any of the integrations of PPM Center with other applications. In the PPM Workbench, select **Configuration > Workflows,** open a workflow, and edit it. For more information about configuring security groups in workflows, see the *HP Demand Management Configuration Guide.*

Restarting the PPM Server in Normal Mode

After you have completed all installation and configuration procedures, if you previously restarted the PPM Server in restricted mode, stop and restart it in normal mode (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

1. Stop the PPM Server.
2. Run the script:

   ```
   sh ./setServerMode.sh NORMAL
   ```

3. Start the PPM Server.

For More Information

MAC provides request types, workflows, portlets, and reports that can be configured to fit your business needs. For detailed information, see Chapter 3, *Using MAC Entities,* on page 39.

You can use the MAC entities whether or not you establish any of the supported integrations of PPM Center with other applications. You can configure those integrations at any time after you have installed and configured MAC as described in this chapter. For more information, see *Optional Integrations with PPM Center Enabled by MAC* on page 20 and the integration-related chapters to which that section refers.

3 Using MAC Entities

Overview of MAC Entities

This chapter describes the request types, workflows, portlets, reports, and special commands (the “entities”) provided in MAC to facilitate implementation of ITIL processes. Some of these entities are also used by the integrations with external service desk applications and other HP products.

The MAC entities provided for change management are described first, then the entities for release management are described, and then the special commands.

Several MAC entities that are used only for integrations of PPM Center with HP Quality Center are described in Chapter 7, *Integration of PPM Center with Quality Center,* on page 189.

For More Information

The request types, workflows, portlets, reports, and special commands provided with MAC can be configured to fit your business needs. *Table 3-1* lists the types of entities and the associated PPM Center guides to which you should refer for configuration information.

Table 3-1. PPM Center entities and associated configuration guides

Entity	Configuration Guide
Request type	*HP Demand Management Configuration Guide*
Workflow	*HP Demand Management Configuration Guide*
Portlet	*Creating Portlets and Modules*
Report	*Reports Guide and Reference*
Special command	*Commands, Tokens, and Validations Guide and Reference*

MAC - Request For Change (RFC) Request Type

In its implementation of the ITIL Change Management process, MAC uses the MAC - Request For Change (RFC) request type and sends an RFC request along the MAC - Request For Change workflow (see *MAC - Request For Change Workflow* on page 49).

Figure 3-1 and *Figure 3-2* show the top and bottom of the Create New MAC - Request For Change (RFC) page that appears when you create a request and select the MAC - Request For Change (RFC) request type. *Table 3-2* on page 43 describes the fields in the MAC - Request For Change (RFC) request, including some fields that do not appear until the request is created or until other conditions are met.

Figure 3-1. Top of MAC - Request For Change (RFC) request

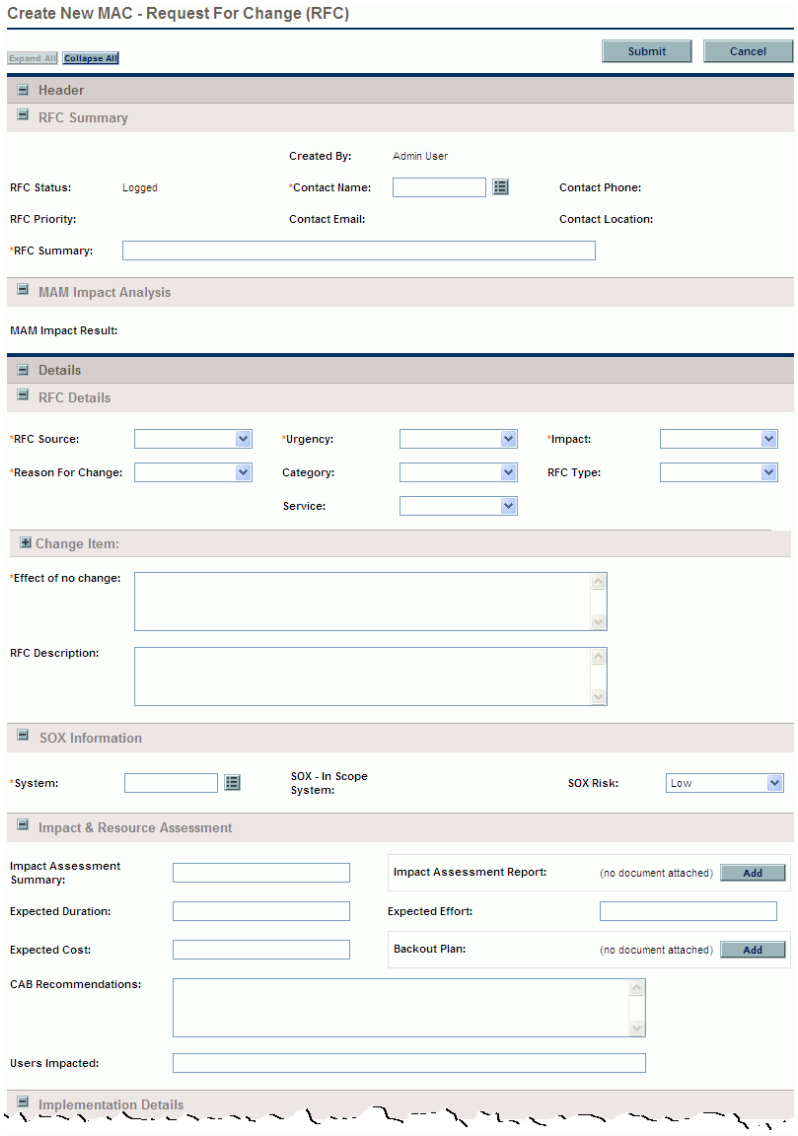


Figure 3-2. Bottom of MAC - Request For Change (RFC) request

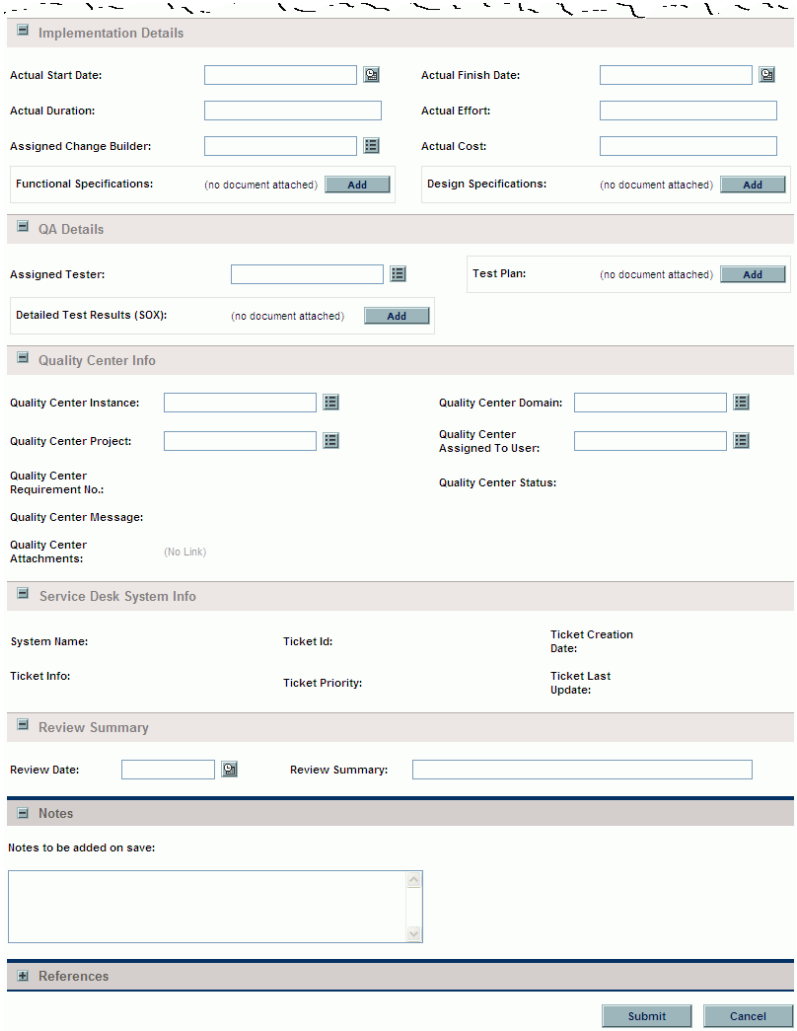


Table 3-2. MAC - Request For Change (RFC) request fields (page 1 of 6)

Field Name (*Required)	Description
RFC Summary section	
RFC ID	(Added after the RFC is created.) The number of the RFC.
Created By	The user who created the RFC.
Created On	(Added after the RFC is created.) The date the RFC was created.
RFC Status	The status of the RFC.
*Contact Name	The name of the person proposing the change.
Contact Phone	The telephone number of the person proposing the change.
RFC Priority	The priority of the change request; determined by a combination of Urgency and Impact.
Contact Email	The email address of the RFC contact person.
Contact Location	The location of the person proposing the change.
*RFC Summary	A summary description of the RFC request.
Expected Start Date	(Added after the RFC is created and assigned to a developer.) The expected start date for work on the RFC.
Expected Finish Date	(Added after the RFC is created and assigned to a developer.) The expected end date for work on the RFC.
Assigned Developer	(Added after the RFC is created and assigned to a developer.) The developer assigned to work on the RFC.
Release ID	(Added after the change is released.) The number of the release if the change was released.
MAM Impact Analysis section [a]	
Last Impact Analysis Report Severity	The highest severity among the CIs in the most recent Impact Analysis Report.

Table 3-2. MAC - Request For Change (RFC) request fields (page 2 of 6)

Field Name (*Required)	Description
RFC Details section	
*RFC Source	The source of the RFC request (for example, from a problem or incident).
*Urgency	The urgency of the change request (for example, from problem urgency)
*Impact	The business impact of doing or not doing the change (for example, from problem impact).
*Reason For Change	The reason for the change.
Category	The change category; based on the scope of the change.
RFC Type	The type of change being requested.
Service	The IT service that needs this change.
Change Item	(Appears to be a separate section in the interface.) Expand to display a table of change items. If the RFC has been created, click the **Modify Table** button to add a change item. The table consolidates existing change items (CIs) with an automatically assigned sequence number (**Seq**), a **CI Type** (**Software, Hardware,** or **Network**), a **CI Name,** and a **CI Description.**
*Effect of no change	The effect of not implementing the change.
RFC Description	The description of the change request.
Authorized By	(Added after the RFC is created and assigned to a developer.) The person who authorized the change.
Authorization Date	(Added after the RFC is created and assigned to a developer.) The date the developer was assigned.

Table 3-2. MAC - Request For Change (RFC) request fields (page 3 of 6)

Field Name (*Required)	Description
SOX Information section	
*System	The system that is impacted by the change.
SOX - In Scope System	SOX requirement: SOX oversight is required for any application that directly or indirectly affects financial reporting.
SOX Risk	SOX requirement: Risk is determined as part of SOX oversight. Note: A change to a non-SOX system could be high-risk based on possible infrastructure/network impact.
System Owner	(Added after the RFC is created.) The owner of the system.
Impact & Resource Assessment section	
Impact Assessment Summary	The risk assessment of the impact of the change on related components in the configuration management database (CMDB).
Impact Assessment Report	Enables the user to attach the impact assessment report directly to the RFC.
Expected Duration	The expected duration for creation of the change.
Expected Effort	The expected effort for creation of the change.
Expected Cost	The expected cost of the change.
Backout Plan	Enables the user to attach the backout plan document directly to the RFC.
CAB Recommendations	CAB recommendations, where appropriate.
Users Impacted	The users expected to be impacted by the change.

Table 3-2. MAC - Request For Change (RFC) request fields (page 4 of 6)

Field Name (*Required)	Description
Implementation Details section	
Actual Start Date	The actual start date for creation of the change.
Actual Finish Date	The actual finish date for creation of the change.
Actual Duration	The actual duration for creation of the change.
Actual Effort	The actual effort expended during creation of the change.
Assigned Change Builder	The details of the change builder/implementer.
Actual Cost	The actual cost of the change.
Functional Specifications	Enables the user to attach the functional specification document directly to the RFC.
Design Specifications	Enables the user to attach the design specification document directly to the RFC.
QA Details section	
Assigned Tester	The person assigned to test the change.
Test Plan	Enables the user to attach the test plan directly to the RFC.
Detailed Test Results (SOX)	Enables the user to attach the detailed test results directly to the RFC.
Quality Center Info section [b]	
Quality Center Instance	The Quality Center instance that will receive the new PPM Center request.
Quality Center Domain	The Quality Center domain of the working project.
Quality Center Project	The Quality Center project that is linked with this request.
Quality Center Assigned To User	The user assigned to the Quality Center requirement.

Table 3-2. MAC - Request For Change (RFC) request fields (page 5 of 6)

Field Name (*Required)	Description
Quality Center Requirement No.	The Quality Center requirement number.
Quality Center Status	The Quality Center requirement status.
Quality Center Message	(Read only) Message indicating whether the last update to the request was successful in Quality Center.
Quality Center Attachments	The URL of the attached requirement document.
Service Desk System Info section [c]	
System Name	The name of the service desk application.
Ticket Id	The ticket ID in the service desk application.
Ticket Creation Date	The ticket creation date in the service desk application.
Ticket Info	The ticket info from the service desk application.
Ticket Priority	The ticket priority in the service desk application.
Ticket Last Update	The date the ticket was last updated in the service desk application.
Review Summary section	
Review Date	The review date for the change.
Review Summary	The summary of the review for the change.
Impact Analysis [d]	
Configuration Items Selection	Value in parentheses is the number of CIs selected after use of the **CI Selection** button.
CI Selection button	(Enabled when PPM Center and Application Mapping are integrated, and the request status is Ready for Impact Analysis.) Opens a window to select CIs.

Table 3-2. MAC - Request For Change (RFC) request fields (page 6 of 6)

Field Name (*Required)	Description
Launch HP Change Control Management button	(Appears if the `CCM_MACHINE_URL` parameter in the `server.conf` file is specified.) Opens the RFC in HP Change Control Management using the specified URL if PPM Center and HP Change Control Management are integrated.

a. The MAM Impact Analysis section (near the top of the request) is visible only if the MAM Impact Analysis field group is enabled in the request type. Data is presented for the MAM Impact Result field in this section only if PPM Center is integrated with Mercury Application Mapping.

b. Fields in the Quality Center Info section remain visible by default but are not used if PPM Center is not integrated with HP Quality Center.

c. Fields in the Service Desk System Info section remain visible by default but are not used if PPM Center is not integrated with a service desk system. However, when this request type (or any other request type) is used for a service desk integration, these fields are required.

d. Impact Analysis (near the bottom of the request) appears only if the MAM Impact Analysis field group is enabled in the request type and the request has been submitted. These fields are laid out as a section, however, unlike the other sections in the request type, they are not configurable in the PPM Workbench.

The administrator can remove the **MAM Impact Analysis** section or the **Quality Center Info** section from the request type by removing the MAM Impact Analysis field group or the Quality Center Info field group, respectively, from the MAC - Request for Change (RFC) Header request header type.

See the *HP Demand Management Configuration Guide* for details about request header types and field groups.

To submit a MAC - Request For Change (RFC) request:

1. Log on to PPM Center.
2. From the menu bar, select **Demand Management > Create a Request.**

   The Create New Request page appears.
3. On the Create New Request page, in the **Request Type** field, select **MAC - Request For Change (RFC)** and click **Create.**

   The Create New MAC - Request For Change (RFC) page appears, displaying the appropriate RFC fields.

   Required fields have a red asterisk. All other fields are optional, but are often helpful when others are reviewing an open request. For information

concerning a specific field, click the **Help** icon next to the field (if available).

4. Complete the fields in all sections as appropriate.

   The **Notes** section contains fields where notes and information concerning the RFC can be entered and stored. Typically, when creating an RFC, you do not need to add a note to it. However, add a note if you want to convey additional information to the reviewers and processors of the RFC.

   In the **References** section, add any references to the request. It can be useful to reference a Web-accessible file or attach a document or file from a local machine to the RFC. Additionally, other entities such as packages, releases, or other related requests may be automatically referenced based on the workflow steps that have been executed. For more information about adding references, see the *HP Demand Management User's Guide.*

5. On the Create New Request page, click **Submit.**

   The RFC is submitted. The Request Creation Confirmed page appears.

PPM Center can be configured to allow you to save the request before it is submitted. To have this feature enabled, see your application administrator.

After submitting the request, on the Request Creation Confirmed page you can click the link for the particular request number in the **Request #** field to see the detail page of the newly generated RFC.

When the RFC is submitted, it is assigned an initial status, such as New. It is then routed along the MAC - Request For Change workflow (see *MAC - Request For Change Workflow*).

MAC - Request For Change Workflow

The MAC - Request For Change workflow is the sequence of approvals, decisions, or actions by which the RFC is processed. The RFC starts at the beginning of the workflow; when it reaches the end of the workflow, its lifecycle is complete.

Upon creation, a MAC - Request For Change (RFC) request is automatically set to use the MAC - Request For Change workflow.

Figure 3-3 shows the workflow. *Table 3-3* lists the important steps in the workflow and the user roles associated with each.

Figure 3-3. MAC - Request For Change workflow

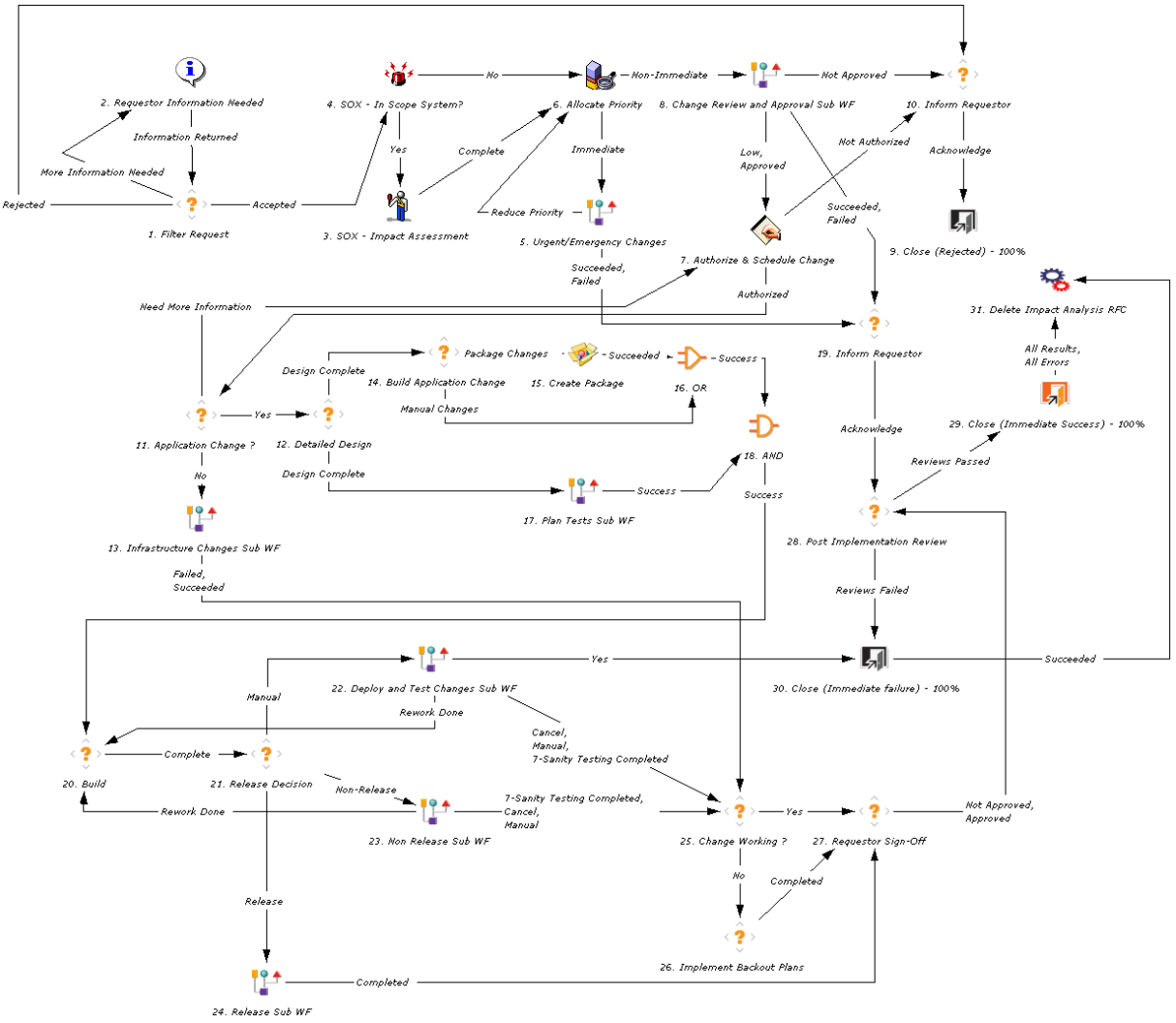


Table 3-3. MAC - Request For Change workflow steps (page 1 of 3)

Step	User Security	Description
1. Filter Request	MAC - Change Manager	Initial review and classification of the change request; determine if this RFC is acceptable based on company policy.
4. SOX - In Scope System?	Fully automated step	SOX requires identification of key systems related to accurate financial reporting, directly or indirectly. This field is automatically determined based on the system selected.
3. SOX - Impact Assessment	MAC - SOX - System Owner	SOX requires additional impact assessment for any change that could affect financial reporting. The impact of not doing the change must be considered as well.
6. Allocate Priority	MAC - Change Manager	Validate RFC priority and determine if this is an Urgent Change request.
5. Urgent/ Emergency Changes	(None)	Call a subworkflow designed to handle urgent or emergency changes, described in *MAC - RFC - Urgent Change Management Sub WF Subworkflow* on page 55.
8. Change Review and Approval Sub WF	MAC - Change Manager	Call a subworkflow to manage the review and approval process for the RFC, described in *MAC - Change Review and Approval Sub WF Subworkflow* on page 56. (This subworkflow can, in turn, call the MAC - Impact & Resource Assessment Sub WF subworkflow.)
7. Authorize & Schedule Change	MAC - Change Manager	Authorize the change request and schedule change for implementation.
11. Application Change ?	MAC - Change Manager	Determine if this is an application change.
13. Infrastructure Changes Sub WF	(None)	Call a subworkflow to handle non-application changes, described in *MAC - Infrastructure Changes Sub WF Subworkflow* on page 60.

Table 3-3. MAC - Request For Change workflow steps (page 2 of 3)

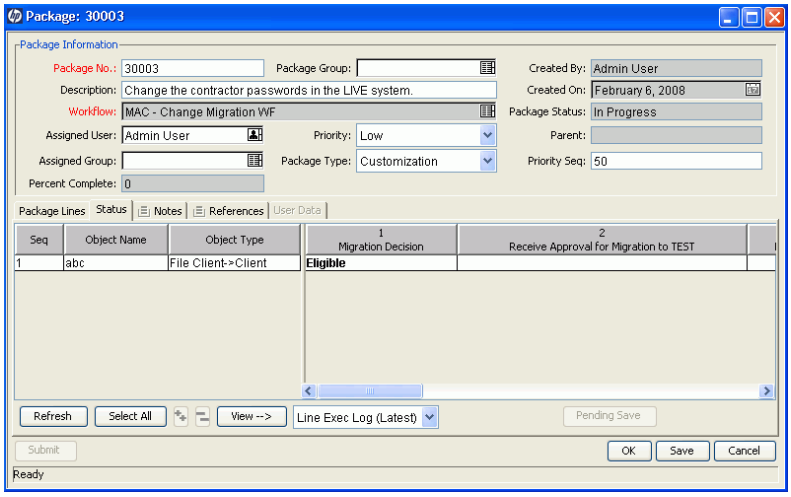
Step	User Security	Description
12. Detailed Design	MAC - Application Developer	Create functional and design specification documents.
14. Build Application Change	MAC - Application Developer	Build application code for the change.
15. Create Package	MAC - Application Developer	Create a package with the code changes. This step automatically creates a package and adds it as a reference to the RFC request. *Figure 3-4* on page 54 illustrates a typical RFC package.
17. Plan Tests Sub WF	(None)	Call a subworkflow to manage the test planning process for the RFC, described in *MAC - Plan Tests Sub WF Subworkflow* on page 61.
20. Build	MAC - Change Builder	Build the change, in preparation for implementation. For an application change, add code components to the referenced package in the PPM Workbench (see the Create Package step).
21. Release Decision	MAC- Change Builder	Select whether this application change should be implemented as part of a release or independently.
22. Deploy and Test Changes Sub WF	(None)	Call a subworkflow for deploying and testing changes, described in *MAC - Deploy and Test Changes Sub WF Subworkflow* on page 63.
23. Non Release Sub WF	(None)	Call a subworkflow for change deployment not involving a release, described in *MAC - Non Release Sub WF Subworkflow* on page 64.
24. Release Sub WF	(None)	Call a subworkflow for change deployment involving a release, described in *MAC - Release Sub WF Subworkflow* on page 66.

Table 3-3. MAC - Request For Change workflow steps (page 3 of 3)

Step	User Security	Description
25. Change Working?	MAC - Change Manager	Review whether the change was successfully implemented with no adverse impact.
26. Implement Backout Plans	MAC - Operations Manager	If the change is not working, implement backout plans to back out the change from the LIVE environment.
27. Requestor Sign-Off	MAC - Change Manager	Get sign-off from the requestor of the change to acknowledge that the change was implemented.
28. Post Implementation Review	MAC - Change Manager	Review the change after implementation to determine whether the change process was followed correctly.
29. Close (Immediate Success) - 100%	(None)	Update status to **Closed.**
31. Delete Impact Analysis RFC	MAC - Change Manager	Tell Mercury Application Mapping to delete the redundant RFCs it created in Mercury Application Mapping each time the status of the PPM Center request became Ready for Impact Analysis.

Step 15 in the MAC - Request for Change workflow creates a package to deploy and test changes, and it adds the package as a reference to the RFC request. This package requires specifying a workflow, and the default is the MAC - Change Migration workflow, as shown in the example in *Figure 3-4*. Step 22 in the MAC - Request for Change workflow calls the MAC - Deploy and Test Changes Sub WF subworkflow to deploy and test the package.

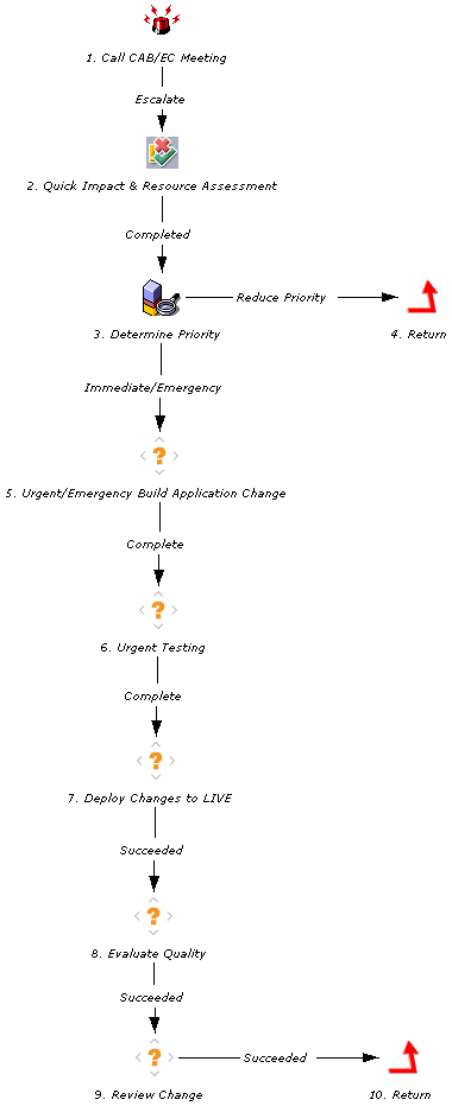
Figure 3-4. Package created for MAC - Request For Change workflow



MAC - RFC - Urgent Change Management Sub WF Subworkflow

MAC provides an “Urgent Change” process. If a change is categorized as **Urgent,** the RFC is routed along the Urgent Change process. The MAC - RFC - Urgent Change Management Sub WF subworkflow is designed to efficiently handle impact assessment, prioritization, and creation of the change. *Figure 3-5* shows the subworkflow.

Figure 3-5. MAC - RFC - Urgent Change Management Sub WF subworkflow



MAC - Change Review and Approval Sub WF Subworkflow

The MAC - Change Review and Approval Sub WF subworkflow provides a modular review and approval process for the RFC. *Figure 3-6* shows the subworkflow. *Table 3-4* lists the important steps in the subworkflow and the user roles associated with each.

Figure 3-6. MAC - Change Review and Approval Sub WF subworkflow

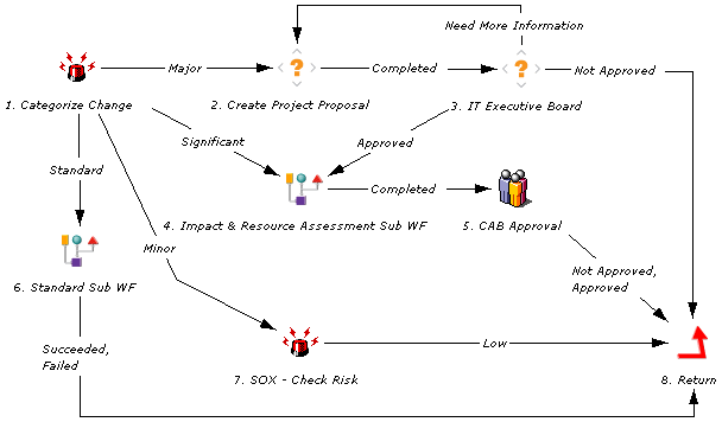


Table 3-4. MAC - Change Review and Approval Sub WF subworkflow steps

Step	User Security	Description
1. Categorize Change	MAC - Change Manager	Categorize the change to determine the next step in the workflow.
2. Create Project Proposal	MAC - CAB group (Change Advisory Board)	If the change is classified as “Major,” create a project proposal that includes impact.
3. IT Executive Board	MAC - IT Executive Board	If the change is classified as “Major,” an IT Executive Board is responsible for approving the change.
4. Impact & Resource Assessment Sub WF	(None)	If the change is classified as “Significant,” call a subworkflow to determine the impact on dependent infrastructure components and estimate the time and cost of resources, as described in *MAC - Impact & Resource Assessment Sub WF Subworkflow* on page 58.
5. CAB approval	MAC - CAB group (Change Advisory Board)	Iterative review by CAB members, resulting in an authorization go/no go decision (includes change priority, schedule, impact, and cost).
6. Standard Sub WF	(None)	Call a subworkflow to track standard changes.

MAC - Impact & Resource Assessment Sub WF Subworkflow

The MAC - Impact & Resource Assessment Sub WF subworkflow provides a modular process for assessing change impact and planning resource usage. *Figure 3-7* shows the MAC - Impact & Resource Assessment Sub WF subworkflow. *Table 3-5* lists the important steps in the subworkflow and the user roles associated with each.

Figure 3-7. MAC - Impact & Resource Assessment Sub WF subworkflow

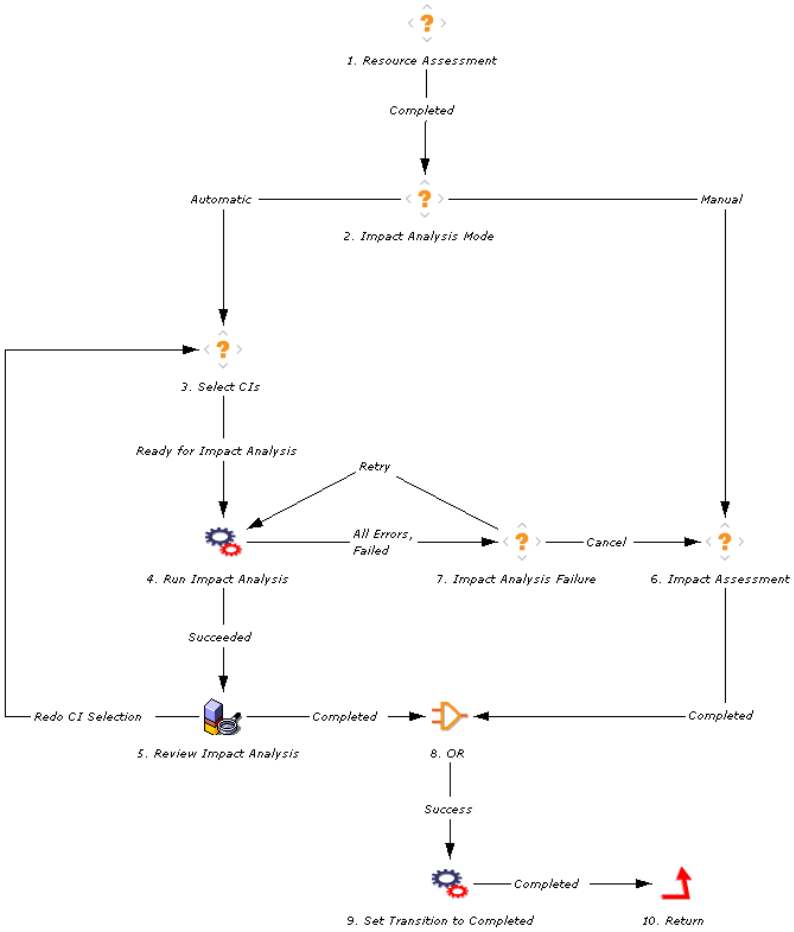


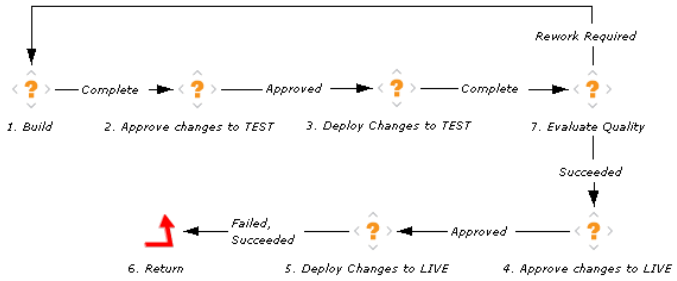
Table 3-5. MAC - Impact & Resource Assessment Sub WF subworkflow steps

Step	User Security	Description
1. Resource Assessment	MAC - Change Manager	Estimate time and cost of resources.
2. Impact Analysis Mode	MAC - Change Manager	Determine the method of impact analysis, either automatic through Mercury Application Mapping or manual.
3. Select CIs	MAC - Change Manager	The user selects the configuration items (CIs) that will be part of the change.
4. Run Impact Analysis	MAC - Change Manager	Run Impact Analysis on the CIs that were selected in the Select CIs step.
7. Impact Analysis Failure	MAC - Change Manager	Notes any error that occurs while submitting the Impact Analysis report in the Mercury Application Mapping server.
5. Review Impact Analysis	MAC - Change Manager	Review of the request, the list of selected CIs, and the Impact Analysis reports. The user can either finally approve the change based on the impact report or reject the change. In addition, the user can compare different Impact Analysis reports.
6. Impact Assessment	MAC - Change Manager	Manual impact analysis process for the requested change.

MAC - Infrastructure Changes Sub WF Subworkflow

If an authorized request for change is not an application change, the MAC - Request for Change workflow calls the MAC - Infrastructure Changes Sub WF subworkflow to manage the approval and deployment of changes to TEST and LIVE environments. *Figure 3-8* shows this subworkflow.

Figure 3-8. MAC - Infrastructure Changes Sub WF subworkflow



MAC - Plan Tests Sub WF Subworkflow

The MAC - Plan Tests Sub WF subworkflow provides a modular process for planning tests that can communicate automatically with Quality Center. If no integration exists, a manual process is also provided. *Figure 3-9* shows the subworkflow. *Table 3-6* lists the important steps in the subworkflow and the user roles associated with each.

Figure 3-9. MAC - Plan Tests Sub WF subworkflow

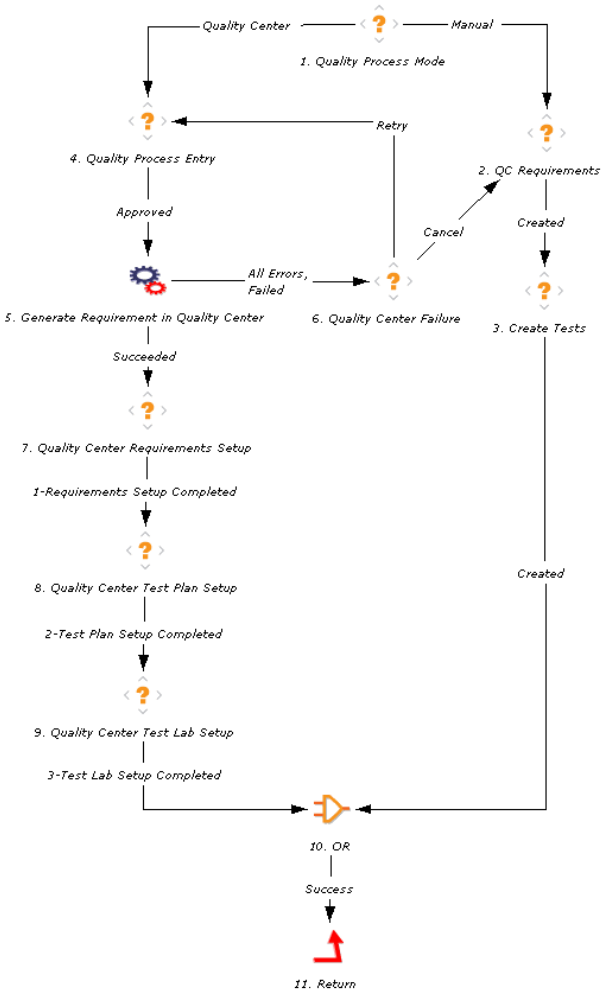


Table 3-6. MAC - Plan Tests Sub WF subworkflow steps

Step Name	User Security	Description
1. Quality Process Mode	MAC - QA Manager	Determine the method of test planning, either automatic through Quality Center, or manual.
4. Quality Process Entry	MAC - QA Manager	The quality process entry needs to be approved for integration of PPM Center with Quality Center.
5. Generate Requirement in Quality Center	MAC - QA Manager	Automated step that generates a requirement in Quality Center.
7. Quality Center Requirements Setup	MAC - QA Manager	QA to complete requirement setup in Quality Center.
8. Quality Center Test Plan Setup	MAC - QA Manager	QA to complete test plan setup in Quality Center.
9. Quality Center Test Lab Setup	MAC - Independent Tester	QA to complete test lab setup in Quality Center.
2. QC Requirements	MAC - QA Manager	Create test requirements in Quality Center.
3. Create Tests	MAC - QA Manager	Create test plans in Quality Center.

MAC - Deploy and Test Changes Sub WF Subworkflow

The MAC - Deploy and Test Changes Sub WF subworkflow provides a modular process for deploying and testing changes. The process can communicate automatically with Quality Center. If no integration exists, a manual process is also provided. *Figure 3-10* shows the subworkflow. *Table 3-7* lists the important steps in the subworkflow and the user roles associated with each.

Figure 3-10. MAC - Deploy and Test Changes Sub WF subworkflow

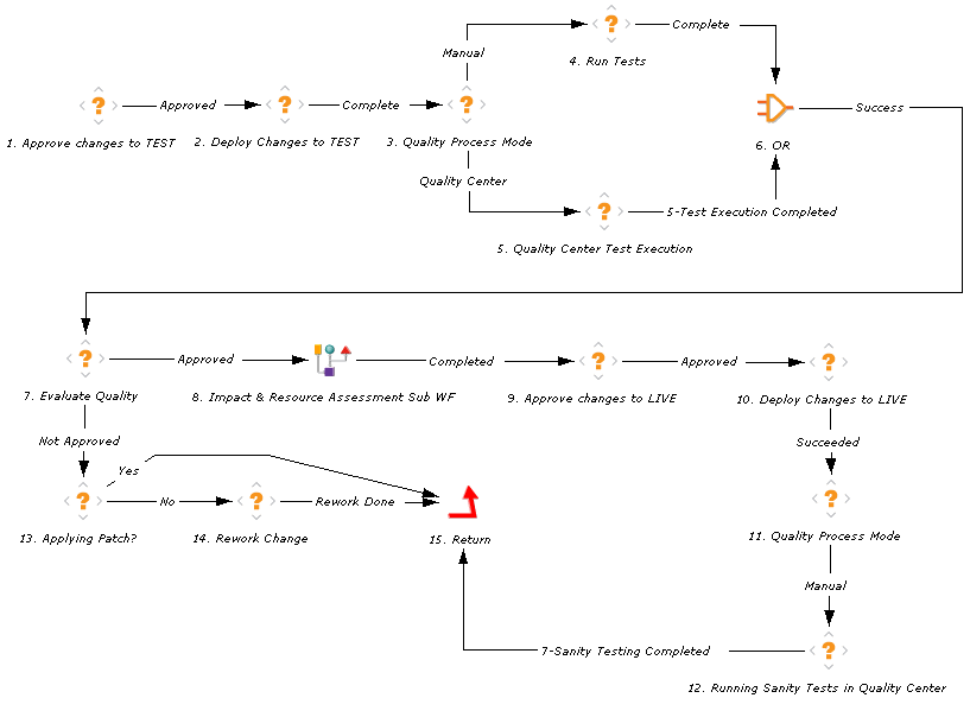


Table 3-7. MAC - Deploy and Test Changes Sub WF subworkflow steps

Step Name	User Security	Description
1. Approve changes to TEST	MAC - Change Manager	Approve deployment of changes to the TEST environment.
2. Deploy Changes to TEST	MAC - Change Manager	Deploy changes to the TEST environment.
3. Quality Process Mode	MAC - QA Manager	Determine the method of testing, either automatic through Quality Center or manual.
5. Quality Center Test Execution	MAC - Independent Tester	Quality Center tests the changes in a TEST environment.
7. Evaluate Quality	MAC - QA Manager	After test execution (manual or using Quality Center), evaluate quality.
8. Impact & Resource Assessment Sub WF	(None)	Call a subworkflow to determine the impact of the changes that will be deployed, as described in *MAC - Impact & Resource Assessment Sub WF Subworkflow* on page 58.
9. Approve changes to LIVE	MAC - Change Manager	Approve deployment of changes to the LIVE environment.
10. Deploy Changes to LIVE	MAC - Change Manager	Deploy changes to the LIVE environment.
11. Quality Process Mode	MAC - QA Manager	Initiate sanity tests in Quality Center.
12. Running Sanity Tests in Quality Center	MAC - QA Manager	Run sanity tests in Quality Center.

MAC - Non Release Sub WF Subworkflow

The MAC - Non Release Sub WF subworkflow provides a modular process for change deployment that can communicate automatically with Quality Center. If no integration exists, a manual process is also provided. *Figure 3-11* shows the subworkflow. *Table 3-8* lists the important steps in the subworkflow and the user roles associated with each.

Figure 3-11. MAC - Non Release Sub WF subworkflow

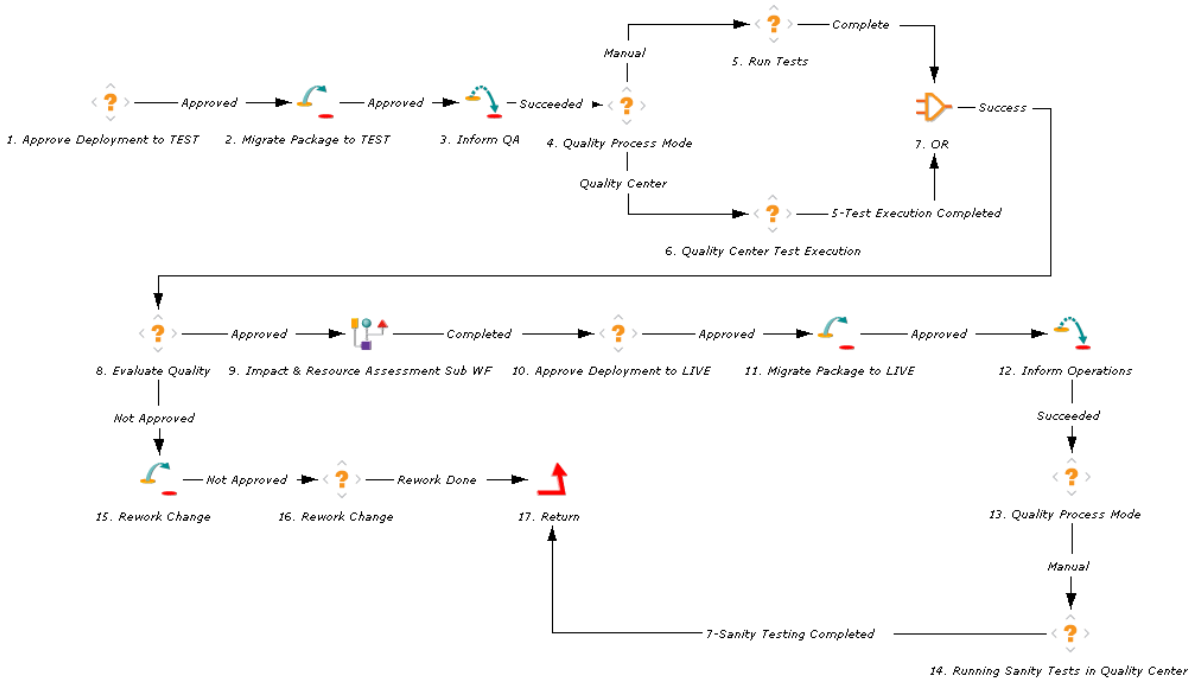


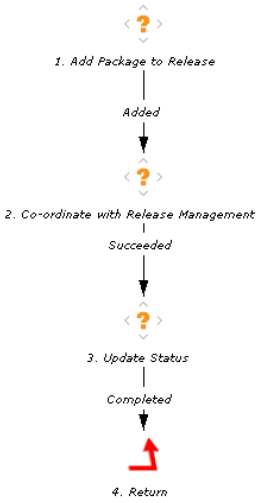
Table 3-8. MAC - Non Release Sub WF subworkflow steps

Step Name	User Security	Description
1. Approve Deployment to TEST	MAC - Change Manager	Coordinate the change implementation to the test environment.
4. Quality Process Mode	MAC - QA Manager	Determine the quality process mode, either automatic through Quality Center or manual.
5. Run Tests	MAC - Independent Tester	If manual mode is chosen in the Quality Process Mode step, the changes need to be manually tested based on test plans.
6. Quality Center Test Execution	MAC - Independent Tester	If Quality Center mode is chosen in the Quality Process Mode step, once QA signals through Quality Center that Test execution is complete, this step moves the workflow ahead.
8. Evaluate Quality	MAC - QA Manager	Approve/reject the quality of the change deployed to the test environment.
9. Impact & Resource Assessment Sub WF	(None)	Call a subworkflow to determine the impact on dependent infrastructure components and estimate the time and cost of resources, as described in *MAC - Impact & Resource Assessment Sub WF Subworkflow* on page 58.
15. Rework Change	MAC - Applications Development Manager	If the quality of the change deployed to the test environment is rejected, the change must be fixed.
10. Approve Deployment to LIVE	MAC - Change Manager	Coordinate the change implementation to the production environment.
14. Running Sanity Tests in Quality Center	MAC - Independent Tester	Run sanity tests in Quality Center.

MAC - Release Sub WF Subworkflow

The MAC - Release Sub WF subworkflow is called in order to add a change into an existing release. It can be called multiple times, once for each change to be added to the release. Once a release is specified as Completed, no new changes can be added to that release. (For information about creating a new release, see *MAC - Release Management Request Type* on page 77.)

Figure 3-12. MAC - Release Sub WF subworkflow



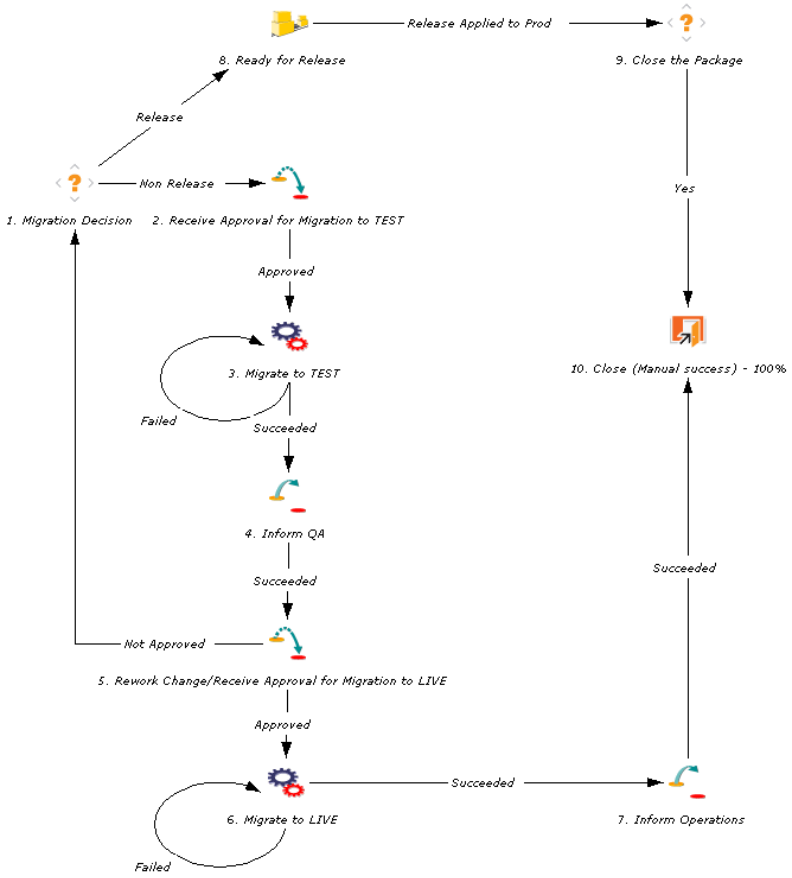
MAC - Defect Template with Quality Center Integration Request Type and Workflow

The MAC - Defect Template with Quality Center Integration request type and the associated MAC - Defect Template with Quality Center Integration workflow are the only MAC entities that can be used only when a particular integration (with Quality Center, in this case) is established. These MAC entities are described in Chapter 7, *Integration of PPM Center with Quality Center,* on page 189.

MAC - Change Migration Workflow

The MAC - Change Migration workflow is used to migrate changes from the DEV environment to the TEST environment and from the TEST environment to the LIVE environment. It is the default workflow used in step 15 of the MAC - Request For Change workflow to create a package. See *MAC - Request For Change Workflow* on page 49.

Figure 3-13. MAC - Change Migration workflow



Change Management Portlets to Display KPIs

MAC provides several portlets that can be added to your PPM Dashboard to provide real-time views into several key performance indicators (KPIs).

For information about adding portlets to your PPM Dashboard, see the *Getting Started* guide.

MAC - My RFCs Portlet

The MAC - My RFCs portlet is provided to users with the role of Change Manager. It lists RFCs that have been created by or assigned to the logged-on user.

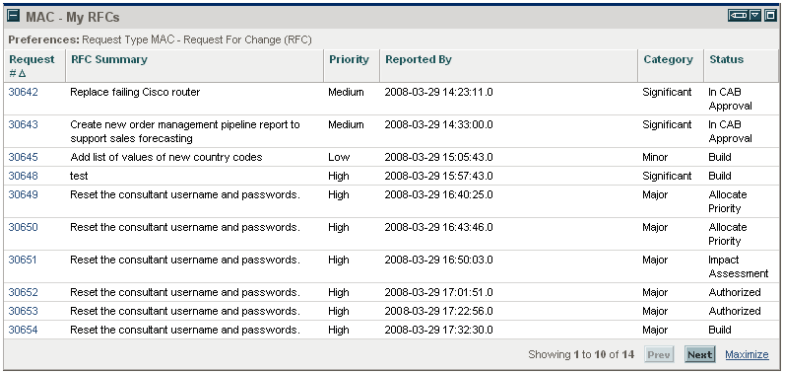
Table 3-9 describes the filter fields for the portlet.

Table 3-9. MAC - My RFCs portlet filter fields

Field Name	Description
Request Type	(Read-only) Preset to **MAC - Request For Change (RFC).**
Category	The category of the RFC.

Figure 3-14 shows an example MAC - My RFCs portlet.

Figure 3-14. MAC - My RFCs portlet



MAC - Open RFCs Portlet

The MAC - Open RFCs portlet is provided to users with the role of Change Manager. It lists RFCs that are currently being worked on.

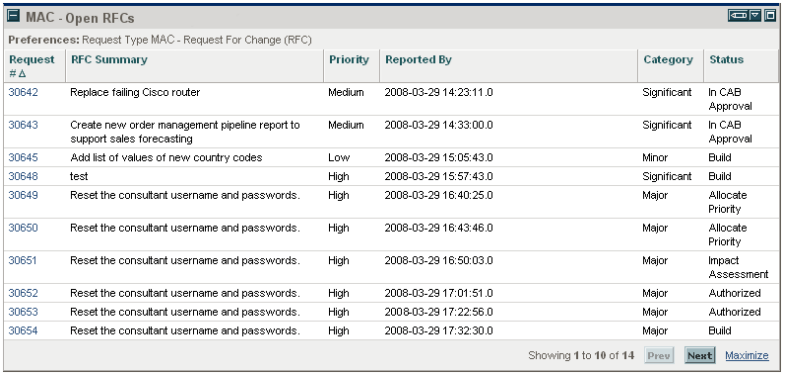
Table 3-10 describes the filter fields for the portlet.

Table 3-10. MAC - Open RFCs portlet filter fields

Field Name	Description
Request Type	(Read-only) Preset to **MAC - Request For Change (RFC).**
Assigned To	The user the RFC is assigned to.
Category	The category of the RFC.

Figure 3-15 shows an example MAC - Open RFCs portlet.

Figure 3-15. MAC - Open RFCs portlet



MAC - RFCs By Category Portlet

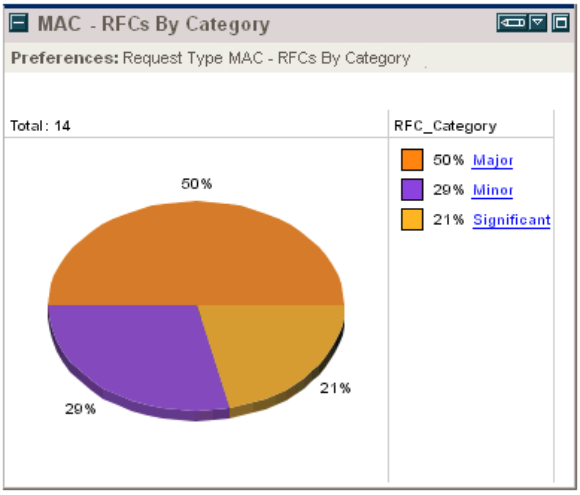
This portlet is provided to users with the role of Change Manager. It displays a pie chart showing the percentage of RFCs in each category.

The only filter field for the portlet, **Request Type,** is read-only and is preset to **MAC - Request For Change (RFC).**

Figure 3-16 shows the MAC - RFCs By Category portlet.

Clicking the pie chart drills down to a list portlet.

Figure 3-16. MAC - RFCs By Category portlet



MAC - RFCs By Reason for Change Portlet

The MAC - RFCs By Reason for Change portlet is provided to users with the role of Change Manager. It displays a pie chart showing the percentage of RFCs by each type of change being considered (for example, new feature, enhancement, or defect fix).

Table 3-11 describes the filter fields for the portlet.

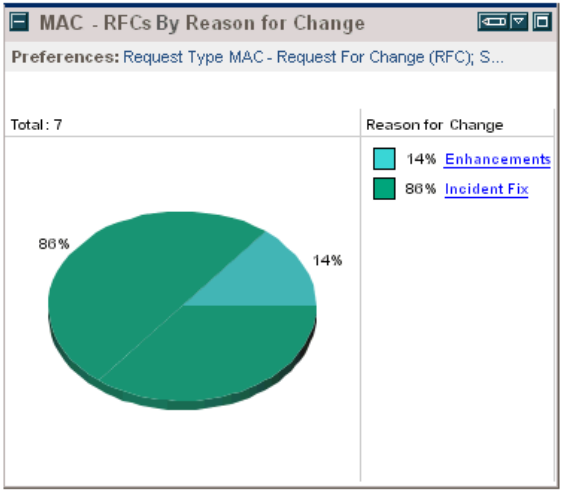
Table 3-11. MAC - RFCs By Reason for Change portlet filter fields

Field Name	Description
Request Type	(Read-only) Preset to **MAC - Request For Change (RFC).**
Status	The status of the RFC.

Figure 3-17 shows an example MAC - RFCs By Reason for Change portlet.

Clicking the pie chart drills down to a list portlet.

Figure 3-17. MAC - RFCs By Reason for Change portlet



MAC - RFCs By Status Portlet

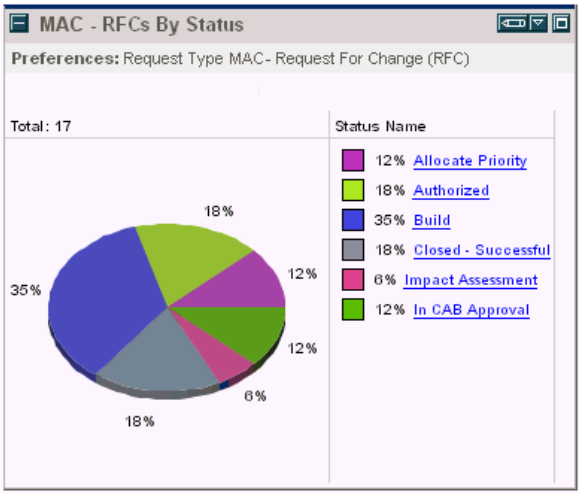
The MAC - RFCs By Status portlet displays a pie chart showing the percentage of RFCs of each status.

The only filter field for the portlet, **Request Type,** is read-only and is preset to **MAC - Request For Change (RFC).**

Figure 3-18 shows an example MAC - RFCs By Status portlet.

Clicking the pie chart drills down to the MAC - RFCs By Status - List portlet.

Figure 3-18. MAC - RFCs By Status portlet



Change Management Reports

MAC provides several reports that can be run to provide summary data and scheduling information about RFCs in the system, as well as to process participant data for SOX auditing.

To generate a report, from the PPM Center menu bar, select **Reports > Create a Report;** on the Submit New Report page, in the **Report Category** field, select **Demand Management;** click the link for the desired report, complete all required and any optional filter fields, and click **Submit.** For more information about reports, see the *Reports Guide and Reference.*

MAC - Change Summary Report

The MAC - Change Summary Report provides a list of RFCs that have been implemented, grouped by change category.

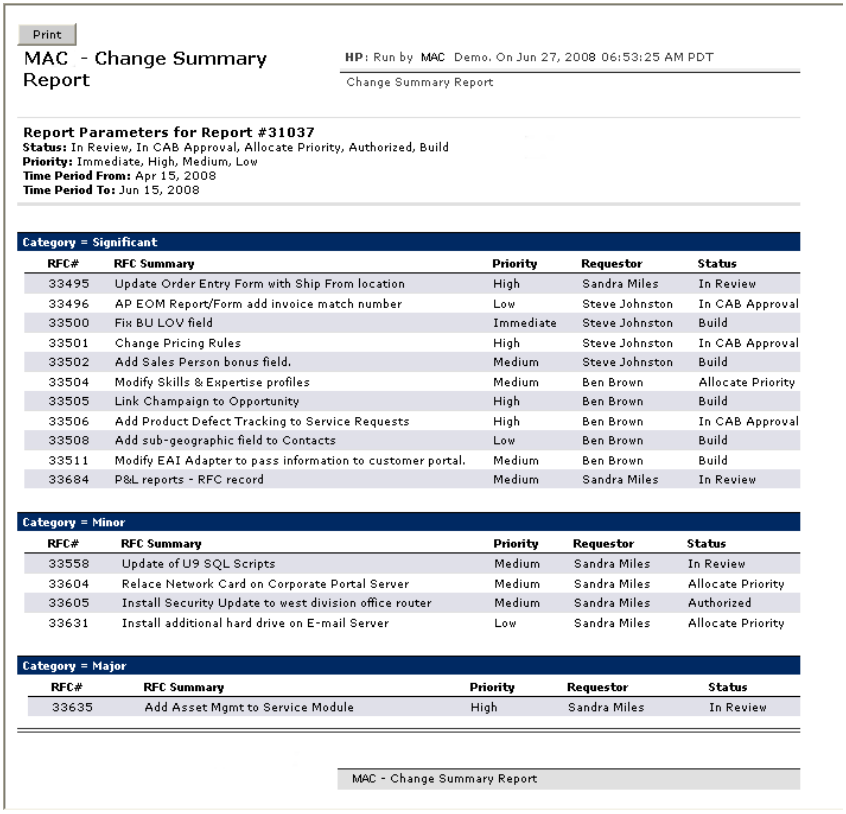
Table 3-12 describes the filter fields for the report.

Table 3-12. MAC - Change Summary Report filter fields

Field Name	Description
Request Type	(Read-only) Preset to **MAC - Request For Change (RFC).**
Change Status	The status of the change request.
Change Priority	The priority of the change request.
Time Period From	The earliest date the RFCs were created.
Time Period To	The latest date the RFCs were created.

Figure 3-19 shows sample output for the MAC - Change Summary Report.

Figure 3-19. MAC - Change Summary Report output



Print

MAC - Change Summary Report

HP: Run by MAC Demo. On Jun 27, 2008 06:53:25 AM PDT

Change Summary Report

Report Parameters for Report #31037
Status: In Review, In CAB Approval, Allocate Priority, Authorized, Build
Priority: Immediate, High, Medium, Low
Time Period From: Apr 15, 2008
Time Period To: Jun 15, 2008

Category = Significant

RFC#	RFC Summary	Priority	Requestor	Status
33495	Update Order Entry Form with Ship From location	High	Sandra Miles	In Review
33496	AP EOM Report/Form add invoice match number	Low	Steve Johnston	In CAB Approval
33500	Fix BU LOV field	Immediate	Steve Johnston	Build
33501	Change Pricing Rules	High	Steve Johnston	In CAB Approval
33502	Add Sales Person bonus field.	Medium	Steve Johnston	Build
33504	Modify Skills & Expertise profiles	Medium	Ben Brown	Allocate Priority
33505	Link Champaign to Opportunity	High	Ben Brown	Build
33506	Add Product Defect Tracking to Service Requests	High	Ben Brown	In CAB Approval
33508	Add sub-geographic field to Contacts	Low	Ben Brown	Build
33511	Modify EAI Adapter to pass information to customer portal.	Medium	Ben Brown	Build
33684	P&L reports - RFC record	Medium	Sandra Miles	In Review

Category = Minor

RFC#	RFC Summary	Priority	Requestor	Status
33558	Update of U9 SQL Scripts	Medium	Sandra Miles	In Review
33604	Relace Network Card on Corporate Portal Server	Medium	Sandra Miles	Allocate Priority
33605	Install Security Update to west division office router	Medium	Sandra Miles	Authorized
33631	Install additional hard drive on E-mail Server	Low	Sandra Miles	Allocate Priority

Category = Major

RFC#	RFC Summary	Priority	Requestor	Status
33635	Add Asset Mgmt to Service Module	High	Sandra Miles	In Review

MAC - Change Summary Report

MAC - Forward Schedule of Changes for RFC Report

The MAC - Forward Schedule of Changes for RFC report is a key report used in the change management process. The output of this report is a list of all the RFCs that are scheduled to be implemented.

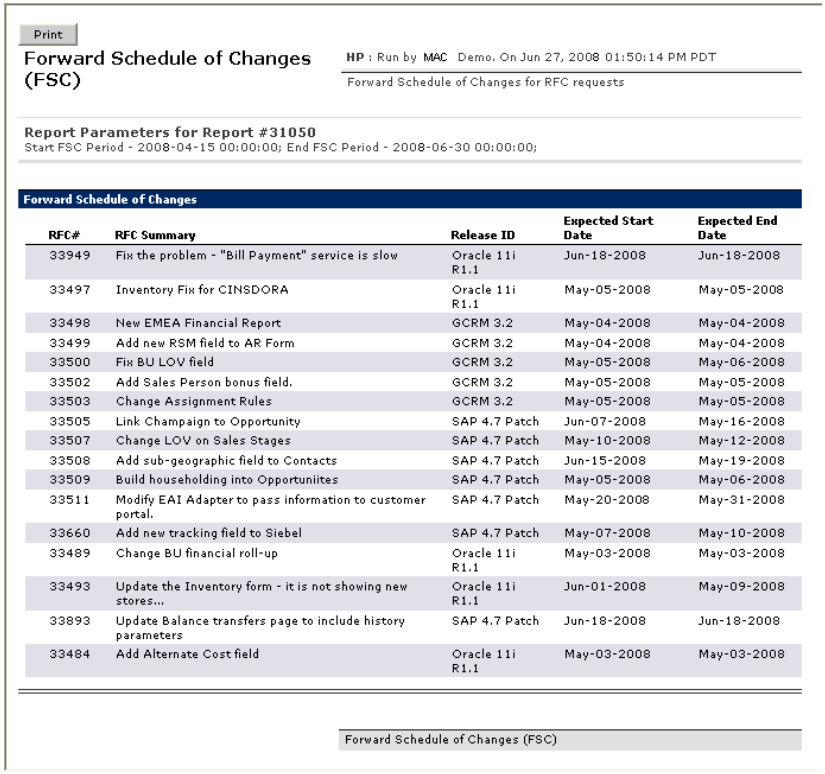
Table 3-13 describes the filter fields for the report.

Table 3-13. MAC - Forward Schedule of Changes for RFC report filter fields

Field Name	Description
Report Title	The title of the report.
Start FSC Period	The earliest start date of the scheduled RFCs.
End FSC Period	The latest start date of the scheduled RFCs.
Request Type	(Read-only) Preset to **MAC - Request For Change (RFC).**

Figure 3-20 shows sample output for the MAC - Forward Schedule of Changes for RFC report.

Figure 3-20. MAC - Forward Schedule of Changes for RFC report output



Print

Forward Schedule of Changes (FSC)

HP : Run by MAC Demo. On Jun 27, 2008 01:50:14 PM PDT

Forward Schedule of Changes for RFC requests

Report Parameters for Report #31050

Start FSC Period - 2008-04-15 00:00:00; End FSC Period - 2008-06-30 00:00:00;

Forward Schedule of Changes

RFC#	RFC Summary	Release ID	Expected Start Date	Expected End Date
33949	Fix the problem - "Bill Payment" service is slow	Oracle 11i R1.1	Jun-18-2008	Jun-18-2008
33497	Inventory Fix for CINSDORA	Oracle 11i R1.1	May-05-2008	May-05-2008
33498	New EMEA Financial Report	GCRM 3.2	May-04-2008	May-04-2008
33499	Add new RSM field to AR Form	GCRM 3.2	May-04-2008	May-04-2008
33500	Fix BU LOV field	GCRM 3.2	May-05-2008	May-06-2008
33502	Add Sales Person bonus field.	GCRM 3.2	May-05-2008	May-05-2008
33503	Change Assignment Rules	GCRM 3.2	May-05-2008	May-05-2008
33505	Link Champaign to Opportunity	SAP 4.7 Patch	Jun-07-2008	May-16-2008
33507	Change LOV on Sales Stages	SAP 4.7 Patch	May-10-2008	May-12-2008
33508	Add sub-geographic field to Contacts	SAP 4.7 Patch	Jun-15-2008	May-19-2008
33509	Build householding into Opportuniites	SAP 4.7 Patch	May-05-2008	May-06-2008
33511	Modify EAI Adapter to pass information to customer portal.	SAP 4.7 Patch	May-20-2008	May-31-2008
33660	Add new tracking field to Siebel	SAP 4.7 Patch	May-07-2008	May-10-2008
33489	Change BU financial roll-up	Oracle 11i R1.1	May-03-2008	May-03-2008
33493	Update the Inventory form - it is not showing new stores...	Oracle 11i R1.1	Jun-01-2008	May-09-2008
33893	Update Balance transfers page to include history parameters	SAP 4.7 Patch	Jun-18-2008	Jun-18-2008
33484	Add Alternate Cost field	Oracle 11i R1.1	May-03-2008	May-03-2008

Forward Schedule of Changes (FSC)

MAC - Release Management Request Type

The ITIL Release Management process as modeled by MAC sends a release request of the MAC - Release Management request type along the MAC - Release Request workflow (see *MAC - Release Request Workflow* on page 83) to be examined and resolved.

Figure 3-21 shows the Create New MAC - Release Management page that appears when you create a request and select the MAC - Release Management request type. *Table 3-14* describes the fields in the MAC - Release Management request, including some fields that do not appear until the request is created or until other conditions are met.

Figure 3-21. MAC - Release Management request

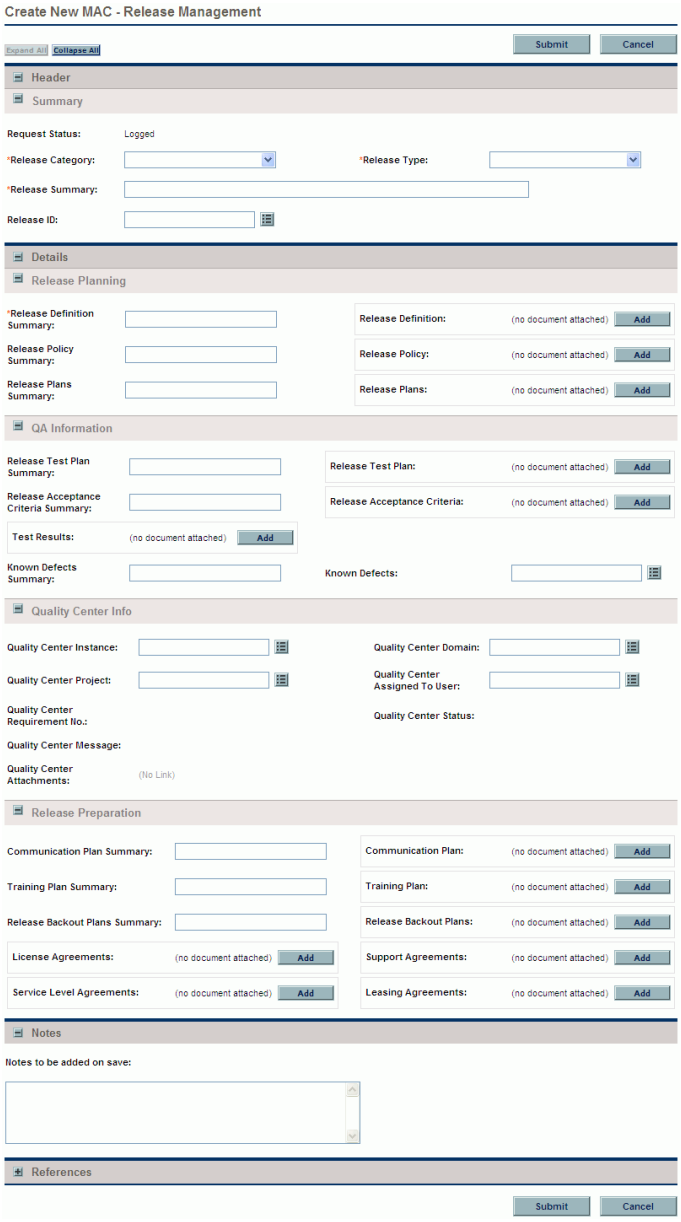


Table 3-14. MAC - Release Management request fields (page 1 of 4)

Field Name (*Required)	Description
Summary section	
Request Status	(Read-only) The status of the release request. Preset to **Logged.**
Request No.	(Added after the request is created.) The number of the request.
*Release Category	The release category, based on the scope of the release (number of changes in a release).
*Release Type	The type of release.
*Expected Release Date	(Added and required after the request is created.) The date the request is expected to be released.
Actual Release Date	(Added after the **Expected Release Date, Release ID,** and **Release Policy Summary** fields are specified, the request is approved, and release planning is complete.) The actual date for the release.
*Release Summary	The summary description of the release.
*Release ID (Required only after the request is created.)	The ID for the release.
Release Planning section	
*Release Definition Summary	A summary of the definition of this release.
Release Definition	Enables the user to attach the release definition document directly to the release request.
*Release Policy Summary (Required only after the request is created.)	A summary of the policy that governs this release.
Release Policy	Enables the user to attach the release policy document directly to the release request.
Release Plans Summary	A summary of rollout plans for this release.

Table 3-14. MAC - Release Management request fields (page 2 of 4)

Field Name (*Required)	Description
Release Plans	Enables the user to attach the rollout plans for this release (for example: a timetable of events, a resource plan, and who will do what and when) directly to the release request.
QA Information section	
Release Test Plan Summary	A summary of the test plan for this release.
Release Test Plan	Enables the user to attach the release test plan (the plan that describes tests to be performed on this release in the TEST environment) directly to the release request.
Release Acceptance Criteria Summary	A summary of the release acceptance criteria for this release.
Release Acceptance Criteria	Enables the user to attach the release acceptance criteria document (which details criteria that qualify the acceptance of this release before deployment to the LIVE environment) directly to the release request.
Test Results	Enables the user to attach the test results directly to the release request.
Known Defects Summary	A summary of known defects that will be carried forward into the LIVE environment.
Known Defects	Enables the user to specify RFCs relating to known defects that will be carried forward into the LIVE environment.
Quality Center Info section [a]	
Quality Center Instance	The Quality Center instance that will receive the new PPM Center request.
Quality Center Domain	The Quality Center domain of the working project.
Quality Center Project	The Quality Center project that is linked with this request.
Quality Center Assigned To User	The user assigned to the Quality Center requirement.

Table 3-14. MAC - Release Management request fields (page 3 of 4)

Field Name (*Required)	Description
Quality Center Requirement No.	The Quality Center requirement number.
Quality Center Status	The Quality Center requirement status.
Quality Center Message	(Read only) Message indicating whether the last update to the request was successful in Quality Center.
Quality Center Attachments	The URL of the attached requirement document.
Release Preparation section	
Communication Plan Summary	A summary of the communication plan for this release.
Communication Plan	Enables the user to attach the communication plan (the plan that describes the various notifications that need to be sent out prior to release deployment into the LIVE environment) directly to the release request.
Training Plan Summary	A summary of the training plan for this release.
Training Plan	Enables the user to attach the training plan (the plan that describes the training that needs to be provided prior to release deployment into the LIVE environment) directly to the release request.
Release Backout Plans Summary	A summary of the backout plans for this release.
Release Backout Plans	Enables the user to attach the backout plan (the release plan that describes procedures to back out the release to its original state) directly to the release request.
License Agreements	Enables the user to attach any license agreement documents for software licensed in this release directly to the release request.
Support Agreements	Enables the user to attach any support agreement documents for support policies of software licensed in this release directly to the release request.

Table 3-14. MAC - Release Management request fields (page 4 of 4)

Field Name (*Required)	Description
Service Level Agreements	Enables the user to attach any SLAs for ordering new equipment or software directly to the release request.
Leasing Agreements	Enables the user to attach any leasing agreement documents for software leased in this release directly to the release request.

a. Fields in the Quality Center Info section remain visible by default but are not used if PPM Center is not integrated with HP Quality Center.

The administrator can remove the **Quality Center Info** section from the request type by removing the Quality Center Info field group from the MAC - Release Request Header request header type. See the *HP Demand Management Configuration Guide* for details about request header types and field groups.

To submit a MAC - Release Management request:

1. Log on to PPM Center.
2. From the menu bar, select **Demand Management > Create a Request.**

   The Create New Request page appears.
3. On the Create New Request page, in the **Request Type** field, select **MAC - Release Management** and click **Create.**

   The Create New MAC - Release Management page appears, displaying the appropriate release request fields.

   Required fields have a red asterisk. All other fields are optional, but are often helpful when others are reviewing an open request. For information concerning a specific field, click the **Help** icon next to the field (if available).

4. Complete the fields in all sections as appropriate.

   The **Notes** section contains fields where notes and information concerning the release can be entered and stored. Typically, when creating a release request, you do not need to add a note to it. However, add a note if you want to convey additional information to the reviewers and processors of the release request.

   In the **References** section, add any references to the request. It can be useful to reference a Web-accessible file or attach a document or file from a local machine to the release request. For more information about adding references, see the *HP Demand Management User's Guide.*

5. On the Create New Request page, click **Submit.**

   The release request is submitted. The Request Creation Confirmed page appears.

PPM Center can be configured to allow you to save the request before it is submitted. To have this feature enabled, see your application administrator.

After submitting the request, on the Request Creation Confirmed page you can click the link for the particular request number in the **Request #** field to see the detail page of the newly generated release request.

When the release request is submitted, it is assigned an initial status, such as New. It is then routed along the MAC - Release Request workflow (see *MAC - Release Request Workflow*).

MAC - Release Request Workflow

The MAC - Release Request workflow is the sequence of approvals, decisions, or actions that the release request follows. The release request starts at the beginning of the MAC - Release Request workflow; when it reaches the end of the workflow, its lifecycle is complete. After the release request has been through initial planning, the release is created, and the packages for the RFCs can be aggregated into the release. The deployment steps in the release request workflow coordinate with the actual release to automate the deployment of all packages in the release into the TEST and LIVE environments.

Upon creation, a MAC - Release Management request is automatically set to use the MAC - Release Request workflow.

Figure 3-22 shows the MAC - Release Request workflow. *Table 3-15* lists the important steps in the workflow and the user roles associated with each.

Figure 3-22. MAC - Release Request workflow

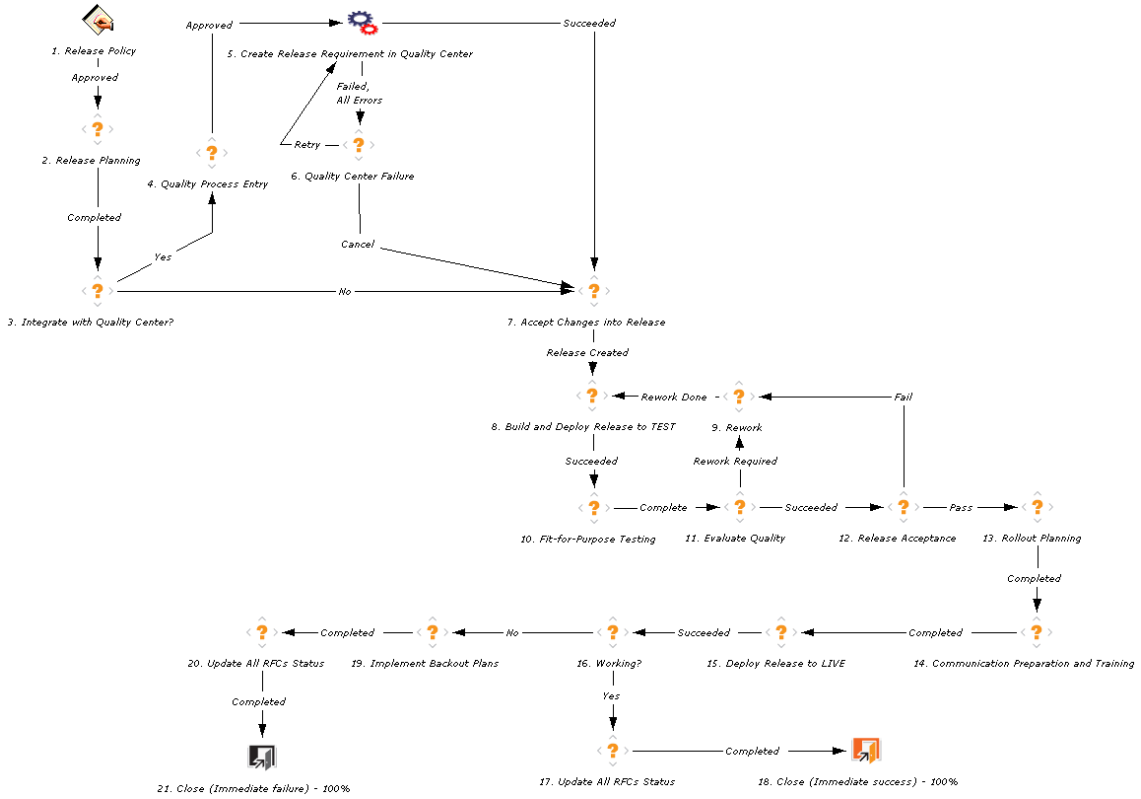


Table 3-15. MAC - Release Request workflow steps (page 1 of 2)

Step Name	User Security	Description
1. Release Policy	MAC - Release Manager	Define the release policy for this release (including release number and rules for accepting changes into the release).
2. Release Planning	MAC - Release Manager	Review and approval of the release policy and other planning documents (such as release acceptance criteria).
3. Integrate with Quality Center?	MAC - QA Manager	Determine whether the user wants to use Quality Center integration, if enabled. See *Integration of PPM Center with HP Quality Center* on page 25.
4. Quality Process Entry	MAC - QA Manager	Secure approval for release entry into Quality Center-integrated process.
5. Create Release Requirement in Quality Center	MAC - QA Manager	Create a test requirement in Quality Center for the release if integration has been enabled.
7. Accept Changes into Release	MAC - Release Manager	Add RFC-related changes to the release. This can be done from the RFC workflow directly (for changes that qualify for this release).
8. Build and Deploy Release to TEST	MAC - Release Manager	Deploy the entire release into QA or staging environment and prepare for integration testing. This step automatically migrates the release and related packages to the TEST environment.
10. Fit-for-Purpose Testing	MAC - Release Manager	Fit-for-purpose testing of this release.
11. Evaluate Quality	MAC - Release Manager	Testing of this release; includes testing of backout plan.

Table 3-15. MAC - Release Request workflow steps (page 2 of 2)

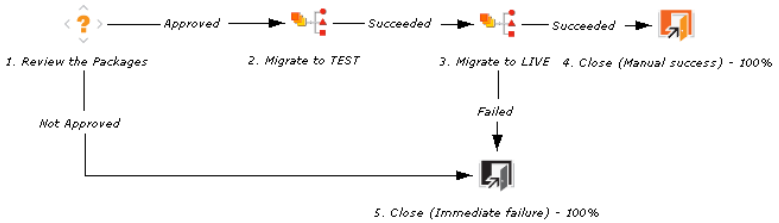
Step Name	User Security	Description
12. Release Acceptance	MAC - Release Manager	Based on test results and known defects, determine if this release is acceptable for LIVE deployment.
13. Rollout Planning	MAC - Release Manager	Plan the rollout into LIVE environment; the key document is the release plan (who does what and when).
14. Communication Preparation and Training	MAC - Release Manager	Prepare for LIVE rollout; determine logistics, training, and communication.
15. Deploy Release to LIVE	MAC - Release Manager	Distribute and install this release to the LIVE environment. This step automatically migrates the release and related packages to the LIVE environment. SOX Segregation of Duties prohibits developers and testers from being involved in deployment of code into production. It is important that users with either of these roles not be involved in this step.
16. Working?	MAC - Release Manager	Determine if the release is working based on sanity check and testing.
17. Update All RFCs Status	MAC - Release Manager	Update the status of RFCs related to this release.
18. Close (Immediate success) - 100%	(None)	Update status to Closed.
19. Implement Backout Plans	MAC - Release Manager	If the release is not working, implement the backout plan.
20. Update All RFCs Status	MAC - Release Manager	Update the status of RFCs related to this release.

MAC - Release Distribution Workflow and Subworkflow

The MAC - Release Distribution workflow and the MAC - Release Distribution Sub WF subworkflow that it calls to migrate the release to TEST and then to LIVE environments are used to control distribution among environments of a release that consolidates multiple changes.

Figure 3-23 shows the MAC - Release Distribution workflow.

Figure 3-23. MAC - Release Distribution workflow



Release Management Portlets to Display KPIs

MAC provides several portlets that can be added to your PPM Dashboard to provide real-time views into several key performance indicators (KPIs).

For information about adding portlets to your PPM Dashboard, see the *Getting Started* guide.

MAC - Deployed Releases Portlet

The MAC - Deployed Releases portlet is provided to users with the role of Release Manager. It displays a list of recently deployed releases.

Table 3-16 describes the filter fields for the portlet.

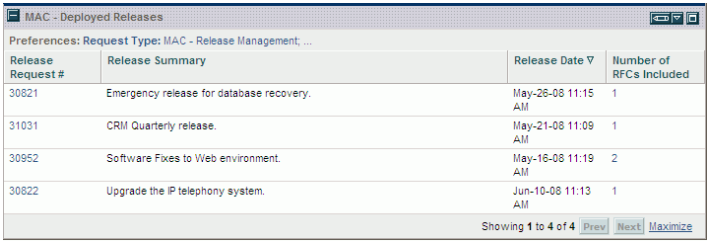
Table 3-16. MAC - Deployed Releases portlet filter fields

Field Name	Description
Child RFC Request Type	Request types, at least one of which must be in the releases that are to be listed.
Status	The status of the release.
Category	The category of the release (**Emergency, Major,** or **Minor**).
Type	The type of release (**Full, Delta,** or **Package Release**).
Request Type	(Read-only) Preset to **MAC - Release Management.**

In order for the portlet to display data, RFCs need to be added as child or related references to the release request.

Figure 3-24 shows an example MAC - Deployed Releases portlet.

Figure 3-24. MAC - Deployed Releases portlet



MAC - My Releases Portlet

The MAC - My Releases portlet is provided to users with the role of Release Manager and other roles involved in the release management process. It lists release requests that have been created by or assigned to the logged-on user.

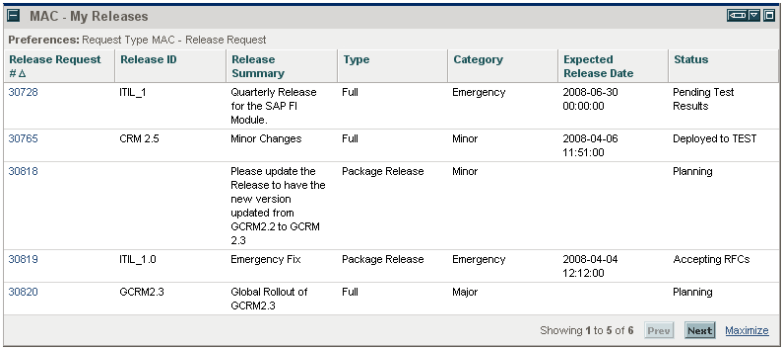
Table 3-17 describes the filter fields for the portlet.

Table 3-17. MAC - My Releases portlet filter fields

Field Name	Description
Request Type	(Read-only) Preset to **MAC - Release Management.**
Category	The category of the release (**Emergency, Major,** or **Minor**).

Figure 3-25 shows an example MAC - My Releases portlet.

Figure 3-25. MAC - My Releases portlet



MAC - Open Releases Portlet

The MAC - Open Releases portlet is provided to users with the role of Release Manager. It lists releases that do not have the status of **Closed.**

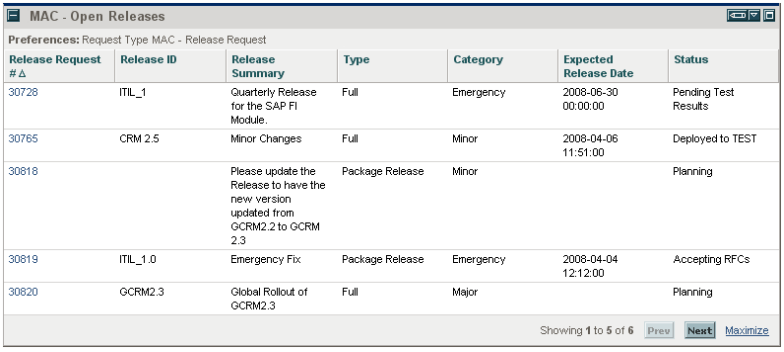
Table 3-18 describes the filter fields for the portlet.

Table 3-18. MAC - Open Releases portlet filter fields

Field Name	Description
Request Type	(Read-only) Preset to **MAC - Release Management.**
Assigned to	The user assigned to the release.
Category	The category of the release (**Emergency, Major,** or **Minor**).

Figure 3-26 shows an example MAC - Open Releases portlet.

Figure 3-26. MAC - Open Releases portlet

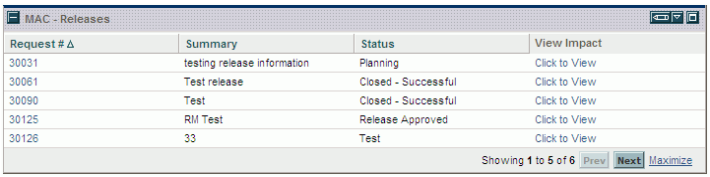


MAC - Releases Portlet

The MAC - Releases portlet displays a list of release requests. If PPM Center is integrated with HP Change Control Management, the portlet provides a Click to View link in the **View Impact** column for each request to log in to HP Change Control Management, where various tabs provide information about the request.

Figure 3-27 shows an example MAC - Releases portlet.

Figure 3-27. MAC - Releases portlet



For more information about tabs in Change Control Management, see *Using the Integration of PPM Center with Release Control* on page 267.

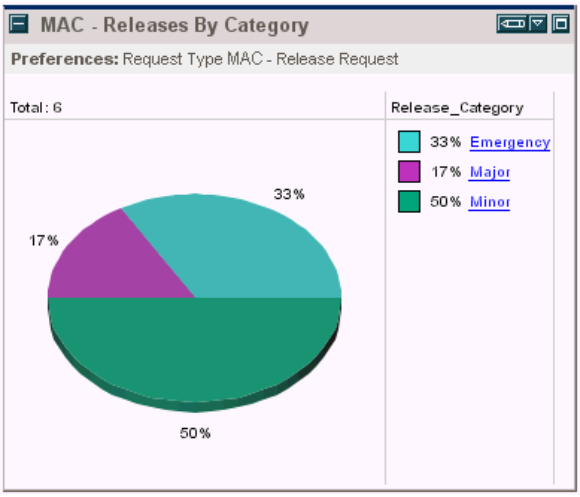
MAC - Releases By Category Portlet

The MAC - Releases By Category portlet is provided to users with the role of Release Manager. It displays a pie chart showing the percentage of releases in each category.

The only filter field for the portlet, **Request Type,** is read-only and is preset to **MAC - Release Management.**

Figure 3-28 shows an example MAC - Releases By Category portlet.

Figure 3-28. MAC - Releases By Category portlet



Clicking the pie chart drills down to the MAC - Releases By List portlet.

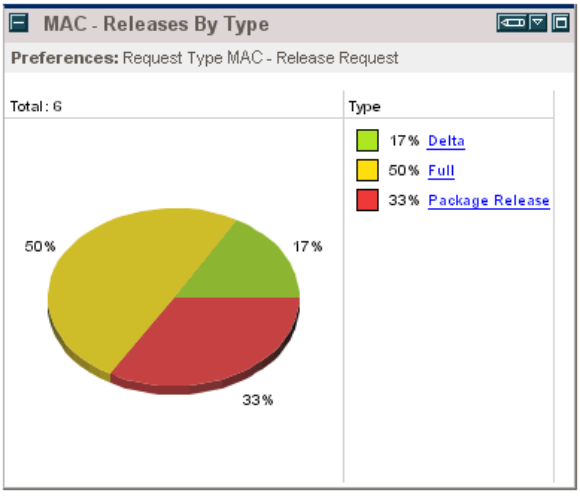
MAC - Releases By Type Portlet

The MAC - Releases By Type portlet is provided to users with the role of Release Manager. It displays a pie chart showing the percentage of releases of each type.

The only filter field for the portlet, **Request Type,** is read-only and is preset to **MAC - Release Management.**

Figure 3-29 shows an example MAC - Releases By Type portlet.

Figure 3-29. MAC - Releases By Type portlet



Clicking the pie chart drills down to the MAC - Releases By List portlet.

MAC - RFCs per Release Portlet

The MAC - RFCs per Release portlet is provided to users with the role of Release Manager. It displays a list of RFCs that constitute a release.

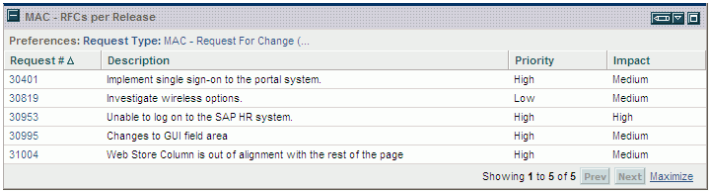
Table 3-19 describes the filter fields for the portlet.

Table 3-19. MAC - RFCs per Release portlet filter fields

Field Name	Description
Release Request	The number of the release request.
Request Type	The request types of the RFCs. Preset to **MAC - Release For Change (RFC)** by default.
Status	The status of the release.
Priority	The priority of the release.

Figure 3-30 shows an example MAC - RFCs per Release portlet.

Figure 3-30. MAC - RFCs per Release portlet



Release Management Reports

MAC provides several reports that can be run to provide summary data and scheduling information about releases in the system.

To generate a report, from the PPM Center menu bar, select **Reports > Create a Report;** on the Submit New Report page, in the **Report Category** field, select **Demand Management;** click the link for the desired report, complete all required and any optional filter fields, and click **Submit.** For more information about reports, see the *Reports Guide and Reference.*

MAC - Forward Schedule of Releases Report

The MAC - Forward Schedule of Releases report is a key report used in the release management process. The output of this report is a list of all releases that are scheduled to be implemented into the LIVE environment.

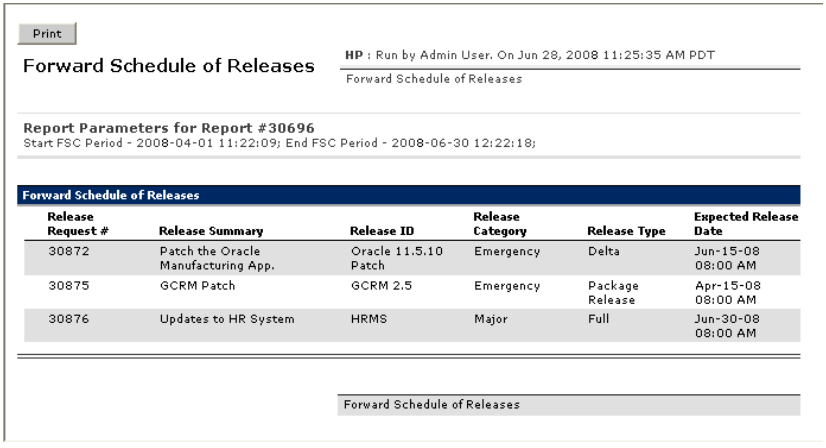
Table 3-20 describes the filter fields for the report.

Table 3-20. MAC - Forward Schedule of Releases report filter fields

Field Name	Description
Report Title	The title of the report.
Start FSC Period	Searches for releases created after the specified FSC date.
End FSC Period	Searches for releases created before the specified FSC date.
Request Type	(Read-only) Preset to **MAC - Release Management.**

Figure 3-31 shows sample output for the MAC - Forward Schedule of Releases report.

Figure 3-31. MAC - Forward Schedule of Releases report output


Print

Forward Schedule of Releases

HP : Run by Admin User. On Jun 28, 2008 11:25:35 AM PDT

Forward Schedule of Releases

Report Parameters for Report #30696

Start FSC Period - 2008-04-01 11:22:09; End FSC Period - 2008-06-30 12:22:18;

Forward Schedule of Releases

Release Request #	Release Summary	Release ID	Release Category	Release Type	Expected Release Date
30872	Patch the Oracle Manufacturing App.	Oracle 11.5.10 Patch	Emergency	Delta	Jun-15-08 08:00 AM
30875	GCRM Patch	GCRM 2.5	Emergency	Package Release	Apr-15-08 08:00 AM
30876	Updates to HR System	HRMS	Major	Full	Jun-30-08 08:00 AM

Forward Schedule of Releases

MAC - Release Content Report

The MAC - Release Content Report provides a list of RFCs that have been incorporated into a release.

Table 3-21 describes the filter fields for the report.

Table 3-21. MAC - Release Content Report filter fields

Field Name (*Required)	Description
Report Title	The title of the report.
Request Type	(Read-only) Preset to **MAC - Release Management.**
*Release ID	Specify the release whose contents you want to list.

Figure 3-32 shows sample output for the MAC - Release Content Report.

Figure 3-32. MAC - Release Content Report output

Print

Release Content Report

HP : Run by Admin User. On Jun 28, 2008 10:54:41 AM PDT

Release Content Report

Report Parameters for Report #30668

Release ID - SAP 4.7 Patch;

Release Details

Release ID	Release Summary	Release Category	Release Type	Expected Release Date	Status
SAP 4.7 Patch	Patch the SAP Application to get the new funcationality.	Major	Package Release	Apr-30-2008	Planning

RFCs in Release

RFC#	RFC Summary	Priority	Status	Requestor
30900	Change the fields for the HRMS W-2 screen.	Immediate	Build	Admin User
30901	Change the fields for the Monthly receiveables screen.	High	Build	Admin User
30902	SAP TMS (Transport Management System) errors out with SAP script transports.	High	In Review	Admin User
30903	Change the number range on the SAP test system.	Immediate	In Review	Admin User
30904	Reset the date on the SAP application server to PST.	Medium	In Review	Admin User
30905	Change the date format to DD-Mon-YYYY for the SAP Europe servers.	Low	Allocate Priority	Admin User

Release Content Report

MAC - Release Summary Report

The MAC - Release Summary Report provides a list of releases that have been implemented.

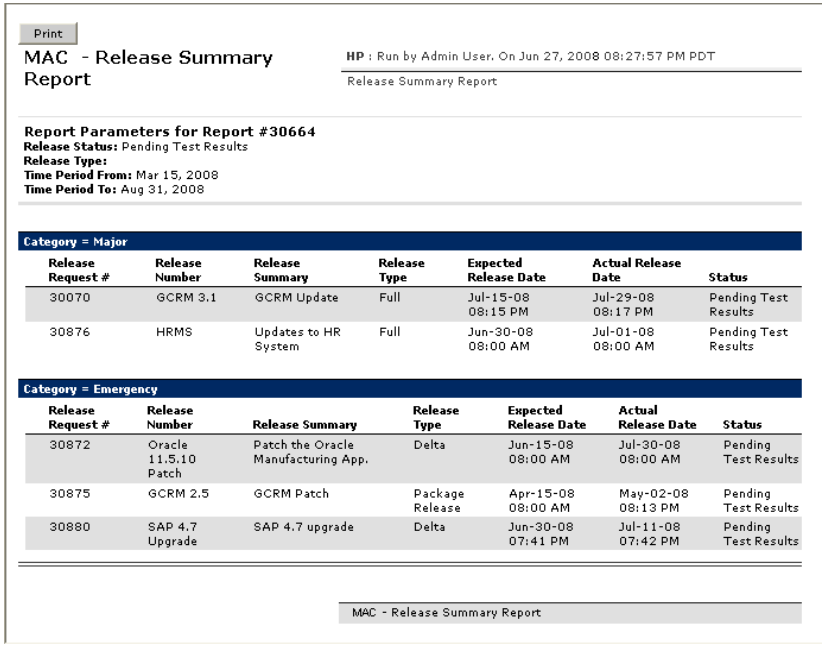
Table 3-22 describes the filter fields for the report.

Table 3-22. MAC - Release Summary Report filter fields

Field Name	Description
Request Type	(Read-only) Preset to **MAC - Release Management.**
Release Status	Searches for releases with the specified statuses.
Release Type	Searches for releases of a specific type.
Time Period From	Searches for releases created after the specified date.
Time Period To	Searches for releases created before the specified date.

Figure 3-33 shows sample output for the MAC - Release Summary Report report.

Figure 3-33. MAC - Release Summary Report output



Print

MAC - Release Summary Report

HP : Run by Admin User, On Jun 27, 2008 08:27:57 PM PDT

Release Summary Report

Report Parameters for Report #30664
Release Status: Pending Test Results
Release Type:
Time Period From: Mar 15, 2008
Time Period To: Aug 31, 2008

Category = Major

Release Request #	Release Number	Release Summary	Release Type	Expected Release Date	Actual Release Date	Status
30070	GCRM 3.1	GCRM Update	Full	Jul-15-08 08:15 PM	Jul-29-08 08:17 PM	Pending Test Results
30876	HRMS	Updates to HR System	Full	Jun-30-08 08:00 AM	Jul-01-08 08:00 AM	Pending Test Results

Category = Emergency

Release Request #	Release Number	Release Summary	Release Type	Expected Release Date	Actual Release Date	Status
30872	Oracle 11.5.10 Patch	Patch the Oracle Manufacturing App.	Delta	Jun-15-08 08:00 AM	Jul-30-08 08:00 AM	Pending Test Results
30875	GCRM 2.5	GCRM Patch	Package Release	Apr-15-08 08:00 AM	May-02-08 08:13 PM	Pending Test Results
30880	SAP 4.7 Upgrade	SAP 4.7 upgrade	Delta	Jun-30-08 07:41 PM	Jul-11-08 07:42 PM	Pending Test Results

MAC - Release Summary Report

Special Commands

As described in the following sections, MAC provides special commands that are used for integration of PPM Center with Mercury Application Mapping and for integration of PPM Center with HP Quality Center.

Special Commands for Integration of PPM Center with Mercury Application Mapping

Table 3-23 describes the special commands provided by MAC to support integration of PPM Center with Mercury Application Mapping.

Table 3-23. Special commands for integration of PPM Center with Mercury Application Mapping

Special Command	Description
ksc_delete_MAM_RFC_id	Connects to Mercury Application Mapping to have it delete the redundant RFCs it created there each time the status of a PPM Center request became Ready for Impact Analysis.
ksc_run_MAM_impact_analysis	Connects to Mercury Application Mapping to perform impact analysis and generate an Impact Analysis Report.

Special Commands for Integration of PPM Center with Quality Center

Table 3-24 describes the special commands provided by MAC to support integration of PPM Center with Quality Center.

Table 3-24. Special commands for integration of PPM Center with Quality Center

Special Command	Description
ksc_create_defect_in_QC	Creates an execution step that will create a defect in Quality Center.
ksc_create_requirement_in_QC	Creates an execution step that will create a requirement in Quality Center.

4 Integration of PPM Center with Service Manager or ServiceCenter

Introduction to Integration of PPM Center with Service Manager or ServiceCenter

In this chapter, references to HP Service Manager (the successor product to HP ServiceCenter) also apply to supported versions of HP ServiceCenter, except where distinctions between Service Manager and ServiceCenter are described as needed.

For an overview of the integration of PPM Center with HP Service Manager (or HP ServiceCenter), see *Integration of PPM Center with Service Desk Applications* on page 22.

The integration is enabled by a configurable Service Manager adapter file in PPM Center along with the request types and workflows provided by MAC, so that PPM Center acts as a single repository for application-related requests for change (RFCs). The adapter converts changes (tickets) in Service Manager to requests for change (RFCs), and then imports those RFCs into PPM Center for processing.

Conversely, using a configurable PPM Center adapter file that also resides in PPM Center, the integration can optionally *update* Service Manager changes based on subsequent changes made in PPM Center to the RFCs.

If the Service Manager adapter file and the associated PPM Center adapter file are both configured, such that data can be sent in both directions between Service Manager and PPM Center, the integration is said to be “bi-directional.”

A separate adapter file is required for each mapping between a Service Manager change and a PPM Center request type.

MAC provides two default adapter files—a Service Manager adapter file and an associated default PPM Center adapter file.

The integration runs as a service in the PPM Server. As described later, the configuration of an adapter file controls various aspects of its import process.

This chapter describes how to configure the adapters in PPM Center and the Service Manager application for integration. It is intended for Service Manager administrators or for PPM Center system administrators who are also familiar with Service Manager.

For information about the supported versions of Service Manager and ServiceCenter, see *Versions of Service Desk Applications Supported for Integration with PPM Center* on page 21.

No software needs to be installed on the Service Manager or ServiceCenter server for integration with PPM Center. However, see *Versions of Service Desk Applications Supported for Integration with PPM Center* on page 21.

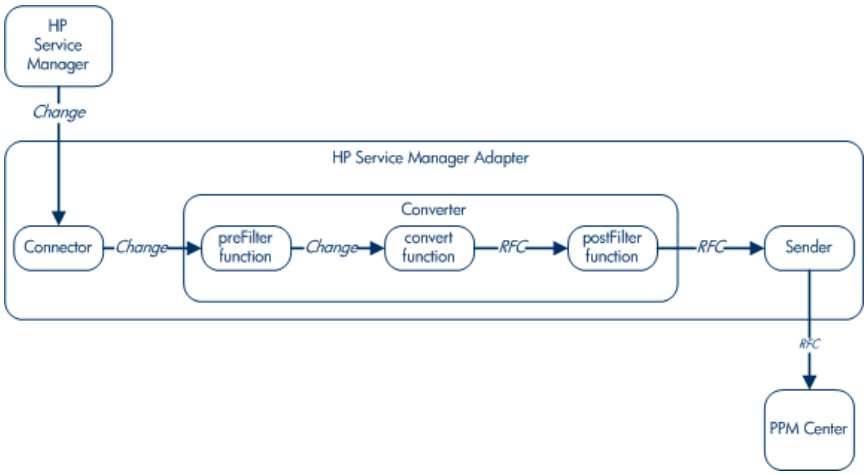
For information about the MAC - Request For Change (RFC) request type in PPM Center that is used to establish integration of PPM Center with Service Manager, see *MAC - Request For Change (RFC) Request Type* on page 40.

For references to more information about Service Manager or ServiceCenter, see *HP Service Manager Documentation* on page 28 or *HP ServiceCenter Documentation* on page 28.

Conversion of Service Manager Changes to PPM Center RFCs

Figure 4-1 depicts the flow for converting a change in Service Manager to a MAC request for change (RFC), and importing the RFC into PPM Center.

Figure 4-1. Using the Service Manager adapter to import changes from Service Manager into PPM Center



The Service Manager adapter consists of the following three components:

- **Connector.** Collects changes from the Service Manager system.
- **Converter.** Uses field mapping to convert the changes from the Service Manager data model in which they were created to RFCs for the PPM Center data model.

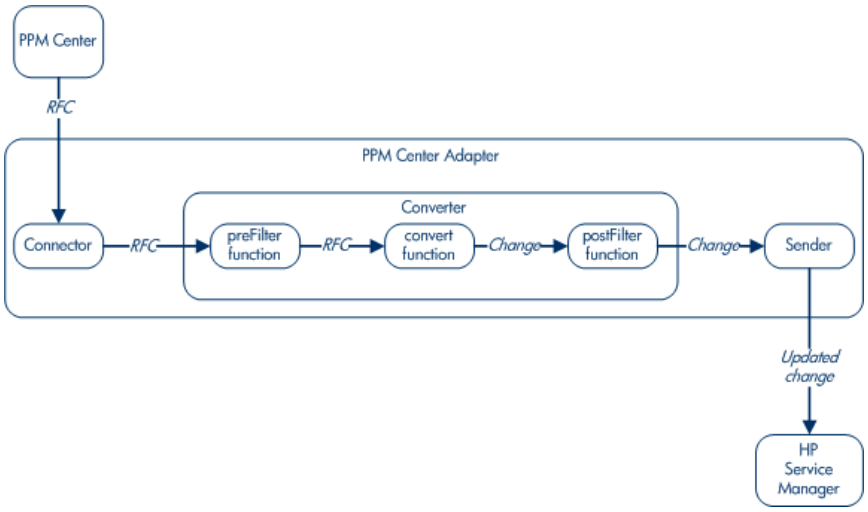
  The converter also contains two optional filters to control which changes are imported into PPM Center. The preFilter filters out categories of changes you specify in the Service Manager data model before they are converted. After the Service Manager changes are converted to RFCs, the postFilter filters out categories of requests you specify before they are presented to the sender.
- **Sender.** Using the RFC data from the converter, creates the RFCs in PPM Center.

Conversion of PPM Center RFCs to Service Manager Change Updates

Similar to the Service Manager adapter, the PPM Center adapter consists of connector, converter, and sender components. In this case, these components allow Service Manager to import updates from PPM Center.

Figure 4-2 depicts the flow for converting a MAC RFC (request for change) in PPM Center to an update to a change in Service Manager, and importing the update into Service Manager.

Figure 4-2. Using the PPM Center adapter to import change updates from PPM Center into Service Manager



Overview of Configuring the Service Manager Integration

In this section, references to HP Service Manager also apply to supported versions of HP ServiceCenter, except where distinctions between Service Manager and ServiceCenter are described as needed.

Before configuring the integration, you must identify the Service Manager data attributes that will be integrated with PPM Center, including which of the attributes of Service Manager changes to send to PPM Center, and, for bi-directional integration, which of the attributes to receive back from PPM Center.

Before you can begin importing changes from Service Manager into PPM Center, you must configure Service Manager and configure the Service Manager adapter in PPM Center to enable integration. The procedures are summarized as follows:

- Configure HP Service Manager in the particular ways required for integration of PPM Center with HP Service Manager.
- Generate Service Manager Web service stubs for Service Manager. PPM Center needs the Service Manager Web service stubs to connect to Service Manager.
- Configure the Service Manager adapter configuration file on the PPM Server, to support converting a change in Service Manager to a MAC request for change (RFC) and then importing the RFC into PPM Center. MAC provides a Service Manager default adapter configuration file.
- If you want the integration to be bi-directional, that is, to also send updates that are made in PPM Center RFCs back to Service Manager as change updates, configure the PPM Center adapter configuration file on the PPM Server. MAC provides a default PPM Center adapter configuration file associated with Service Manager.
- Configure the required `server.conf` parameters in PPM Center.
- Restart the PPM Server in normal mode and verify that the MAC service has started.
- Configure logging of errors and events.

Configuring HP Service Manager for Integration with PPM Center

In this section, references to HP Service Manager also apply to supported versions of HP ServiceCenter, except where distinctions between Service Manager and ServiceCenter are described as needed.

Before starting these configuration procedures, make sure that the Service Manager server, Service Manager client, and Service Manager Webtier are installed and running.

Integration of HP Service Manager with PPM Center requires specific configuration of HP Service Manager, as described in the following sections.

PPM Center can be integrated with multiple instances of Service Manager or with multiple instances of ServiceCenter, if those instances are at the same version. (See *Versions of Service Desk Applications Supported for Integration with PPM Center* on page 21.) However, the procedures in the following sections must be performed identically on the multiple Service Manager or ServiceCenter instances.

Configuring the Change Management Module

To configure the Change Management module in Service Manager:

1. Enable Service Manager to provide PPM Center with the changes sorted by their last update times, as required by this integration:
   a. Navigate to **System Definition > Tables > cm3r > Keys** and on that screen, click **New.**
   b. Add a `"not null: <last updated field name>"` key constraint to the database table of the changes for the **sysmodtime** field.
   c. Add a `"not null: <created date field name>"` key constraint to the database table of the changes for the **orig.date.entered** field, for use in the initial load mode (for more information, see the **initial-load-state** adapter attribute in *Table 4-1* on page 117).

d. Use either the Service Manager or ServiceCenter procedure in this step to make sure that the **sysmodtime** and **orig.date.entered** fields are exposed through the Change Management Web Services:

- For Service Manager:

  i. Select **Menu Navigation > Tailoring > WSDL Configuration.**

  ii. Type `cm3r` in the **Name** field and click **Search.**

  iii. Click the **Fields** tab to add fields to the table as described in the following steps.

  iv. In the **Field** column, type `sysmodtime.` In the **Caption** column, type `sysmodtime.` In the **Type** column, select **DateTimeType.**

  v. In the **Field** column, type `orig.date.entered.` In the **Caption** column, type `sysmodtime.` In the **Type** column, select **DateTimeType.**

- For ServiceCenter:

  i. Select the **Include in API** checkbox for both **sysmodtime** and **orig.date.entered.**

  ii. Configure the Web Services API properties for **sysmodtime** as follows:

Property Name	Value
Field name in API	sysmodtime
Field data type in API	DateTimeType

  iii. Configure the Web Services API properties for **orig.date.entered** as follows:

Property Name	Value
Field name in API	orig.date.entered
Field data type in API	DateTimeType

2. Import the unload file provided with PPM Center to set up Change Management Web service for the integration with PPM Center:

   - For Service Manager, the unload file is located at:

     `<PPM_Home>\conf\sdi\serviceManagerFiles\sm_operations`

     where `<PPM_Home>` represents the path where the PPM Center instance is installed. For example: `xyzserver/E/PPMServer.`

   - For ServiceCenter, the unload file is located at:

     `<PPM_Home>\conf\sdi\serviceCenterFiles\sc_operations`

Configuring the Change Management Service Manager Web Service

To configure the Change Management Service Manager or ServiceCenter Web service:

1. Associate a display action to the new processes:

   a. Navigate to the Objects menu:

      - For Service Manager, select **Menu Navigation > Tailoring > Document Engine > Objects.**
      - For ServiceCenter, select **Menu Navigation > Utilities > Tools > Document Engine > Objects.**

   b. Type **`cm3r i`**n the **File name** field and click **Enter.**

   c. Specify the **default state.**

   d. Add a new Display action associated with the process—associate the **checkretract** action with **ccm.check.retract.**

   e. Add a new Display action associated with the process—associate the **checkapproval** action with **ccm.check.approval.**

   f. Close the cm3r object.

   g. Repeat step a through step f for the cm3t object.

2. To configure ChangeManagement WSDL:

   a. Navigate to WSDL Configuration (at external access):

b. In the **Service Name** field, type `ChangeManagement` and click **Search.**

c. Add the following actions for table cm3r:

Allowed Action	Action Name
checkapproval	CanApprove
checkretract	CanRetract

d. Repeat step c for table cm3t.

Configuring Browsing of Service Manager Changes from a URL

This optional procedure enables RFCs in PPM Center to be updated with URL links to the corresponding changes in Service Manager or ServiceCenter, so that PPM Center users can easily jump directly to those changes. To enable this capability, configure Service Manager or ServiceCenter as follows (otherwise go to *Configuring for Bi-Directional Integration* on page 111):

1. Configure the Web server URL in the Service Manager or ServiceCenter server:

   a. Open the System Information Definition:

   - For Service Manager, select
     Menu Navigation > System Administration > Base System Configuration > Miscellaneous > System Information Record.
   - For ServiceCenter, select
     Menu Navigation > Utilities > Administration > Information > System Information Record.

   b. In the form, select the **Active Integrations** tab.

   c. In the **WebServer URL** field in the WebServer Information pane, type the URL of the Service Manager or ServiceCenter Web server configured for Web access. For example:

   `http://<Host>:<Port>/sm/index.do`

   d. Click **OK** to save the System Information Definition and exit.

2. Create and configure the **record.url** field in the cm3r table, as follows:

   a. Create the **record.url** field in the cm3r table, using the following Service Manager or ServiceCenter Help topic:

      "How do I add a field to a table?"

   b. Configure the **record.url** field as follows:

Section Name	Field Name	Value
General Properties	Type	For Service Manager: Character For ServiceCenter: Text
General Properties	Caption	Change URL

   c. For Service Manager only, in the **SQL mapping** section:

      i. Type **RECORD_URL** in the **SQL field name** field.

      ii. Type **VARCHAR** in the **SQL data type** field.

      iii. Type **400** in the **SQL data length** field.

   d. Add **record.url** to the Change Management Web service:

      i. Select the **Include in API** checkbox for **record.url.**

      ii. Configure the Web Services API properties for **record.url** as follows:

Property Name	Value
Field name in API	record.url
Field data type in API	StringType

   e. The **record.url** field is populated in the cm3r.pre.add trigger. To configure this trigger

      i. Navigate to **System Definition > Tables > cm3r.**

      ii. Open the list of triggers.

      iii. Open the cm3r.pre.add trigger.

iv. Copy the following JavaScript into the trigger:

```
_rec_number = record.number;
var _filename = "cm3r";
var _query = "number=\"" + _rec_number+ "\"";
var _title = "Change number " + _rec_number;
var _link=system.library.urlCreator.getURLFromQuery
                          (_filename, _query, _title);
record.record_url =_link;
```

v. Click **Save** to save the script.

vi. Click **Compile** to check for any errors and compile. No errors should occur.

Now, any new record will have the **record.url** field populated. However, as described in the following steps, you will need to perform the Mass Update procedure to populate the **record.url** field for existing records.

f. Use either the Service Manager or ServiceCenter procedure in this step to prepare to perform the Mass Update procedure.

- For Service Manager:

i. Navigate to **Navigation > Tailoring > Database Manager.**

ii. Click **Change Management > Changes > Search Changes.**

iii. Use **Search** to display a list of change records.

iv. Select the records you want to update.

- For ServiceCenter:

i. Using System Navigator, open the form in Database Manager.

ii. Select the **Administration mode** checkbox.

iii. Open the cm3r form and click **Search.**

A list of format names is displayed.

iv. Open any format.

A blank form is displayed.

v. To display the list of changes that match the search criteria, click **Search.**

g. Perform the Mass Update procedure:

   i. Click **Mass Update** in the toolbar to start updating the listed records.

      Database Manager displays the initial form again, but with different options (buttons).

   ii. Do *not* specify values in any field. Click **Complex Update.**

      Database Manager displays the Mass Add/Update Instruction screen.

   iii. Specify the following assignment statement in the **Instructions for action on EACH RECORD** input field:

```
record.url in $file =
jscall("urlCreator.getURLFromQuery","cm3r",
                  "number=\"" + number in $file + "\"",
                    "Change number " + number in $file)
```

      For each record updated, this step sets the **record.url** field based on the Web server URL entered in System Information Record. Then it returns terminal control to you and displays the message:

```
<n> records updated in the cm3r file.
```

      where `<n>` is the number of records updated.

h. To browse directly from the Web server using a URL that includes a ticket ID, disable the `querysecurity` parameter by using the instructions in the following Service Manager or ServiceCenter Help topic:

   "Web parameter: sc.querysecurity"

i. Add the following line to the `convertChange.js` file:

```
ppmRFC.addURLReference(serviceCenterRFC.get
       ("record.url"), <display text for URL reference>);
```

   where `<display text for URL reference>` represents the text to be displayed for the link to the URL.

   For information about the `addURLReference` function, see *ppmRFC Object* on page 124.

Configuring for Bi-Directional Integration

Perform this procedure only if you plan to configure the integration to be bi-directional.

To be able to verify later that bi-directional integration works, configure the fields that are required to map a PPM Center request to a Service Manager change. For example:

- Create a structure called ppmFields in the cm3r table. See the Help topic:

  "How do I add a structure to the Database Dictionary?"

- Create fields in the ppmFields structure. If you want to use the `convertRequest.js` script provided with MAC as is, for Service Manager enter the fields:

  - **`ppmURL`** with a **Caption** of **`ppmURL`** and select a **Type** of **StringType.**
  - **`requestModifiedDate`** with a **Caption** of **`reqModDate`** and select a **Type** of **DateTimeType.**

  For details of analogous procedures for Service Manager and ServiceCenter, see step d on page 104.

If you want to use a custom mapping, you may need to create additional fields and create entries for them using the WSDL configuration tool.

Generating Web Service Stubs

Perform this procedure for new installations of MAC and after any upgrade of PPM Center.

In Service Manager or ServiceCenter, you can modify which fields are available through Web services. Each time you modify these settings, a new Web Services Description Language (WSDL) descriptor is created. In the PPM Server, you must regenerate the Web service stubs from the new descriptor.

To generate the stubs:

1. Navigate to the `<PPM_Home>/bin/sdi` directory on the PPM Server.

   where `<PPM_Home>` represents the path where the PPM Center instance is installed. For example: `xyzserver/E/PPMServer`.

2. Run the following script:

   `./kGenerateServiceCenterStub.sh <wsdl-url> <PPM_Server_Name>`

   where

`<wsdl-url>`	represents the Service Manager or ServiceCenter WSDL URL for Change Management
`<PPM_Server_Name>`	represents the subdirectory of `<PPM_Home>/server` specified during installation as the value for the `KINTANA_SERVER_NAME` parameter in the `server.conf` file. (It is not necessarily the actual host name of the server.) When generated, the stubs will be placed in this subdirectory.

The specific script depends on whether you are integrating with Service Manager or ServiceCenter.

- For Service Manager, use:

```
./kGenerateServiceCenterStub.sh http://<Host>:<Port>/
   sc62server/PWS/ChangeManagement?wsdl <PPM_Server_Name>
```

  For example:

```
./kGenerateServiceCenterStub.sh http://ServManager:13080/
             sc62server/PWS/ChangeManagement?wsdl kintana
```

- For ServiceCenter, use:

```
./kGenerateServiceCenterStub.sh http://<Host>:<Port>/
    sc61server/ws/ChangeManagement?wsdl <PPM_Server_Name>
```

  For example:

```
./kGenerateServiceCenterStub.sh http://ServCenter:13080/
              sc61server/ws/ChangeManagement?wsdl kintana
```

3. Verify that the stubs are now in the following directory:

```
<PPM_Home>/server/<PPM_Server_Name>/deploy/itg.war/WEB-INF/
                                                    classes/
```

The stub generation might fail if the host is not resolvable by name. To resolve the host by name, make an entry in the `hosts` file for the machine you want to connect. See the documentation for your operating system for the location of the `hosts` file.

Configuring the Service Manager Adapter Configuration File

In this section, references to HP Service Manager also apply to supported versions of HP ServiceCenter, except where distinctions between Service Manager and ServiceCenter are described as needed.

The Service Manager adapter configuration file is an XML file in PPM Center that enables integration of PPM Center with Service Manager and converts Service Manager changes to PPM Center requests. The configuration file consists of the following components, each with its own attributes or properties (see *Figure 4-1* on page 101):

- General settings for the adapter itself, such as its name and the name of the Service Manager application in which the changes are created.
- The connector between Service Manager and the adapter.
- The converter of changes in the Service Manager data model to generic requests in the PPM Center data model. The converter calls the scripts that define the field mapping and filter functions.
- The PPM Center sender, which sends the converted and filtered requests to PPM Center.

If PPM Center is operating in a clustered server configuration, share or copy the `<PPM_Home>/sdi-persistency` directory and the `<PPM_Home>/conf/sdi` directory among all the servers in the cluster.

The following sections describe how to configure the Service Manager adapter configuration file and the scripts called by its converter, and how to modify copies of the provided files while preserving the originals.

Location, Naming, and Structure of Service Manager Adapter Configuration Files

Each Service Manager adapter configuration file must follow specific conventions for its location, naming, and structure, as described in the following sections.

Location and Naming of the Service Manager Adapter Configuration File

The adapter configuration files are located in the `<PPM_Home>/conf/sdi` directory of the PPM Server. This directory contains:

- A configuration file for the adapter (or one for each adapter if there are multiple adapters).

  In this configuration file, you define a name for the adapter. The configuration file must have a `.settings` file extension.

- A subdirectory (or one for each adapter configuration file if there are multiple files).

  The subdirectory contains the conversion scripts, which are called by the converter to map the fields between the changes and requests and to filter them. The name of the subdirectory must be the same as the `<adapter name>` (for a description, see *Structure of the Service Manager Adapter Configuration File* on page 115 and *Table 4-1* on page 117) followed by `.ext`.

  For example, if the adapter name is `serviceManager-adapter`, the `<PPM_Home>/conf/sdi` directory must contain a subdirectory named `serviceManager-adapter.ext` to hold all the conversion script files for the adapter.

Structure of the Service Manager Adapter Configuration File

MAC provides, as a template, a default Service Manager adapter configuration file named `serviceManager-adapter.settings1`. The adapter file you configure and use must have a `.settings` file extension.

Copy the default adapter file (to preserve the original), and rename the copy with a `.settings` file extension and, if desired, a different file name.

As detailed in subsequent sections, the adapter file has the following basic structure, including adapter attributes, and properties for its connector, converter, and sender:

```
<?xml version="1.0" encoding="UTF-8"?>
<settings>

<adapter adapter-name="<adapter name>">
   <service-desk-application><SD application>
      </service-desk-application>
   <number-of-tickets><number of tickets>
      </number-of-tickets>
   <polling-schedules><schedule></polling-schedules>
   <polling-frequency><frequency></polling-frequency>
   <initial-load-state><date></initial-load-state>

   <request-types>
   <request-type level="1">
   <polling-operation>
```

```
    <connector>
    <connector-type>serviceManagerChange</connector-type>
       <properties>
          idProperty=
          userQuery=
          lastUpdatedPropertyForQuery=
          creationDatePropertyForQuery=
          lastUpdatedPropertyForResult=
          creationDatePropertyForResult=
          keyMethodName=
          timeZone=
          wsDateFormatPattern=
          queryDateFormatPattern=
          userName=
          password=
          serviceUrl=
       </properties>
    </connector>

    <converter>
    <converter-type>scriptConverter</converter-type>
       <properties>
          scripts=<convert1,convert2,...>
       </properties>
    </converter>

    </polling-operation>
    </request-type>
    </request-types>

    <sender>
    <sender-type>PPMSender</sender-type>
       <properties>
          userName=
          password=
          requestType=
          updateRequest=
          ticketIdFieldName=
          sdSystemFieldName=
          staticFieldNames=
       </properties>
    </sender>

</adapter>

</settings>
```

Do not delete or change the values provided for `<connector-type>`, `<converter-type>`, or `<sender-type>`.

The following sections describe how to configure the adapter attributes, the connector properties, the converter property (`scripts`), and the sender properties.

Configuring the Service Manager Adapter Attributes

Specify the adapter attributes of the Service Manager adapter configuration file, such as the adapter name and the service desk application, as described in *Table 4-1*.

Table 4-1. Service Manager adapter attributes (page 1 of 2)

Attribute Name (*Required)	Description	Default Value
*adapter-name	A logical name that represents the adapter name on the client machine. For example: serviceManager-adapter This name is also used for the scripts (`.ext`) directory. (See *Location and Naming of the Service Manager Adapter Configuration File* on page 114.)	(None)
*service-desk-application	A unique, logical name for the service desk system you are using. For example: Service Manager *or* ServiceCenter	(None)
number-of-tickets	The number of changes that the adapter processes at a time.	50
polling-schedules	The times of day that the adapter polls Service Manager for changes, formatted as a list of cron expressions separated by the new line character. For example: 30 * * * * <*new line*> 0 * * * *	(None)

Table 4-1. Service Manager adapter attributes (page 2 of 2)

Attribute Name (*Required)	Description	Default Value
polling-frequency	The frequency (in seconds) that the adapter polls Service Manager for changes.	If polling-schedules and polling-frequency are unspecified, then the default polling-frequency is 30 seconds, starting when you restart the PPM Server.
initial-load-state	The earliest creation date and time of changes the adapter retrieves from Service Manager, in the format: MM/dd/yy HH:mm:ss z For example: 10/19/08 21:30:00 EST After completion, the adapter does not retrieve any new or updated changes (per the polling-schedules and polling-frequency attributes) until this attribute is commented out.	(None)

Configuring the Service Manager Adapter Connector Properties

Specify the properties for the connector section of the Service Manager adapter configuration file as described in *Table 4-2*.

Table 4-2. Service Manager adapter connector properties (page 1 of 3)

Property Name (*Required)	Description	Default Value
*idProperty	The property name of the ID field in the instance returned from the Service Manager Web service.	(None)
userQuery	A Service Manager query on the Change Management table (cm3r) that would work in the Service Manager query engine.	(None)
*lastUpdatedPropertyForQuery	The property name of the **last-update** field used to query the Service Manager Web service (the field name used in an expert search on the Service Manager client machine).	(None)
*creationDatePropertyForQuery	The property name of the **creation-date** field used to query the Service Manager Web service.	(None)
*lastUpdatedPropertyForResult	The property name of the **last-update** field in the instance returned from the Service Manager Web service (usually the field name exposed as API).	(None)
*creationDatePropertyForResult	The property name of the **creation-date** field in the instance returned from the Service Manager Web service.	(None)
*keyMethodName	The name of the method for request keys (usually the ID field name).	(None)

Table 4-2. Service Manager adapter connector properties (page 2 of 3)

Property Name (*Required)	Description	Default Value
*timeZone	The Service Manager server time zone, used for converting the last updated time of a request from Service Manager. The format can be GMT+X or GMT–X, where X is the offset in hh:mm format from GMT. For example, GMT–07:00. However, to handle Daylight Saving Time, use an area time zone instead of specifying a time relative to GMT.	(None)
*wsDateFormatPattern	The date format used in the Service Manager Web service answer. For available formats see: http://java.sun.com/j2se/1.4.2/docs/api/java/text/SimpleDateFormat.html	(None)
*queryDateFormatPattern	The date format used for querying the Service Manager 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	(None)

Table 4-2. Service Manager adapter connector properties (page 3 of 3)

Property Name (*Required)	Description	Default Value
*userName	The user name in the Service Manager system that PPM Center uses to connect to Service Manager. This user must have full access to the Change Management module in Service Manager.	(None)
*password	The password in the Service Manager system that PPM Center uses to connect to Service Manager. This password should be encrypted using the PPM Center script `kEncrypt.sh`, which is located in the `bin` directory of the PPM Server. Encrypted passwords must be created in a `CDATA` section.	(None)
*serviceUrl	The Web service URL of Service Manager or ServiceCenter. **For Service Manager,** the format is: http://<*Service_Manager_Host*>:<*Port*>/sc62server/PWS/ where <*Service_Manager_Host*> represents the host machine where Service Manager is running. **For ServiceCenter,** the format is: http://<*ServiceCenter_Host*>:<*Port*>/sc61server/ws/ where <*ServiceCenter_Host*> represents the host machine on which ServiceCenter is running.	(None)

Configuring the Service Manager Adapter Converter Property (Script)

The converter section of the Service Manager adapter configuration file contains the `scripts` property. The script file is written in the JavaScript language. It maps the fields from the Service Manager data model to the PPM Center data model, and filters the requests.

The `scripts` property is a script file name in the format:

`scripts=<convert1>`

This file must reside in the same directory as the adapter, namely:

`<PPM_Home>/conf/sdi/<adapter name>.ext`

where `<adapter name>` is as defined in *Table 4-1* on page 117.

Make sure that no line in a script exceeds 256 characters.

Multiple scripts are supported, using a comma-separated list, as in:

`scripts=<convert1,convert2,...>`

The adapter searches for these conversion script files in the adapter directory.

The conversion script is responsible for field mapping during the conversion of changes in the Service Manager data model to requests in the PPM Center data model, and for filtering the changes and requests.

The script must contain the `convert` function and can contain the optional `preFilter` and `postFilter` functions, as follows:

- **preFilter.** The following function filters the changes before they are converted to the PPM Center data model, so that no unnecessary requests are converted:

  `preFilter(smChange)`

  For example, the following `preFilter` function specifies that Service Manager changes with a Low priority will not be converted and that all other requests will be converted:

```
function preFilter(smChange){
   if (smChange.get("Request Urgency")==SM_PRIORITY_LOW)
      return false;
   else
      return true;
}
```

- **convert.** After identifying the PPM Center request attributes that are required for Service Manager changes, use the `convert` function of the conversion script to map fields of Service Manager changes to fields of PPM Center requests.

  The following `convert` function uses the mapping you specify to convert the fields of the change in Service Manager to the fields of the request in PPM Center:

  ```
  convert(smChange, ppmRFC)
  ```

- **postFilter.** The following function filters the converted requests, so that only the desired requests will be imported into PPM Center:

  ```
  postFilter(ppmRFC)
  ```

  For example, the following `postFilter` function specifies that only PPM Center requests with a status of Approved will be sent to the PPM Server:

  ```
  function postFilter(ppmRFC){
     ppmStatus==ppmRFC.getField("status");
     if (ppmStatus==STATUS_APPROVED)
        return true;
     else
        return false;
  }
  ```

MAC provides a default conversion script named `convertChange.js` in the `<`*`PPM_Home`*`>/conf/sdi/serviceManager-adapter.ext` directory.

Use the syntax described in the following sections for the conversion script APIs.

smChange Object

The smChange object represents the Service Manager change. For the `preFilter` and `convert` script functions, use the following function to retrieve fields from the Service Manager change:

```
get(String fieldName);
```

ppmRFC Object

The ppmRFC object represents the PPM Center request. For the `convert` and `postFilter` script functions, use the following functions to modify the PPM Center request fields:

- Reference ID

  You must use the following function to track the Service Manager change ID in the PPM Center request:

  ```
  setRefId(String referenceId);
  ```

- Time Stamp

  You must use the following function to set the last update time in the PPM Center request:

  ```
  /**
  * Set the time stamp in long format—that is, the number of
  * milliseconds since January 1, 1970, 00:00:00 GMT
  **/
  setUpdatedTimeStamp(long updatedTimeStamp);
  /**
  * Set the time stamp in the Java simple date format, which is
  * described at the following location:
  * http://java.sun.com/j2se/1.4.2/docs/api/java/text/
                                              SimpleDateFormat.html
  **/
  setUpdatedTimeStamp(String updatedTimeStamp, String format);
  ```

- Status

  Use the following function to change the status of the PPM Center request and allow the workflow of the request to advance:

  ```
  setStatus(String newStatus)
  ```

  To view or change the set of statuses provided with PPM Center, open the request type in the PPM Workbench, select the **Request Status** tab, and click **Request Status.** For more information, see the *HP Demand Management Configuration Guide.*

- General Field

  Use the following function to set the value of a general field in the PPM Center request:

  ```
  setField (String fieldName, String value);
  ```

- Date

  Use the following function to set the value of a date field in the PPM Center request:

  ```
  /**
  * Set the date in long format—that is, the number of
  * milliseconds since January 1, 1970, 00:00:00 GMT
  **/
  setDateValue(String fieldName, long date);
  /**
  * Set the date in the Java simple date format which is
  * described in the following location:
  * http://java.sun.com/j2se/1.4.2/docs/api/java/text/
                                          SimpleDateFormat.html
  **/
  setDateValue(String fieldName, String date, String format);
  ```

- Notes to be added upon creation of a PPM Center request

  Use the following function to add a note upon creation of a PPM Center request:

  ```
  addUserNoteOnCreate(String content, String addedBy,
                                                    long time;
  ```

- Notes to be added upon update of a PPM Center request

  Use the following function to add a note upon update of a PPM Center request:

  ```
  addUserNoteOnUpdate(String content, String addedBy,
                                                    long time;
  ```

- URL reference creation

  If you have configured Service Manager to expose the ticket URL as the `record.url` attribute (see *Configuring Browsing of Service Manager Changes from a URL* on page 107), you can use the following function to create a URL reference to a Service Manager change:

  ```
  addURLReference(String attachmentURL, String attachments);
  ```

Configuring the Service Manager Adapter Sender Properties

Specify the properties for the sender section of the Service Manager adapter configuration file as described in *Table 4-3*. The sender controls creating RFCs in PPM Center with the converted data.

Table 4-3. Service Manager adapter sender properties (page 1 of 2)

Property Name (*Required)	Description	Default Value
*userName	The user name in PPM Center by whose credentials requests are created.	(None)
*password	The password of the userName. This password should be encrypted using the PPM Center script `kEncrypt.sh`, which is located in the `bin` directory of the PPM Server. Encrypted passwords must be created in a `CDATA` section.	(None)
*requestType	The PPM Center request type that should be created for the converted changes. For example: MAC - Request For Change (RFC)	(None)
updateRequest	If set to `true`, enables *updates* made to Service Manager changes to be automatically sent to existing PPM Center requests. HP recommends retaining the default value of `false` because usually, after Service Manager changes are converted to PPM Center requests, processing takes place entirely in PPM Center.	false
*ticketIdFieldName [a]	The field in PPM Center containing the Service Manager ticket ID. It is presented in the PPM Center request as the **Ticket Id** field in the **Service Desk Info** section.	(None)

Table 4-3. Service Manager adapter sender properties (page 2 of 2)

Property Name (*Required)	Description	Default Value
*sdSystemFieldName [a]	The field in PPM Center containing the Service Manager system name. It is presented in the PPM Center request as the **System Name** field in the **Service Desk Info** section.	(None)
*staticFieldNames (Applicable and required only for bi-directional integration.)	A list of Service Manager fields (separated by semicolons) that are *not* to be updated when changes are made to their mapped PPM Center fields. This list is used to prevent inappropriate update of Service Manager tickets for bi-directional integration. For example, to prevent a ticket from being updated when the last update time in PPM Center changes, specify: REQD-SD_LAST_UPDATE	(None)

a. If PPM Center is integrated with multiple Service Manager servers, the combination of values in the ticketIdFieldName and sdSystemFieldName properties ensures that all the tickets from all the Service Manager servers are uniquely identified in PPM Center.

The sender is the last section of the adapter configuration file. Make sure the file ends with the following:

```
</adapter>
</settings>
```

This completes the configuration of the Service Manager adapter configuration file.

If PPM Center is operating in a clustered server configuration, share or copy the `<PPM_Home>/sdi-persistency` directory and the `<PPM_Home>/conf/sdi` directory among all the servers in the cluster.

If you want to establish bi-directional integration, proceed to *Configuring the PPM Center Adapter Configuration File*. Otherwise, go to *Configuring server.conf Parameters* on page 140.

Configuring the PPM Center Adapter Configuration File

This procedure is optional. It establishes bi-directional integration. (See *Introduction to Integration of PPM Center with Service Manager or ServiceCenter* on page 99.) If you do not want to establish bi-directional integration at this time, proceed to *Configuring server.conf Parameters* on page 140.

In this section, references to HP Service Manager also apply to supported versions of HP ServiceCenter, except where distinctions between Service Manager and ServiceCenter are described as needed.

The PPM Center adapter configuration file is an XML file in PPM Center that enables bi-directional integration of PPM Center with Service Manager and converts PPM Center RFCs to Service Manager change updates. The configuration file consists of the following components, each with its own attributes or properties (see *Figure 4-2* on page 102):

- General settings for the adapter itself, such as its name.
- The connector between PPM Center and the adapter.
- The converter of RFCs in the PPM Center data model to change updates in the Service Manager data model. The converter calls the scripts that define the field mapping and filter functions.
- The sender, which sends the converted and filtered requests to Service Manager.

If PPM Center is operating in a clustered server configuration, share or copy the `<PPM_Home>/sdi-persistency` directory and the `<PPM_Home>/conf/sdi` directory among all the servers in the cluster.

The following sections describe how to configure the PPM Center adapter configuration file and the scripts called by its converter, and how to modify copies of the provided files while preserving the originals.

Location, Naming, and Structure of PPM Center Adapter Configuration Files

Each PPM Center adapter configuration file must follow specific conventions for its location, naming, and structure, as described in the following sections.

Location and Naming of the PPM Center Adapter Configuration File

The adapter configuration files are located in the `<PPM_Home>/conf/sdi` directory of the PPM Server. This directory contains:

- A configuration file for the adapter (or one for each adapter if there are multiple adapters).

  In this configuration file, you define a name for the adapter. The configuration file must have a `.settings` file extension.

- A subdirectory (or one for each adapter configuration file if there are multiple files).

  The subdirectory contains the conversion scripts, which are called by the converter to map the fields between the tickets and requests and to filter them. The name of the subdirectory must be the same as the `<adapter name>` (for a description, see *Structure of the PPM Center Adapter Configuration File* on page 130 and *Table 4-4* on page 132) followed by `.ext`.

  For example, if the adapter name is `ppm-adapter`, the `<PPM_Home>/conf/sdi` directory must contain a subdirectory named `ppm-adapter.ext` to hold all the conversion script files for the adapter.

Structure of the PPM Center Adapter Configuration File

MAC provides, as a template, a default PPM Center adapter configuration file named `ppm-sm-adapter.settings1`. The adapter file you configure and use must have a `.settings` file extension.

Copy the default adapter file (to preserve the original), and rename the copy with a `.settings` file extension and, if desired, a different file name.

As detailed in subsequent sections, the adapter file has the following basic structure, including adapter attributes, and properties for its connector, converter, and sender:

```
<?xml version="1.0" encoding="UTF-8"?>
<settings>

<adapter adapter-name="<adapter name>">
   <service-desk-application><SD application>
      </service-desk-application>
   <number-of-tickets><number of tickets></number-of-tickets>
   <polling-schedules><schedule></polling-schedules>
   <polling-frequency><frequency></polling-frequency>

   <request-types>
   <request-type level="1">
   <polling-operation>

   <connector>
   <connector-type>PPMRequest</connector-type>
      <properties>
         sdSystemName=
         requestType=
         datePattern=
         userName=
         password=
         sdSystemFieldName=
         idProperty=
         updateTimeField=
         createTimeField=
         requestStatusNames=
      </properties>
   </connector>

   <converter>
   <converter-type>scriptConverter</converter-type>
      <properties>
         scripts=<convert1,convert2,...>
      </properties>
   </converter>
```

```
    </polling-operation>
    </request-type>
    </request-types>

    <sender>
    <sender-type>serviceManagerSender</sender-type>
       <properties>
          userName=
          password=
          queryDateFormatPattern=
          timeZone=
          keyMethodName=
          serviceUrl=
          staticFieldNames=
          idProperty=
       </properties>
    </sender>

</adapter>

</settings>
```

Do not delete or change the values provided for `<connector-type>`, `<converter-type>`, or `<sender-type>`.

The following sections describe how to configure the adapter attributes, the connector properties, the converter property (`scripts`), and the sender properties.

Configuring the PPM Center Adapter Attributes

Specify the adapter attributes of the PPM Center adapter configuration file, such as the adapter name and the service desk application, as described in *Table 4-4*.

Table 4-4. PPM Center adapter attributes

Attribute Name (*Required)	Description	Default Value
*adapter-name	A logical name that represents the adapter name on the client machine. For example: ppm-adapter This name is also used for the scripts (`.ext`) directory. (See *Location and Naming of the PPM Center Adapter Configuration File* on page 129.)	(None)
*service-desk-application	A unique, logical name for the PPM Center system you are using. For example: PPM	(None)
number-of-tickets	The number of tickets that the adapter processes at a time.	50
polling-schedules	The times of day that the adapter polls PPM Center for changes, formatted as a list of cron expressions separated by the new line character. For example: 30 * * * * <*new line*> 0 * * * *	(None)
polling-frequency	The frequency (in seconds) that the adapter polls PPM Center for changes.	If polling-schedules and polling-frequency are unspecified, then the default polling-frequency is 30 seconds, starting when you restart the PPM Server.

Configuring the PPM Center Adapter Connector Properties

Specify the properties for the connector section of the PPM Center adapter configuration file as described in *Table 4-5*.

Table 4-5. PPM Center adapter connector properties (page 1 of 2)

Property Name (*Required)	Description	Default Value
*sdSystemName	The name of the adapter from which changes are imported into PPM Center as requests. Must be the same value as specified for the service-desk-application property in the Service Manager adapter (see *Table 4-1* on page 117). For example: Service Manager *or* ServiceCenter	(None)
*requestType	The PPM Center request type that should be created for the converted changes. For example: MAC - Request For Change (RFC)	(None)
datePattern	The date format for the date field. Use the Java simple date format, which is described at: http://java.sun.com/j2se/1.4.2/docs/api/java/text/SimpleDateFormat.html	yyyy-MM-dd HH:mm:ss
*userName	The user name in PPM Center by whose credentials requests are created.	(None)
*password	The password of the userName. This password should be encrypted using the PPM Center script `kEncrypt.sh`, which is located in the `bin` directory of the PPM Server. Encrypted passwords must be created in a `CDATA` section.	(None)

Table 4-5. PPM Center adapter connector properties (page 2 of 2)

Property Name (*Required)	Description	Default Value
*sdSystemFieldName	The field in PPM Center containing the Service Manager or ServiceCenter system name. It is presented in the PPM Center request as the **System Name** field in the **Service Desk Info** section.	(None)
*idProperty	The property name of the ID field in the instance returned from the Service Manager Web service.	(None)
*updateTimeField	The field in PPM Center that represents the time the request was updated in PPM Center.	(None)
*createTimeField	The field in PPM Center that represents the time the request was created in PPM Center.	(None)
requestStatusNames	A list of PPM Center request statuses, separated by semicolons (;). Only requests with the statuses you specify are retrieved from PPM Center for processing. However, if you do not specify any statuses, all requests are retrieved.	(None)

Configuring the PPM Center Adapter Converter Property (Script)

The converter section of the PPM Center adapter configuration file contains the `scripts` property. The script file is written in the JavaScript language. The script maps the fields from the PPM Center data model to the Service Manager data model, and filters the requests.

The `scripts` property is a script file name in the format:

`scripts=<convert1>`

This file must reside in the same directory as the adapter, namely:

`<PPM_Home>/conf/sdi/<adapter name>.ext`

where `<adapter name>` is as defined in *Table 4-4* on page 132.

Make sure that no line in a script exceeds 256 characters.

Multiple scripts are supported, using a comma-separated list, as in:

`scripts=<convert1,convert2,...>`

The adapter searches for these conversion script files in the adapter directory.

The conversion script is responsible for field mapping during the conversion of requests in the PPM Center data model to change updates in the Service Manager data model, and for filtering the requests and change updates.

The script must contain the `convert` function and can contain the `preFilter` and `postFilter` functions, as follows:

- **preFilter.** The following function filters the changes before they are converted to the Service Manager data model, so that no unnecessary requests are converted:

  ```
  preFilter(ppmRFC)
  ```

- **convert.** After identifying the Service Manager change attributes that need to be updated from the PPM Center requests, use the `convert` function of the conversion script to map fields of PPM Center requests to fields of Service Manager changes.

  The following `convert` function uses the mapping you specify to convert the fields of the request in PPM Center to the fields of the change in Service Manager:

  ```
  convert(ppmRFC, smChange)
  ```

- **postFilter.** The following function filters the converted change updates, so that only the desired updates will be applied to the corresponding change in Service Manager:

  ```
  postFilter(smChange)
  ```

MAC provides a default conversion script named `convertRequest.js` in the `<PPM_Home>/conf/sdi/ppm-sm-adapter.ext` directory.

Use the syntax described in the following sections for the conversion script APIs.

ppmRFC Object

The ppmRFC object represents the PPM Center request. For the `preFilter` and `convert` script functions, use the following function to retrieve request fields from PPM Center:

```
get(String fieldName);
```

smChange Object

The smChange object represents the Service Manager ticket. For the `convert` and `postFilter` script functions, use the following functions to modify the ticket fields:

- Reference ID

  You must use the following function to track the Service Manager change ID in the PPM Center request:

  ```
  setRefId(String referenceId);
  ```

- Time Stamp

  You must use the following function to set the last update time in the PPM Center request:

  ```
  /**
  * Set the time stamp in long format—that is, the number of
  * milliseconds since January 1, 1970, 00:00:00 GMT
  **/
  setUpdatedTimeStamp(long updatedTimeStamp);
  /**
  * Set the time stamp in the Java simple date format, which is
  * described at the following location:
  * http://java.sun.com/j2se/1.4.2/docs/api/java/text/
                                          SimpleDateFormat.html
  **/
  setUpdatedTimeStamp(String updatedTimeStamp, String format);
  ```

- General Field

  Use the following function to set a value of a general field in the PPM Center request:

  ```
  setField (String fieldName, String value);
  ```

- Date

  Use the following function to set a value of a date field in the PPM Center request:

  ```
  /**
  * Set the date in long format—that is, the number of
  * milliseconds since January 1, 1970, 00:00:00 GMT
  **/
  setDateValue(String fieldName, long date);
  /**
  * Set the date in the Java simple date format which is
  * described in the following location:
  * http://java.sun.com/j2se/1.4.2/docs/api/java/text/
                                              SimpleDateFormat.html
  **/
  setDateValue(String fieldName, String date, String format);
  ```

Configuring the PPM Center Adapter Sender Properties

Specify the properties for the sender section of the PPM Center adapter configuration file as described in *Table 4-6*. The sender controls updating changes in Service Manager with the converted data.

Table 4-6. PPM Center adapter sender properties (page 1 of 2)

Property Name (*Required)	Description	Default Value
*userName	The user name in the Service Manager system that PPM Center uses to connect to Service Manager. This user must have full access to the Change Management module in Service Manager.	(None)
*password	The password in the Service Manager system that PPM Center uses to connect to Service Manager. This password should be encrypted using the PPM Center script `kEncrypt.sh`, which is located in the `bin` directory of the PPM Server. Encrypted passwords must be created in a `CDATA` section.	(None)
*queryDateFormatPattern	The date format used for querying the Service Manager 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	(None)
*timeZone	The Service Manager server time zone, used for converting the last updated time of a request from Service Manager. The format can be GMT+X or GMT–X, where X is the offset in hh:mm format from GMT. For example, GMT–07:00. However, to handle Daylight Saving Time, use an area time zone instead of specifying a time relative to GMT.	(None)

Table 4-6. PPM Center adapter sender properties (page 2 of 2)

Property Name (*Required)	Description	Default Value
*keyMethodName	The name of the method for request keys (usually the ID field name).	(None)
*serviceUrl	The Web service URL of Service Manager or ServiceCenter. **For Service Manager,** the format is: http://<*Service_Manager_Host*>:<*Port*>/sc62server/PWS/ where <*Service_Manager_Host*> represents the host machine where Service Manager is running. **For ServiceCenter,** the format is: http://<*ServiceCenter_Host*>:<*Port*>/sc61server/ws/ where <*ServiceCenter_Host*> represents the host machine on which ServiceCenter is running.	(None)
*staticFieldNames (Applicable and required only for bi-directional integration.)	A list of PPM Center fields (separated by semicolons) that are *not* to be updated when changes are made to their mapped Service Manager fields. This list is used to prevent inappropriate update of PPM Center requests for bi-directional integration. For example, to prevent a request from being updated when the last update time in Service Manager changes, specify: sysmodtime	(None)
idProperty	The property name of the ID field in the instance returned from the Service Manager Web service.	(None)

The sender is the last section of the adapter configuration file. Make sure the file ends with the following:

```
</adapter>
</settings>
```

This completes the configuration of the PPM Center adapter file.

If PPM Center is operating in a clustered server configuration, share or copy the `<PPM_Home>/sdi-persistency` directory and the `<PPM_Home>/conf/sdi` directory among all the servers in the cluster.

Configuring server.conf Parameters

Add and specify the parameters related to Service Manager or ServiceCenter integration to the PPM Center `server.conf` configuration file (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

1. Stop the PPM Server.
2. Run the script:

   ```
   sh ./kConfig.sh
   ```

   Set the parameters and values as shown in the following table. (All parameter names begin with `com.kintana.core.server.` but that is not shown in the table.)

Parameter	Value
ENABLE_MAC_SERVICE	Set this parameter to `true`.
MAC_SERVICE_INTERVAL	Specify how often the MAC service is to be run, in seconds (the default is `900`, which is 15 minutes).
MAC_LOG_SEVERITY	Specify the level of logging to be used. When set to `0` (the default), only integration exceptions (errors) and a summary are logged. When set to `1`, non-error events related to the processing of changes are also logged. See *Error and Non-Error Logging* on page 141.

3. Restart the PPM Server.

Verifying that MAC Service Starts

Verify that the MAC Startup Service has started, as follows:

1. Log on to PPM Center.
2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.
3. From the shortcut bar, select **Sys Admin > Server Tools.**

   The Admin Tools window opens.
4. From the drop-down list, select **Service Controller Report.**
5. Click **Submit.**
6. Review the report to verify that the MAC Startup Service is running.
7. If a date was specified in the `initial-load-state` Service Manager (or ServiceCenter) adapter attribute in order to retrieve existing Service Manager (or ServiceCenter) changes from that date forward, they will be retrieved, converted, and sent to PPM Center, but then no new Service Manager (or ServiceCenter) changes will be retrieved. In this case, to retrieve Service Manager (or ServiceCenter) changes on an ongoing basis:

   a. Stop the PPM Server.

   b. Comment out the `initial-load-state` Service Manager (or ServiceCenter) adapter attribute.

   c. Restart the PPM Server.

   d. Repeat step 1 through step 6 to verify that the MAC Startup Service is running.

Error and Non-Error Logging

As described in the following sections, logging is essential for ensuring correct operation of the integration. You can specify two types of logging for Service Manager or ServiceCenter integration:

- System-level logging using a summary logs table and a log details table. See *System-Level Logging*.
- Configurable logging for conversion scripts. See *Configurable Logging for Conversion Scripts* on page 145.

System-Level Logging

System-level logging is the only way to administer the integration on an ongoing basis. HP recommends creating a portlet or a report to regularly query and display the logging tables and help you identify potential problems.

You can configure MAC to log only errors for integration exceptions and a summary, or to also log entries for non-error events related to the processing of changes. For information about setting the `server.conf` parameter that controls the level of logging (`MAC_LOG_SEVERITY`), see *Configuring server.conf Parameters* on page 140.

Setting the `MAC_LOG_SEVERITY` parameter to `0` causes the summary logs table (`SDI_SUMMARY_LOGS`) to include only a summary of errors. Setting this parameter to `1` causes the summary logs table to also include information about tickets as they are being processed.

The summary logs table maintains only one row for each unique combination of the **TICKET_ID** and **ADAPTER_NAME** columns. See *Summary Logs Table* on page 142. Each row is updated on an ongoing basis as status changes.

The log details table (`SDI_LOG_DETAILS`) includes details about the errors that have a value of **Y** in the **MESSAGES** column of the summary logs table. See *Log Details Table* on page 144. (The setting of the `MAC_LOG_SEVERITY` parameter in the `server.conf` file does not affect the contents of the log details table.)

Summary Logs Table

The columns in the summary logs table (`SDI_SUMMARY_LOGS`) that contain useful information are described in *Table 4-7*.

Table 4-7. Summary logs table (SDI_SUMMARY_LOGS) (page 1 of 2)

Column	Description
LOG_ID	The primary key for this table.
TICKET_ID	The ticket ID imported using the connector. In some cases such as connection errors or authentication failures, the value is **SUMMARY.**
STATUS	The current state of the ticket. Possible values are: • **Retrieved/Not processed.** The ticket was retrieved and has not been processed. • **preFilter Passed.** The ticket passed the `preFilter` function and was sent to the `convert` function. • **Rejected in preFilter.** The ticket did not pass `preFilter` criteria. • **Ticket converted.** The ticket passed the `convert` function and was sent to the `postFilter` function. • **postFilter Passed.** The ticket passed the `postFilter` function and was sent to the `sender` function. • **Rejected in postFilter.** The ticket did not pass the `postFilter` function. • **Error occurred in JavaScript.** An exception occurred in the `preFilter, convert,` or `postFilter` function when processing the `convert.js` JavaScript file. • **Ticket processed.** The ticket was created in the target system. • **Errors occurred when sending the ticket.** An exception occurred and the ticket could not be sent to the `sender`.
LAST_UPDATE_DATE	The last time the ticket was updated in PPM Center.
COMPONENT	The component that logged the message—the connector, converter, or sender.

Table 4-7. Summary logs table (SDI_SUMMARY_LOGS) (page 2 of 2)

Column	Description
ADAPTER_NAME	The service desk name in the adapter settings file.
MESSAGES	If the value is **Y,** further details for this log entry are provided in the log details table (`SDI_LOG_DETAILS`). If the value is **N,** no further details are provided.
IN_PROCESS	If **Y,** processing of this ticket is complete. If **N,** processing of this ticket is not yet complete.

Log Details Table

The log details table (`SDI_LOG_DETAILS`) includes the details described in *Table 4-8* for the errors that have a value of **Y** in the **MESSAGES** column of the summary logs table.

Table 4-8. Log details table (SDI_LOG_DETAILS)

Column	Description
LOG_DETAIL_ID	The primary key for this table.
LOG_ID	The foreign key to the entry in the `SDI_SUMMARY_LOGS` table.
DETAILS	The detailed error message captured when the error occurred.

Configurable Logging for Conversion Scripts

Configurable logging is useful for debugging your integration mapping. During testing, you can specify log messages that appear at key points in the conversion script to indicate correct or incorrect conversion. Before deploying the integration to production, you would typically want to comment out the messages for correct operation so they do not quickly accumulate in the logs.

If you want to view log messages describing the activity that occurs 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 `<PPM_Home>/script-logs` directory. Each adapter logs messages in a separate log file. The names of the log files are based on the names of the adapters for which they log errors.

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.

Logging is also controlled by the severity specified in the PPM Center `logging.conf` file.

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

```
logger.info("Processing ticket " +
                  serviceCenterRFC.get("header.changeNumber"));
```

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 this logging object, make sure the following line is included at the beginning of the conversion script:

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

5 Integration of PPM Center with Remedy

Introduction to Integration of PPM Center with Remedy

For an overview of the integration of PPM Center with the BMC Remedy Action Request System, see *Integration of PPM Center with Service Desk Applications* on page 22.

The integration is enabled by a configurable Remedy adapter file in PPM Center along with the request types and workflows provided by MAC, so that PPM Center acts as a single repository for application-related requests for change (RFCs). The adapter converts changes (tickets) in Remedy to requests for change (RFCs), and then imports those RFCs into PPM Center for processing.

A separate adapter file is required for each mapping between a Remedy change and a PPM Center request type. MAC provides one default Remedy adapter file.

The integration runs as a service in the PPM Server. As described later, the configuration of an adapter file controls various aspects of its import process.

This chapter describes how to configure the Remedy adapter in PPM Center and the Remedy application for integration. It is intended for Remedy administrators or for PPM Center system administrators who are also familiar with Remedy.

For information about the supported version of Remedy, see *Versions of Service Desk Applications Supported for Integration with PPM Center* on page 21.

Integration of PPM Center with Remedy is supported only when PPM Center is running on Windows. For information on the Windows versions that PPM Center can use, see the *System Requirements and Compatibility Matrix.*

No software needs to be installed on the Remedy server to integrate PPM Center and Remedy. However, see *Versions of Service Desk Applications Supported for Integration with PPM Center* on page 21.

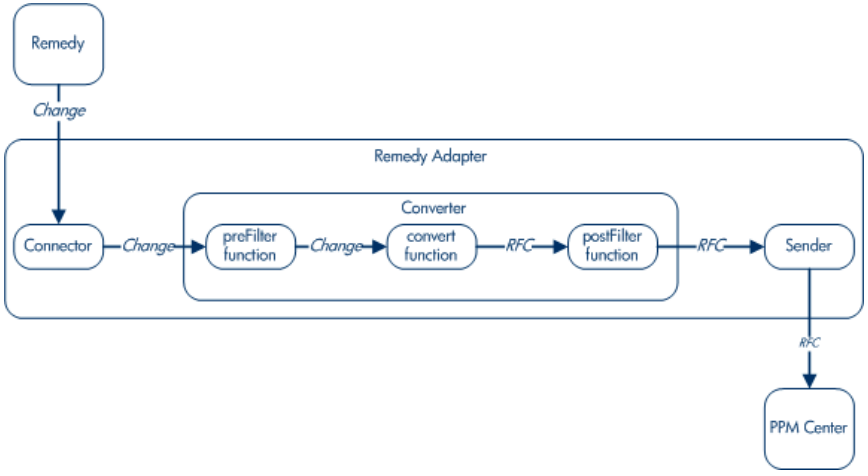
For information about the MAC - Request For Change (RFC) request type in PPM Center that is used to establish integration of PPM Center with Remedy, see *MAC - Request For Change (RFC) Request Type* on page 40.

For references to more information about Remedy, see *Remedy Documentation* on page 29.

Conversion of Remedy Changes to PPM Center Requests for Change

Figure 5-1 depicts the flow for converting a change in Remedy to a MAC request for change (RFC), and importing the RFC into PPM Center.

Figure 5-1. Using the Remedy adapter to import changes from Remedy into PPM Center



The Remedy adapter consists of the following three components:

- **Connector.** Collects changes from the Remedy system.
- **Converter.** Uses field mapping to convert the changes from the Remedy data model in which they were created to RFCs for the PPM Center data model.

  The converter also contains two optional filters to control which changes are imported into PPM Center. The preFilter filters out categories of changes you specify in the Remedy data model before they are converted. After the Remedy changes are converted to RFCs, the postFilter filters out categories of requests you specify before they are presented to the sender.
- **Sender.** Using the RFC data from the converter, creates the RFCs in PPM Center.

Overview of Configuring the Remedy Integration

Before configuring the integration, you must identify the Remedy data attributes that will be integrated with PPM Center, including which of the attributes of Remedy changes to send to PPM Center.

Before you can begin importing changes from Remedy into PPM Center, you must configure Remedy and configure the Remedy adapter in PPM Center to enable integration. The procedures are summarized as follows:

- Copy particular files from the Remedy installation directory to the PPM Server.
- Configure the Remedy adapter configuration file on the PPM Server. MAC provides a default Remedy adapter configuration file.
- Configure the required `server.conf` parameters in PPM Center.
- Restart the PPM Server in normal mode and verify that the MAC service has started.
- Configure logging of errors and events.

Copying Files from Remedy to PPM Center

To connect to Remedy, the integration requires copying particular files from the Remedy installation directory to the PPM Server, as follows:

1. Copy the following `.jar` files from the Remedy installation directory to `<PPM_Home>\server\<PPM_Server_Name>\deploy\itg.war\WEB-INF\lib`:

   - `arapi50.jar`
   - `arutil50.jar`

   where

   `<PPM_Home>` represents the path where the PPM Center instance is installed. For example: `xyzserver/E/PPMServer`.

   `<PPM_Server_Name>` represents the value specified for the `KINTANA_SERVER_NAME` parameter in the `server.conf` file during installation (not necessarily the actual host name of the server).

2. Create a new directory named RemedyDLLs under the <PPM_Home>\conf\sdi directory on the PPM Server.
3. Copy the following `.dll` files from the Remedy installation directory to the `RemedyDLLs` directory:

   - `arapi50.dll`
   - `arjni50.dll`
   - `arrpc50.dll`
   - `arutl50.dll`

4. Set the `PATH` environment variable to point to the `RemedyDLLs` directory.

Configuring the Remedy Adapter Configuration File

The Remedy adapter configuration file is an XML file in PPM Center that enables integration of Remedy with PPM Center and converts Remedy changes to PPM Center requests. The configuration file consists of the following components, each with its own attributes or properties (see *Figure 5-1* on page 148):

- General settings for the adapter itself, such as its name and the name of the Remedy application in which the changes (tickets) are created.
- The connector between Remedy and the adapter.
- The converter of changes in the Remedy data model to generic requests in the PPM Center data model. The converter calls the scripts that define the field mapping and filter functions.
- The PPM Center sender, which sends the converted and filtered requests to PPM Center.

If PPM Center is operating in a clustered server configuration, share or copy the `<PPM_Home>\sdi-persistency` directory and the `<PPM_Home>\conf\sdi` directory among all the servers in the cluster.

The following sections describe how to configure the Remedy adapter configuration file and the scripts called by its converter, and how to modify copies of the provided files while preserving the originals.

Location, Naming, and Structure of Remedy Adapter Configuration Files

Each Remedy adapter configuration file must follow specific conventions for its location, naming, and structure, as described in the following sections.

Location and Naming of the Remedy Adapter Configuration File

The adapter configuration files are located in the `<PPM_Home>\conf\sdi` directory of the PPM Server. This directory contains:

- A configuration file for the adapter (or one for each adapter if there are multiple adapters).

  In this configuration file, you define a name for the adapter. The configuration file must have a `.settings` file extension.

- A subdirectory (or one for each adapter configuration file if there are multiple files).

  The subdirectory contains the conversion scripts, which are called by the converter to map the fields between the tickets and requests and to filter them. The name of the subdirectory must be the same as the `<adapter name>` (for a description, see *Structure of the Remedy Adapter Configuration File* on page 152 and *Table 5-1* on page 154) followed by `.ext`.

  For example, if the adapter name is `remedy-adapter`, the `<PPM_Home>\conf\sdi` directory must contain a subdirectory named `remedy-adapter.ext` to hold all the conversion script files for the adapter.

Structure of the Remedy Adapter Configuration File

MAC provides, as a template, a default Remedy adapter configuration file named `remedy-adapter.settings1`. The adapter file you configure and use must have a `.settings` file extension.

Copy the default adapter file (to preserve the original), and rename the copy with a `.settings` file extension and, if desired, a different file name.

As detailed in subsequent sections, the adapter file has the following basic structure, including adapter attributes, and properties for its connector, converter, and sender:

```
<?xml version="1.0" encoding="UTF-8"?>
<settings>

<adapter adapter-name="<adapter name>">
   <service-desk-application><SD application>
      </service-desk-application>
   <number-of-tickets><number of tickets></number-of-tickets>
   <polling-schedules><schedule></polling-schedules>
   <polling-frequency><frequency></polling-frequency>
   <initial-load-state><date></initial-load-state>

   <request-types>
   <request-type level="1">
   <polling-operation>

   <connector>
   <connector-type>remedy</connector-type>
      <properties>
         serverName=
         serverTcpPort=
         serverRpcNum=
         userName=
         userPassword=
         schemaName=
         fieldNames=
      </properties>
   </connector>

   <converter>
   <converter-type>scriptConverter</converter-type>
      <properties>
         scripts=<convert1,convert2,...>
      </properties>
   </converter>

   </polling-operation>
   </request-type>
   </request-types>

   <sender>
   <sender-type>PPMSender</sender-type>
      <properties>
         userName=
         password=>
         requestType=
         updateRequest=
         ticketIdFieldName=
         sdSystemFieldName=
      </properties>
   </sender>

</adapter>

</settings>
```

Do not delete or change the values provided for `<connector-type>`, `<converter-type>`, or `<sender-type>`.

The following sections describe how to configure the adapter attributes, the connector properties, the converter property (`scripts`), and the sender properties.

Configuring the Remedy Adapter Attributes

Specify the adapter attributes of the Remedy adapter configuration file, such as the adapter name and the service desk application, as described in *Table 5-1*.

Table 5-1. Remedy adapter attributes (page 1 of 2)

Attribute Name (*Required)	Description	Default Value
*adapter-name	A logical name that represents the adapter name on the client machine. For example: remedy-adapter This name is also used for the scripts (`.ext`) directory. (See *Location and Naming of the Remedy Adapter Configuration File* on page 152.)	(None)
*service-desk-application	A unique, logical name for the service desk system you are using. For example: Remedy AR System	(None)
number-of-tickets	The number of tickets that the adapter processes at a time.	50

Table 5-1. Remedy adapter attributes (page 2 of 2)

Attribute Name (*Required)	Description	Default Value
polling-schedules	The times of day that the adapter polls Remedy for changes, formatted as a list of cron expressions separated by the new line character. For example: 30 * * * * <*new line*> 0 * * * *	(None)
polling-frequency	The frequency (in seconds) that the adapter polls Remedy for changes.	If polling-schedules and polling-frequency are unspecified, then the default polling-frequency is 30 seconds, starting when you restart the PPM Server.
initial-load-state	The earliest creation date and time of changes the adapter retrieves from Remedy, in the format: MM/dd/yy HH:mm:ss z For example: 10/19/08 21:30:00 EST After completion, the adapter does not retrieve any new or updated changes (per the polling-schedules and polling-frequency attributes) until this attribute is commented out.	(None)

Configuring the Remedy Adapter Connector Properties

Specify the properties for the connector section of the adapter configuration file as described in *Table 5-2*.

Table 5-2. Remedy adapter connector properties

Property Name (*Required)	Description	Default Value
*serverName	The name of the Remedy server.	(None)
serverTcpPort	The TCP port of the Remedy server.	0
serverRpcNum	The RPC number of the Remedy server.	0
*userName	The user name in the Remedy system that PPM Center uses to connect to Remedy. This user must have full access to the Change Management module in Remedy.	(None)
*userPassword	The password in the Remedy system that PPM Center uses to connect to Remedy. This password should be encrypted using the PPM Center script `kEncrypt.sh`, which is located in the `bin` directory of the PPM Server. Encrypted passwords must be created in a `CDATA` section.	(None)
*schemaName	The name of the schema containing the Remedy changes. Do not change the default value.	CHG:Change
*fieldNames	A comma-separated list of the fields in the Remedy changes to retrieve. Use `*` to collect all the fields.	(None)

Configuring the Remedy Adapter Converter Property (Script)

The converter section of the Remedy adapter configuration file contains the `scripts` property. The script file is written in the JavaScript language. The script maps the fields from the Remedy data model to the PPM Center data model, and filters the requests.

The `scripts` property is a script file name in the format:

`scripts=<convert1>`

This file must reside in the same directory as the adapter, namely:

`<PPM_Home>\conf\sdi\<adapter name>.ext`

where `<adapter name>` is as defined in *Table 5-1* on page 154.

➤ Make sure that no line in a script exceeds 256 characters.

Multiple scripts are supported, using a comma-separated list, as in:

➤ `scripts=<convert1,convert2,...>`

The adapter searches for these conversion script files in the adapter directory.

The conversion script is responsible for field mapping during the conversion of changes in the Remedy data model to generic requests in the PPM Center data model, and for filtering the changes and requests.

The script must contain the `convert` function and can contain the optional `preFilter` and `postFilter` functions, as follows:

- **preFilter.** The following function filters the changes before they are converted to the PPM Center data model, so that no unnecessary requests are converted:

  `preFilter(remedyTicket)`

  For example, the following `preFilter` function specifies that Remedy changes with a Low priority will not be converted and that all other requests will be converted:

```
function preFilter(remedyTicket){
   if (remedyTicket.get("Request Urgency")==ARS_PRIORITY_
                                                          LOW)
      return false;
   else
      return true;
}
```

- **convert.** After identifying the PPM Center request attributes that are required for Remedy changes, use the `convert` function of the conversion script to map fields of Remedy changes to fields of PPM Center requests.

  The following `convert` function uses the mapping you specify to convert the fields of the change in Remedy to the fields of the request in PPM Center:

  ```
  convert(remedyTicket, ppmRFC)
  ```

- **postFilter.** The following function filters the converted requests, so that only the desired requests will be imported into PPM Center:

  ```
  postFilter(ppmRFC)
  ```

  For example, the following `postFilter` function specifies that only PPM Center requests with a status of Approved will be sent to the PPM Server:

  ```
  function postFilter(ppmRFC){
     ppmStatus==ppmRFC.getField("status");
     if (ppmStatus==STATUS_APPROVED)
        return true;
     else
        return false;
  }
  ```

MAC provides a default conversion script named `convert.js` in the `<`*`PPM_Home`*`>\conf\sdi\remedy-adapter.ext` directory.

Use the syntax described in the following sections for the conversion script APIs.

remedyTicket Object

The remedyTicket object represents the Remedy change. For the `preFilter` and `convert` script functions, use the following function to retrieve fields from the Remedy ticket:

```
get(String fieldName);
```

ppmRFC Object

The ppmRFC object represents the PPM Center request. For the `convert` and `postFilter` script functions, use the following functions to modify the PPM Center request fields:

- Reference ID

  You must use the following function to track the Remedy change ID in the PPM Center request:

  ```
  setRefId(String referenceId);
  ```

- Time Stamp

  You must use the following function to set the last update time in the PPM Center request:

  ```
  /**
  * Set the time stamp in long format—that is, the number of
  * milliseconds since January 1, 1970, 00:00:00 GMT
  **/
  setUpdatedTimeStamp(long updatedTimeStamp);
  /**
  * Set the time stamp in the Java simple date format, which is
  * described at the following location:
  * http://java.sun.com/j2se/1.4.2/docs/api/java/text/
                                              SimpleDateFormat.html
  **/
  setUpdatedTimeStamp(String updatedTimeStamp, String format);
  ```

- Status

  Use the following function to change the status of the PPM Center request and allow the workflow of the request to advance:

  ```
  setStatus(String newStatus)
  ```

  To view or change the set of statuses provided with PPM Center, open the request type in the PPM Workbench, select the **Request Status** tab, and click **Request Status.** For more information, see the *HP Demand Management Configuration Guide.*

- General Field

  Use the following function to set the value of a general field in the PPM Center request:

  ```
  setField (String fieldName, String value);
  ```

- Date

  Use the following function to set the value of a date field in the PPM Center request:

  ```
  /**
  * Set the date in long format—that is, the number of
  * milliseconds since January 1, 1970, 00:00:00 GMT
  **/
  setDateValue(String fieldName, long date);
  /**
  * Set the date in the Java simple date format which is
  * described in the following location:
  * http://java.sun.com/j2se/1.4.2/docs/api/java/text/
                                              SimpleDateFormat.html
  **/
  setDateValue(String fieldName, String date, String format);
  ```

- Notes to be added upon creation of a PPM Center request

  Use the following function to add a note upon creation of a PPM Center request:

  ```
  addUserNoteOnCreate(String content, String addedBy,
                                                        long time;
  ```

- Notes to be added upon update of a PPM Center request

  Use the following function to add a note upon update of a PPM Center request:

  ```
  addUserNoteOnUpdate(String content, String addedBy,
                                                        long time;
  ```

Configuring the Remedy Adapter Sender Properties

Specify the properties for the sender section of the adapter configuration file as described in *Table 5-3*. The sender controls creating RFCs in PPM Center with the converted data.

Table 5-3. Remedy adapter sender properties (page 1 of 2)

Property Name (*Required)	Description	Default Value
*userName	The user name in PPM Center by whose credentials requests are created.	(None)
*password	The password of the userName. This password should be encrypted using the PPM Center script `kEncrypt.sh`, which is located in the `bin` directory of the PPM Server. Encrypted passwords must be created in a `CDATA` section.	(None)
*requestType	The PPM Center request type that should be created for the converted changes. For example: MAC - Request For Change (RFC)	(None)
updateRequest	If set to `true`, enables *updates* made to Remedy changes to be automatically sent to existing PPM Center requests. HP recommends retaining the default value of `false` because usually, after Remedy changes are converted to PPM Center requests, processing takes place entirely in PPM Center.	false

Table 5-3. Remedy adapter sender properties (page 2 of 2)

Property Name (*Required)	Description	Default Value
*ticketIdFieldName [a]	The field in PPM Center containing the Remedy ticket ID. It is presented in the PPM Center request as the **Ticket Id** field in the **Service Desk Info** section.	(None)
*sdSystemFieldName [a]	The field in PPM Center containing the Remedy system name. It is presented in the PPM Center request as the **System Name** field in the **Service Desk Info** section.	(None)

a. If PPM Center is integrated with multiple Remedy servers, the combination of values in the ticketIdFieldName and sdSystemFieldName properties ensures that all the tickets from all the Remedy servers are uniquely identified in PPM Center.

The sender is the last section of the adapter configuration file. Make sure the file ends with the following:

```
</adapter>
</settings>
```

This completes the configuration of the Remedy adapter configuration file.

If PPM Center is operating in a clustered server configuration, share or copy the `<PPM_Home>\sdi-persistency` directory and the `<PPM_Home>\conf\sdi` directory among all the servers in the cluster.

Configuring server.conf Parameters

Add and specify the parameters related to Remedy integration to the PPM Center `server.conf` configuration file (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

1. Stop the PPM Server.
2. Run the script:

   ```
   sh ./kConfig.sh
   ```

   Set the parameters and values as shown in the following table. (All parameter names begin with `com.kintana.core.server.` but that is not shown in the table.)

Parameter	Value
ENABLE_MAC_SERVICE	Set this parameter to `true`.
MAC_SERVICE_INTERVAL	Specify how often the MAC service is to be run, in seconds (the default is `900`, which is 15 minutes).
MAC_LOG_SEVERITY	Specify the level of logging to be used. When set to `0` (the default), only integration exceptions (errors) and a summary are logged. When set to `1`, non-error events related to the processing of changes are also logged. See *Error and Non-Error Logging* on page 165.

3. Restart the PPM Server.

Verifying that MAC Service Starts

Verify that the MAC Startup Service has started, as follows:

1. Log on to PPM Center.
2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.
3. From the shortcut bar, select **Sys Admin > Server Tools.**

   The Admin Tools window opens.
4. From the drop-down list, select **Service Controller Report.**
5. Click **Submit.**
6. Review the report to verify that the MAC Startup Service is running.
7. If a date was specified in the `initial-load-state` Remedy adapter attribute in order to retrieve existing Remedy changes from that date forward, they will be retrieved, converted, and sent to PPM Center, but then no new Remedy changes will be retrieved. In this case, to retrieve Remedy changes on an ongoing basis:
   a. Stop the PPM Server.
   b. Comment out the `initial-load-state` Remedy adapter attribute.
   c. Restart the PPM Server.
   d. Repeat step 1 through step 6 to verify that the MAC Startup Service is running.

Error and Non-Error Logging

As described in the following sections, logging is essential for ensuring correct operation of the integration. You can specify two types of logging:

- System-level logging using a summary logs table and a log details table. See *System-Level Logging*.
- Configurable logging for conversion scripts. See *Configurable Logging for Conversion Scripts* on page 168.

System-Level Logging

System-level logging is the only way to administer the integration on an ongoing basis. HP recommends creating a portlet or a report to regularly query and display the logging tables and help you identify potential problems.

You can configure MAC to log only errors for integration exceptions and a summary, or to also log entries for non-error events related to the processing of changes. For information about setting the `server.conf` parameter that controls the level of logging (`MAC_LOG_SEVERITY`), see *Configuring server.conf Parameters* on page 163.

Setting the `MAC_LOG_SEVERITY` parameter to `0` causes the summary logs table (`SDI_SUMMARY_LOGS`) to include only a summary of errors. Setting this parameter to `1` causes the summary logs table to also include information about tickets as they are being processed.

The summary logs table maintains only one row for each unique combination of the **TICKET_ID** and **ADAPTER_NAME** columns. See *Summary Logs Table* on page 166. Each row is updated on an ongoing basis as status changes.

The log details table (`SDI_LOG_DETAILS`) includes details about the errors that have a value of **Y** in the **MESSAGES** column of the summary logs table. See *Log Details Table* on page 167. (The setting of the `MAC_LOG_SEVERITY` parameter in the `server.conf` file does not affect the contents of the log details table.)

Summary Logs Table

The columns in the summary logs table (`SDI_SUMMARY_LOGS`) that contain useful information are described in *Table 5-4*.

Table 5-4. Summary logs table (SDI_SUMMARY_LOGS) (page 1 of 2)

Column	Description
LOG_ID	The primary key for this table.
TICKET_ID	The ticket ID imported using the connector. In some cases such as connection errors or authentication failures, the value is **SUMMARY.**
STATUS	The current state of the ticket. Possible values are: • **Retrieved/Not processed.** The ticket was retrieved and has not been processed. • **preFilter Passed.** The ticket passed the `preFilter` function and was sent to the `convert` function. • **Rejected in preFilter.** The ticket did not pass `preFilter` criteria. • **Ticket converted.** The ticket passed the `convert` function and was sent to the `postFilter` function. • **postFilter Passed.** The ticket passed the `postFilter` function and was sent to the `sender` function. • **Rejected in postFilter.** The ticket did not pass the `postFilter` function. • **Error occurred in JavaScript.** An exception occurred in the `preFilter, convert,` or `postFilter` function when processing the `convert.js` JavaScript file. • **Ticket processed.** The ticket was created in the target system. • **Errors occurred when sending the ticket.** An exception occurred and the ticket could not be sent to the `sender`.
LAST_UPDATE_DATE	The last time the ticket was updated in PPM Center.
COMPONENT	The component that logged the message—the connector, converter, or sender.

Table 5-4. Summary logs table (SDI_SUMMARY_LOGS) (page 2 of 2)

Column	Description
ADAPTER_NAME	The service desk name in the adapter settings file.
MESSAGES	If the value is **Y,** further details for this log entry are provided in the log details table (`SDI_LOG_DETAILS`). If the value is **N,** no further details are provided.
IN_PROCESS	If **Y,** processing of this ticket is complete. If **N,** processing of this ticket is not yet complete.

Log Details Table

The log details table (`SDI_LOG_DETAILS`) includes the details described in *Table 5-5* for the errors that have a value of **Y** in the **MESSAGES** column of the summary logs table.

Table 5-5. Log details table (SDI_LOG_DETAILS)

Column	Description
LOG_DETAIL_ID	The primary key for this table.
LOG_ID	The foreign key to the entry in the `SDI_SUMMARY_LOGS` table.
DETAILS	The detailed error message captured when the error occurred.

Configurable Logging for Conversion Scripts

Configurable logging is useful for debugging your integration mapping. During testing, you can specify log messages that appear at key points in the conversion script to indicate correct or incorrect conversion. Before deploying the integration to production, you would typically want to comment out the messages for correct operation so they do not quickly accumulate in the logs.

If you want to view log messages describing the activity that occurs 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 `<PPM_Home>\script-logs` directory. Each adapter logs messages in a separate log file. The names of the log files are based on the names of the adapters for which they log errors.

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.

Logging is also controlled by the severity specified in the PPM Center `logging.conf` file.

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

```
logger.info("Processing ticket " + remedyRFC.get
                                                ("ChangeID+"));
```

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 this logging object, make sure the following line is included at the beginning of the conversion script:

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

6 Integration of PPM Center with Mercury Application Mapping

Introduction to Integration of PPM Center with Mercury Application Mapping

Mercury Application Mapping consists of a business-service-oriented data model with built-in discovery of configuration items (CIs) and their dependencies, visualization and mapping of business services, and tracking of configuration changes. When you integrate PPM Center with Mercury Application Mapping, you can run Impact Analysis Reports from change requests in PPM Center, to determine which components of a system will be affected by a software change, and to what extent. Impact analysis becomes an integral part of the workflow when you process a change request. The integration assists IT managers and Change Advisory Boards in deciding whether a change request should be approved for development or deployment.

You can perform the following impact analysis tasks from a PPM Center request:

- Run impact analysis.
- View Impact Analysis Reports.
- Compare different Impact Analysis Reports to detect changes in the production system.

Impact analysis shows you which components of your production system will be affected (impacted) when you deploy a software change, and to what extent.

For example, your software change might involve upgrading a database server. Before you can perform the upgrade, you need to stop the server. In some cases this could prevent users from accessing crucial services, or even cause a crash of your production system. Impact analysis determines the effect on the entire system of stopping the server, and gives you a report showing the components that will be impacted. This enables you to plan the change with minimal disturbance to your operations.

For more information about the benefits of this integration, see *Integration of PPM Center with HP Universal CMDB and/or Mercury Application Mapping* on page 24.

For information about the versions supported for integration, see *Versions of Mercury Application Mapping Supported for Integration with PPM Center* on page 21.

No software needs to be installed on the Mercury Application Mapping server to integrate PPM Center and Mercury Application Mapping. However, see *Versions of Mercury Application Mapping Supported for Integration with PPM Center* on page 21.

For references to more information about Mercury Application Mapping, see *Mercury Application Mapping Documentation* on page 29.

Using Impact Analysis in a Change Request Lifecycle

Impact analysis is useful at various stages in the lifecycle of a change request. This means that you typically want to generate an Impact Analysis Report at several points in time as the request is processed.

Since a software change might be developed and deployed over a lengthy period of time, it is useful to have workflow steps that generate an Impact Analysis Report at the following stages in the lifecycle of the change request:

- **Before you approve or develop the change.** Before you approve or develop the change, it is useful to forecast the effect that introducing the change will have on your production system. You describe the intended change, specify the components that you think will be affected, and run impact analysis to forecast the effect of the change.

The resulting report gives you an indication of how your system will cope with the change after it has been developed and deployed, and helps you decide whether to approve the change for development.

- **After the change is approved for deployment to a production system, but before you deploy the change.** While the software change is being developed and then evaluated for quality, modifications may occur in your system infrastructure. For example, servers might be added or removed, or applications might be changed. As a result, the original impact analysis may no longer give an accurate indication of what will happen when you introduce the change. So after the change has been developed, evaluated, and approved for deployment, you perform another impact analysis to give you an up-to-date picture.

  You then run the Mercury Application Mapping comparison feature to compare the two Impact Analysis Reports and show which components have undergone changes since the previous report was generated. This allows you to ensure that any changes that may have been made to the system while you were developing the software change will not have an adverse effect on the system when you deploy the change.

PPM Center Components for the Integration

As described in *Using the Integration* on page 176, the integration uses the following entities for impact analysis:

- The MAC - Request for Change workflow, which calls a subworkflow that calls the MAC - Impact & Resource Assessment Sub WF subworkflow, which includes steps that access the MAM impact analysis functions. See *MAC - Request For Change Workflow* on page 49.
- The associated MAC - Request for Change (RFC) request type, integrating with Mercury Application Mapping. See *MAC - Request For Change (RFC) Request Type* on page 40.
- The Impact Analysis section in the request. See *MAC - Request For Change (RFC) Request Type* on page 40, in particular *Table 3-2* on page 43.

Configuring Mercury Application Mapping for the Integration

Perform the procedures in this section to configure Mercury Application Mapping for the integration.

Configuring Views and Creating a PPM Center User and Password

Configure MAM views and create a PPM Center user and password in Mercury Application Mapping. See the Mercury Application Mapping documentation, listed in *Mercury Application Mapping Documentation* on page 29.

Enabling Impact Analysis in the appilogConfig.properties File

Verify that impact analysis is enabled in Mercury Application Mapping as follows:

1. In Mercury Application Mapping, navigate to the following file:

   `<MAM_Home>/root/lib/server/appilogConfig.properties`

   where `<MAM_Home>` represents the directory where Mercury Application Mapping is installed.

2. To enable impact analysis, set the parameter values in this file as shown in the following table:

appilogConfig.properties Parameter	Value
impact.analysis.disabled	false
impact.analysis.read.only	true
impact.analysis.allow.ci.edit	true

3. Navigate to http://<*MAM_Home*>:8080/jmx-console, click the **service=View System** link, and in the window that opens, click the **Invoke** button for the **reloadServerConfiguration** option.

Configuring PPM Center for the Integration

Before beginning to configure the integration as described in the following sections, make sure that MAC has been installed and initially configured as described in Chapter 2, *Installing and Setting Up MAC Software,* on page 31.

Establishing Server Connections for Supported Versions

Make sure that the HTTP port is open between the PPM Server and Mercury Application Mapping machines.

Verify that a supported version of Mercury Application Mapping is installed and running (see *Versions of Mercury Application Mapping Supported for Integration with PPM Center* on page 21).

Copying .jar Files from Mercury Application Mapping to PPM Center

Copy required `.jar` files from Mercury Application Mapping to PPM Center as follows:

1. Stop the PPM Server.
2. In Mercury Application Mapping, navigate to the following directory:

   `<MAM_Home>/j2f/AppServer/webapps/site.war/statis/mamJars`
3. Copy the following files from the directory specified in step 2 to the `<PPM_Home>/server/<PPM_Server_Name>/deploy/itg.war/WEB-INF/lib` directory in PPM Center:

   - `AllClasses.jar`
   - `hacapi.jar`
   - `logworkaround.jar`
   - `cmdb_client.jar` (located in the `CMDB` subdirectory of `mamJars`)
   - `cmdb_server.jar` (located in the `CMDB` subdirectory of `mamJars`)
   - `cmdb_shared.jar` (located in the `CMDB` subdirectory of `mamJars`)

   where

   `<PPM_Home>` represents the path where the PPM Center instance is installed. For example: `xyzserver/E/PPMServer`.

   `<PPM_Server_Name>` represents the value specified for the `KINTANA_SERVER_NAME` parameter in the `server.conf` file during installation (not necessarily the actual host name of the server).

Specifying server.conf Parameters in PPM Center

Add and specify the parameters related to Mercury Application Mapping integration to the PPM Center `server.conf` configuration file (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

1. Stop the PPM Server.
2. Run the script:

   ```
   sh ./kConfig.sh
   ```

   Set the parameters and values as shown in the following table. (All parameter names begin with `com.kintana.core.server.` but that is not shown in the table.)

Parameter	Value
MAM_MACHINE_URL	The URL of the Mercury Application Mapping server: `http://<MAM_Host>:8080/webapp/` where `<MAM_Host>` represents the host machine on which Mercury Application Mapping is running.
MAM_MACHINE_VERSION	Specify `6.2` for all supported versions of Mercury Application Mapping (see *Versions of Mercury Application Mapping Supported for Integration with PPM Center* on page 21).
MAM_MACHINE_USER	The Mercury Application Mapping user name, for example, admin.
MAM_MACHINE_PASSWORD	The Mercury Application Mapping user password. This password must be encrypted as described in *Encrypting the Password Specified as a server.conf Parameter*.

3. Restart the PPM Server.

Encrypting the Password Specified as a server.conf Parameter

The password that you assigned to the `MAM_MACHINE_PASSWORD` parameter must be encrypted, as follows:

1. Navigate to the `<PPM_Home>/bin` directory.
2. Run the `kEncrypt.sh` utility.
3. Specify the password you want to encrypt.

   The utility encrypts the password and displays the encrypted text, as in the following example that shows how the password value of Administrator is encrypted:

```
$ ./kEncrypt.sh

Enter value to encrypt:

Administrator

--- Algorithm -----------------------------------------------
El Gamal (public key file: D:/ITG_MAM_INTG/security/public_
key.txt)

--- Plain text ----------------------------------------------
Administrator

--- Encrypted text ------------------------------------------
#!#1lr(107I7i+?nQJ0/Ehd5k{IMNmw$8bF4nmrjLQ$=I/{hLV0-Sq
DZON{Opp d}N 4*bu?t/1Jk&MjZYY3h1Zt$c.09Oh?n5V01+yc7l
vn95L-0cS+b<qMQ.f+`d)bPmoN&(gU>+M8+6+7gVPq:~6#!#
```

4. Copy the text in the `Encrypted text` section and paste it as the value for `MAM_MACHINE_PASSWORD` in the `server.conf` file, making sure that you do not copy any carriage returns into the file. In the example of step 3, the parameter in the `server.conf` file would appear as follows:

```
com.kintana.core.server.MAM_MACHINE_PASSWORD=
#!#1lr(107I7i+?nQJ0/Ehd5k{IMNmw$8bF4nmrjLQ$=I/{hLV0-Sq
DZON{Opp d}N 4*bu?t/1Jk&MjZYY3h1Zt$c.09Oh?n5V01+yc7l
vn95L-0cS+b<qM_Q.f+`d)bPmoN&(gU>+M8+6+7gVPq:~6#!#
```

Using the Integration

This section describes how to use the workflow steps that allow you to access the Mercury Application Mapping impact analysis capabilities.

The impact analysis workflow steps allow you to run the Mercury Application Mapping impact analysis functions from within a PPM Center workflow. These functions include generating Impact Analysis Reports and viewing the differences between reports generated at different times.

The Configuration Management Database (CMDB) in Mercury Application Mapping contains information about all your configuration items (servers, applications, hosts, and so on) and their relationships. Configuration items (CIs) can vary widely in complexity, size, and type, from an entire system (including all hardware, software, and documentation) to a single module or minor hardware component.

For example, the CMDB contains information about which CIs are affected when other CIs stop functioning or have operational problems.

You generally perform impact analysis as follows:

- Select the CIs that you suspect might be affected by the planned software change.

HP recommends using CI names in Mercury Application Mapping that will be meaningful to you in PPM Center.

- Run impact analysis on the selected CIs. Impact analysis analyzes the relationships among the selected CIs in the CMDB, and generates a report showing the CIs that will be affected by the planned change.
- Run impact analysis at additional points in the workflow, and compare the reports generated by the different runs.

You establish the impact analysis steps at various places in your workflow where it is useful to know the impact that your change will have on your system. For example, you might want to perform impact analysis at the following points:

- Before approving a change, to forecast the effect that the change will have on your system.
- After the change has been created, in case your system infrastructure has changed since the previous impact analysis was performed.

By default, the MAC - Request For Change workflow step 8 (see *MAC - Request For Change Workflow* on page 49) calls the MAC - Change Review and Approval Sub WF subworkflow (see *MAC - Change Review and Approval Sub WF Subworkflow* on page 56).

Step 4 of this subworkflow in turn calls the MAC - Impact & Resource Assessment Sub WF subworkflow (see *MAC - Impact & Resource Assessment Sub WF Subworkflow* on page 58). In this subworkflow, if the Automatic method is selected in step 2, Impact Analysis Mode, the subworkflow uses the following steps for impact analysis:

- **3. Select CIs.** In this step, the user selects the CIs (for example, servers, applications, and hosts) in Mercury Application Mapping, and indicates that the CIs have been selected.
- **4. Run Impact Analysis.** This step runs the Mercury Application Mapping impact analysis function.
- **5. Review Impact Analysis.** After the Run Impact Analysis step, the workflow automatically advances to this step, where the user can view the Impact Analysis Report.

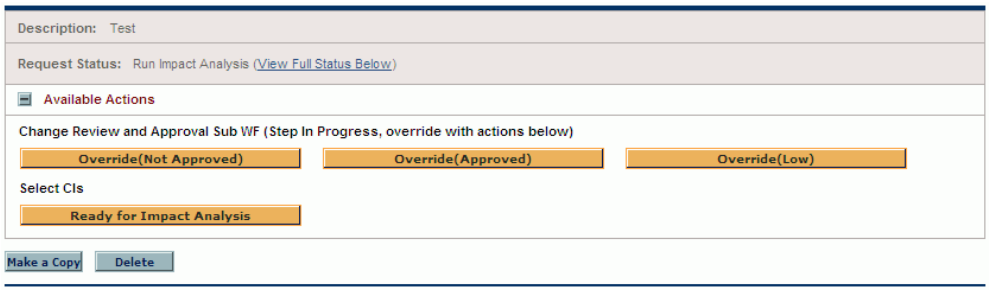
These steps are described in detail in the following sections.

Also, the MAC - Request For Change workflow step 31, Delete Impact Analysis RFC, causes Mercury Application Mapping to delete the RFCs it created each time the status of the PPM Center request became Ready for Impact Analysis.

Select CIs Subworkflow Step

In this step, the user selects the CIs that will be part of the change. This is the first stage in performing the impact analysis. When the MAC - Impact & Resource Assessment Sub WF subworkflow advances to this step, the top of the request looks similar to *Figure 6-1*.

Figure 6-1. Top of example request when at Select CIs subworkflow step



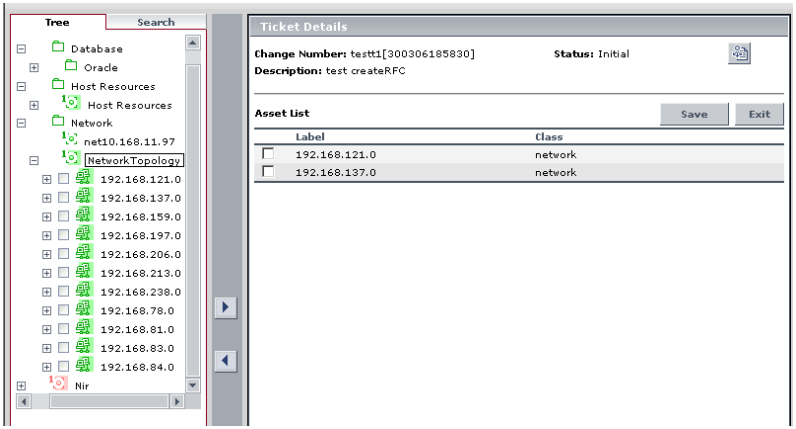
The request includes an **Impact Analysis** section (see *Figure 6-2*), where you select the CIs on which you want to perform impact analysis. The **CI Selection** button is enabled when the request is at the appropriate workflow step.

Figure 6-2. Impact Analysis section of a request before selection of CIs

Click **CI Selection** to display the Mercury Application Mapping window for selecting CIs (see the example in *Figure 6-3*). The window opens in either Normal or Read-Only mode, depending on your user credentials. Normal mode allows you to select CIs, remove CIs, and save the list of selected CIs. Read-only mode allows you to view the list of selected CIs, but not to make any changes to the list.

The **Launch HP Release Control b**utton or the **Launch HP Change Control Management** button appears if PPM Center is also integrated with HP Release Control or HP Change Control Management, as described in Chapter 8, *Integration of PPM Center with Release Control or Change Control Management,* on page 263.

Figure 6-3. Example Mercury Application Mapping window to select CIs



In this example, IPs 192.168.121.0 and 192.168.137.0 have been selected for impact analysis.

For details about how to use the CI Selection window, see the Mercury Application Mapping documentation (listed in *Mercury Application Mapping Documentation* on page 29).

After you select the CIs and save the selection, the request shows the number of selected CIs, as in *Figure 6-4*.

Figure 6-4. Impact Analysis section of a request after selection of CIs

You can now either:

- Click **CI Selection** again to view or make changes to the list of selected CIs.
- Click **Ready for Impact Analysis** as an available action for the Select CIs step at the top of the request to continue to the Run Impact Analysis step, which performs impact analysis on the selected CIs.

Run Impact Analysis Subworkflow Step

This step runs impact analysis on the CIs that were selected in the Select CIs step. It is positioned in the subworkflow after the CIs have been selected.

Clicking **Ready for Impact Analysis** in the Select CIs step (see *Figure 6-1* on page 179) causes the MAC - Impact & Resource Assessment Sub WF subworkflow to advance to the Run Impact Analysis step. This runs the Mercury Application Mapping impact analysis on the selected CIs and generates an Impact Analysis Report that shows all the impacted CIs and the severity of each impact.

After Mercury Application Mapping has completed the impact analysis, the workflow automatically advances to the Review Impact Analysis step.

Review Impact Analysis Subworkflow Step

In this step, the Change Advisory Board (CAB) reviewer evaluates the request, the list of selected CIs, and the Impact Analysis Report, and decides whether to approve or reject the change. He can also compare two reports.

Each time an impact analysis is run, a new Impact Analysis Report is attached to the request under **Impact Analysis Results** in its **Impact Analysis** section, and you can compare any two reports run at various times.

An example of the Impact Analysis section of the request with access to two reports is shown in *Figure 6-5*, with its fields and buttons described in *Table 6-1*.

Figure 6-5. Impact Analysis section of a request after running two Impact Analysis Reports

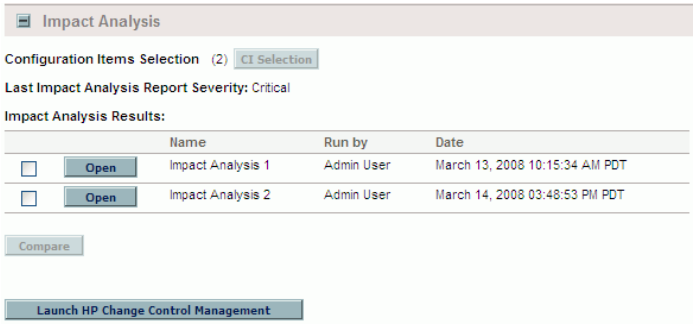


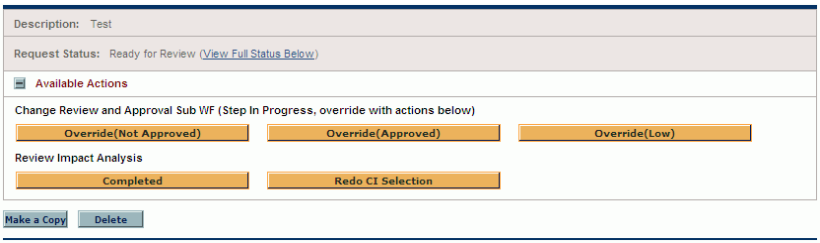
Table 6-1. Impact Analysis section of request

Field, Heading, or Button	Description
Configuration Items Selection	The number of configuration items (CIs) on which the Impact Analysis Report was based. the list of CIs is displayed in the **Selected CIs** tab in the Impact Analysis Report.
CI Selection button	Displays the Mercury Application Mapping window for selecting CIs (see the example in *Figure 6-3* on page 180).
Last Impact Analysis Report Severity	The highest severity among the CIs in the most recent listed Impact Analysis Report.
Impact Analysis Results	Heading above the reports that were generated after running impact analyses.
Open button	Click to open the window for the Mercury Application Mapping Impact Analysis Report having the adjacent name. *Figure 6-7* on page 184 shows an example.
Compare button	Click to compare two Impact Analysis Reports. See *Comparing Impact Analysis Reports* on page 187.
Launch HP Change Control Management button	Click to open HP Change Control Management. The Change Advisory Board uses HP Change Control Management to determine whether or not the release should go to production. For details, see Chapter 8, *Integration of PPM Center with Release Control or Change Control Management,* on page 263 and the *HP Change Control Management User's Guide.*

For information about reviewing and comparing Impact Analysis Reports, see *Reviewing Impact Analysis Reports* on page 184 and *Comparing Impact Analysis Reports* on page 187.

At this Review Impact Analysis subworkflow step, the top of the request is as shown in *Figure 6-6*.

Figure 6-6. Top of example request at Review Impact Analysis step



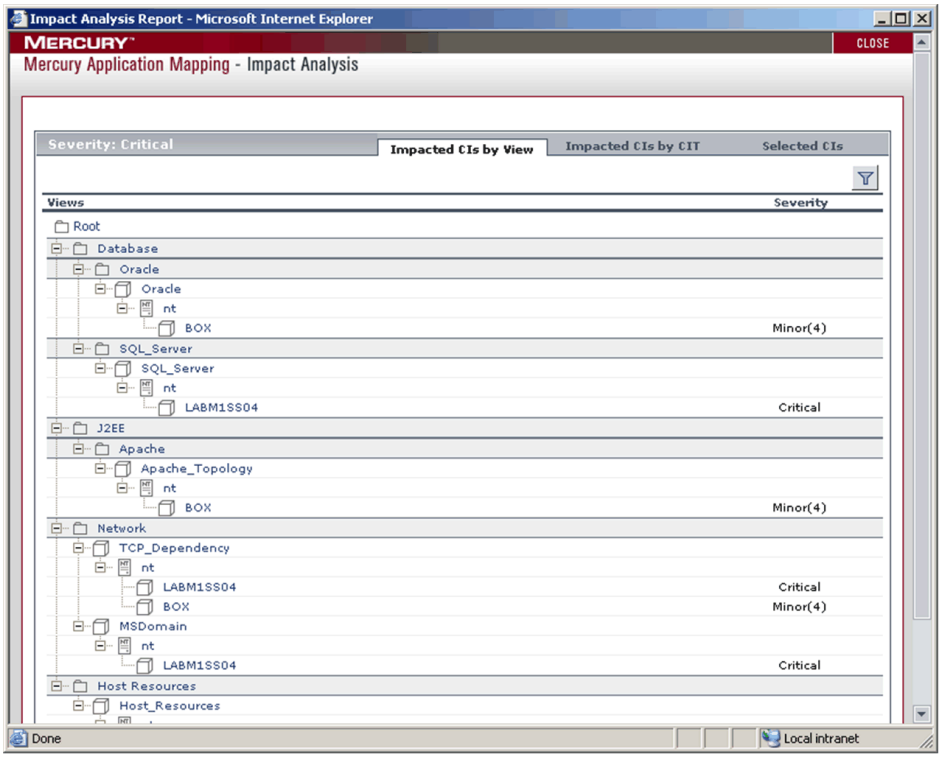
The CAB reviewer clicks one of the following buttons:

- **Completed** if he now knows whether to accept or reject the change.
- **Redo CI Selection** if he needs to generate and evaluate more Impact Analysis Reports based on a different set of CIs.

When the review of the reports is complete, the MAC - Impact & Resource Assessment Sub WF subworkflow returns to the MAC - Change Review and Approval Sub WF Subworkflow, where it proceeds to step 5, CAB Approval, where the change advisory board can approve or reject the change.

Figure 6-7 shows an example Impact Analysis Report.

Figure 6-7. Example Impact Analysis Report



The **Severity** field in the upper left of the Impact Analysis Report shows the highest severity of this report.

The Impact Analysis Report shows the impacted CIs and the severity of each CI. It contains the following tabs:

- **Impacted CIs by View.** A list of affected CIs in preconfigured views. The Mercury Application Mapping user creates views for different types of CIs (for example, SAM App, Finance App, and so forth).

- **Impacted CIs by CIT.** A list of affected CIs in a CIT (Configuration Item Type) view. Each CI has a type, which indicates whether it is a host, a router, or a database (for example, Oracle® or NT). Each CIT that contains at least one CI is displayed in the report, along with the list of CIs with their types.
- **Selected CIs.** A list of the CIs on which the impact analysis report was based.

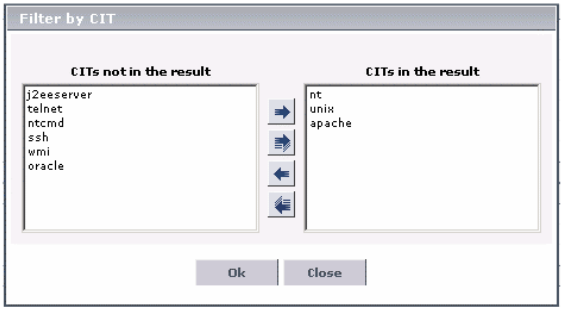
In the Select CIs workflow step, if you selected items that are not CIs, for example, map views, these items also appear in the **Selected CIs** tab, even though impact analysis was not run on them.

Filtering Results in an Impact Analysis Report

To filter an Impact Analysis Report to include only CIs of specific CITs:

1. In the report, click the **Filter** icon at the upper right of the report, below the **Selected CIs** tab (see *Figure 6-7* on page 184).

   The Filter by CIT window opens.



2. Move CIs as necessary between the **CITs not in the result** box and the **CITs in the result** box, using the left and right arrows for individual CIs and the double left and right arrows for all CIs. CIs whose CIT is in the **CITs not in the result** box are excluded from the report.

Modifying the Default Parameters of the Filter

A PPM Center administrator can change the default filters for an Impact Analysis Report by changing the default parameters of the filter as defined in the `ImpactFilter.xml` file, located in the `<PPM_Home>/conf` directory of PPM Center.

The default format of the `ImpactFilter.xml` file is as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<ImpactAnalysis>
   <filter type="CIT" enabled="true">
      <item name="nt">nt</item>
      <item name="host">host</item>
   </filter>
</ImpactAnalysis>
```

To modify the default parameters of the filter in the `ImpactFilter.xml` file:

1. In `<filter type="CIT" enabled=>`, specify:
   - **`"false"`** to display all CIT instances in the Impact Analysis Report
   - **`"true"`** to display only the CIT instances as defined in `<item name=>`
2. In `<item name=>`, specify the name of the CIT whose instances you want to appear in the report. If `<filter type="CIT" enabled=>` is set to `true`, then the report displays only the CITs defined here.

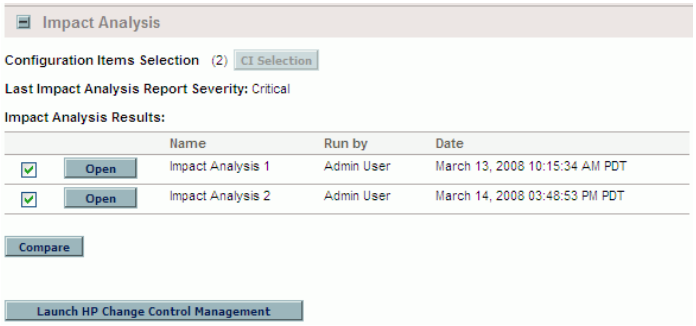
   In the example `ImpactFilter.xml` file above, only instances of `nt` and `host` appear in the Impact Analysis Report.

When an administrator modifies the `ImpactFilter.xml` file, the changes take effect in the report immediately, without having to restart the PPM Server.

Comparing Impact Analysis Reports

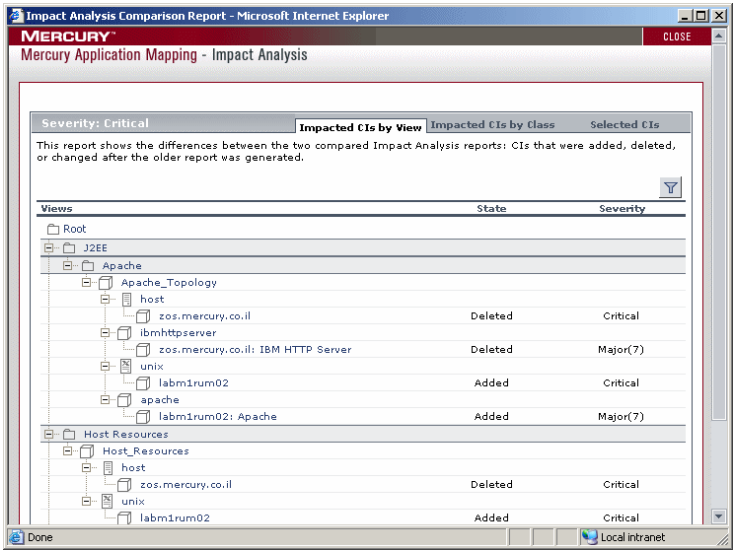
Each time you run an impact analysis, a new Impact Analysis Report is created and added to the list in the request, as in *Figure 6-8*. To compare two reports, select the two reports you want to compare and click **Compare.**

Figure 6-8. Impact analysis results with two reports to be compared



Mercury Application Mapping compares the reports and generates the Impact Analysis Comparison Report, as in the example in *Figure 6-9*. You can compare only two Impact Analysis Reports in one Impact Analysis Comparison Report.

Figure 6-9. Example Impact Analysis Comparison Report



The **State** column indicates one of the following conditions for each CI:

- **Added,** if the CI appears in the later report and not the earlier one.
- **Deleted,** if the CI appears in the earlier report and not the later one.
- **Changed,** if the severity of the CI is different in the two reports.

7 Integration of PPM Center with Quality Center

Introduction to Integration of PPM Center with Quality Center

Integrating PPM Center with Quality Center enables you to create Quality Center requirements and defects while using PPM Center. This allows users of both applications to participate in the processing of defects, change requests, and release requests.

In PPM Center, a request type is a template, and when you create a request, you must select a request type. With integration, creating the request also automatically creates a defect or requirement in the Quality Center project to which the PPM Center request type is mapped as part of configuring the integration. For example, a PPM Center request of type Defect could create a defect in Quality Center project A, whereas a PPM Center request of type RequestForChange could create a requirement in Quality Center project B.

When an IT manager or business liaison enters a change request or creates a release comprising a group of change requests in PPM Center, PPM Center–Quality Center integration causes a requirement to be created in Quality Center. This informs QA personnel that they should begin the QA process.

PPM Center–Quality Center integration allows ongoing synchronization between fields such as status fields that have been mapped in a request for change in PPM Center and the corresponding defect or requirement in Quality Center.

Upon completion of the QA process, the IT manager or business liaison is notified via the PPM Dashboard and can complete the deployment process.

A software tool with wizards is provided to simplify the integration process, including mapping fields in PPM Center requests to fields in Quality Center projects.

One PPM Server can work with multiple Quality Center projects, even projects on multiple Quality Center servers.

For more information about the benefits of this integration, see *Integration of PPM Center with HP Quality Center* on page 25 and *Benefits and Functionality of the Integration*.

For information about versions supported for integration, see *Versions of HP Quality Center Supported for Integration with PPM Center* on page 22.

No software needs to be installed on the Quality Center server to integrate PPM Center and Quality Center. However, see *Versions of HP Quality Center Supported for Integration with PPM Center* on page 22.

For references to more information about HP Quality Center, see *HP Quality Center Documentation* on page 30.

Benefits and Functionality of the Integration

Integrating PPM Center and Quality Center provides the following benefits to users of each application:

- **Data sharing.** The integration allows data sharing between PPM Center and Quality Center. Business managers and IT personnel using PPM Center gain visibility into how a project is affected by both the quality control process and the parameters that are collected in Quality Center. They can use Quality Center capabilities when creating requests for changes.
- **Inclusion of Quality Center data in the workflow.** The PPM Center workflow is a well-defined process that allows IT managers to plan, track, and deploy software enhancements. Integration allows customers to build their own workflows and steps in PPM Center while using fields and data from Quality Center. The Quality Center defect resolution capabilities become part of the workflow. This makes the quality process an integral and formal part of the IT processes.

- **QA-dependent workflow progression.** Progress from one step in the workflow to the next can be made dependent on progress by the QA team. PPM Center shows the IT manager how a project is affected by the quality defects that are collected in Quality Center. The IT manager can view the information from Quality Center and decide whether a defect has been resolved or an enhancement can be deployed. Drill-down capabilities between PPM Center and Quality Center provide more detailed data than each application provides separately.

- **Direct activation of processes, and creation of Quality Center requirements and defects from PPM Center.** Processes can be activated by PPM Center—creating a request in PPM Center also creates a defect or requirement in Quality Center when the relevant step in the PPM Center workflow is activated. When you create a new request in PPM Center of a type that is synchronized with Quality Center, you can select the Quality Center server on which a corresponding requirement or defect gets created.

- **Synchronization of mapped field values between PPM Center and Quality Center.** When fields are mapped between a PPM Center request type and a Quality Center defect or requirement, changing the value of a mapped field in one application can automatically change the value of the corresponding field in the other application. For example, when you change a status of a defect to **Fixed** in PPM Center, one of the provided execution steps changes the status in the corresponding Quality Center project to **Fixed.**

  Users can specify that one of the following occurs for a pair of mapped fields:

  - Changing the field in Quality Center automatically changes the field in PPM Center to the same value, that is, Quality Center is dominant for the mapped pair.

  - Changing the field in PPM Center automatically changes the field in Quality Center to the same value, that is, PPM Center is dominant for the mapped pair.

  - Changing the field in either application automatically changes it in the other, that is, the mapping is bi-directional.

For synchronization of defects:

- Developers can use PPM Center to manage the defect-fixing process, while QA personnel continue to use Quality Center.
- Project managers and IT managers can view all the defects in the system, whether they originated in PPM Center or in Quality Center. This helps the managers to decide on content for the next release or new requirements and enhancements.
- QA personnel can use Quality Center to manage defects created through PPM Center.

- **Request hierarchy synchronization.** The hierarchical structure of requirements in Quality Center can be synchronized with the structure of the corresponding requests in PPM Center.
- **Synchronization of the PPM Center Notes field.** The integration allows you to synchronize the PPM Center **Notes to be added on save** field with a field in Quality Center. When you update the content of the field in a PPM Center request, the corresponding field is updated in Quality Center.

MAC - Defect Template with Quality Center Integration Request Type

The PPM Center request type provided for the Quality Center integration is the MAC - Defect Template with Quality Center Integration request type. It uses only the MAC - Defect Template with Quality Center Integration workflow, and you cannot choose a different workflow. This prevents you from inadvertently using a workflow that is not enabled for integration.

The integration also uses the general purpose MAC - Release Management request type (see *MAC - Release Management Request Type* on page 77).

Although you can create new request types from scratch, HP recommends that you use the provided request type as a template to create them. In the PPM Workbench, you can copy the provided request type and modify the copy. If you create your own request types to integrate PPM Center and Quality Center, make sure you use workflows that are enabled for integration.

You can also create a new request type with a customized request header type.

Figure 7-1 shows the Create New MAC - Defect Template with Quality Center Integration page that appears when you create a request and select the MAC - Defect Template with Quality Center Integration request type.

Table 7-1 describes the fields in the Defect Template with Quality Center Integration request, including some fields that do not appear until the request is created or until other conditions are met.

Figure 7-1. MAC - Defect Template with Quality Center Integration request

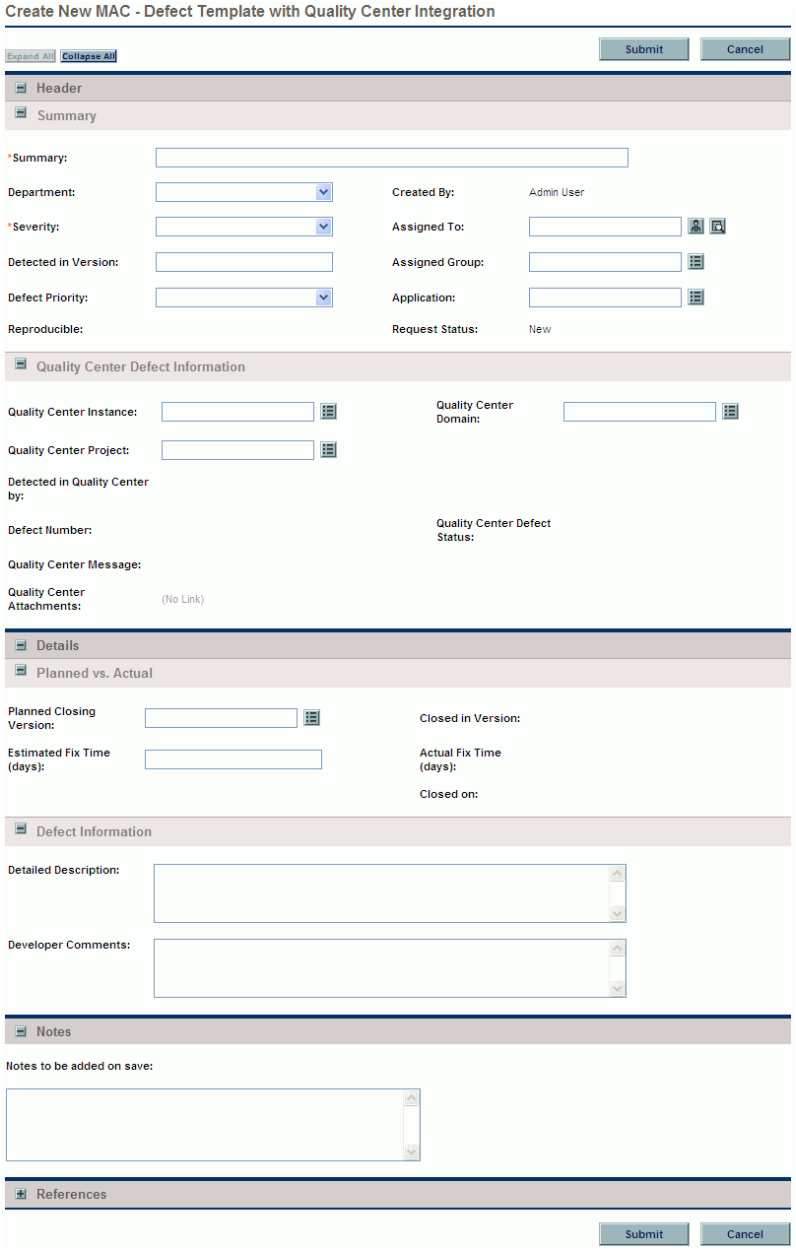


Table 7-1. MAC - Defect Template with Quality Center Integration request fields (page 1 of 2)

Field Name (*Required)	Description
Summary section	
Request No.	(Added after the request is created.) The number of the request.
Created On	(Added after the request is created.) The date the request was created.
*Summary	Summary description of the request.
Department	The department to which the user belongs.
Created By	The user who created the request.
*Severity	The severity of the defect.
Assigned To	The developer assigned to work on the defect.
Detected in Version	Version of the application in which the defect was detected.
Assigned Group	The group responsible for addressing the defect.
Defect Priority	The priority of the defect.
Application	The application in which the defect was discovered.
Reproducible	Whether the defect is reproducible.
Request Status	The status of the request.
Quality Center Defect Information section [a]	
*Quality Center Instance	The Quality Center instance that will receive the new PPM Center request.
*Quality Center Domain	The Quality Center domain of the working project.
*Quality Center Project	The Quality Center project that is linked with this request type.
Detected in Quality Center by	The user in Quality Center who detected the defect.
Defect Number	(Added after the defect is created in Quality Center.) The defect number in Quality Center.

Table 7-1. MAC - Defect Template with Quality Center Integration request fields (page 2 of 2)

Field Name (*Required)	Description
Quality Center Defect Status	(Added after the defect is created in Quality Center.) The status of the defect in Quality Center.
Quality Center Message	(Read only; added after the defect is created in Quality Center.) Message indicating whether the last update to the request was successfully synchronized in the Quality Center defect, or an error message if synchronization failed.
Quality Center Attachments	The URL of the attached requirement document.
Planned vs. Actual section	
Planned Closing Version	The version of the application targeted to have the defect fix.
Closed in Version	The version of the application that has the defect fix.
Estimated Fix Time (days)	The original estimate of the number of days it would take to fix the defect.
Actual Fix Time (days)	The actual number of days it took to fix the defect.
Closed on	The date the defect was closed in Quality Center.
Defect Information section	
Detailed Description	Detailed description of the defect.
Developer Comments	Developer comments regarding the defect.

a. Fields in the Quality Center Defect Information section remain visible by default but are not used if PPM Center is not integrated with HP Quality Center.

The administrator can remove the **Quality Center Defect Information** section from the request type by removing the Quality Center Defect Information field group from the MAC - Defect Template with Quality Center Integration request header type.

See the *HP Demand Management Configuration Guide* for details about request header types and field groups.

To submit a MAC - Defect Template with Quality Center Integration request:

1. Log on to PPM Center.
2. From the menu bar, select **Demand Management > Create a Request.**

   The Create New Request page appears.
3. On the Create New Request page, in the **Request Type** field, select **MAC - Defect Template with Quality Center Integration** and click **Create.**

   The Create New MAC - Defect Template with Quality Center Integration page appears, displaying the appropriate release request fields.

   Required fields have a red asterisk. All other fields are optional, but are often helpful when others are reviewing an open request. For information concerning a specific field, click the **Help** icon next to the field (if available).
4. Complete the fields in all sections as appropriate.

   The **Notes** section contains fields where notes and information concerning the request can be entered and stored. Typically, when creating a request, you do not need to add a note to it. However, add a note if you want to convey additional information to the reviewers and processors of the request.

   In the **References** section, add any references to the request. It can be useful to reference a Web-accessible file or attach a document or file from a local machine to the release request. For more information about adding references, see the *HP Demand Management User's Guide.*
5. On the Create New Request page, click **Submit.**

   The request is submitted. The Request Creation Confirmed page appears.

PPM Center can be configured to allow you to save the request before it is submitted. To have this feature enabled, see your application administrator.

After submitting the request, on the Request Creation Confirmed page you can click the link for the particular request number in the **Request #** field to see the detail page of the newly generated request.

When the request is submitted, it is assigned an initial status, such as New. It is then routed along the MAC - Defect Template with Quality Center Integration workflow (see *MAC - Defect Template with Quality Center Integration Workflow* on page 198).

Request Header Types

By default, when you create a new request type from a provided one, the new request type uses the same request header type as the provided request type uses.

When creating a new request type, you can:

- Use the supplied request header type without changing it.
- Copy the request header type, customize the copy, and use it in the new request type.
- Create a completely new request header type.

Your request header type must include the Quality Center fields that appear in the provided request header type. If you customize a request header type, make sure you do not delete the Quality Center fields.

If you create a new request header type, add the required integration fields by selecting the appropriate field group, as follows:

1. Log on to PPM Center.
2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.
3. From the shortcut bar, select **Demand Mgmt > Request Header Types.**

   The Request Header Type Workbench opens.
4. In the Request Header Type Workbench, click **New Request Header Type.**

   The Request Header Type window opens.
5. Click **Field Groups.**

   The Field Groups window lists the available field groups.

6. Select the appropriate field group:
   - For a defect header, select the **Quality Center Defect Information** field group.
   - For a request for change header, select the **Quality Center Info** field group.

MAC - Defect Template with Quality Center Integration Workflow

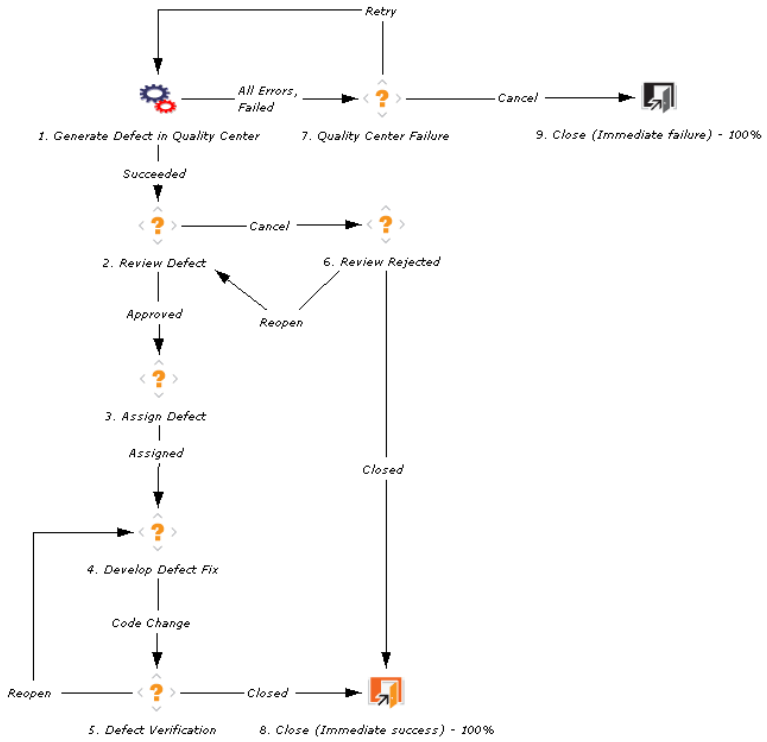
For integration of PPM Center with Quality Center, MAC provides the MAC - Defect Template with Quality Center Integration workflow, which includes execution steps to create a defect or requirement in Quality Center. You can use this workflow as a template for creating your own workflows.

Although you can create new workflows from scratch, HP recommends that you create them from this template. To create a new workflow, you use the PPM Workbench to create a copy of a provided workflow, and then modify the copy (add, delete, or change its steps) to suit your needs.

The integration also uses the general purpose MAC - Release Request workflow to create a release entity that includes several requests for change. This workflow can be used for ITIL purposes whether or not PPM Center is integrated with other applications. For more information, see *MAC - Release Request Workflow* on page 83.

The MAC - Defect Template with Quality Center Integration workflow is used to create a defect and to track how the defect is resolved. See *Figure 7-2* and workflow step 5, Defect Verification.

Figure 7-2. MAC - Defect Template with Quality Center Integration workflow



When a request of type MAC - Defect Template with Quality Center Integration is created in PPM Center, the first step in the workflow creates a defect in Quality Center. Subsequent steps cause the defect status in Quality Center to change to Open, Reopen, Fixed or Closed, depending on the stage in the PPM Center workflow.

Types of Workflow Steps

As with any PPM Center workflow, the MAC - Defect Template with Quality Center Integration workflow can contain the following types of steps:

- **Decision steps.** Steps that require action from the user in order to proceed. When the user reaches the decision step, he sees what his choices are. Each choice causes the workflow to proceed in a different manner. For example, at one decision step in a workflow, a project manager might be offered the choice of either deploying a package or sending it back to QA for more testing.

- **Condition steps.** Steps that determine the direction that the workflow takes.
- **Execution steps.** Steps that are automated through PPM Center. For example, an execution step might create a requirement or defect in Quality Center, execute a script, or run a build.

MAC provides two execution steps that can be used in PPM Center to build a workflow for integration of PPM Center with Quality Center. The execution steps create a defect or a requirement in Quality Center.

PPM Center-Quality Center Integration Tool

Integration requires installing the PPM Center-Quality Center Integration Tool on any Windows machine that can open HTTP connections to the PPM Server and to the Quality Center server. This tool enables Quality Center projects for integration and maps PPM Center fields to Quality Center fields.

When the user enables a Quality Center project for integration using the PPM Center-Quality Center Integration Tool, the tool performs one of the following actions:

- If the project is new, the tool creates Quality Center lists and adds Quality Center workflow scripts to the user's existing scripts.
- If the project already exists, the tool updates some of the Quality Center lists so that they contain the same values as they would for a new project.

The lists and Quality Center scripts create a Quality Center project that can work as is with the provided PPM Center components.

As described in the following sections, the integration tool changes the value lists and workflow enforcement in a Quality Center project to enable it for integration.

Changes to Value Lists

For a new project, the integration tool adds two new value lists and adds a new value to an existing default value list, as follows:

- A new Requirement Status list is added. It contains the following values:
  - New
  - Cancelled
  - Closed
  - 1-Requirements Setup Completed
  - 2-Test Plan Setup Completed
  - 3-Test Lab Setup Completed
  - 4-Running Tests in Quality Center
  - 5-Test Execution Completed
  - 6-Running Sanity Tests in Quality Center
  - 7-Sanity Testing Completed
- A new Test Level list is added. It includes the following values:
  - Functional
  - Integration
  - Regression
  - Sanity
- A value of Deleted is added to the Bug Status list.

For an existing project, these lists are updated or added as necessary to contain the same values as they would for a new project.

Workflow Enforcement

The PPM Center-Quality Center Integration Tool will update the Quality Center project workflow to enforce the following constraints on Quality Center entities:

- **Defect.** The user can make only the following status changes:
  - Fixed to Closed
  - Rejected to Closed
  - Fixed to Reopen
- **Requirement.** The user can make only the following status changes:
  - New to 1-Requirements Setup Completed
  - 1-Requirements Setup Completed to 2-Test Plan Setup Completed
  - 2-Test Plan Setup Completed to 3-Test Lab Setup Completed
  - 4-Running Tests in Quality Center to 5-Test Execution Completed
  - 6-Running Sanity Tests in Quality Center to 7-Sanity Testing Completed

Overview of Installation and Configuration Process

The procedures for configuring PPM Center and Quality Center for integration are described in detail in the following sections, and are summarized as follows:

- Install the PPM Center-Quality Center Integration Tool. This tool enables a Quality Center project for integration and maps PPM Center fields to Quality Center fields in an XML mapping.
- Configure integration of a Quality Center project by:
  - Using the PPM Center-Quality Center Integration Tool to enable a Quality Center project for integration.
  - Using the PPM Center-Quality Center Integration Tool to create a mapping between PPM Center fields and Quality Center fields.
  - Mapping the Notes field in an existing project.
  - Using the PPM Center-Quality Center Integration Tool to deploy the mapping to PPM Center and Quality Center.
  - Configuring a new project if you want to integrate both existing and new defects in a Quality Center project.
- Configure PPM Center for integration, including specifying `server.conf` parameters.
- As necessary, use the request type and workflow provided as templates in MAC to create your own PPM Center request types and workflows enabled for integration of PPM Center with Quality Center.
- Configure request hierarchy synchronization, if desired.

Installing the PPM Center-Quality Center Integration Tool

Integration requires installing the PPM Center-Quality Center Integration Tool on a Windows machine that can open HTTP connections to the PPM Server and to the Quality Center server.

To install this tool:

1. Copy the PPM Center-Quality Center Integration Tool `setup.exe` file to a Windows machine that can open HTTP connections to the PPM Server and to the Quality Center server. This file is located in the PPM Server at:

   `<PPM_Home>/integration/mac/ppmqcintegrationtool`

   where `<PPM_Home>` represents the path where your PPM Center instance is installed. For example: `xyzserver/E/PPMServer`.

2. Double-click the `setup.exe` file to launch the InstallShield wizard.

   By default, the tool gets installed in the `C:/Program Files/Hewlett-Packard/PPM Center-Quality Center Integration Tool` directory.

3. Follow the instructions in the wizard. When the installation completes, do not launch the PPM Center-Quality Center Integration Tool yet.

Proceed to *Configuring a Quality Center Project for the Integration* on page 204.

Uninstalling the Integration Tool

If you want to uninstall the PPM Center-Quality Center Integration Tool (for example, to be able to run it only from another Windows machine), select **Start > Settings > Control Panel > Add/Remove Programs** and follow the instructions on the screen.

You use the tool to create an initial mapping between PPM Center fields and Quality Center fields (or to revise an existing mapping). Before you uninstall the tool, remember to use it to deploy the mapping to both PPM Center and Quality Center simultaneously.

Configuring a Quality Center Project for the Integration

Before beginning this configuration, verify that the `ENABLE_WEB_SERVICES` parameter in the PPM Center `server.conf` configuration file is set to `true` to enable use of Web services with PPM Center (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

1. Stop the PPM Server.
2. Run the script:

   ```
   sh ./kConfig.sh
   ```

3. Restart the PPM Server.

As documented in the following sections, you establish PPM Center–Quality Center integration independently for each Quality Center project as needed, using wizards in the PPM Center-Quality Center Integration Tool to:

- Enable a Quality Center project for integration.
- Create the XML mapping file between PPM Center and Quality Center fields.
- Deploy this mapping file to PPM Center and Quality Center.

You might also need to manually map the Notes field in a PPM Center request to the Quality Center project.

Enabling a Quality Center Project for the Integration

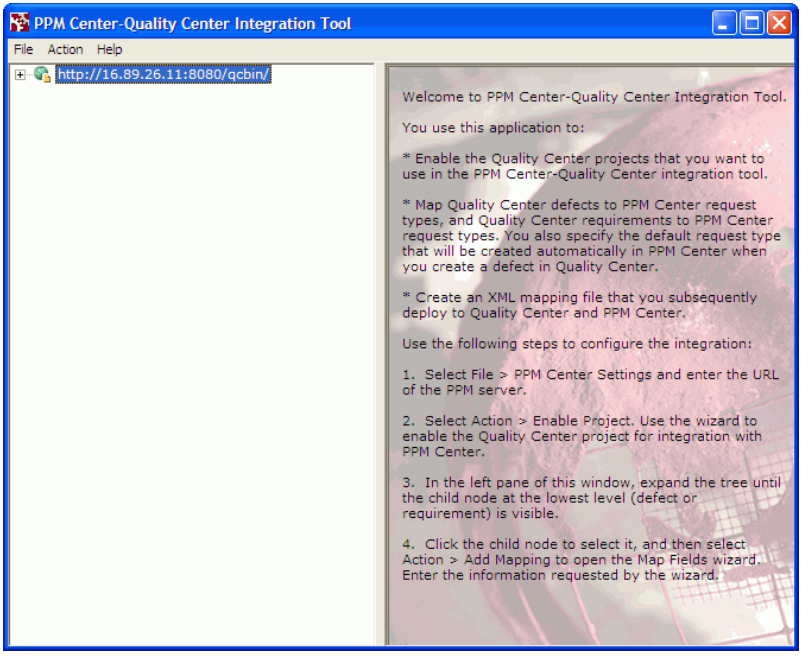
Use the PPM Center-Quality Center Integration Tool to enable a Quality Center project for the integration as described in this section.

HP strongly recommends that you enable a project only once, otherwise problems might occur in the integration. There is no reason to enable a project twice. You can use the integration tool to change the configuration of a project at any time.

To enable a Quality Center project for integration:

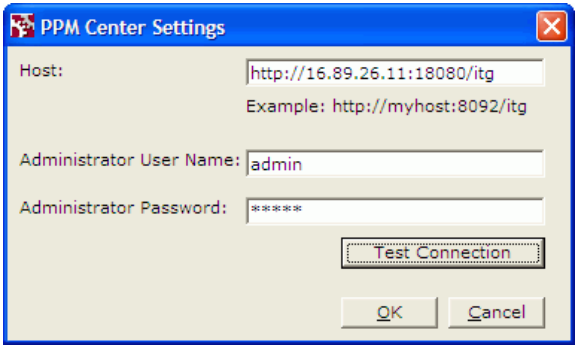
1. From the Windows Start menu, select **All Programs > Hewlett-Packard > PPM Center-Quality Center Integration Tool.**

   The main PPM Center-Quality Center Integration Tool window opens.



2. Select **File > PPM Center Settings.**

   The PPM Center Settings window opens.



3. In the **Host** field, type the URL of the PPM Server.

   If the PPM Server is installed in a WAN, use its IP address, for example `http://192.60.28.01:8080`, rather than its host name, for example `http://ppmhost:8080`.

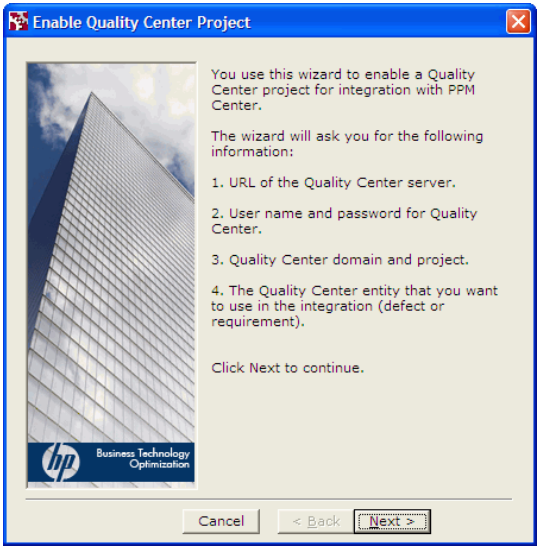
4. In the **Administrator User Name** and **Administrator Password** fields, type the PPM Center user name and password.

5. Click **Test Connection** to test the connection with PPM Center.

6. If a message appears stating that connection was successful, click **OK** to close the PPM Center Settings window, otherwise resolve the connection issue.

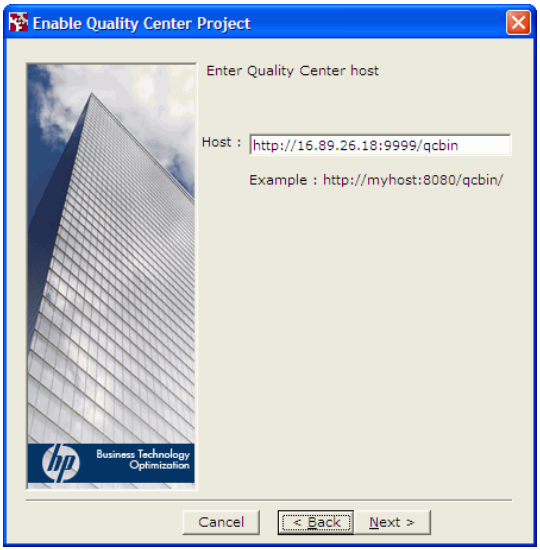
7. In the main PPM Center-Quality Center Integration Tool window, select **Action > Enable Project.**

   The Enable Quality Center Project wizard opens.

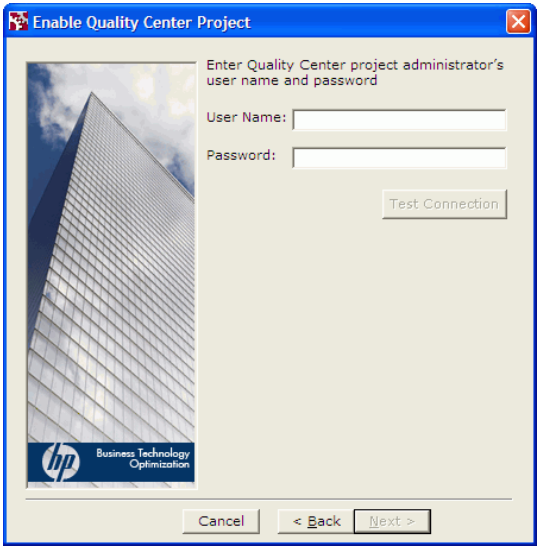


8. Click **Next** to continue.

9. In the **Host** field, type the URL of the Quality Center server.



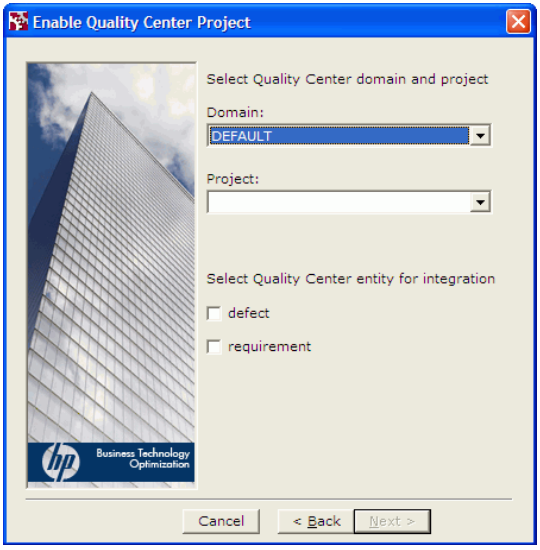
10. Click **Next** to continue.



11. In the **User Name** and **Password** fields, specify the user name and password of the Quality Center project administrator.

12. Click **Test Connection** to test the connection with Quality Center.

13. If a message appears stating that connection was successful, click **OK** on the message, then click **Next.** Otherwise resolve the connection issue.

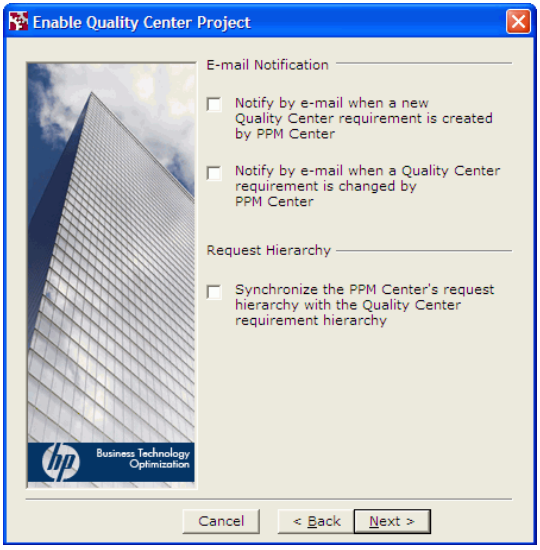


14. Select a Quality Center domain and project, and specify whether you want to map Quality Center defects, requirements, or both.

    If you are enabling defects but not requirements for integration, skip to step 17 on page 211.

15. Click **Next** to continue.

    If you are enabling requirements for integration, the following window appears.



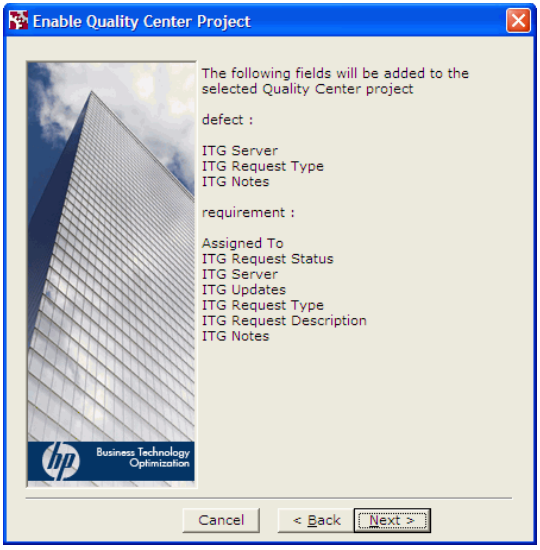
    You can use this window to:

    - Request notification by email when a PPM Center request creates a new Quality Center requirement.
    - Request notification by email when a PPM Center request updates a field in an existing Quality Center requirement.
    - Synchronize the PPM Center request hierarchy with the Quality Center requirement hierarchy. For information about this synchronization, see *Request Hierarchy Synchronization* on page 243.

16. Select the desired checkboxes.

17. Click **Next** to continue.

    The wizard displays the user-defined fields in the PPM Center project that will be added to the Quality Center project to enable mapping the Quality Center fields to PPM Center fields, for defects, requirements, or both, as specified in step 14 on page 209.



Prior to version 7.0, PPM Center was known as Mercury IT Governance Center or ITG. In PPM Center version 7.5, field names in Quality Center and in the integration tool in the context of Quality Center still use ITG when referring to PPM Center.

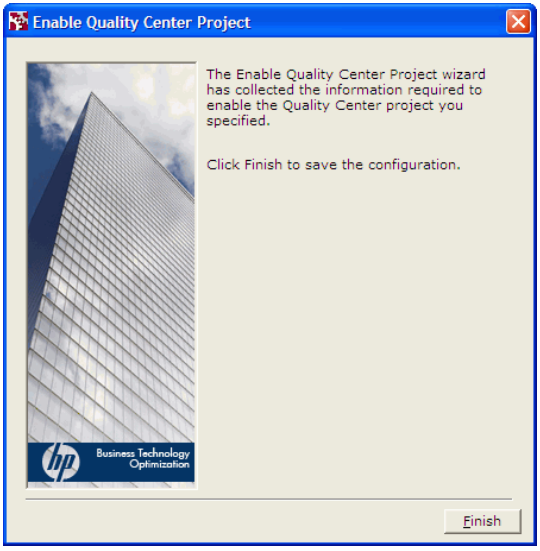
18. Click **Next** to continue.

    The listed fields are added to the Quality Center project, and the Quality Center workflow script is updated to support integration with PPM Center.

    If the Quality Center project already contains one or more fields with the same names, a dialog box asks you whether you want to change the names of the added fields. If you select **Yes,** the added fields will be given different names. If you select **No,** the procedure to enable the project for integration is aborted.

    If the Quality Center project does not have a workflow script in its repository, a dialog box asks you whether you want to create a new one. If you select **Yes,** a new script with support for the integration is added to the Quality Center repository. If you select **No,** the script file is not created.

    If the project is not new and its script files have been previously customized, select **No** and manually merge the customized scripts with the scripts that the wizard adds automatically, which are located in the installation directory of the PPM Center-Quality Center Integration Tool.



19. Click **Finish** to complete enabling the project for integration and close the wizard.

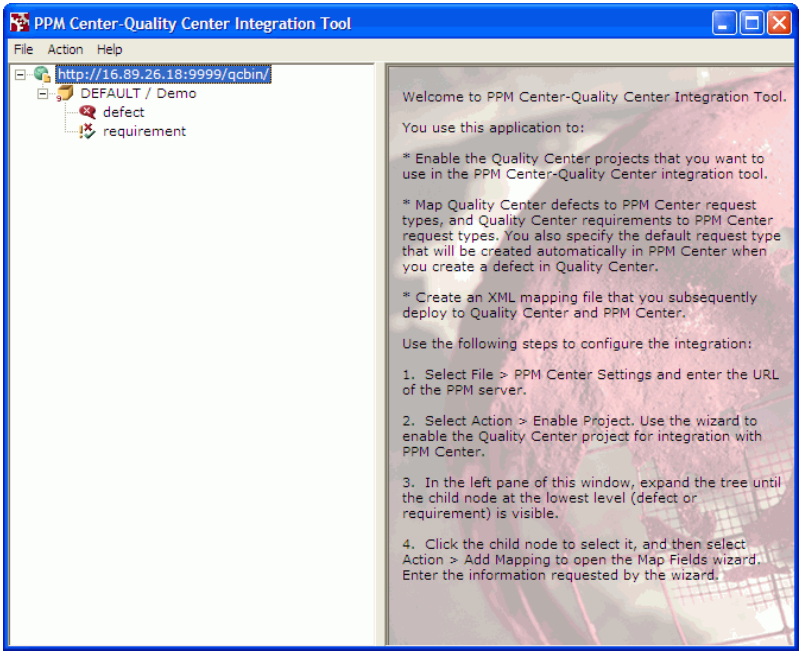
Creating the Mapping Between PPM Center and Quality Center Fields

After you enable a Quality Center project for the integration, you use the PPM Center-Quality Center Integration Tool to map a particular PPM Center request type to a Quality Center defect or requirement and to specify the desired mapping between the PPM Center fields and the Quality Center fields.

For information about the provided default mappings, see *Default Quality Center–PPM Center Field Mappings* on page 252.

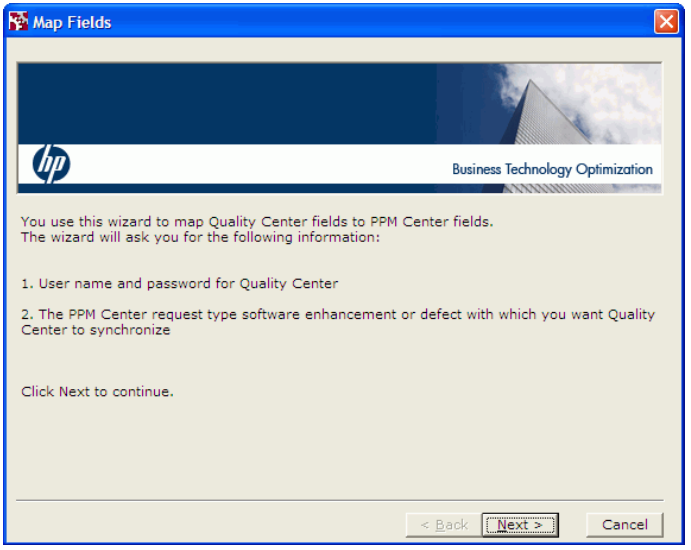
Create the mapping as follows:

1. In the left pane of the PPM Center-Quality Center Integration Tool, expand the tree until the child node at the lowest level (**defect, requirement,** or both) is visible.

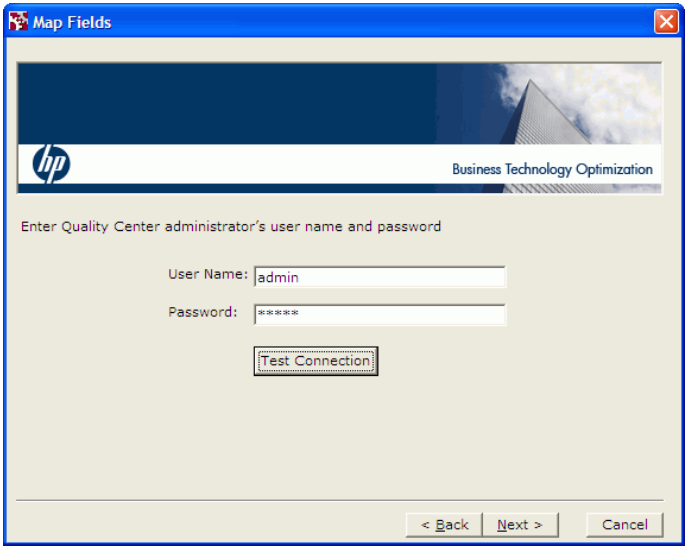


2. Click the child node you want to map and select **Action > Add Mapping** (or right-click the node you want to map and click **Add Mapping**).

   The Map Fields wizard opens.



3. Click **Next** to continue.



4. In the **User Name** and **Password** fields, type the user name and password of the Quality Center administrator.

5. Click **Next** to continue.

   The **PPM Center Request Type** field appears with a drop-down list.

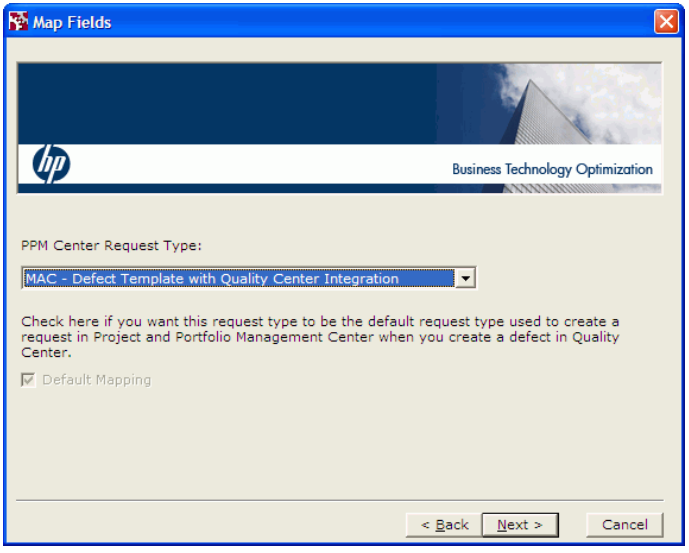
6. Click the arrow of the drop-down list to display a list of all the PPM Center request types that can be mapped to a Quality Center defect or requirement (depending on which you selected in step 2 on page 214).

   As provided, the only PPM Center request type available to map to a Quality Center defect is the MAC - Defect Template with Quality Center Integration request type.

   As provided, the only PPM Center request types available to map to a Quality Center requirement are:

   - MAC - Release Management
   - MAC - Request For Change (RFC)
   - (REFERENCE) Software Change

7. Select the request type in PPM Center that is to be mapped to the Quality Center defect or requirement.



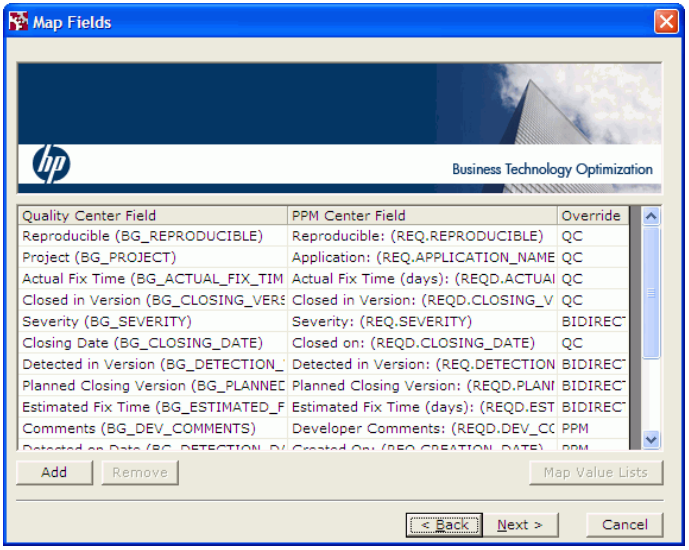
8. If you are mapping the request type to a defect, but not if you are mapping the request type to a requirement, the window includes the **Default Mapping** checkbox.

   If this is the first mapping you are creating from a PPM Center request type to a Quality Center defect for the project, the checkbox is selected and disabled so that you cannot clear it.

   If this is not the first such mapping, the checkbox is cleared and enabled; select it if you want the request type you are now mapping to become the default PPM Center request type for Quality Center defects for the project.

9. Click **Next** to continue.

   From the integration tool, the wizard displays the default mapping between the Quality Center fields and PPM Center fields for the request type you selected. In this Map Fields window, the fields map either a PPM Center request type for defects to a Quality Center defect, or a PPM Center request type for changes to a Quality Center requirement.



   The **Quality Center Field** column displays the DB field name (the name of the column in the database) in parentheses.

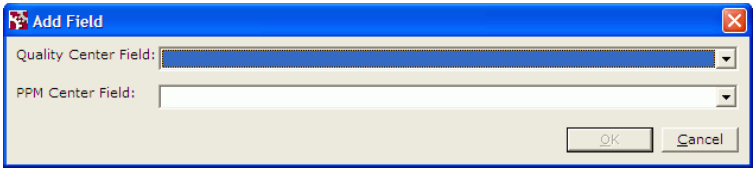
   The **PPM Center Field** column displays the PPM Center token in parentheses.

The **Override** column specifies which field, if any, is the dominant field for a pair. The **Override** column can have one of the following values for any pair of mapped fields (row):

- When set to **QC,** changing the value of the Quality Center field causes the same change to be applied to the mapped PPM Center field. That is, the Quality Center field is dominant. If the value in the PPM Center field is changed, the value in the Quality Center field is not affected.
- When set to **PPM,** changing the value of the PPM Center field causes the same change to be applied to the mapped Quality Center field. That is, the PPM Center field is dominant. If the value in the Quality Center field is changed, the value in the PPM Center field is not affected.
- When set to **BIDIRECTIONAL,** changing the value of the field in either PPM Center or Quality Center causes the same change to be applied to the mapped field in the other application.

10. If you want to change which field, if any, is dominant for a field mapping, click the value in the **Override** column for the field mapping of interest, and select another value from the list that appears.
11. If you want to add a pair of fields to the mapping:
    a. Click **Add.**

       The Add Field window opens.

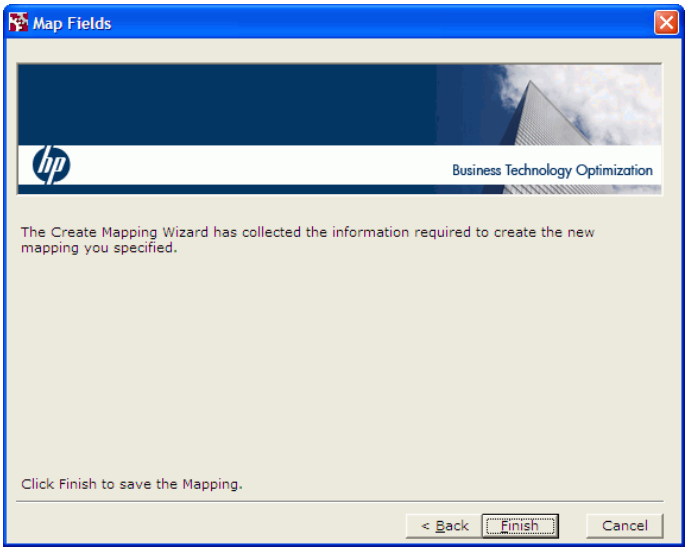


    b. In **Quality Center Field** and **PPM Center Field,** select the fields you want to map to each other.
    c. Click **OK.**

       The pair of fields is added to the mapping and appears in the list.

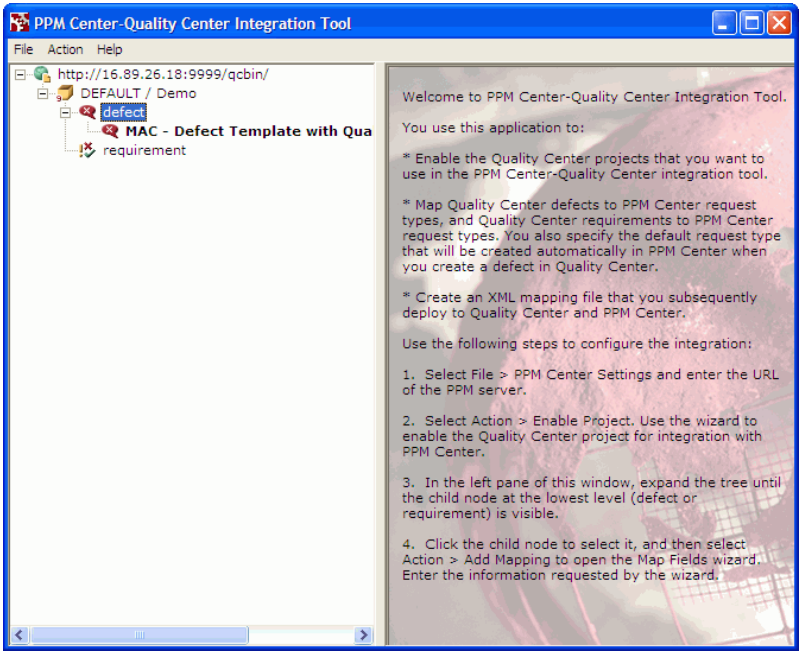
If the mapped fields in a pair have different sets of valid values, you must resolve the differences so that a change to one field can update the other. See *Resolving Lists of Valid Values* on page 220.

12. If you want to remove a pair of fields from the mapping:
    a. Click a line to select the pair.
    b. Click **Remove.**
    c. When the application asks whether you want to delete the selected line or lines, click **Yes.**
13. Click **Next** to continue.



14. Click **Finish** to save the mapping and close the wizard.

    The new mapping is displayed in the PPM Center-Quality Center Integration Tool. (In the example, expand the **defect** list.)



15. By default, a local copy of the mapping file (`ITGQCIntegration.xml`) is saved in the Windows directory in which you installed the PPM Center-Quality Center Integration Tool. As discussed later, you will use the tool to deploy the mapping file to the PPM Server and the Quality Center server. Then the integration can operate without any dependency on the local Windows machine.

    If you want to save the XML file elsewhere, select **File > Save To** and specify the location.

    If you want to open an XML file stored in another location, click **File > Open.**

16. Click **File > Exit** to close the PPM Center-Quality Center Integration Tool.

Resolving Lists of Valid Values

This section describes how to resolve differences between the sets of valid values for a pair of mapped fields, so that a change to one field correctly updates the other.

To open the mapping file and access the Map Value Lists window:

1. Open the mapping file as described in *Viewing and Changing a Mapping* on page 231.
2. Select the row for the pair of fields of interest and click **Map Value Lists.**

Some field pairs are automatically mapped and their mappings cannot be changed.

The Map Value Lists window opens, displaying the lists of valid values for each field in the pair.

Resolve the differences between the sets of valid values based on which of the following three cases applies.

Case One

If you created a new user-defined field in Quality Center and mapped it to a PPM Center field that has a list of values, create a new Quality Center list of valid values from the PPM Center list, as follows:

1. Select the **Create a new list in Quality Center...** option in the Map Values List window.
2. In the **List Name** field, specify a name for the list or accept the default.
3. Click **OK.**

   A new Quality Center value list containing the PPM Center values is created and associated with the Quality Center field.

Case Two

If the fields in the pair have different sets of values and some records in the Quality Center project already use the current list values, but from now on you want to use the values that appear in the PPM Center list, add the PPM Center values to the Quality Center list, as follows:

1. Select the **Add the PPM Center values to the existing Quality Center list** option in the Map Values List window.
2. Click **OK.**

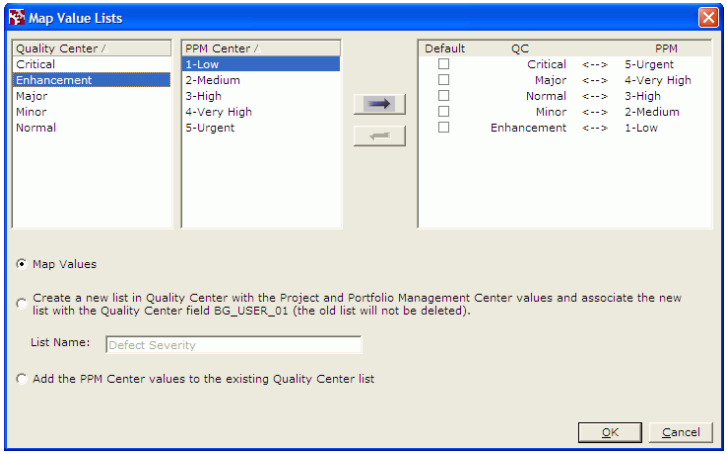
   The Quality Center value list now includes the PPM Center values as well as the original Quality Center values.

Case Three

If both fields in the pair already have lists of values that you need to map or remap, do so as follows:

1. Select the **Map Values** option in the Map Values List window.
2. Select a value in the Quality Center list, select the value in the PPM Center list to which you want to map it, and click the right-arrow button.

   The pair of mapped values appears in the right pane of the Map Value Lists window. For example, if the value representing lowest impact in the Quality Center field is **Enhancement** and the value representing lowest impact in the PPM Center field is **1-Low,** map the two values as shown in the following figure:



Between the **QC** and **PPM** columns in the right pane, the mapping displays:

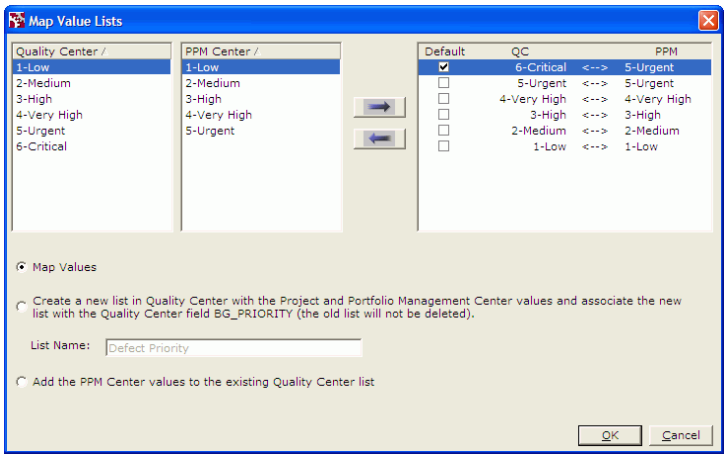
- **-->** if the **Override** column for the pair of fields is set to **QC.**
- **<--** if the **Override** column for the pair of fields is set to **PPM.**
- **<-->** if the **Override** column for the pair of fields is set to **BIDIRECTIONAL.**

3. Repeat step 2 for all the values that require mapping.

   - You must map all the values in the Quality Center list if Quality Center is dominant for that field pair, as indicated by **QC** in the **Override** column in the Map Fields window and by **-->** between the **QC** and **PPM** columns in the right pane of the Map Value Lists window.
   - Similarly, you must map all the values in the PPM Center list if PPM Center is dominant for that field pair, as indicated by **PPM** in the **Override** column in the Map Fields window and by **<--** between the **QC** and **PPM** columns in the right pane of the Map Value Lists window.
   - You must map all the values in both lists if neither field of the pair is dominant, as indicated by **BIDIRECTIONAL** in the **Override** column in the Map Fields window and by **<-->** between the **QC** and **PPM** columns in the right pane of the Map Value Lists window.

   If you map two or more values in one list to one value in the other list, you must select a checkbox in the **Default** column to indicate which mapping prevails.

Consider the example in the following figure, where the two value lists are of different lengths and the mapping is **BIDIRECTIONAL.**



In this example, you must:

a. Map two or more values in one list to a single value in the other list. Here, both the values **Critical** and **Urgent** for the field in Quality Center have been mapped to a value of **Urgent** for the field in PPM Center.

b. Select the appropriate **Default** checkbox to eliminate ambiguity as to which pair will be used to map the values. In this example, if the field in PPM Center changes to a value of **Urgent,** the value of the field in Quality Center becomes **Critical,** based on the selected **Default** pair of values. If the second checkbox, for which the PPM Center value is also **Urgent,** had been chosen as the default instead, when the field in PPM Center changes to a value of **Urgent,** the value of the field in Quality Center would become **Urgent.**

4. Click **OK.**

   The PPM Center values and Quality Center values for the field become mapped as you have specified.

Mapping the Notes Field in PPM Center to an Existing Project

When you enable a new Quality Center project for integration, the integration tool attempts to create new fields in the Quality Center project to correspond to the **Notes to be added on save** field for the PPM Center request. When you update the content of this field in a PPM Center request, the corresponding field is updated in Quality Center.

When you enable a new project, the new fields are named as follows:

- For a defect, the added field in the Defects table is called **BG_USER_<*XX*>,** for example **BG_USER_25.**
- For a requirement, the added field in the Requirements table is called **RQ_USER_<*XX*>,** for example **RQ_USER_26.**

If you enable an existing project that already includes some user-defined memo fields, the added fields may have different names.

Since the Quality Center fields are memo fields and there can be no more than three user-defined memo fields per table, the attempt to map Notes to memo fields may fail. If it fails, you cannot use the integration tool to map the **Notes to be added on save** field. Instead, you must add the memo fields to the project manually, and edit the XML mapping file by adding one of the following to the appropriate mapping file, using the example:

- For defects:

```
<param name="BUG_ITG_NOTES">BG_USER_25</param>
```

- For requirements:

```
<param name="REQ_ITG_NOTES">RQ_USER_26</param>
```

Deploying the Mapping File to PPM Center and Quality Center

After you have completed the mapping, use the PPM Center-Quality Center Integration Tool to deploy the XML mapping file (`ITGQCIntegration.xml`) to PPM Center and to Quality Center.

At certain times, you might need to manually edit or back up the XML mapping file. When you created the XML mapping file, it was stored either in the directory in which you installed the integration tool or in another directory that you specified (see step 15 on page 219). If you do not know where the file is located, check the Windows registry. The path in the registry is `HKEY_LOCAL_MACHINE\SOFTWARE\Hewlett-Packard\PPM Center-Quality Center Integration Tool`.

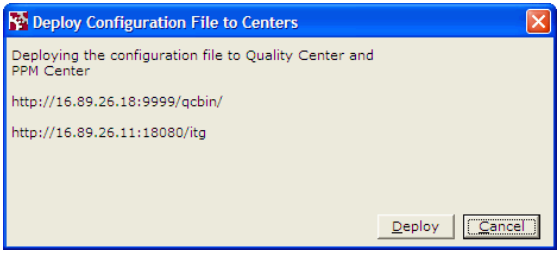
Remember to redeploy the mapping file to both PPM Center and Quality Center.

To deploy the XML mapping file to PPM Center and Quality Center:

1. Verify that the PPM Center `server.conf` parameters are as specified in *Specifying server.conf Parameters in PPM Center* on page 227. Set the `ENABLE_QUALITY_CENTER_INTEGRATION` parameter to `true`.

2. In the main window of the PPM Center-Quality Center Integration Tool, select **File > Deploy to Centers.**

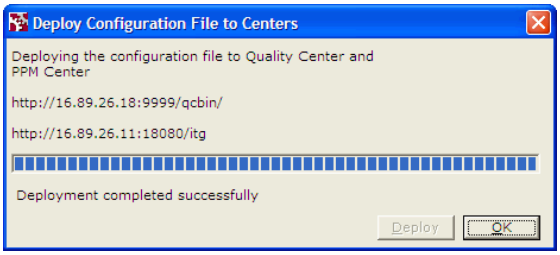
   The Deploy Configuration File to Centers window opens, listing the URLs of the PPM Center and Quality Center servers to which the mapping file will be deployed.



3. Click **Deploy.**

   The tool starts the deployment process. If any errors occur during deployment, a message is displayed in the window.

4. When the deployment completes, a message indicating that deployment completed successfully is added to the Deploy Configuration File to Centers window.



5. Click **OK** to close the window.

On the PPM Server, the mapping file is deployed to the `<PPM_Home>/conf` directory, where `<PPM_Home>` represents the path where the PPM Center instance is installed.

On the Quality Center server (or servers), the mapping file is deployed to the `<QC_Home>/repository/sa/DomsInfo/BTO` directory, where `<QC_Home>` represents the path where Quality Center is installed.

For information about changing and otherwise maintaining existing mappings, see *Managing Existing Mappings* on page 229.

This completes creating and deploying the mapping file. To configure PPM Center for the integration, proceed to *Configuring PPM Center for the Integration*.

Configuring PPM Center for the Integration

Before beginning to configure the integration as described in the following sections, make sure that MAC has been installed and initially configured as described in Chapter 2, *Installing and Setting Up MAC Software,* on page 31.

Establishing Server Connections for Supported Versions

Make sure that the HTTP port is open between the PPM Server and Quality Center machines.

Verify that a supported version of Quality Center is installed and running (see *Versions of HP Quality Center Supported for Integration with PPM Center* on page 22).

Specifying server.conf Parameters in PPM Center

Add and specify (or, if present, just specify) the parameters related to Quality Center integration to the PPM Center `server.conf` configuration file (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

1. Stop the PPM Server.

2. Run the script:

```
sh ./kConfig.sh
```

Set the parameters and values as shown in the following table. (All parameter names begin with `com.kintana.core.server.` but that is not shown in the table.)

Parameter	Value
ENABLE_QUALITY_CENTER_INTEGRATION	Set this parameter to `false` if an XML mapping file has not been generated and deployed to PPM Center and Quality Center. Set this parameter to `true` if an XML mapping file has been generated and deployed to PPM Center and Quality Center, so that integration can be enabled. If a mapping file has not been deployed and you set this parameter to `true`, the PPM Server will not restart. This parameter controls whether PPM Center attempts to send information to Quality Center. (Even if it is set to `false`, Quality Center sends information to PPM Center.)
BASE_URL (already present in `server.conf`)	The URL of the PPM Server. By default, contains the host name of the PPM Server, for example, `http://ppmhost:8080`. However, if the PPM Server is installed in a WAN, use its IP address rather than the host name, for example, `http://192.60.80.01:8080`.
ENABLE_QUALITY_CENTER_METRICS_SYNC	Always set this parameter to `false`. It does not apply to MAC.

3. Restart the PPM Server.

For information about using the integration, see *Using the Integration of PPM Center with Quality Center* on page 237.

Managing Existing Mappings

After you have configured PPM Center and Quality Center for integration, you can use the integration tool to make changes to the configuration.

You can change the configuration for a request type mapping or for an entire Quality Center project. When you change a mapping for a project, the changes apply to all the request types mapped to the project. For example, if you delete the mapping for a project, the mapping for all of the project's mapped request types is also deleted.

As described in the following sections, you can:

- Delete a mapping
- Disable a mapping
- Re-enable a previously disabled mapping
- View and change a mapping
- Change the default request type
- Enable and disable request hierarchy synchronization
- Enable and disable email notification on requirement creation
- Enable and disable email notification on requirement update

Remember to redeploy the mapping file to PPM Center and Quality Center after any mapping revision described in the following sections. See *Deploying the Mapping File to PPM Center and Quality Center* on page 225.

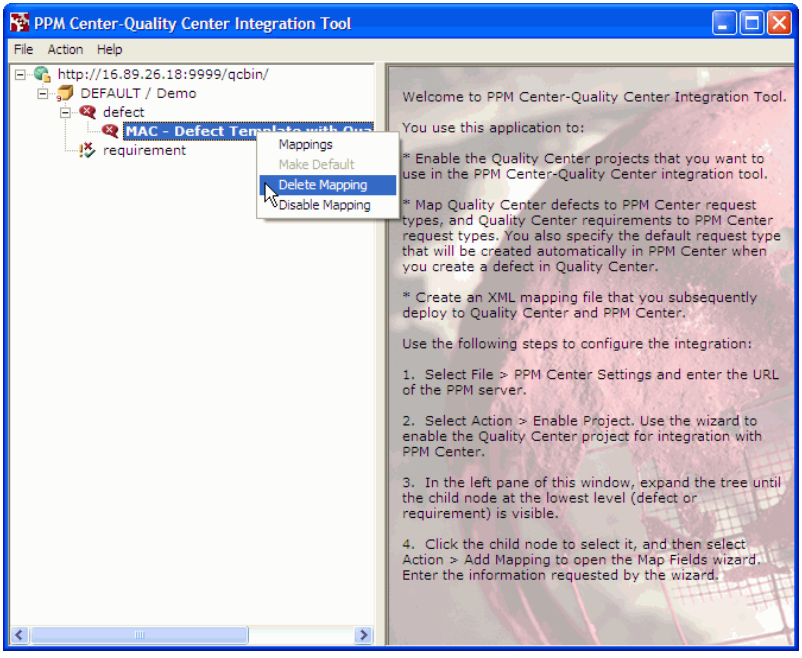
Deleting a Mapping

When you delete a mapping, the connection between the corresponding fields in PPM Center and Quality Center is removed, and updating a field in one application no longer causes an update in the other.

If you later want the applications to update each other, you will need to create a new mapping.

To delete a mapping:

1. Right-click the project or request type of interest and select **Delete Mapping.**



   The tool asks whether you want to delete the mapping.

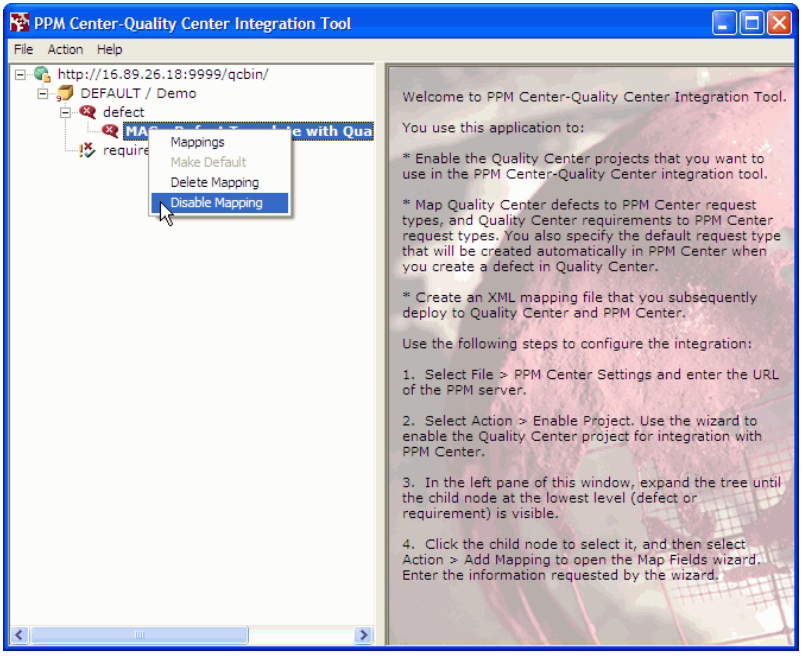
2. Click **Yes.**

Disabling and Re-Enabling a Mapping

When you disable a mapping, it is not deleted, but creating a request in PPM Center does not create a defect or requirement in the Quality Center project, and creating a defect in Quality Center does not create a request in PPM Center. In addition, updating a field in one application does not update the field to which it is mapped in the other.

To disable the mapping between a request type and a defect or requirement:

1. Right-click the project or request type of interest and select **Disable Mapping.**



   The tool asks whether you want to disable the mapping.

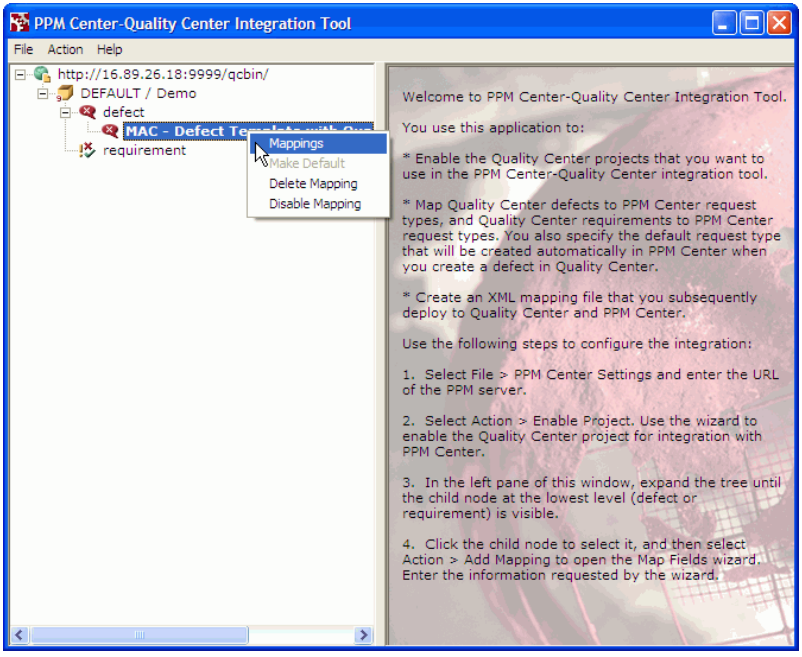
2. Click **Yes.**

To enable a mapping that was previously disabled, right-click the project or request type and select **Enable Mapping.**

Viewing and Changing a Mapping

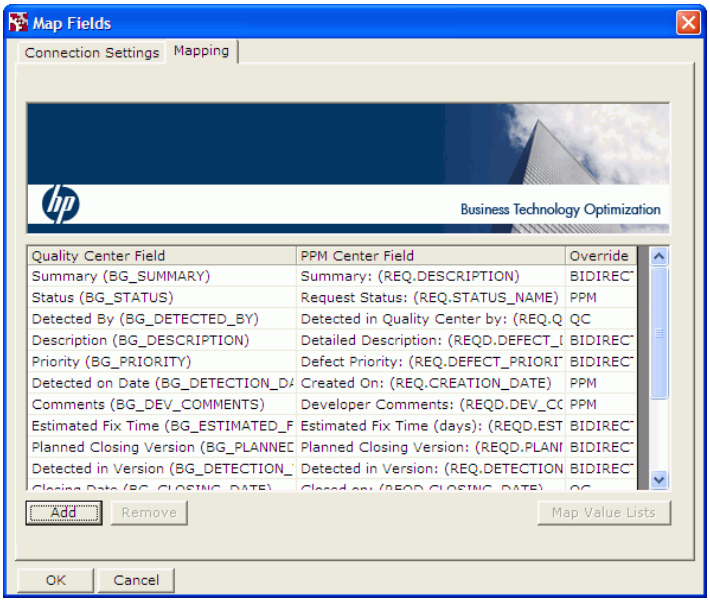
To view a mapping and make changes to the mapping:

1. Right-click the request type of interest and select **Mappings.**



The Map Fields window opens.

2. If the **Mapping** tab is not already selected, select it to display the mapping.



3. Use this tab to change the mapping in the same way you created the original mapping. See *Creating the Mapping Between PPM Center and Quality Center Fields* on page 213.

Changing the Default Request Type for a Quality Center Defect

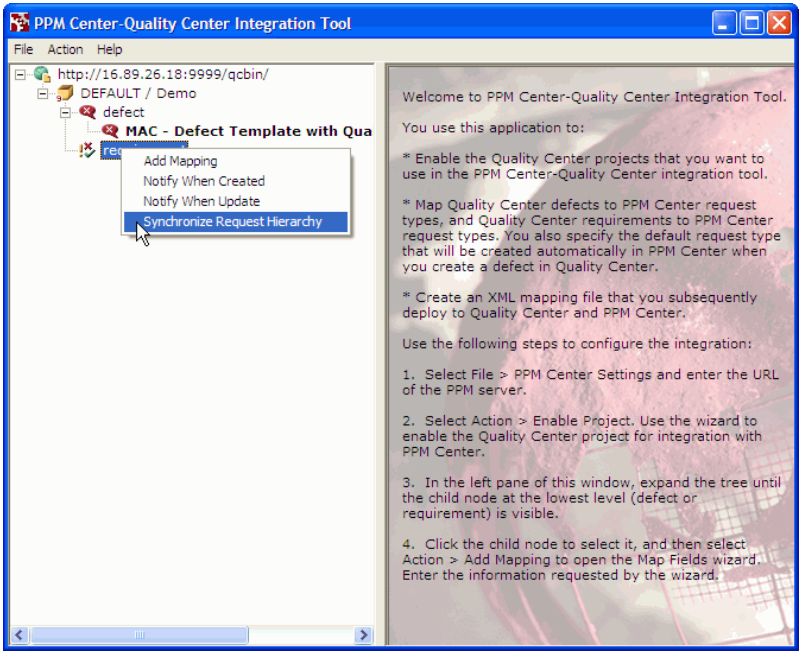
To change the default request type used to create a request in PPM Center when you create a defect in Quality Center, right-click the request type you want to use as the default, and select **Make Default.**

Enabling and Disabling Request Hierarchy Synchronization

You can enable or disable the request hierarchy synchronization between a PPM Center request and a Quality Center requirement.

To enable the synchronization:

1. Right-click **requirement.**
2. If the **Synchronize Request Hierarchy** option is *not* selected (has no check mark), click it to select the option.



To disable the synchronization:

1. Right-click **requirement.**
2. If the **Synchronize Request Hierarchy** option *is* selected (has a check mark), click it to clear the option.

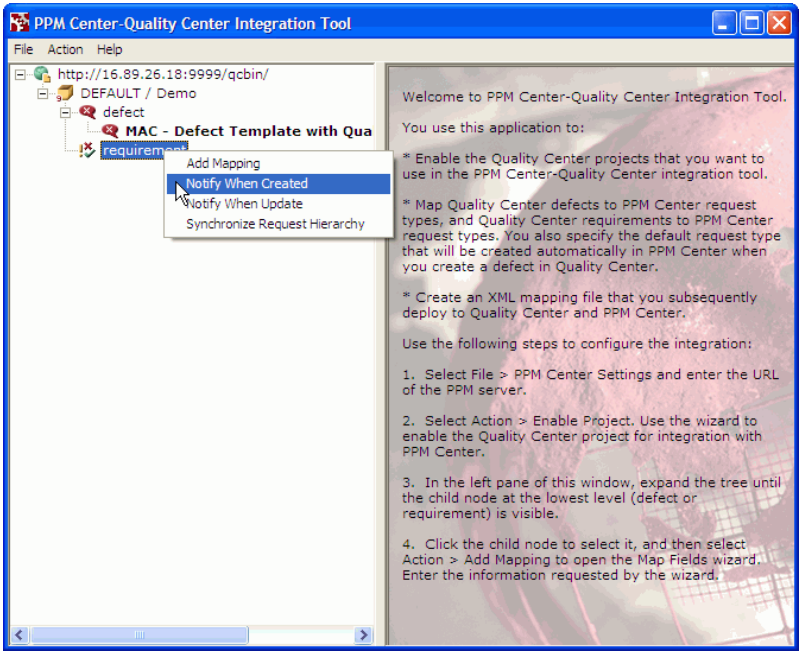
For information about request hierarchy synchronization, see *Request Hierarchy Synchronization* on page 243.

Enabling and Disabling Email Notification on Requirement Creation

You can enable or disable sending an automatic email notification when a requirement is created by the integration.

To enable the email notification for requirement creation:

1. Right-click **requirement.**
2. If the **Notify When Created** option is *not* selected (has no check mark), click it to select the option.



To disable the email notification for requirement creation:

1. Right-click **requirement.**
2. If the **Notify When Created** option *is* selected (has a check mark), click it to clear the option.

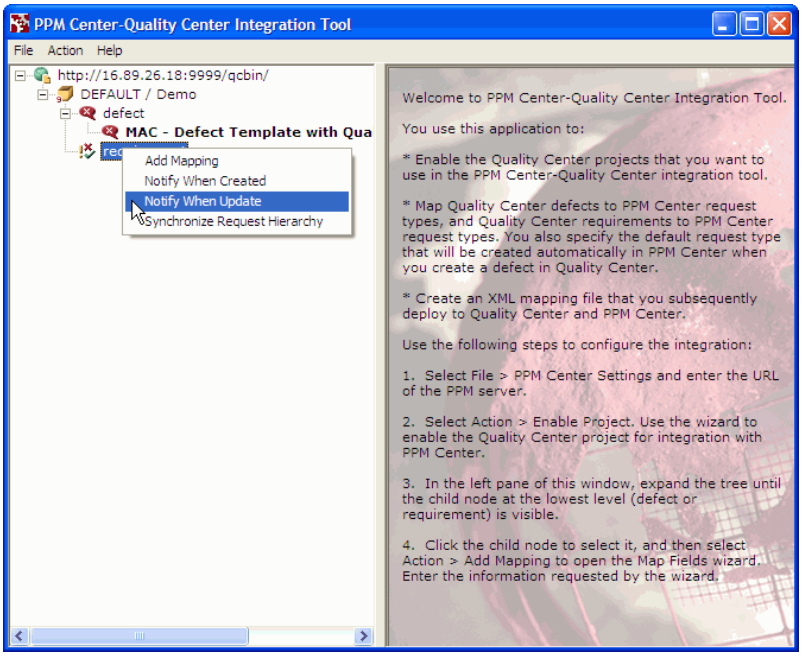
Enabling and Disabling Email Notification on Requirement Update

You can enable or disable sending an automatic email notification when a requirement is updated by the integration.

You can enable or disable sending an automatic email notification when a requirement is created by the integration.

To enable the email notification for requirement update:

1. Right-click **requirement.**
2. If the **Notify When Update** option is *not* selected (has no check mark), click it to select the option.



To disable the email notification for requirement update:

1. Right-click **requirement.**
2. If the **Notify When Update** option *is* selected (has a check mark), click it to clear the option.

Using the Integration of PPM Center with Quality Center

This section describes how the request types and workflows provided in MAC support integration of PPM Center with Quality Center.

Steps in PPM Center Workflows that Involve Integration with Quality Center

Several workflows and subworkflows provided in MAC have steps that are related to the integration of PPM Center with Quality Center, as follows:

- The MAC - Request For Change workflow (see *MAC - Request For Change Workflow* on page 49) calls the following subworkflows at the indicated steps:
  - At step 17, the MAC - Request For Change workflow calls the Plan Tests Sub WF (see *MAC - Plan Tests Sub WF Subworkflow* on page 61).

    In this subworkflow, step 1, Quality Process Mode, determines whether the test planning will be done manually or using integration of PPM Center with Quality Center. If integration is to be used, the following additional subworkflow steps relate to the integration:
    - Step 4, Quality Process Entry
    - Step 5, Generate Requirement in Quality Center
    - Step 6. Quality Center Failure
    - Step 7, Quality Center Requirements Setup
    - Step 8, Quality Center Test Plan Setup
    - Step 9, Quality Center Test Lab Setup
  - At step 22, the MAC - Request For Change workflow calls the Deploy and Test Changes Sub WF (see *MAC - Deploy and Test Changes Sub WF Subworkflow* on page 63).

    In this subworkflow, step 3, Quality Process Mode, determines whether the testing will be done manually or using integration of PPM Center with Quality Center. If integration is to be used, the following additional subworkflow step relates to the integration:
    - Step 5, Quality Center Test Execution

- The MAC - Defect Template with Quality Center Integration workflow generates a defect or requirement in Quality Center as soon as a request of the associated type is created. See *MAC - Defect Template with Quality Center Integration Workflow* on page 198.
- The MAC - Release Request workflow (see *MAC - Release Request Workflow* on page 83), includes the following steps that relate to integration of PPM Center with Quality Center for the release management process:
  - Step 3, Integrate with Quality Center?
  - Step 4, Quality Process Entry
  - Step 5, Create Release Requirement in Quality Center
  - Step 6, Quality Center Failure

Configuring Request Types and Workflows for the Integration

This section provides guidelines on how to build request types and workflows that support the integration of PPM Center with Quality Center.

To enable integration between PPM Center requests and Quality Center projects, you must ensure that the request types and projects have the necessary matching fields and that the workflows use steps that support integration.

MAC provides request types and workflows that use Quality Center capabilities, and the workflows include the required steps. You can create integration-enabled request types and workflows in any of the following ways:

- By using the PPM Workbench to copy the provided MAC request types and workflows, which already contain the components required for integration, and changing the copies as needed. This is often the easiest approach.
- By creating new request types and workflows that incorporate the components required for integration.
- By customizing your existing PPM Center request types and workflows by adding the components required for integration.

After you configure the required request types and workflows, you use the PPM Center-Quality Center Integration Tool to map the PPM Center fields and their valid values to the Quality Center fields and their valid values (see *Creating the Mapping Between PPM Center and Quality Center Fields* on page 213).

For detailed information about configuring request types and workflows, see the *HP Demand Management Configuration Guide* as necessary.

Configuring Request Types

The guidelines to configure a request type for integration are as follows:

- Make sure the request header type for the request type includes the Quality Center Info field group. Only request types with this field group can be mapped to Quality Center defects or requirements. See *Request Header Types* on page 197.

  By default, the Quality Center Info field group is included in the MAC - Request For Change (RFC) request type and in the MAC - Release Management request type, but not in the MAC - Defect Template with Quality Center Integration request type.

- Decide which request type to map to each Quality Center project, then make sure that the request type and project have the required mapping of corresponding fields.

- Make sure that each pair of mapped fields includes the required valid values. For example, if a Quality Center field contains a lookup list, make sure that the corresponding field in the PPM Center request accepts those values. If you update a field in one application with a value that is not valid in the other application, the field in that other application will not be updated.

  For details, see *Resolving Lists of Valid Values* on page 220.

  Quality Center workflows can limit the changes a user can make to a field. For example, a script might specify that at a certain point in the Quality Center workflow, the user cannot change the status from Open to Closed.

  If you update a PPM Center field with a value that is valid in the corresponding Quality Center field, the Quality Center field will be updated, even if it should not be updated according to the Quality Center workflow script.

Configuring Workflows

The guidelines to configure a workflow for integration are as follows (refer to the *HP Demand Management Configuration Guide* for details as necessary):

- Make sure the workflow includes execution steps and decision steps that enable the integration of PPM Center with Quality Center. The workflows provided by MAC include such steps.

  A PPM Center decision step that depends on Quality Center (that is, a PPM Center request that is supposed to be updated by a Quality Center status change) can have its status changed in Quality Center only by a user who has Administrator rights.

- If you need to customize a workflow to create a defect or a requirement, HP recommends using the execution steps that are included in the MAC - Defect Template with Quality Center Integration workflow, instead of building the steps yourself. To create defects or requirements in Quality Center, your workflow must include one of the following execution steps that uses the stated special command:

  - To create defects, the **MAC - Create QC Defect** execution step with the `ksc_create_defect_in_QC` special command.
  - To create requirements, the **MAC - Create QC Requirement** execution step with the `ksc_create_requirement_in_QC` special command.

  In the **Properties** tab of the workflow execution step, specify a value in the **Request Status** field that is valid for Quality Center, for example, **1-Requirements Setup Completed** when creating a requirement.

  Once an execution step has created a requirement or defect in Quality Center, every time the PPM Center request status changes, the Quality Center requirement or defect status also changes if the same PPM Center status exists in its list. For example, if the PPM Center request status changes to Open, the Quality Center requirement or defect status will also change to Open, as long as Open is one of the values allowed in the status field of the requirement or defect.

  For more information about configuring workflow steps, see the *HP Demand Management Configuration Guide.*

After Quality Center sends an update to PPM Center, Quality Center waits for a response, and the Quality Center record remains locked until Quality Center receives the response. Meanwhile, if PPM Center advances to the next workflow step and attempts, for example, to update (synchronize) Quality Center with a new request status, Quality Center rejects the update since the record is locked.

Therefore, a PPM Center workflow should not contain successive steps such that the first causes a PPM Center request to advance based on a change in Quality Center status, and the second causes PPM Center to attempt to update Quality Center. Make sure there is an intervening step between two such steps.

- When a PPM Center request is integrated with a Quality Center project, you can use a change in the Quality Center status to cause the PPM Center request to advance through an active decision step to the next step in the associated PPM Center workflow. For example, when the QA manager sets the status of a Quality Center project to indicate that test planning is complete, the corresponding request in PPM Center can automatically advance from the step in the associated workflow awaiting that notification.

  Conversely, whenever the status of a PPM Center request changes, PPM Center notifies Quality Center, and (assuming the new status is valid in Quality Center), Quality Center users can take appropriate action such as starting tests.

  To enable this functionality, you must design the workflow decision steps such that the following three items have the same values:

  - The Quality Center status that will trigger the advancement in the PPM Center workflow.
  - The transition name (which is specified as the **Meaning** field of the validation value for the workflow step source) for the active decision step in the PPM Center workflow.

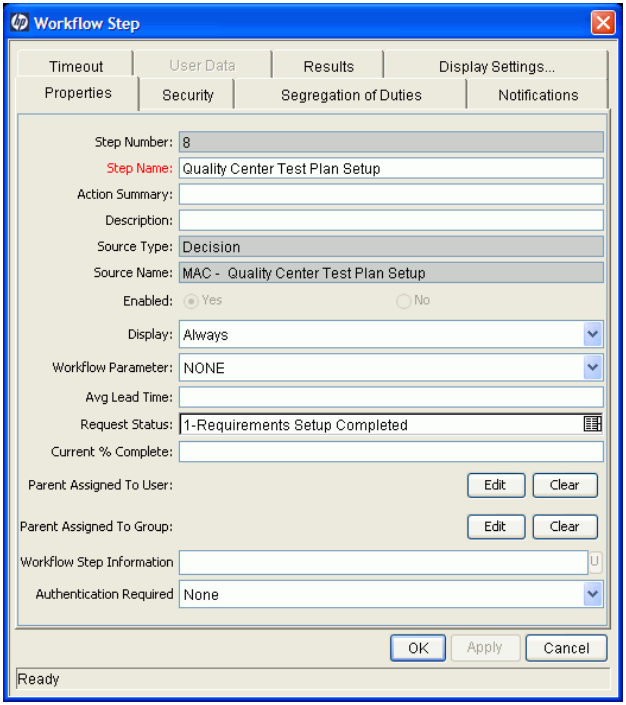
    HP recommends that you give the **Meaning** field of the transition a value that is unique to this transition, that is, a value that does not exist anywhere else in the workflow. When this value becomes assigned to the **ITG Status** field in Quality Center, the PPM Center workflow advances if the value matches a valid transition in an active workflow step. If the workflow has more than one active step and the **Meaning** is not unique, the workflow could advance to an unintended step.

- The **Request Status** field in the destination step in the PPM Center workflow

If the Quality Center status does not appear in the list of valid request status values in PPM Center, PPM Center sends an error message to Quality Center, the Quality Center status reverts to its previous value, and the PPM Center workflow does not advance.

For example, in the following portion of the MAC - Plan Tests Sub WF subworkflow, the transition from step 7 to step 8 is called **1-Requirements Setup Completed.**

If you double-click step 8 (the destination step), the **Properties** tab of the Workflow Step window shows that the value in the **Request Status** field is also **1-Requirements Setup Completed.**



All three items—the Quality Center status, the transition, and the **Request Status** field of the destination step—have the same value. Therefore, if the QA team changes the Quality Center status to **1-Requirements Setup Completed** when step 7 is active, the workflow will advance to step 8.

If you need to change the value of the **Request Status** field of the destination step, in the **Properties** tab of the Workflow Step window for that step, specify the new value in the **Request Status** field and click **OK.**

If you need to change the **Meaning** field that defines the transition name, right-click the preceding decision step and select **Edit Source;** in the **Validation** section of the Decision window, click **Open;** click the validation value (row) of interest and click **Edit;** specify the new value in the **Meaning** field; and click **OK** to close all open windows. For more detailed information, see the *HP Demand Management Configuration Guide.*

Request Hierarchy Synchronization

The integration of PPM Center with Quality Center allows you to synchronize the hierarchies of requests in PPM Center and requirements in Quality Center, as in the following example sequence:

1. A PPM Center request named Request A is created.
2. With integration, a corresponding Requirement A is automatically created in Quality Center.
3. A PPM Center request named Request B is created with a reference to Request A indicating that Request A is the parent of Request B.
4. A corresponding Requirement B is automatically created in Quality Center. If request hierarchy synchronization is implemented, since Request B is the child of Request A, Requirement B is automatically created as the child of Requirement A.

If Requirement A does not exist in Quality Center, creating a reference in PPM Center from Request B to Request A has no effect on Quality Center.

If you later delete the relationship (the reference) between Request A and Request B in PPM Center, the relationship between Requirement A and Requirement B is automatically deleted in Quality Center. Instead of being a child of Requirement A, Requirement B becomes a child of the Quality Center default root requirement for PPM Center requests.

If you synchronize hierarchies, any changes you make to the hierarchy in PPM Center are automatically reflected in the hierarchy of the Quality Center project. Thus, changes you make to a Quality Center project can be overridden later by updates to the corresponding PPM Center request.

PPM Center allows a request to have multiple parents, but Quality Center limits a requirement to only one parent. If a PPM Center request has multiple parents, Quality Center does not duplicate that hierarchy in the project, and PPM Center displays a message indicating a problem with hierarchy synchronization.

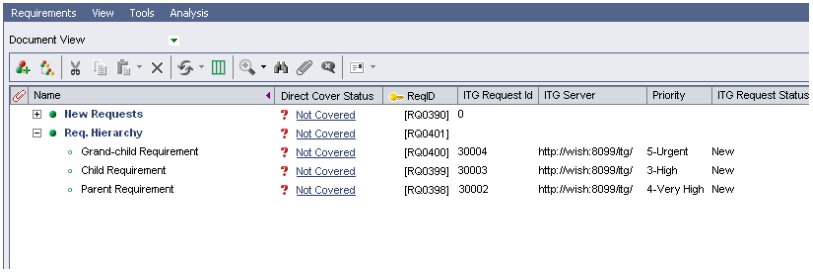
Enabling Request Hierarchy Synchronization

Synchronization between the PPM Center request type and the Quality Center project must be enabled as follows, depending on whether or not a mapping has been created:

- If a mapping has not been created between the Quality Center requirement and the PPM Center request type, as you use the PPM Center-Quality Center Integration Tool to enable the project for integration, select the checkbox in the Request Hierarchy section in the Enable Quality Center Project wizard. See step 15 on page 210.
- If a mapping has been created, in the PPM Center-Quality Center Integration Tool, right-click the request type and select Synchronize Request Hierarchy.

Example of Request Hierarchy Synchronization

The following screen shows a Quality Center requirement called **Req. Hierarchy** with three requirements.



Each requirement is mapped to a PPM Center request of type MAC - Request For Change (RFC). The request numbers in PPM Center are shown in the **ITG Request Id** column. When created, the **RFC Summary** fields of the requests were specified as **Parent Requirement, Child Requirement,** and **Grand-child Requirement** to indicate their intended hierarchy (first in PPM Center and then automatically as requirements in Quality Center) after the relationships among the requests are established in PPM Center.

When you open a request, you can add a different request in the **References** section and specify the relationship of the reference request to the request you opened. For example, the reference request can be a child or a parent of the open request.

For the example, you could use any one of the following methods to establish the relationships among requests, which would then automatically synchronize the relationships among the associated Quality Center requirements:

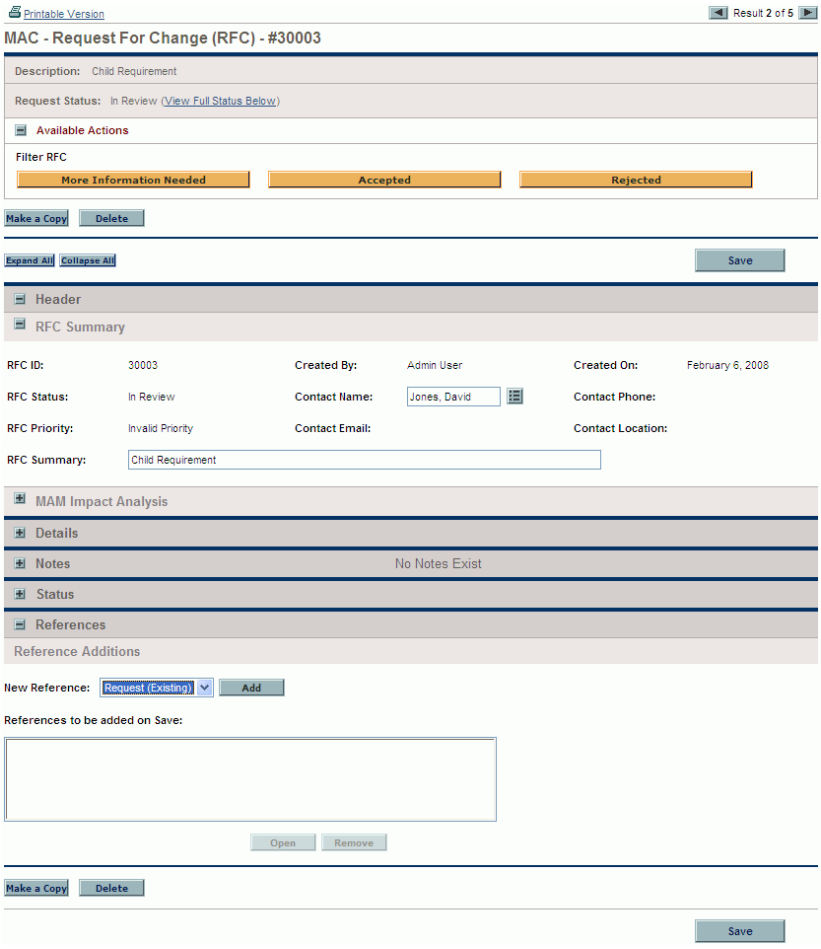
- Open request 30002 and make it the parent of request 30003, and then open request 30003 and make it the parent of request 30004.
- Open request 30003 and make it the child of request 30002, and then open request 30004 and make it the child of request 30003.
- Open only request 30003 and make it both the child of request 30002 and the parent of request 30004. This method is slightly quicker and is used in the following procedure.

In PPM Center, create the relationships between the requests as follows:

1. Select and open the request for which you want to define one or more relationships.

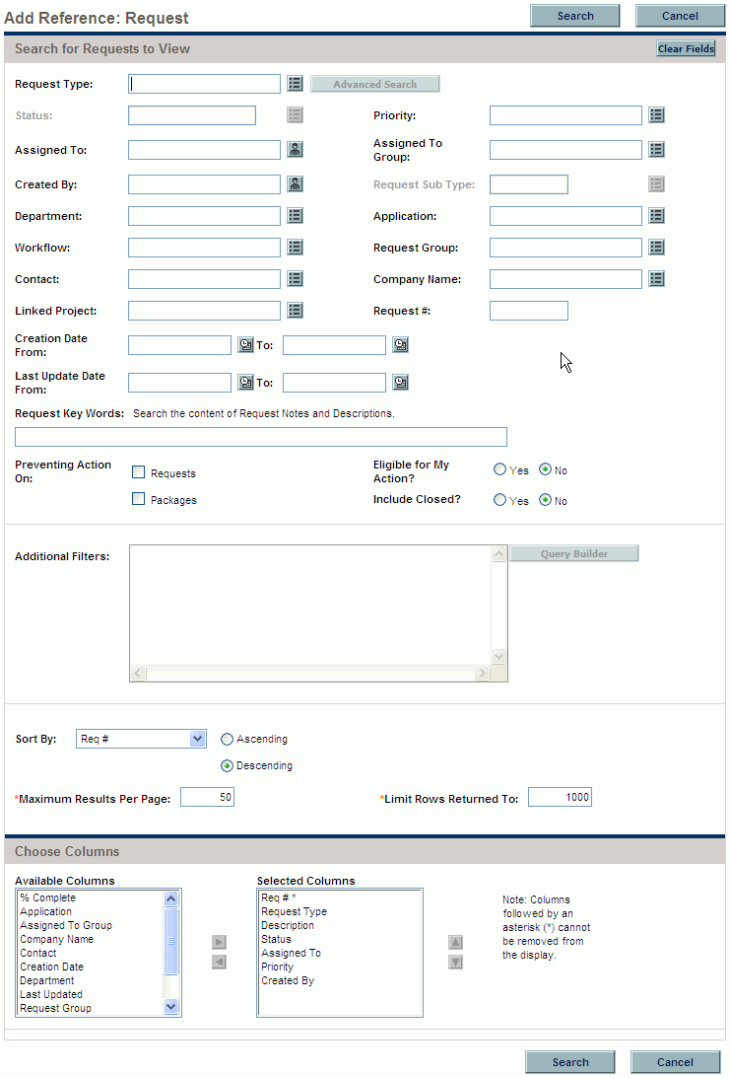
   In the example, open request 30003.

2. In the **Reference Additions** section of the request, in the **New Reference** drop-down list, select **Request (Existing).**



3. Click **Add.**

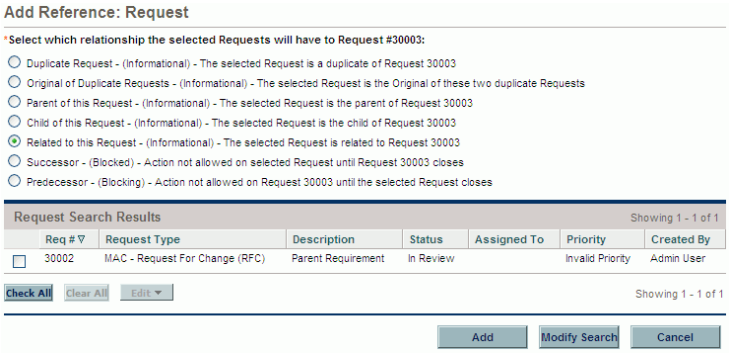
The Add Reference: Request window opens.



4. Specify data about the request to be related to the open request, and click **Search.**

   In this example, type `30002` in the **Request #** field and click **Search.**

   If the search is successful, the following window opens.



   The window allows you to select from the search results which requests will be references (in the example, 30002 is the only request found using the specified search criteria), and to select an option to specify the relationship the reference request (or requests) will have to the open request (30003 in the example).

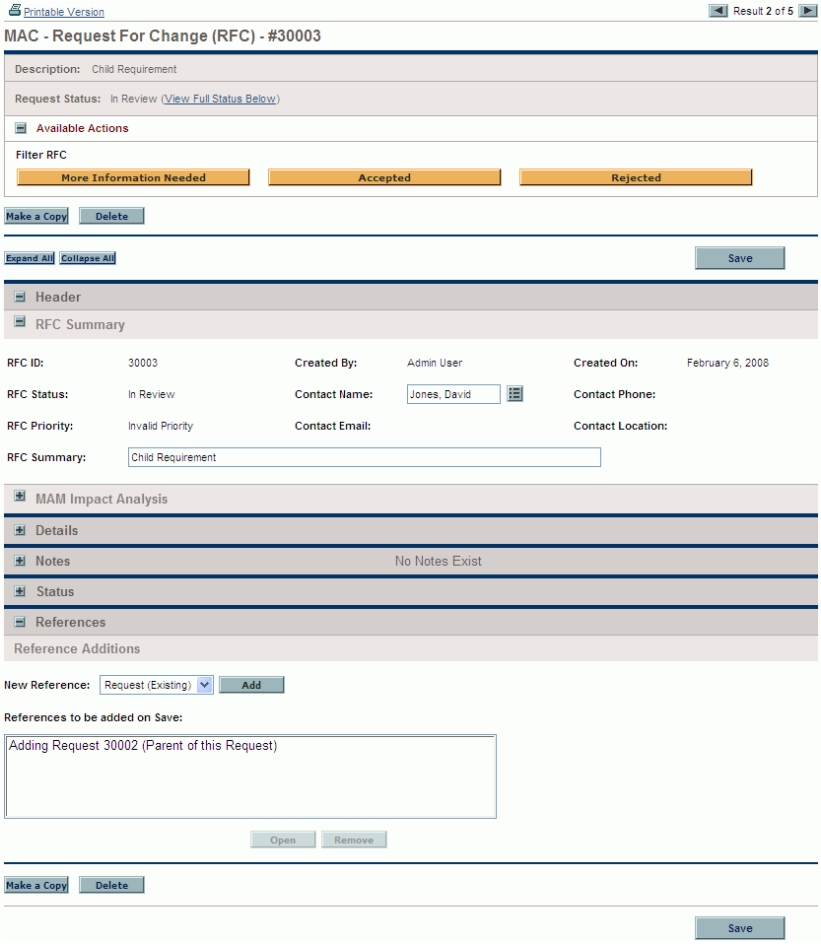
5. In the **Request Search Results** section, select the checkbox for the request that is to be made a reference.

6. In the upper section of this window, select the option for the relationship you want this reference request to have to the open request.

   In this example, select **Parent of this Request** because you want reference request 30002 to be the parent of open request 30003.

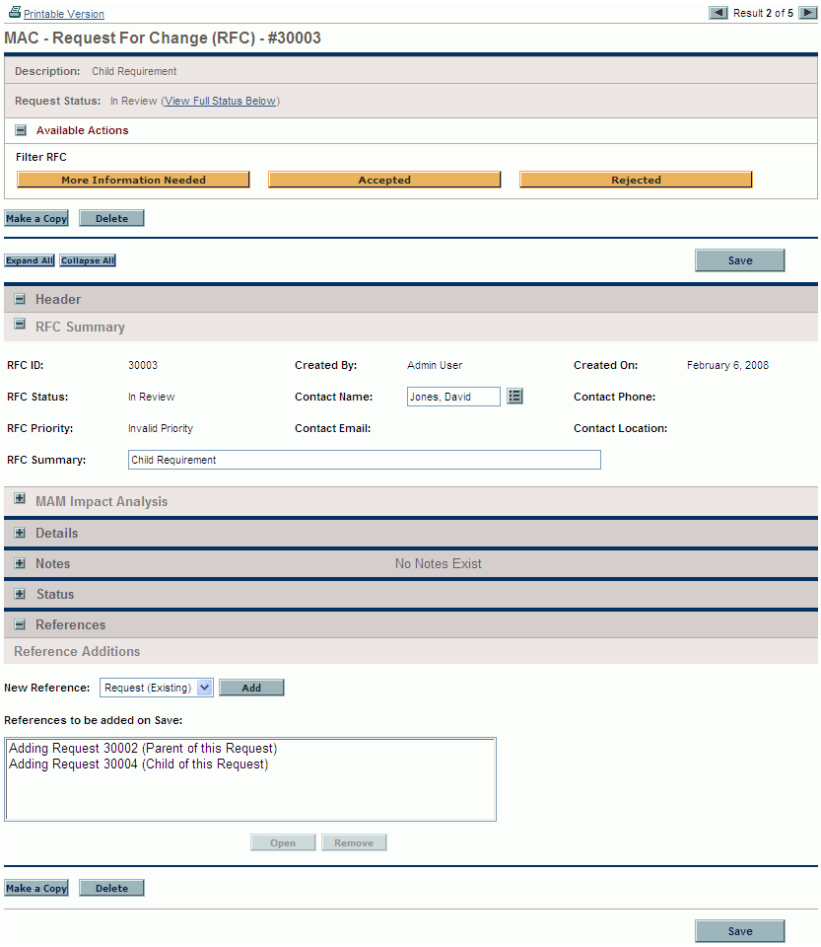
7. Click **Add.**

   The reference request and its relationship are added to the **References to be added on Save** text box in the open request.



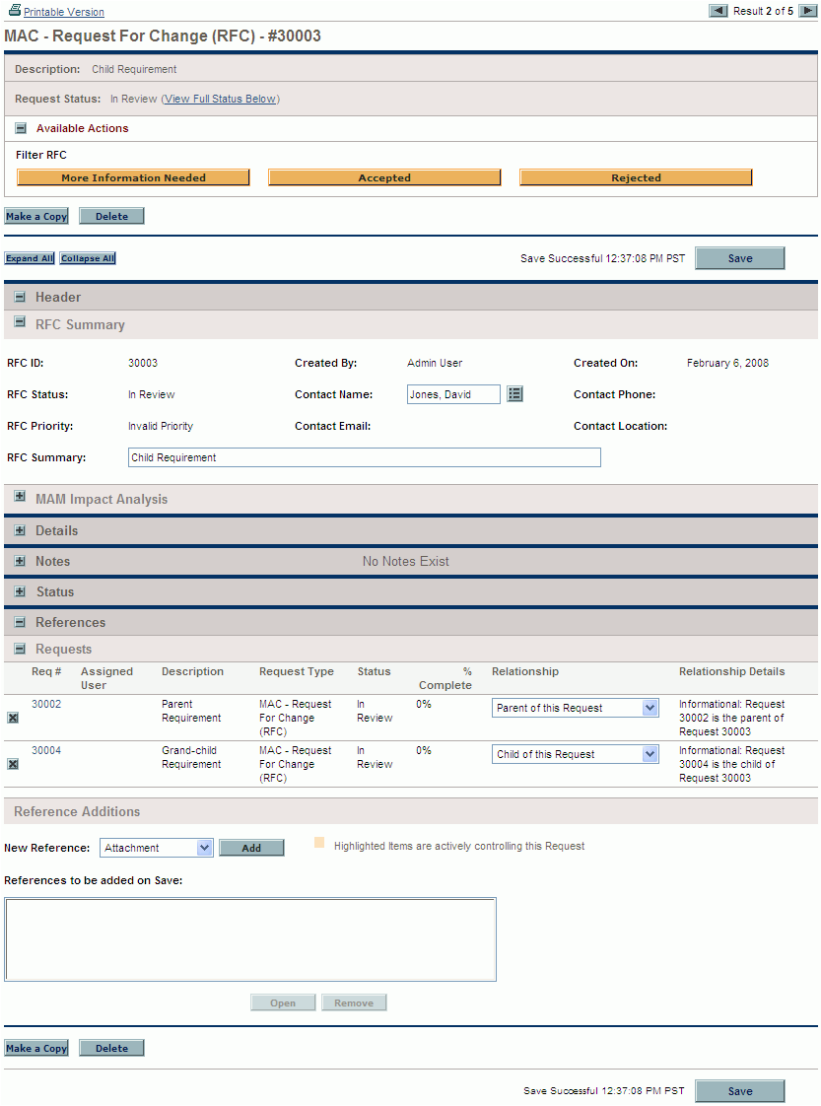
8. Repeat step 2 on page 246 through step 7 (or step 3 on page 247 through step 7) as necessary to create parent and child relationships with additional requests.

   In this example, follow step 3 through step 7, but in step 4 type **`30004`** in the **Request #** field to make that request the one to reference, and in step 6 select **Child of this Request** because you want reference request 30004 to be the child of open request 30003.

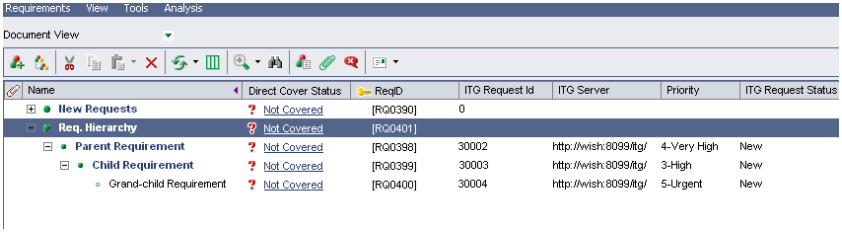


9. Click **Save.**

The reference requests with which you have defined relationships are listed in the **References** section, **Requests** subsection of the open request.



In Quality Center, you now see the requirements (rows) reorganized and indented to reflect the relationship hierarchy you specified among the PPM Center requests.



Default Quality Center–PPM Center Field Mappings

This section lists the default field mappings that are available when integrating:

- The Requirements Module in Quality Center with the MAC - Request for Change (RFC) request type in PPM Center (see *Default Field Mappings for Quality Center Requirements*).
- The Defects Module in Quality Center with the MAC - Defect Template with Quality Center Integration request type in PPM Center (see *Default Field Mappings for Quality Center Defects* on page 256).

Default Field Mappings for Quality Center Requirements

This section summarizes the default field mappings for the integration between the Requirements Module in Quality Center and the MAC - Request for Change (RFC) request type in PPM Center. It includes the following tables:

- *Table 7-2* describes the default requirement mappings that can be modified. The **Override** column indicates which field is dominant by default—PPM Center (if set to **PPM**), Quality Center (if set to **QC**), or neither (if set to **BIDIRECTIONAL**). For more information, see step 9 on page 216.
- *Table 7-3* on page 255 describes the fields that were added to Quality Center requirements to support integration with PPM Center requests. These fields should not be modified (except for their Labels, as desired).
- *Table 7-4* on page 255 describes the fields that were added to PPM Center requests to support integration with Quality Center requirements. These fields should not be modified (except for their Field Prompts, as desired).

Table 7-2. Requirements mapping you can modify (page 1 of 2)

Quality Center Field Name, Database ID, and Field Type	PPM Center Field Name, Database ID [a], and Field Type	Override
Priority RQ_REQ_PRIORITY Enumeration	RFC Priority PRIORITY_CODE Drop-down list	PPM
Author [b] RQ_REQ_AUTHOR User list	Created By CREATED_BY User list	PPM

Table 7-2. Requirements mapping you can modify (page 2 of 2)

Quality Center Field Name, Database ID, and Field Type	PPM Center Field Name, Database ID [a], and Field Type	Override
ITG Request Status [c, d] RQ_USER_XX [e] Enumeration	RFC Status [c] STATUS_ID List	PPM [c]
	Quality Center Status [d] KNTA_QC_REQUIREMENT_STATUS Text (300)	QC [d]
Name RQ_REQ_NAME Text (255)	RFC Summary DESCRIPTION Text (200)	PPM
ITG Request Description RQ_USER_XX [e] Memo	RFC Description RFC_DESCRIPTION Text (1800)	PPM
Assigned To RQ_USER_XX [e] User list	Quality Center Assigned To User KNTA_QC_ASSIGNED_TO Quality Center user list (uses a special validation that retrieves the Quality Center user list for a specific project).	PPM

a. The listed PPM Center database IDs are as seen in the PPM Workbench. The exact database IDs are displayed by the integration tool.

b. The Author field in Quality Center displays the name of the user who created the request in PPM Center. Quality Center can accept any name, but PPM Center cannot. If you configure this field to be bi-directionally updateable and a user selects a user name in Quality Center that does not exist in PPM Center, the operation will fail. User name lists must therefore be synchronized.

c. When the RFC Status field is updated in PPM Center, the new status is sent to Quality Center. If the new status matches one of the requirement statuses in Quality Center, the ITG Request Status field in Quality Center is updated; if not, the update is ignored by Quality Center.

d. When the status of a requirement is updated in Quality Center, the Quality Center Status field in PPM Center is correspondingly updated if the value sent by Quality Center is a valid workflow step transition in PPM Center.

e. The Quality Center fields with the database ID of RQ_USER_XX are user fields that are added to Quality Center when using the integration tool to enable a project. The value of XX is determined when the user field is added to Quality Center.

Table 7-3 describes the fields that were added to Quality Center requirements to support integration with PPM Center requests. These fields should not be modified (except for their Labels, as desired).

Table 7-3. Fields added to Quality Center requirements to support integration with PPM Center requests

Field Name	Field Database ID	Field Type	Description
ITG Server	RQ_USER_XX	Text (120)	User field containing the PPM Center URL.
ITG Request Type	RQ_USER_XX	Text (40)	User field containing the PPM Center request type of the corresponding PPM Center request. Used for field mapping.
ITG Notes	RQ_USER_XX	Memo	Quality Center memo field. Stores PPM Center notes. Always overridden by PPM Center. Added to Quality Center if the user chooses to synchronize the Notes field.
ITG Updates	RQ_USER_XX	Text (120)	User field for integration messages. Shows last operation success/error message in case of failure.
ITG Request ID	RQ_REQUEST_ID	Integer	System field containing PPM Center request ID.

Table 7-4 describes the fields that were added to PPM Center requests to support integration with Quality Center requirements. These fields should not be modified (except for their Field Prompts, as desired).

Table 7-4. Fields added to PPM Center requests to support integration with Quality Center requirements

Field Name	Field Database ID	Field Type	Description
Quality Center Instance	KNTA_QC_INSTANCE	List retrieved from the XML mapping file.	Quality Center instance URL.
Quality Center Domain	KNTA_QC_DOMAIN	List retrieved from the XML mapping file.	Quality Center domain.
Quality Center Project	KNTA_QC_PROJECT	List retrieved from the XML mapping file.	Quality Center project.
Quality Center Assigned To User	KNTA_QC_ASSIGNED_TO	Not applicable.	Obsolete field that is not used for MAC. Do not use.
Quality Center Requirement No.	KNTA_QC_REQUIREMENT_NO	Numeric Text (10 digits)	Quality Center requirement ID.
Quality Center Status	KNTA_QC_REQUIREMENT_ STATUS	Text (300)	Quality Center requirement status.
Quality Center Message	KNTA_QC_REQUIREMENT_ INT_MSG	Text (300)	Integration messages. Shows last operation success/error message.
Quality Center Attachments	KNTA_QC_REQUIREMENT_ ATT_URL	URL	URL for Quality Center attachments page.
Quality Center Dashboard Subject	KNTA_QC_DASHBOARD_ SUBJECT	Not applicable.	Obsolete field that is not used for MAC. Do not use.
Quality Center Requirements coverage	KNTA_QC_REQUIREMENT_ COVERAGE	Not applicable.	Obsolete field that is not used for MAC. Do not use.
Quality Center Open Defects	KNTA_QC_OPEN_DEFECTS	Not applicable.	Obsolete field that is not used for MAC. Do not use.

Default Field Mappings for Quality Center Defects

This section summarizes the default field mappings for the integration between the Defects Module in Quality Center and the MAC - Defect Template with Quality Center Integration request type in PPM Center. It includes the following tables:

- *Table 7-5* describes the default defect mappings that can be modified. The **Override** column indicates which field is dominant by default—PPM Center (if set to **PPM**), Quality Center (if set to **QC**), or neither (if set to **BIDIRECTIONAL**). For more information, see step 9 on page 216.
- *Table 7-6* on page 260 describes the fields that were added to Quality Center defects to support integration with PPM Center requests. These fields should not be modified (except for their Labels, as desired).
- *Table 7-7* on page 261 describes the fields that were added to PPM Center requests to support integration with Quality Center defects. These fields should not be modified (except for their Field Prompts, as desired).

Table 7-5. Defect mappings you can modify (page 1 of 3)

Quality Center Field Name, Database ID, and Field Type	PPM Center Field Name, Database ID [a], and Field Type	Override
Reproducible BG_REPRODUCIBLE Y/N	Reproducible REPRODUCIBLE Y/N	QC
Project BG_PROJECT List	Application APPLICATION_CODE List	QC
Actual Fix Time BG_ACTUAL_FIX_TIME Date	Actual Fix Time (days) ACTUAL_FIX_TIME Date	QC

Table 7-5. Defect mappings you can modify (page 2 of 3)

Quality Center Field Name, Database ID, and Field Type	PPM Center Field Name, Database ID [a], and Field Type	Override
Closed in Version BG_CLOSING_VERSION List	Closed in Version CLOSING_VERSION Text (40)	QC
Severity BG_SEVERITY Enumeration	Severity SEVERITY Drop-down list	BIDIRECTIONAL
Closing Date BG_CLOSING_DATE Date	Closed on CLOSING_DATE Date	QC
Detected in Version BG_DETECTION_VERSION List	Detected in Version DETECTION_VERSION Text (40)	BIDIRECTIONAL
Planned Closing Version BG_PLANNED_CLOSING_VER List	Planned Closing Version PLANNED_CLOSING_VER List	BIDIRECTIONAL
Estimated Fix Time BG_ESTIMATED_FIX_TIME Number	Estimated Fix Time (days) ESTIMATED_FIX_TIME Numeric Text (10 digits)	BIDIRECTIONAL
Comments BG_DEV_COMMENTS Memo	Developer Comments DEV_COMMENTS Text (1800)	PPM
Detected on Date BG_DETECTION_DATE Date	Created On CREATION_DATE Date	PPM
Priority BG_PRIORITY Enumeration	Priority DEFECT_PRIORITY_CODE Drop-down list	BIDIRECTIONAL

Table 7-5. Defect mappings you can modify (page 3 of 3)

Quality Center Field Name, Database ID, and Field Type	PPM Center Field Name, Database ID [a], and Field Type	Override
Description BG_DESCRIPTION Memo	Detailed Description DEFECT_DESCRIPTION Text (1800)	BIDIRECTIONAL
Detected By BG_DETECTED_BY Quality Center users list	Detected in Quality Center by QC_DETECTED_BY Text (40)	QC
Status [b, c] BG_STATUS Enumeration	Request Status [b] STATUS_ID List	PPM [b]
	Quality Center Defect Status [c] KNTA_QC_DEFECT_STATUS Text (300)	QC [c]
Summary BG_SUMMARY Text (255)	Summary DESCRIPTION Text (200)	BIDIRECTIONAL

a. The listed PPM Center database IDs are as seen in the PPM Workbench. The exact database IDs are displayed by the integration tool.

b. When the Request Status field is updated in PPM Center, the new status is sent to Quality Center. If the new status matches one of the defect statuses in Quality Center, the Status field in Quality Center is updated; if not, the update is ignored by Quality Center.

c. When the status of a defect is updated in Quality Center, the Quality Center Defect Status field in PPM Center is correspondingly updated if the value sent by Quality Center is a valid workflow step transition in PPM Center.

Table 7-6 describes the fields that were added to Quality Center defects to support integration with PPM Center requests. These fields should not be modified (except for their Labels, as desired).

Table 7-6. Fields added to Quality Center defects to support integration with PPM Center requests

Field Name	Field Database ID	Field Type	Description
ITG Server	BG_USER_XX [a]	Text (120)	User field containing PPM Center URL.
ITG Request Type	BG_USER_XX [a]	Text (40)	User field containing the PPM Center request type of the corresponding PPM Center request. Used for field mapping.
ITG Notes	BG_USER_XX [a]	Memo	Quality Center memo field. Stores PPM Center notes. Always overridden by PPM Center. Added to Quality Center if the user chooses to synchronize the Notes field.
ITG Request ID	BG_REQUEST_ID	Integer	System field containing PPM Center request ID.

a. The Quality Center fields with the database ID of BG_USER_XX are user fields that are added to Quality Center when using the integration tool to enable a project. The value of XX is determined when the user field is added to Quality Center.

Table 7-7 describes the fields that were added to PPM Center requests to support integration with Quality Center defects. These fields should not be modified (except for their Field Prompts, as desired).

Table 7-7. Fields added to PPM Center requests to support integration with Quality Center defects

Field Name	Field Database ID	Field Type	Description
Quality Center Instance	KNTA_QC_DEFECT_INSTANCE	List retrieved from the XML mapping file.	Quality Center instance URL.
Quality Center Domain	KNTA_QC_DEFECT_DOMAIN	List retrieved from the XML mapping file.	Quality Center domain.
Quality Center Project	KNTA_QC_DEFECT_PROJECT	List retrieved from the XML mapping file.	Quality Center project.
Detected in Quality Center by	QC_DETECTED BY	Text (40)	The Quality Center user who detected the defect.
Defect Number	KNTA_QC_DEFECT_NO	Numeric Text (10 digits)	Quality Center defect ID.
Quality Center Defect Status	KNTA_QC_DEFECT_STATUS	Text (300)	Quality Center defect status.
Quality Center Message	KNTA_QC_DEFECT_INT_MSG	Text (300)	Integration messages. Shows last operation success/error message.
Quality Center Attachments	KNTA_QC_DEFECT_ATT_URL	URL	URL for Quality Center attachments page.
Quality Center Assigned To User	KNTA_QC_DEFECT_ASSIGNED_TO	List	Obsolete field that is not used for MAC. Do not use.

8 Integration of PPM Center with Release Control or Change Control Management

Introduction to Integration of PPM Center with Release Control or Change Control Management

In this chapter, references to HP Release Control (the successor product to HP Change Control Management) also apply to supported versions of HP Change Control Management, except where distinctions between Release Control and Change Control Management are described as needed.

Integrating PPM Center with HP Change Control Management or its successor product, HP Release Control, enables you to link directly from a change request in PPM Center to its impact analysis data in HP Change Control Management or HP Release Control. Based on the information provided in HP Change Control Management or HP Release Control, you can then decide whether to approve or reject the deployment of the change request.

For more information about the benefits of this integration, see *Integration of PPM Center with HP Release Control or HP Change Control Management* on page 26.

For information about the versions supported for integration, see *Versions of HP Release Control and HP Change Control Management Supported for Integration with PPM Center* on page 22.

No software needs to be installed on the HP Release Control or Change Control Management server to integrate PPM Center with HP Release Control or Change Control Management. However, see *Versions of HP Release Control and HP Change Control Management Supported for Integration with PPM Center* on page 22.

For references to more information about HP Release Control or HP Change Control Management, see *HP Release Control Documentation* on page 30 or *HP Change Control Management Documentation* on page 30.

Configuring HP Release Control for the Integration

Configuring HP Release Control for integration involves:

- Configuring the PPM Center Web Services adapter in HP Release Control
- Configuring the JavaScript files in HP Release Control

Before beginning this configuration, verify that the `ENABLE_WEB_SERVICES` parameter in the PPM Center `server.conf` configuration file is set to `true` to enable use of Web services with PPM Center (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

1. Stop the PPM Server.
2. Run the script:

   ```
   sh ./kConfig.sh
   ```

3. Restart the PPM Server.

Configuring the PPM Center Web Services Adapter

To establish integration, you must configure the PPM Center Web Services adapter in HP Release Control to convert PPM Center change requests to generic requests that HP Release Control can process, as follows:

1. Configure the PPM Center Web Services connector settings as described in the *HP Release Control Installation and Configuration Guide* or the *HP Change Control Management Installation and Configuration Guide.*

   Before version 7.0, PPM Center was known as Mercury IT Governance Center or ITG. HP Release Control and HP Change Control Management software and documentation might still refer to PPM Center as IT Governance Center or ITG.

2. In the `itg-ws-adapter.settings` file, under `<request-type level="1">`, set the `requestTypeName` to the name of the PPM Center request type representing a PPM Center request, for example, **MAC - Release Management.**

3. In the `itg-ws-adapter.settings` file, under `<request-type level="2">`, set the `requestTypeName` to the name of the PPM Center request type representing a PPM Center change, for example, **MAC - Request for Change (RFC),** and set the `parentRequestTypeName` to the value of the `requestTypeName` in step 2.

Configuring the JavaScript Files

Configure the JavaScript files in HP Release Control or HP Change Control Management for the integration with PPM Center.

If PPM Center is (or will be) integrated with HP Universal CMDB or Mercury Application Mapping as well, additional configuration steps may be required in HP Release Control or HP Change Control Management before configuring the JavaScript.

Refer to documentation for HP Release Control or HP Change Control Management, and contact HP Release Control Support as necessary.

Configuring PPM Center for the Integration

Before beginning to configure the integration as described in this section, make sure that MAC has been installed and initially configured as described in Chapter 2, *Installing and Setting Up MAC Software,* on page 31.

Establishing Server Connections for Supported Versions

Make sure that the HTTP port is open between the PPM Server and the HP Release Control or HP Change Control Management machines.

Verify that a supported version of HP Release Control or HP Change Control Management is installed and running (see *Versions of HP Release Control and HP Change Control Management Supported for Integration with PPM Center* on page 22).

Specifying the server.conf Parameters in PPM Center

To be able to open HP Release Control from PPM Center as part of the integration, you add a parameter to the PPM Center `server.conf` configuration file and specify it.

Add and specify the parameter related to Release Control integration to the PPM Center `server.conf` configuration file (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

1. Stop the PPM Server.
2. Run the script:

   ```
   sh ./kConfig.sh
   ```

   Set the parameter and value as shown in the following table. (All parameter names begin with `com.kintana.core.server.` but that is not shown in the table.)

Parameter	Value
CCM_MACHINE_URL	The URL of the Change Control Management or Release Control server: `http://<CCM_Host>:<Port>/ccm/` where `<CCM_Host>` represents the host machine on which Change Control Management or Release Control is running.

3. Verify that the `ENABLE_WEB_SERVICES` parameter in the `server.conf` file is set to `true`.
4. Restart the PPM Server.

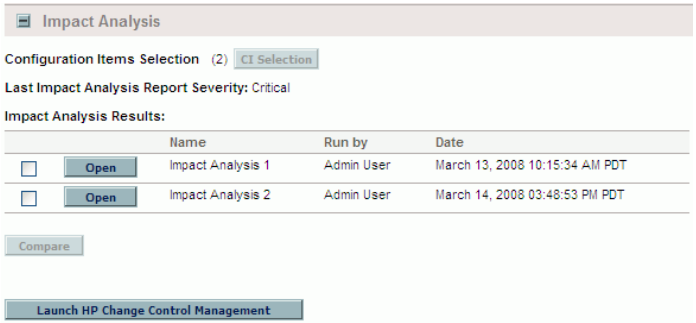
Using the Integration of PPM Center with Release Control

MAC provides the MAC - Releases portlet to facilitate the release request process (see *MAC - Releases Portlet* on page 90). If PPM Center and HP Release Control are integrated, for each release request you can click the **Click to View** link in the **View Impact** column in the portlet to log in to HP Release Control. When you log in, HP Release Control displays the **Overview** tab and other tabs. The information displayed for the selected change request includes, for example:

- The "service desk application" from which the request originated. From the perspective of HP Release Control, PPM Center is a service desk application in this context.
- On the **Request Details** tab, the request ID number of the original change request, with a link to open it in PPM Center.
- On the **Request Details** tab, the planned and actual start and end times for execution of the request.
- On the **Overview** tab, the number of configuration items (CIs) and applications that are affected by the request, with links that access the **Impact Analysis** tab, where details of the affected CIs and applications are displayed.
- On the **Collaboration** tab, the communication among users regarding action items.

If PPM Center is integrated with HP Release Control or HP Change Control Management *and* with HP Universal CMDB or Mercury Application Mapping, you can click the **Launch HP Release Control** button or the **Launch HP Change Control Management** button in a PPM Center request to access HP Release Control or Change Control Management. *Figure 8-1* shows example of a section of a request where PPM Center is integrated with HP Change Control Management and Mercury Application Mapping.

Figure 8-1. Impact Analysis section of a PPM Center request for integration with Change Control Management and Mercury Application Mapping



A Integration of PPM Center with Universal CMDB

Introduction to Integration of PPM Center with Universal CMDB

Establishing and using integration of PPM Center with HP Universal CMDB does not require installing or using the MAC software.

However, if SP2 has been specifically installed on an earlier release of PPM Center version 7.5, and if integration of PPM Center with Service Manager or ServiceCenter was previously established, you must regenerate the Web service stubs for that integration as described in *Generating Web Service Stubs* on page 112.

HP Universal CMDB consists of a business-service-oriented data model with built-in discovery of configuration items (CIs) and their dependencies, visualization and mapping of business services, and tracking of configuration changes. When you integrate PPM Center with Universal CMDB, you can select CIs and run impact analysis reports from change requests in PPM Center, to determine which components of a system will be affected by a software change, and to what extent. The integration assists IT managers and Change Advisory Boards in deciding whether a change request should be approved for development or deployment.

For example, your software change might involve upgrading a database server. Before you can perform the upgrade, you need to stop the server. In some cases this could prevent users from accessing crucial services, or even cause a crash of your production system. Impact analysis determines the effect on the entire system of stopping the server, and gives you a report showing the components that will be impacted. This enables you to plan the change with minimal disturbance to your operations.

For more information about the benefits of this integration, see *Integration of PPM Center with HP Universal CMDB and/or Mercury Application Mapping* on page 24.

For information about the versions supported for integration, see *Version of HP Universal CMDB Supported for Integration with PPM Center* on page 21.

No software needs to be installed on the HP Universal CMDB server to integrate PPM Center and HP Universal CMDB. However, see *Version of HP Universal CMDB Supported for Integration with PPM Center* on page 21.

For references to more information about HP Universal CMDB, see *HP Universal CMDB Documentation* on page 29.

Integrations of PPM Center with both Mercury Application Mapping and its successor product, HP Universal CMDB, can coexist without interfering with each other. Data obtained from the integration with Mercury Application Mapping is not migrated or converted for use by the integration with HP Universal CMDB. For information about the integration of PPM Center with Mercury Application Mapping, see Chapter 6, *Integration of PPM Center with Mercury Application Mapping,* on page 169.

Using Impact Analysis in a Change Request Lifecycle

Since a software change might be developed and deployed over a lengthy period of time, you might want to generate an Impact Analysis Report at the following stages in the lifecycle of the change request:

- **Before you approve or develop the change.** Before you approve or develop the change, it is useful to forecast the effect that introducing the change will have on your production system. You describe the intended change, specify the components that you think will be affected, and run impact analysis to forecast the effect of the change.

  The resulting report gives you an indication of how your system will cope with the change after it has been developed and deployed, and helps you decide whether to approve the change for development.

- **After the change is approved for deployment to a production system, but before you deploy the change.** While the software change is being developed and then evaluated for quality, modifications may occur in your system infrastructure. For example, servers might be added or removed, or

applications might be changed. As a result, the original impact analysis may no longer give an accurate indication of what will happen when you introduce the change. So after the change has been developed, evaluated, and approved for deployment, you perform another impact analysis to give you an up-to-date picture.

Configuring Universal CMDB for the Integration

To configure Universal CMDB for the integration, configure views in Universal CMDB and create a PPM Center user and password in Universal CMDB. See the Universal CMDB documentation, listed in *HP Universal CMDB Documentation* on page 29.

Configuring PPM Center for the Integration

Perform the procedures in this section to configure PPM Center for the integration.

Specifying server.conf Parameters in PPM Center

Add and specify the parameters related to Mercury Application Mapping integration to the PPM Center `server.conf` configuration file (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

1. Stop the PPM Server.
2. Run the script:

   ```
   sh ./kConfig.sh
   ```

   Set the parameters and values as shown in the following table. (All parameter names begin with `com.kintana.core.server.` but that is not shown in the table.)

Parameter	Value
UCMDB_SERVER_URL	The URL of the Universal CMDB server: `http://<UCMDB_Host>:<port>/ucmdb/` where `<UCMDB_Host>` represents the host machine on which Universal CMDB is running.
UCMDB_GATEWAY_URL	The URL of the Probe Gateway component of the Discovery and Dependency Mapping (DDM) Probe. The Probe Gateway provides communication (HTTP or HTTPS) between the Probe Manager and the Universal CMDB user for processes such as downloading tasks and returning task results. The value for `<UCMDB_Host>:<port>` is usually the same as for the UCMBD_SERVER_URL parameter. `http://<UCMDB_Host>:<port>/mam/gateway?`
UCMDB_USER	The Universal CMDB user name, for example, admin.
UCMDB_PASSWORD	The Universal CMDB user password. This password must be encrypted as described in *Encrypting the Password Specified as a server.conf Parameter*.
UCMDB_SERVER_VERSION	Specify `7.5` or `7.50` as the version of Universal CMDB being used on the Universal CMDB server (see *Version of HP Universal CMDB Supported for Integration with PPM Center* on page 21).
UCMDB_MAX_CI_NUMBER	The maximum number of CIs a request is allowed to have. Valid values are from 1 to 100. If a value greater than 100 is specified, the PPM Server will not restart and displays an error message. The default is 20.

3. Restart the PPM Server.

Encrypting the Password Specified as a server.conf Parameter

The password that you assigned to the `UCMDB_PASSWORD` parameter must be encrypted, as follows:

1. Navigate to the `<PPM_Home>/bin/ucmdb` directory.
2. Run the `kEncryptUcmdbPassword.sh` utility.
3. Specify the password you want to encrypt.

   The utility encrypts the password and displays the encrypted text.
4. Copy the text in the `Encrypted text` section on the screen and paste it as the value for `UCMDB_PASSWORD` in the `server.conf` file, making sure that you do not copy any carriage returns into the file.

Configuring a Request Type

The integration requires configuring a request type with the Universal CMDB Impact Analysis field group, as follows:

1. Log on to PPM Center.
2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.
3. From the shortcut bar, select **Demand Mgmt > Request Types.**

   The Request Types Workbench opens.
4. Select the request type to which you will add the Universal CMDB Impact Analysis field group.

If PPM Center has already been integrated with Mercury Application Mapping, you can optionally select a request type that includes the MAM Impact Analysis field group. Integrations of PPM Center with both Mercury Application Mapping and Universal CMDB can coexist without interfering with each other.

5. Open the request type and its request header type.
6. Click **Field Groups.**
7. In the Field Groups window, scroll down and select the checkbox to enable the Universal CMDB Impact Analysis field group.

The field group is different from the CMDB Application field group near the top of the Field Groups window.

8. Click **OK** to add the Universal CMDB Impact Analysis field group to the request header type.
9. Expand **Universal CMDB Impact Analysis** in the **Prompt** column on the **Fields** tab in the request header type.
10. Select the **CI List** field, and click **Edit.**
11. On the **Attributes** tab, select **No** for the **Display Only** option and select **Yes** for the **Display** option.
12. Select the **Security** tab and edit field-level security for the **CI List** field as needed.
13. Click **OK** to save and close the Edit window and click **OK** to save and close the Request Header Type window.
14. Return to the request type, which now has the Universal CMDB Impact Analysis section and its **CI List** field, based on the changes you made to the request header type.
15. Use the **Layout** tab to reposition the **Universal CMDB Impact Analysis** section on the request type, as desired.

On the **Status Dependencies** tab for the **CI List** field, leave the **Required, Reconfirm,** and **Clear** options set to **No.**

You can change the **Visible** and **Editable** options as desired.

Database Tables Added for Universal CMDB

The following database tables are added in PPM Center to support integration with Universal CMDB:

- `kcrt_fg_ucmdb`
- `knta_ucmdb_ci_sets`
- `knta_ucmdb_ci_entries`

Using the Integration

The Configuration Management Database (CMDB) in Universal CMDB contains information about all your CIs (servers, applications, hosts, and so on) and their relationships. CIs can vary widely in complexity, size, and type, from an entire system (including all hardware, software, and documentation) to a single module or minor hardware component.

For example, the CMDB contains information about which CIs are affected when other CIs stop functioning or have operational problems.

You generally perform impact analysis as follows:

- Select the CIs that you suspect might be affected by the planned software change.

HP recommends using CI names in Universal CMDB that will be meaningful to you in PPM Center.

- Run impact analysis on the selected CIs. Impact analysis analyzes the relationships among the selected CIs in the CMDB, and generates a report showing the CIs that will be affected by the planned change.
- Run impact analysis at additional points, such as:
  - Before approving a change, to forecast the effect that the change will have on your system.
  - After the change has been created, in case your system infrastructure has changed since the previous impact analysis was performed.

Selecting CIs in Universal CMDB and Adding Them to a Request

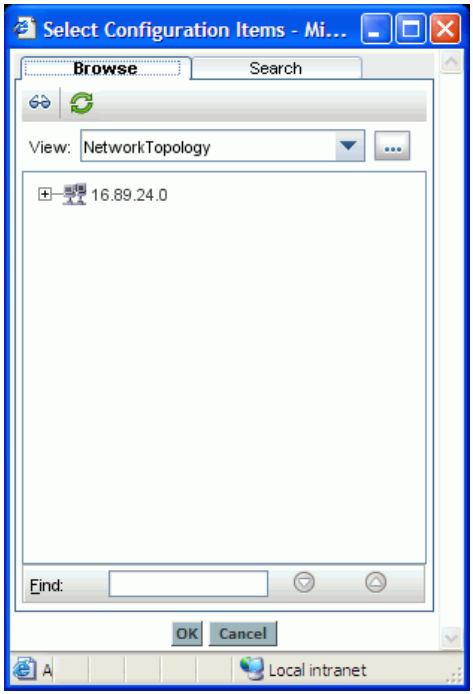
To select the desired CIs in Universal CMDB to add to the request:

1. Log on to PPM Center.
2. From the menu bar, select **Demand Management > Create a Request.**
3. Create a request using the request type that you modified to include the Universal CMDB Impact Analysis field group.
4. In the **Universal CMDB Impact Analysis** section of the new request, click **Select Configuration Items.**

   The CI selector applet from Universal CMDB launches, with **Browse** and **Search** tabs.

5. Use the tabs to select the desired CIs for the request.

   - To use the **Browse** tab, select a view such as **Network Topology** from the **View** list.



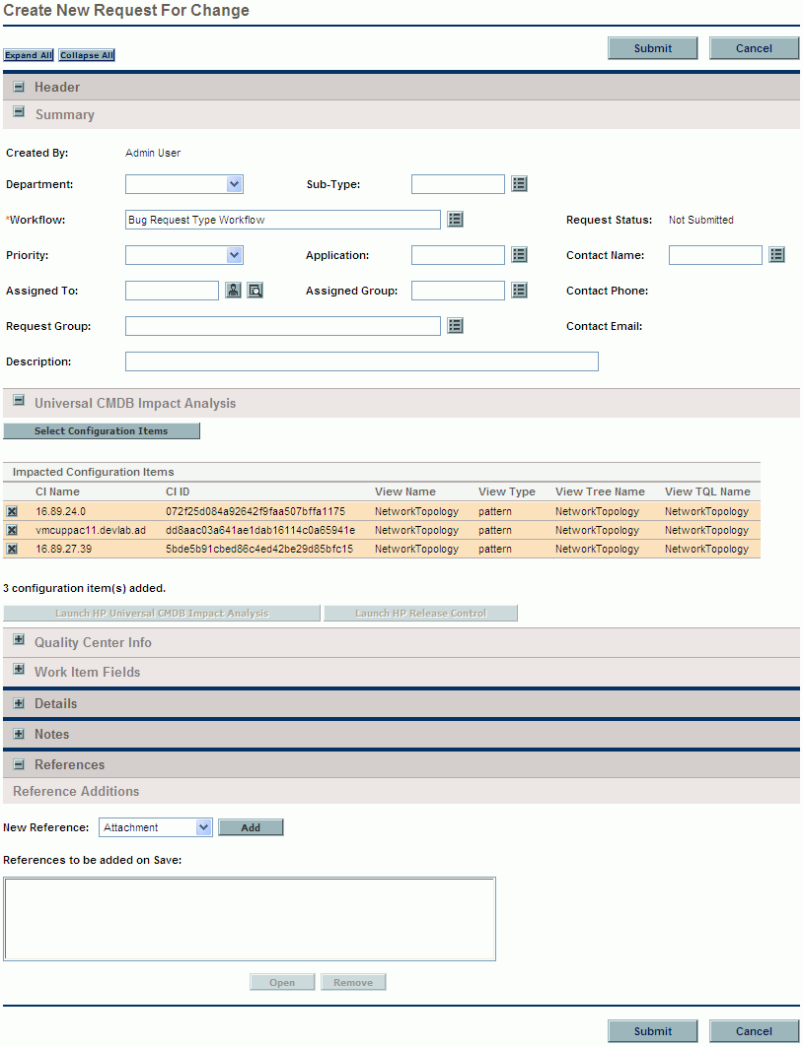
     Expand the view as desired. You can select multiple items in the tree by using **`Ctrl` + click** or **`Shift` + click.**

   - To use the **Search** tab, complete the **Search for** field to limit the search results, and select a **CI Type.**

6. Click **OK** to add the selected CIs to the request, under the **Impacted Configuration Items** heading in the **Universal CMDB Impact Analysis** section. The added CIs are shaded in color. Duplicate CIs are not added. CIs selected using the **Search** tab in the Universal CMDB applet do not show data for the **View Name, View Type, View Tree Name,** and **View TQL Name** columns, because the same CI can exist in multiple views.

   If adding the CIs to the request would exceed the maximum number allowed by the `UCMDB_MAC_CI_NUMBER` parameter in the `server.conf` file, none of the selected CIs are added.

When you select and add CIs in Universal CMDB to the PPM Center request, the CIs are never changed or deleted in Universal CMDB.



7. As necessary, click the **Delete** icon to the left of any CI you want to delete.

   The **Delete** icon becomes an undo icon to allow you to undo the pending deletion.

8. After the desired CIs are listed in the request, click **Submit** (or **Save** for an existing request) to add the list of CIs to the request.

- If a request with a list of CIs is copied, the list of CIs is not copied to the new request.

- The CIs in a request are available as part of standard Web services for a request. The token is `REQ_VP_KNTA_UCMDB_CI_LIST`. The value of the field represented by this token is a comma-separated list of CI IDs.

Generating Impact Analysis Reports

To generate an Impact Analysis Report for the CIs that have been added to a request:

1. Click the **Launch HP Universal CMDB Impact Analysis** button in the **Universal CMDB Impact Analysis** section of the request.

   An Impact Analysis Report is generated in Universal CMDB.

2. Save the report in the desired format (for example, PDF or XML) at the desired file locations.

3. If desired, add the report to the request as a reference. To do so, in the **Reference Additions** section of the request, select the **Attachment** option in the **New Reference** field, click **Add,** and complete the Add Document dialog.

The **Launch HP Release Control** button or the **Launch HP Change Control Management** button appears if PPM Center is also integrated with HP Release Control or HP Change Control Management, as described in Chapter 8, *Integration of PPM Center with Release Control or Change Control Management,* on page 263.

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