HP Quality Center

Software Version: 10.00

Administrator Guide

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Legal Notices

Documentation Updates

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

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

To check for recent updates, or to verify that you are using the most recent edition of a document, go to:

http://h20230.www2.hp.com/selfsolve/manuals

This site requires that you register for an HP Passport and sign-in. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Support

You can visit the HP Software Support web site at:

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

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

HP Software Support Online provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the HP Software Support web site to:

• Search for knowledge documents of interest

• Submit and track support cases and enhancement requests

• Download software patches

• Manage support contracts

• Look up HP support contacts

• Review information about available services

• Enter into discussions with other software customers

• Research and register for software training

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

To find more information about access levels, go to:

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

To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

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Welcome to This Guide

Welcome to HP Quality Center, the HP Web-based solution for application life cycle management. Quality Center helps you organize and administer all phases of the application management process.

Throughout the application management process, Quality Center projects are accessed by many users—including developers, testers, business analysts, and quality assurance managers. To protect, maintain, and control information in a project, users are assigned to groups with different access privileges. Only a Quality Center project administrator (belonging to the TDAdmin user group) has full privileges in a Quality Center project.

As a Quality Center site administrator, you use **Site Administration** to create and maintain Quality Center domains and projects; manage Quality Center users, connections, and licenses; define database servers; and modify Quality Center configurations.

As a Quality Center project administrator, you use **Project Customization** to customize project entities and lists, set up user groups and permissions, configure mail, set alert rules, and configure the workflow in the Quality Center modules. You use Cross Project Customization to standardize customization across projects in your organization.

Quality Center is shipped without any passwords defined. To protect your data from unauthorized access, set your password early in the Quality Center process.

How This Guide is Organized

The Quality Center Administrator Guide provides information regarding the administration, maintenance, and customization of Quality Center.

It contains the following parts:

Part I   Site Administration

Describes how the site administrator uses Site Administration to manage Quality Center projects. This includes maintaining projects, users, connections, licenses, servers, configuration parameters, and site analysis.

Part II   Project Customization

Describes how the project administrator uses the Project Customization window to control access to a project by defining the project users and their privileges. It also describes how to customize a project to meet the specific needs of the project users.

Part III   Workflow Customization

Describes how to create workflow scripts to customize the Quality Center user interface and to control the actions that users can perform.

Part IV   Appendix

Describes the methodology for upgrading from previous versions of Quality Center.

Documentation Library

The Documentation Library is an online help system that describes how to use Quality Center. You can access the Documentation Library in the following ways:

➤ Click **Documentation Library** in the Quality Center Help menu to open the Documentation Library home page. The home page provides quick links to the main help topics.

➤ Click **Help on this page** in the Quality Center Help menu to open the Documentation Library to the topic that describes the current page.

Documentation Library Guides

The Documentation Library consists of the following guides and references, available online, in PDF format, or both. PDFs can be read and printed using Adobe Reader, which can be downloaded from the Adobe Web site *(*http://www.adobe.com*)*.

Getting Started explains how to use the Documentation Library and how it is organized. (Available online.)

What's New? describes the newest features in the latest version of Quality Center. (Available online and in PDF format.)

You can also access **What's New?** from the Quality Center **Help** menu. In addition, you can select **Help** > **Product Feature Movies** to view short movies that demonstrate the main product features.

Readme provides last-minute news and information about Quality Center.

Quality Center Guides

HP Quality Center User Guide explains how to use Quality Center to organize and execute all phases of the application life cycle management process. It describes how to specify releases, define requirements, plan tests, run tests, and track defects. (Available online and in PDF format.)

HP Quality Center Administrator Guide explains how to create and maintain projects using Site Administration, and how to customize projects using Project Customization. (Available online and in PDF format.)

HP Quality Center Tutorial is a self-paced guide teaching you how to use Quality Center to manage the application life cycle management process. (Available in PDF format.)

HP Quality Center Installation Guide explains how to install Quality Center on a server machine in a cluster environment or as a standalone application. (Available in PDF format.)

HP Quality Center Upgrade Preparation Guide explains how to detect and repair problems before beginning a project upgrade. (Available in PDF format.)

HP Quality Center Database Best Practices Guide provides best practices for deploying Quality Center on database servers. (Available in PDF format.)

Business Process Testing Guides

HP Business Process Testing User Guide explains how to use Business Process Testing to create business process tests. (Available online and in PDF format.)

HP Business Process Testing Tutorial provides a self-paced guide that teaches you the basics of Business Process Testing in Quality Center. (Available in PDF format.)

API References

HP Quality Center Database Reference provides a complete online reference for the project database tables and fields. (Available online.)

HP Quality Center Open Test Architecture API Reference provides a complete online reference for the Quality Center COM-based API. You can use the Quality Center open test architecture to integrate your own configuration management, defect tracking, and home-grown testing tools with a Quality Center project. (Available online.)

HP Quality Center Site Administration API Reference provides a complete online reference for the Site Administration COM-based API. You can use the Site Administration API to enable your application to organize, manage, and maintain Quality Center users, projects, domains, connections, and site configuration parameters. (Available online.)

HP Quality Center Entity Dependencies API Reference provides an online reference for managing relations between Quality Center entities. The reference covers a subset of the Quality Center COM-based API and a subset of the data tables used when managing relations. You can use this reference to integrate testing tools with Quality Center. (Available online.)

HP Quality Center Custom Test Type Guide provides a complete online guide for creating your own testing tool and integrating it into the Quality Center environment. (Available online.)

Additional Online Resources

The following additional online resources are available from the Quality Center **Help** menu:

Troubleshooting & Knowledge Base accesses the Troubleshooting page on the HP Software Support Web site where you can search the Self-solve knowledge base. Choose **Help** > **Troubleshooting & Knowledge Base**. The URL for this Web site is http://h20230.www2.hp.com/troubleshooting.jsp.

HP Software Support accesses the HP Software Support Web site. This site enables you to browse the Self-solve knowledge base. You can also post to and search user discussion forums, submit support requests, download patches and updated documentation, and more. Choose **Help** > **HP Software Support**. The URL for this Web site is www.hp.com/go/hpsoftwaresupport.

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

To find more information about access levels, go to:
http://h20230.www2.hp.com/new_access_levels.jsp

To register for an HP Passport user ID, go to:
http://h20229.www2.hp.com/passport-registration.html

HP Software Web site accesses the HP Software Web site. This site provides you with the most up-to-date information on HP Software products. This includes new software releases, seminars and trade shows, customer support, and more. Choose **Help** > **HP Software Web site**. The URL for this Web site is www.hp.com/go/software.

Add-ins Page opens the HP Quality Center Add-ins Page, which offers integration and synchronization solutions with HP and third-party tools. For more information, refer to the *HP Quality Center Installation Guide*.

Documentation Updates

HP Software is continually updating its product documentation with new information.

To check for recent updates, or to verify that you are using the most recent edition of a document, go to the HP Software Product Manuals Web site (http://h20230.www2.hp.com/selfsolve/manuals).

Part I

Site Administration

1

Site Administration at a Glance

Using Site Administration, you create and maintain Quality Center projects, users, servers, site connections, license usage, and parameters. You can also define site administrators and change site administrator passwords.

This chapter includes:

➤ Starting Site Administration on page 19

➤ Understanding Site Administration on page 21

➤ Defining Site Administrators on page 23

Starting Site Administration

Using Site Administration, you create and maintain your Quality Center projects.

To start Site Administration:

1 To start Site Administration, you can:

➤ Open your Web browser and type your Quality Center URL: http://<Quality Center server name>[<:port number>]/qcbin. The Quality Center Options window opens. Click the **Site Administration** link.

➤ Alternatively, open your Web browser and type your Site Administration URL:
http://<Quality Center server name>[<:port number>]/qcbin/SiteAdmin.htm.

The first time you start Site Administration, files are downloaded to your workstation. Quality Center then carries out a version check on the client files installed on your workstation. If there is a newer version on the server, updated files are downloaded to your workstation.

Note: To download files to your computer, you must log in with administrator privileges. For more information on the minimum permissions required to install client components, refer to the *HP Quality Center Installation Guide*.

After the Quality Center version has been checked and updated if necessary, the Quality Center Site Administration Login window opens.
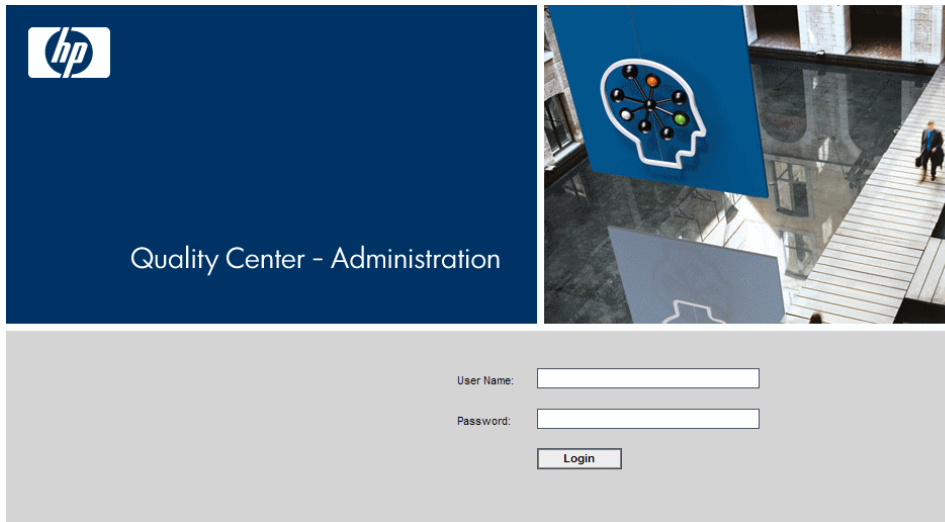
2 In the **User Name** box, type the name of a user who is defined as a site administrator. The first time you log in to Site Administration, you must use the site administrator name that you specified during the installation of Quality Center. After you log in to Site Administration, you can define additional site administrators. For more information, see "Defining Site Administrators" on page 23.

3 In the **Password** box, type your site administrator password. The first time you log in to Site Administration, you must use the site administrator password that you specified during the installation of Quality Center.

To define or change the site administrator password, see "Changing Passwords" on page 125.

4 Click **Login**. Site Administration opens.

Understanding Site Administration

As a Quality Center site administrator, you create and maintain Quality Center projects, users, and servers using Site Administration.

Quality Center Editions: Some functionality in Site Administration is unavailable for the Quality Center Starter Edition and Enterprise Edition. This includes the following:

➤ **Quality Center Starter Edition:** Supports Microsoft SQL only. Allows you to concurrently connect a maximum of five users to the Quality Center server. The DB Servers tab is unavailable.

➤ **Quality Center Premier Edition:** Quality Center template projects are only available with Quality Center Premier Edition.

Site Administration contains the following options:

➤ Click the **Site Projects** tab to manage your Quality Center projects and templates. This includes adding new domains and projects, enabling extensions for projects, querying project data, restoring projects, renaming projects, and activating or deactivating projects. For more information, see Chapter 3, "Managing Projects."

You can also upgrade projects from a previous Quality Center version to the current version. For more information, see Chapter 4, "Upgrading Projects."

➤ Click the **Site Users** tab to add new users and define user properties, including changing passwords. For more information, see Chapter 5, "Managing Quality Center Users."

You can also define site administrators. For more information, see "Defining Site Administrators" on page 23.

➤ Click the **Site Connections** tab to monitor the users currently connected to a Quality Center server. For more information, see Chapter 6, "Managing User Connections and Licenses."

➤ Click the **Licenses** tab to monitor the total number of Quality Center licenses in use and to modify the license key. For more information, see Chapter 6, "Managing User Connections and Licenses."

➤ Click the **Servers** tab to modify Quality Center server information, such as the log file. For more information, see Chapter 7, "Configuring Servers and Parameters."

➤ Click the **DB Servers** tab to manage your database servers. This includes adding a new database server, editing a database's connection string, and changing a database's default administrator user name and password. For more information, see Chapter 7, "Configuring Servers and Parameters."

➤ Click the **Site Configuration** tab to modify Quality Center configuration parameters, such as the mail protocol. For more information, see Chapter 7, "Configuring Servers and Parameters."

➤ Click the **Site Analysis** tab to monitor the number of licensed Quality Center users connected to your projects at specific points over a period of time. For more information, see Chapter 8, "Analyzing Site Usage."

➤ Click the **Tools** button on the upper-right corner of the Site Administration window, and choose **Collect Information** to create a file of diagnostic information about the Quality Center system. The **QC_CollectedInfo_<number>.html** file is created in the **%tmp%** folder on the server machine. This is useful for when you contact Quality Center support.

Defining Site Administrators

You can define Quality Center users as site administrators. Only users defined as site administrators can access Site Administration.

To secure the information in Site Administration, ensure that each user you add as a site administrator has a password defined. For more information, see "Changing Passwords" on page 125.

To define site administrators:

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

2 Click the **Site Administrators** button. The Site Administrators dialog box opens displaying the Site Administrators list.

Site Administrators	☒

| 🌱 Add 🗙 Remove ↻ Find [   ] 🔍 |

UserName	FullName
qc_admin	David Banks

| Close | Help |
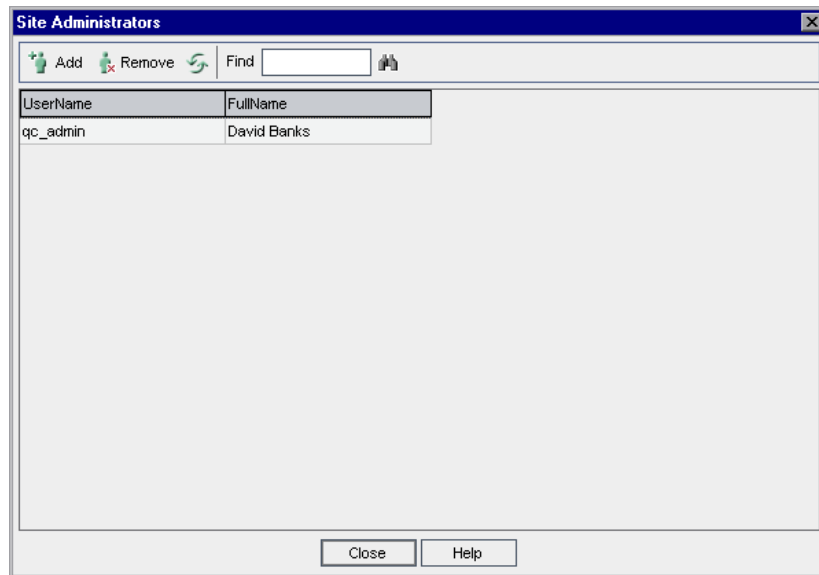
To change the sort order of the Site Administrators list from ascending to descending, click the **UserName** or **FullName** column heading. Click the column heading again to reverse the sort order.

You can search for a user in the Site Administrators list by typing the name of a user in the **Find** box, and clicking the **Find** button.

3 Click the **Add Site Administrators** button. The Quality Center Users list is displayed in the right pane.
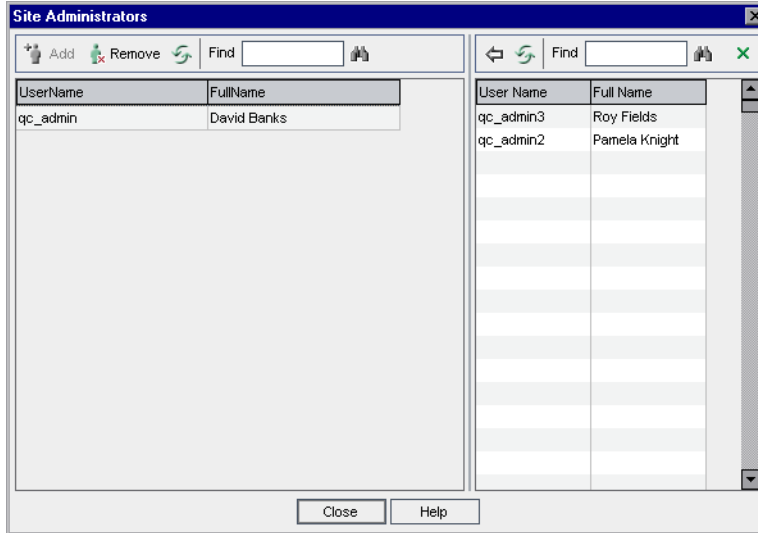
4 Select the users that you want to assign as site administrators. You can search for users by typing a search string in the **Find** box above the Users list, and clicking the **Find** button.

5 Click the **Add Selected Users** button. Alternatively, double-click a user. The selected users are moved to the Site Administrators list in the left pane.

6 To remove a site administrator from the Site Administrators list, select the user and click the **Remove Selected Site Administrators** button. Click **OK** to confirm. The user is removed from the Site Administrators list.

7 To refresh the Site Administrators list or Users list, click the **Refresh** button above the appropriate list.

2

Creating Projects

Site Administration enables you to create and configure Quality Center domains and projects.

This chapter includes:

About Creating Projects

To start working in Quality Center, you need to create a Quality Center **project**. A Quality Center project collects and stores data relevant to the application management process. You can either create an empty Quality Center project, create a project based on a template project, or copy the contents of an existing project to a new project.

You can also create a template project. You can link a template project to other projects to enable cross project customization. For more information, see Chapter 16, "Cross Project Customization."

After you create a project, you can add and remove users from the project, and enable extensions for the project.

Quality Center projects are grouped by **domain**. A domain contains a group of related Quality Center projects and assists you in organizing and managing a large number of projects. Each domain contains a Projects folder and a Template Projects folder to organize your Quality Center projects and template projects.

Quality Center Editions:

➤ **Quality Center Starter Edition:** Supports Microsoft SQL only. Allows you to concurrently connect a maximum of five users to the Quality Center server.

➤ **Quality Center Premier Edition:** Quality Center template projects are only available with Quality Center Premier Edition.

Understanding the Project Structure

When you install Quality Center, the installation program creates a **project repository** on the application server's file system. The Site Administration and Quality Center directories are subfolders of this repository.

The Site Administration directory is located in **C:\Program Files\HP\ Quality Center\repository\sa**, by default. This directory stores global XML files, style sheets, templates, and reports to be used by all projects in the project repository.

By default, The Quality Center directory is located in **C:\Program Files\HP\ Quality Center\repository\qc**. It is a working area for a group of domains that are shared by multiple users. Each domain stores Quality Center projects. If you chose to install the Quality Center demo project during installation, the QC directory includes a default domain that stores the QualityCenter_Demo project. When you create a new project, you can add it to the default domain or to a user-defined domain.

The following diagram shows the structure of the repository.
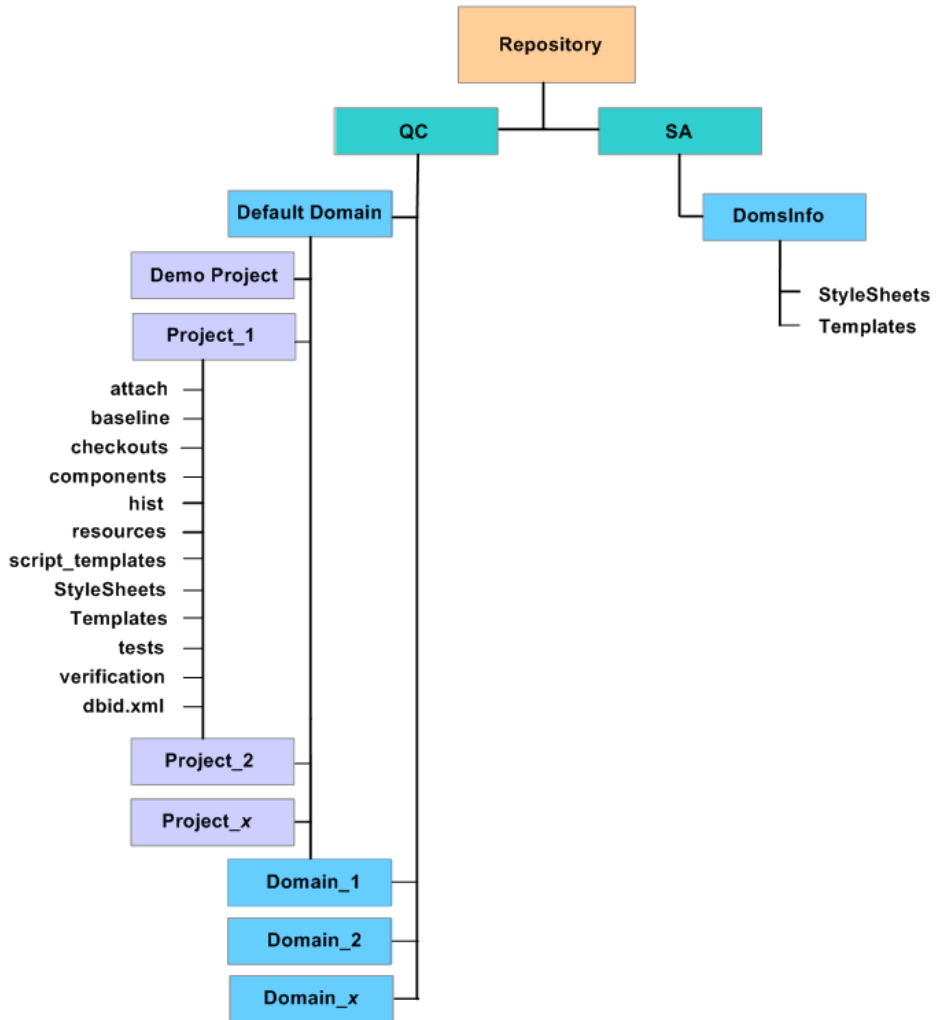
For each project, you can store data such as test scripts, reports, and attachments in the QC directory.

A project directory contains the following subdirectories:

➤ **attach.** A subdirectory for storing attachments.

➤ **baseline.** A subdirectory for storing attachments and automated test scripts stored in baselines.

➤ **checkouts.** A subdirectory for storing checked out versions of attachments and automated test scripts in a version control enabled project.

➤ **components.** A subdirectory for storing business component scripts.

➤ **hist.** A subdirectory for storing prior versions of attachments and automated test scripts in a version control enabled project.

➤ **resources.** A subdirectory for storing test resources.

➤ **scripts.** A subdirectory for storing workflow scripts.

➤ **script_templates.** A subdirectory for storing template workflow scripts.

➤ **StyleSheets.** A subdirectory for storing style sheets that are used when mailing defects, requirements, or tests.

➤ **Templates.** A subdirectory for storing report templates (if empty, the report template from the SA subdirectory is used).

➤ **tests.** A subdirectory for storing automated tests.

➤ **verification.** A subdirectory for storing logs that are generated when creating baselines.

➤ **dbid.xml.** An initialization file that stores project information required for restoring a connection to a project. For more information on restoring a connection to a project, see "Restoring Access to Projects" on page 85.

Under the **SA** directory, the **DomsInfo** subdirectory contains the following information:

➤ **StyleSheets.** A subdirectory for storing global style sheets.

➤ **Templates.** A subdirectory for storing database templates used when creating new projects.

Creating Domains

You can add new domains to Site Administration. Quality Center organizes projects in the Projects list by domain.

To create a domain:

1 In Site Administration, click the **Site Projects** tab.

2 Click the **Create Domain** button. The Create Domain dialog box opens.

3 Type a **Domain Name** and click **OK**.

The new domain is added to the Projects list in alphabetical order. In the right pane, under **Directories**, you can view the location of the domain.
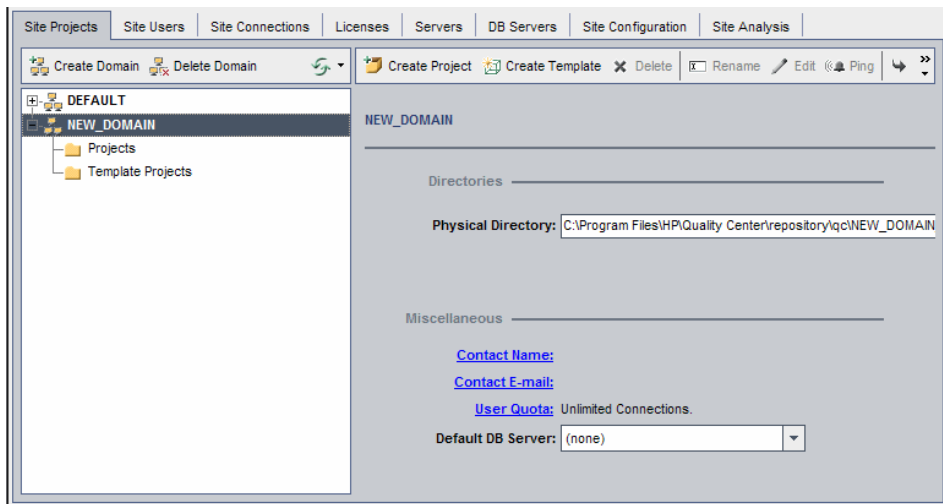
4 To add a person's name as a contact when there are questions or problems with the domain or its projects, click the **Contact Name** link. In the Set Contact Name dialog box, type the name of the contact person and click **OK**.

5 To add the email address of the contact person for the domain, click the **Contact Email** link. In the Set Contact Email dialog box, type the email address and click **OK**.

6 To change the number of users allowed to connect concurrently to the domain, click the **User Quota** link. The Domain User Quota dialog box opens.
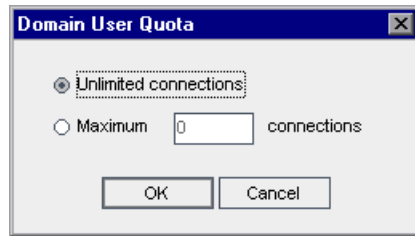
Choose **Maximum Connections** and type the maximum number of concurrent connections allowed. Click **OK**.

Notes:

➤ In addition to changing the number of users allowed to connect concurrently to a domain, you can also change the number of users allowed to connect concurrently to a project. For more information, see "Updating Project Details" on page 63.

➤ **Quality Center Starter Edition:** Only five users can connect concurrently to the Quality Center server.

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7 To select a default database server when creating projects in the domain, select a default database server from the **Default DB Server** list.

Creating Projects

You can create Quality Center projects in Oracle or Microsoft SQL. You can create a project in any of the following ways:

➤ Create an empty project.

➤ **Quality Center Premier Edition:** Create a project from a template. This option copies the customization of an existing template project. It does not copy project data from the template project.

➤ Copy the contents of an existing project. For more information, see "Copying Projects" on page 40.

➤ Import data from an exported project file. For more information, see "Importing Projects" on page 44.

For information on creating template projects, see "Creating Template Projects" on page 47.

Note: For information on the Oracle or Microsoft SQL permissions required by Quality Center, refer to the *HP Quality Center Installation Guide*.

To create a project:

1 In Site Administration, click the **Site Projects** tab.

2 Select the domain in which you want to create the project.

3 Click the **Create Project** button. The Create Project dialog box opens.
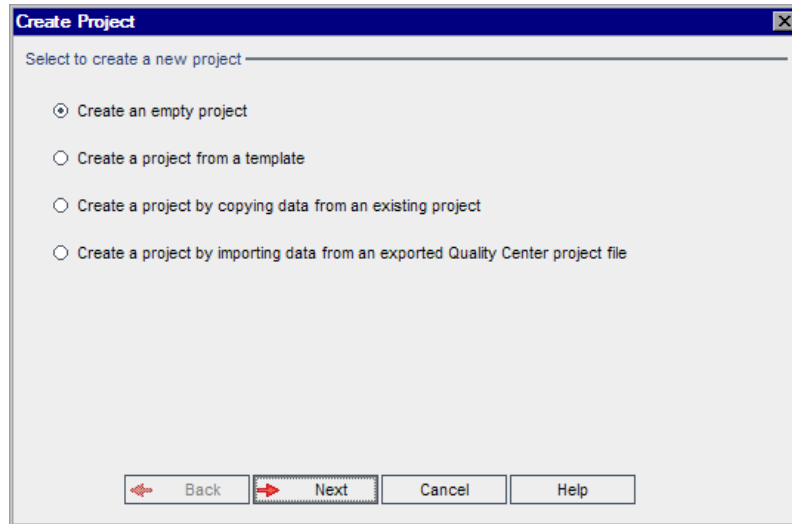
4 Select one of the following options:

➤ **Create an empty project**. Creates a new Quality Center project.

➤ **Quality Center Premier Edition: Create a project from a template**. Creates a new project by copying the customization of an existing template project, but not the project data.

➤ **Create a project by copying data from an existing project**. For more information, see "Copying Projects" on page 40.

➤ **Create a project by importing data from an exported Quality Center project**. For more information, see "Importing Projects" on page 44.

5 If you selected **Create an empty project**, proceed to step 7.

Quality Center Premier Edition: If you selected **Create a project from a template**, the Use Template Customization dialog box opens.
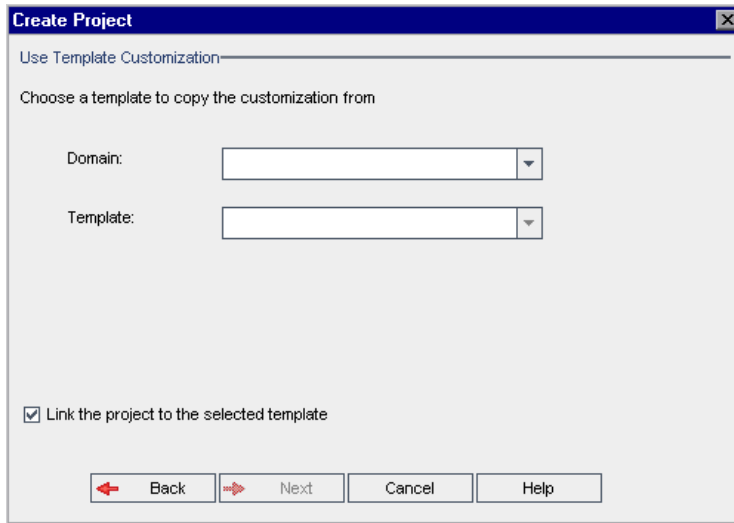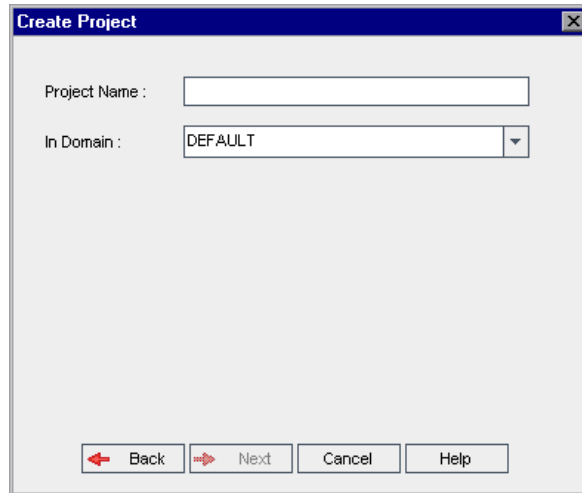
Select the **domain** and **template** you want to use to create the project.

6 Quality Center Premier Edition: Select **Link the project to the selected template** to link the new project to the template. This enables the template administrator to apply template customization changes to the linked project. You can also link a project to a template after the project is created. For more information, see "Linking a Template to Projects" on page 60.

After you link a project to a template, the template administrator can apply template customization to the project. This applies the customization from the template to the linked project, and sets the applied customization to read-only in the project. For more information, see "Applying Template Customization to Linked Projects" on page 297.

7 Click **Next**. The following dialog box opens.

8 In the **Project Name** box, type a name for your Quality Center project. The project name cannot be longer than 30 characters and cannot include any of the following characters: **= ~ ' ! @ # $ % ^ & * ( ) + | { } [ ] : ' ; " < > ? , . / \ -**

9 In the **In Domain** box, select a domain.

Tip: After the project has been created, you can move it to a different domain in the Projects list using a drag-and-drop operation.

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10 Click **Next**. The following dialog box opens.
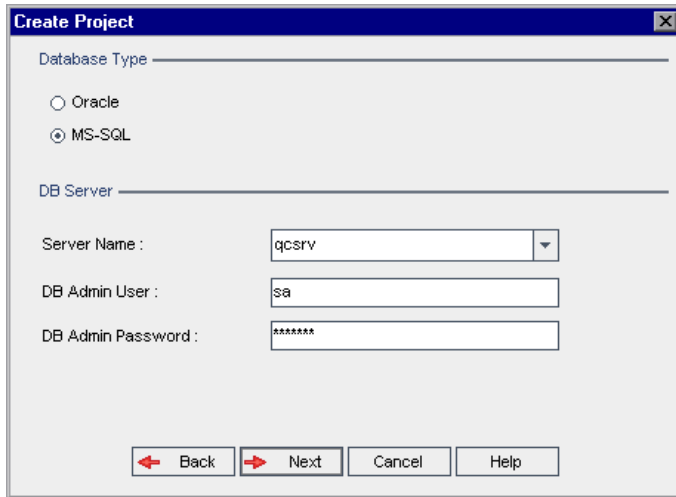
11 Under **Database Type**, select **Oracle** or **MS-SQL**.

12 By default, the default values defined for the domain are displayed for **Server Name**, **DB Admin User**, and **DB Admin Password**. If additional database servers are defined, you can select another name from the **Server Name** list.

Note: For more information on defining database servers, see "Defining New Database Servers" on page 145.

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13 Click **Next**.

If your selected database server does not have the text search feature enabled, a message box opens. The message indicates that after this process completes, you can enable the text search feature. For more information on enabling the text search feature, see "Configuring Text Search" on page 150.

14 If you are creating a Microsoft SQL project, proceed to step 15. For an Oracle project, the following dialog box opens.
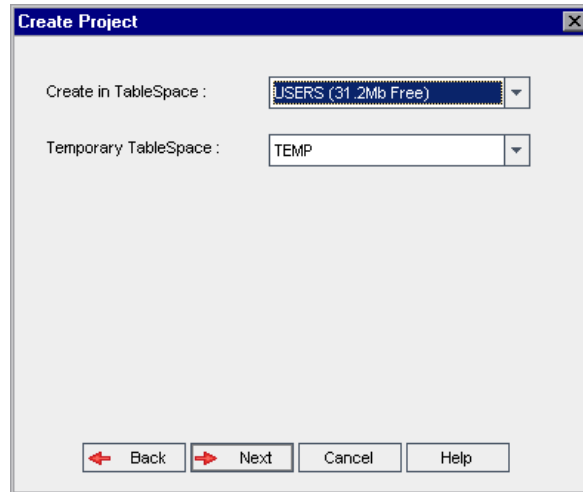
In the **Create in TableSpace** box, select a storage location that has sufficient space to store the new project. You should not use **UNDO** as the storage location.

In the **Temporary TableSpace** box, select a temporary storage location that has sufficient space to store the new project.

15 Click **Next**. The Add Project Administrators dialog box opens.
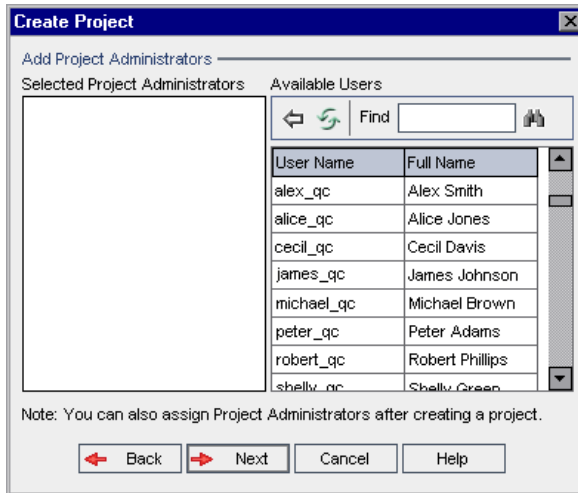
Selected Project Administrators lists Quality Center users that are assigned as project administrators. **Available Users** lists Quality Center users available in the project. When you assign project administrators, they are moved from the Available Users list to the Selected Project Administrators list. Project administrator users can add and administer other users in the project.

➤ **Refresh.** Click the **Refresh** button to refresh the list of available users.

➤ **Find.** Type the name of a user in the **Find** box, and click the **Find** button to search the Available Users list.

➤ **Add Selected Users.** Select the users you want to assign as project administrators, and click the **Add Selected Users** button. Alternatively, double-click a user name. The selected users are moved to the Selected Project Administrators list.

➤ **Delete.** To remove a user from the Selected Project Administrators list, right-click the user name and click **Delete**.

You can also assign project administrators after you have created the project. For more information, see "Assigning Project Administrators" on page 70.

16 Click **Next**. The following dialog box opens.
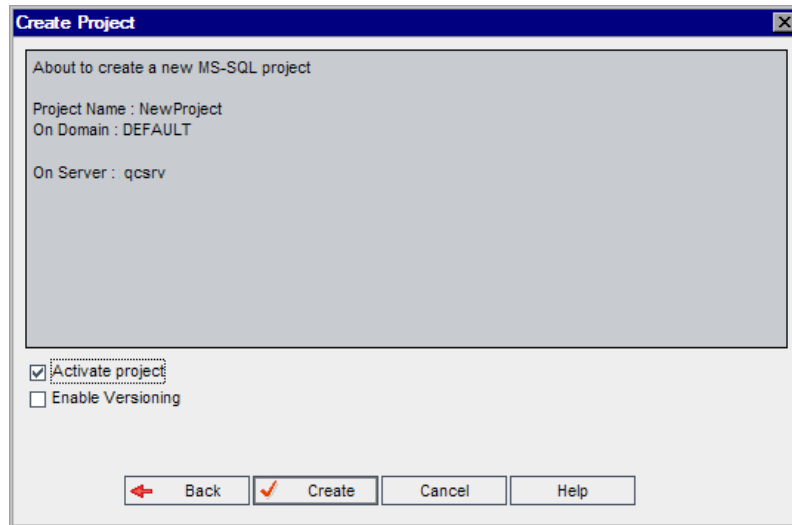
Verify the project details. To change any of the details, click **Back**.

17 Select **Activate Project** to instruct Quality Center to activate the new project. Only activated projects are available to users in the Quality Center Login window when they log in to a project. For more information, see "Deactivating and Activating Projects" on page 79.

18 Select **Enable Versioning** to enable version control for the project. You can also enable version control after you have created the project. For more information, see "Enabling and Disabling Version Control for a Project" on page 80.

19 Click **Create**. The new project is added to the Projects list.

Copying Projects

You can create a new project by copying the contents of an existing project.

Version Control: If you copy a version control enabled project, the new project is created with version control enabled. Version history is also copied. Entities that are checked out in the source project are checked out in the new project. An administrator in the new project can undo those checkouts. For more information, see the *HP Quality Center User Guide*.

Note: If your Quality Center server becomes unavailable while copying, you can resume the copying process at a later stage. To resume copying, reopen Site Administration and select the project from the Projects list. In the right pane, click the **Click Here** link.

To copy a Quality Center Project:

1 Deactivate the project you want to copy. For more information, see "Deactivating and Activating Projects" on page 79.

2 In Site Administration, click the **Site Projects** tab.

3 Select the domain in which you want to create the project.

4 Click the **Create Project** button. The Create Project dialog box opens.
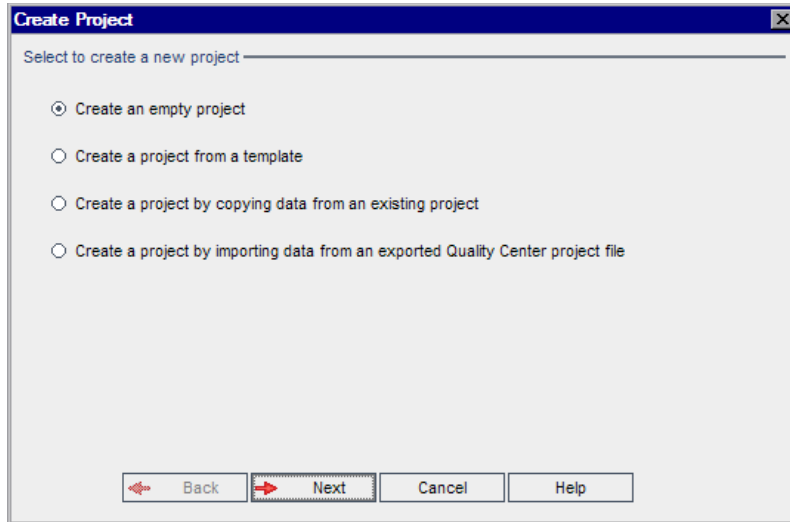
5 Choose the **Create a project by copying data from an existing project** option and click **Next**. The following dialog box opens.
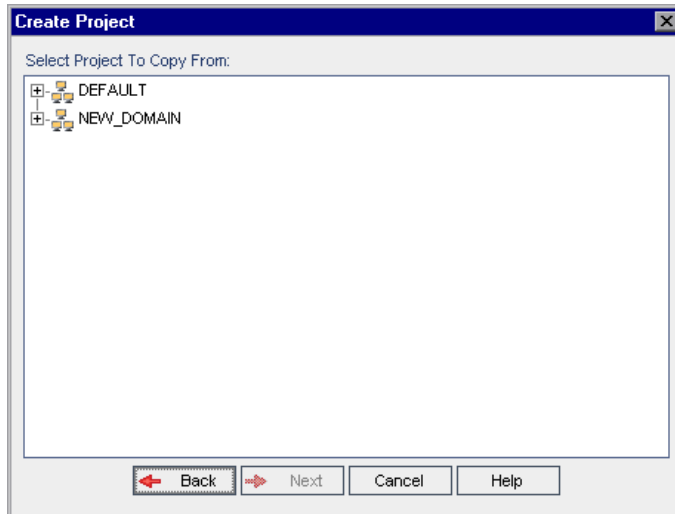
6 Under **Select Project To Copy From**, select the domain and project you want to copy and click **Next**. The following dialog box opens.

7 Select **Customization** to copy project lists, host data, system and user-defined fields, workflow, and transition rules to the new project. If this option is selected, you can also choose to copy any of the following:

Option	Description
Releases	Copies release data from the project.
Requirements	Copies requirement data from the project.
Risk-Based Quality Management	Copies risk-based quality management customization settings from the project. For more information, see "Customizing Risk-Based Quality Management" on page 271.
Tests	Copies test data and test resources from the project. If this option is selected, you can also choose the following option: ➤ **Test Sets.** Copies test set data from the project. If this option is selected, you can also choose to copy the following option: 　➤ **Runs.** Copies test run data from the project.
Defects	Copies defect data from the project.

Option	Description
Include History	Copies history data for the options that are selected.
Public Favorite Views	Copies public favorite view data from the project. For more information, refer to the *HP Quality Center User Guide*.
Dashboard Public Entities	Copies public analysis items and dashboard pages from the project. For more information, refer to the *HP Quality Center User Guide*.
Users and Groups	Copies user and group information and permission settings. If this option is selected, you can also choose to copy the following options: ➤ **Dashboard Private Entities.** Copies private analysis items and dashboard pages from the project. For more information, refer to the *HP Quality Center User Guide*. ➤ **Private Favorite Views.** Copies private favorite view data and Excel report definitions from the project. For more information, refer to the *HP Quality Center User Guide*. ➤ **Mail Conditions.** Copies the mailing configuration data. For more information, see "Configuring Automail" on page 265. ➤ **Alerts and Follow up Flags.** Copies alerts and follow up flags. For more information, refer to the *HP Quality Center User Guide*.

If the project from which you are copying has extensions enabled, Quality Center also copies the extensions and their associated data to the new project.

If the project from which you are copying contains libraries, Quality Center does not copy the libraries to the new project. For information on importing libraries, see the *HP Quality Center User Guide*.

8 To clear all options, click **Clear All**.

9 To select all options, click **Select All**.

10 Click **Next** to continue, and perform steps 8 to 19 in "Creating Projects" on page 32.

After you successfully complete these steps, the contents of the existing project are copied to a new project, and the new project is added to the Projects list.

Importing Projects

You can import data from exported Quality Center project files created in the same Quality Center version. You can also import data from customized projects created by content providers. For example, you can import customized tests, requirements, and test sets for SAP testing, Siebel testing, and SOX compliance testing created by HP content providers.

If you import a project that was previously exported from the same server, Quality Center recognizes that the same project already exists on the server, based on the project ID. You can choose to replace the existing project, or cancel the import process.

Version Control: If you import an exported version control enabled project, the project is imported with version control enabled. Version history is also copied.

You can also import data from template projects. For more information, see "Importing a Template Project" on page 58.

For more information on exporting projects, see "Exporting Projects" on page 78.

To import a Quality Center Project:

1 In Site Administration, click the **Site Projects** tab.

2 You can do one of the following:

➤ Select the domain to which you want to import a project, and click the **Import Project from QC Project File** button. Alternatively, right-click the domain and choose **Import Project**.

➤ Click the **Create Project** button. The Create Project dialog box opens.
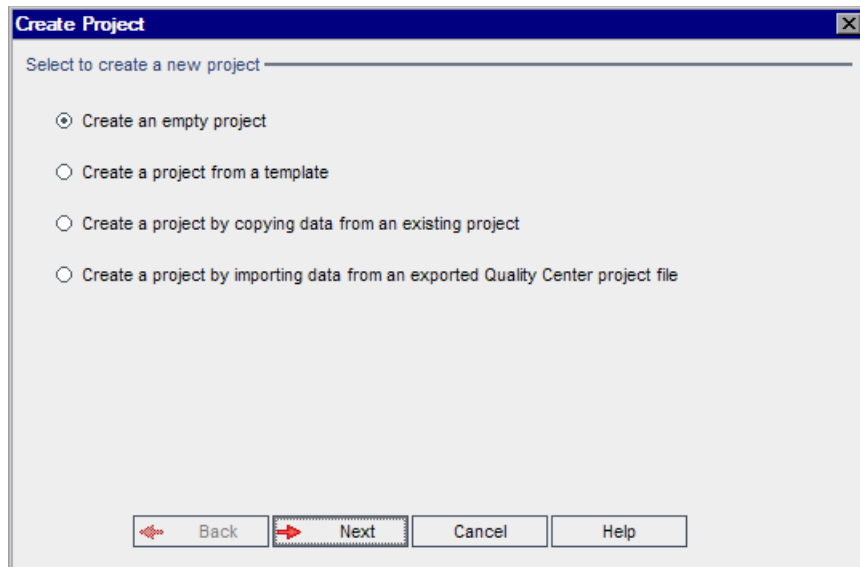
Choose the **Create a project by importing data from an exported Quality Center project file** option, and click **Next**.

3 The Select File for Import dialog box opens.
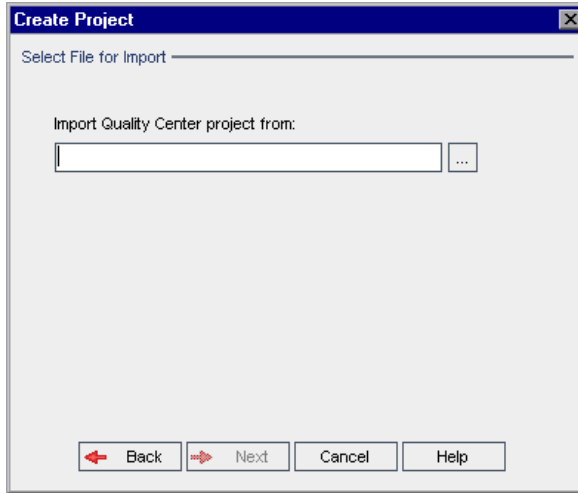
4 Click the browse button to the right of the **Import Quality Center project from** box to locate the project that you want to import. The Open dialog box opens.

5 Locate the directory and select the Quality Center Project Export file that you want to import. Click **Open**. The selected file is displayed in the **Import Quality Center project from** box.

Quality Center Premier Edition: If the selected file is a Quality Center template project file, Quality Center creates a new template project. The template project is added to the Projects list under **Template Projects**.

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6 Click **Next** to continue, and perform steps 8 to 19 on page 35 in "Creating Projects."

7 Click **Next**. The following dialog box opens.

After you successfully complete these steps, the data is imported to a new project, and the new project is added to the Projects list.

Creating Template Projects

Quality Center Premier Edition: Template projects enable you to define and maintain a common set of project customizations for multiple projects. When you create a template, you can link it to Quality Center projects. This enables the template administrator to apply template customization changes to the linked projects.

You create a new template project by creating an empty template, by copying an existing template or project, or by importing a template.

This section includes:

➤ Creating a Template Project

➤ Creating a Template from an Existing Template

➤ Creating a Template from an Existing Project

➤ Importing a Template Project

Creating a Template Project

You can create a new template project in Oracle or Microsoft SQL.

To create a template:

1 In Site Administration, click the **Site Projects** tab.

2 Select the domain in which you want to create the template.

3 Click the **Create Template** button. The Create Template dialog box opens.
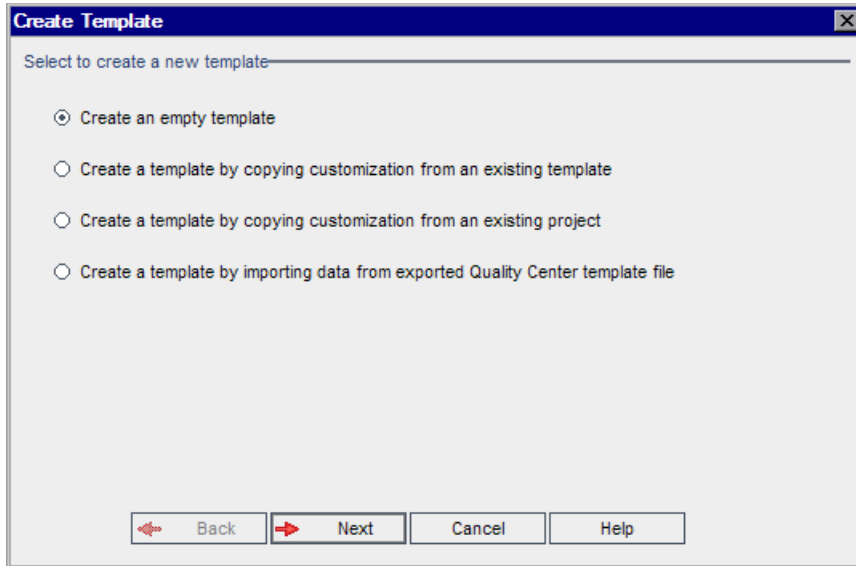
4 Select **Create an empty template** and click **Next**. The following dialog box opens.
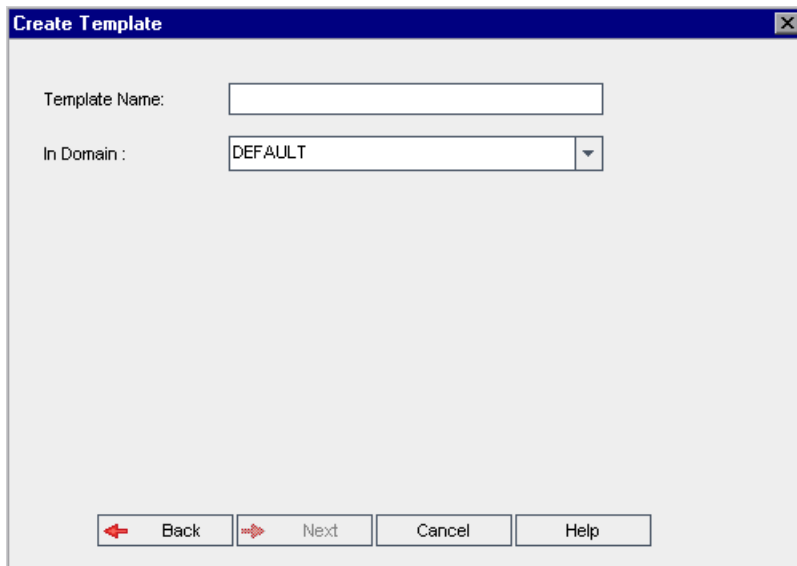
5 In the **Template Name** box, type a name for the template. The template name cannot be longer than 30 characters and cannot include any of the following characters: = ~ ' ! @ # $ % ^ & * ( ) + | { } [ ] : ' ; " < > ? , . / \ -

6 In the **In Domain** box, select a domain.

Tip: After the template has been created, you can move it to a different domain in the Projects list using a drag-and-drop operation.

---

7 Click **Next**. The following dialog box opens.

8 Under **Database Type**, select **Oracle** or **MS-SQL**.

9 The default values defined for the domain are displayed for **Server Name**, **DB Admin User**, and **DB Admin Password**. If additional database servers are defined, you can select another name from the **Server Name** list.

Note: For more information on defining database servers, see "Defining New Database Servers" on page 145.

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10 Click **Next**.

If your selected database server does not have the text search feature enabled, a message box opens. The message indicates that after this process completes, you can enable the text search feature. For more information on enabling the text search feature, see "Configuring Text Search" on page 150.

11 If you are creating a Microsoft SQL template, proceed to step 12 on page 51. For an Oracle template, the following dialog box opens.
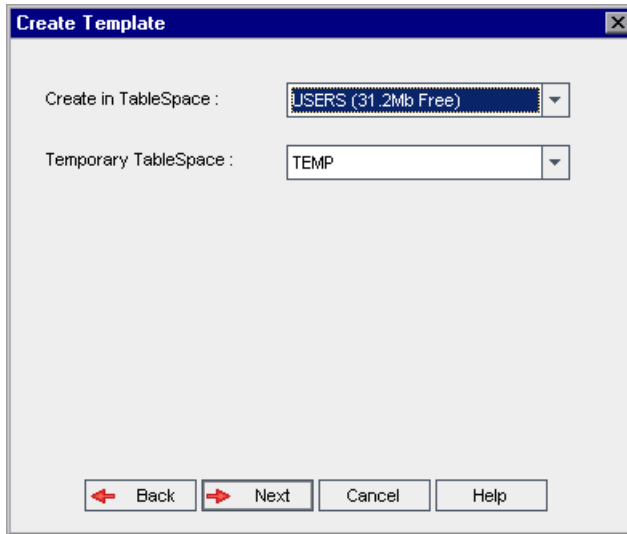
In the **Create in TableSpace** box, select a storage location that has sufficient space to store the new template. You should not use **UNDO** as the storage location.

In the **Temporary TableSpace** box, select a temporary storage location that has sufficient space to store the new template.

12 Click **Next**. The Add Template Administrators dialog box opens.
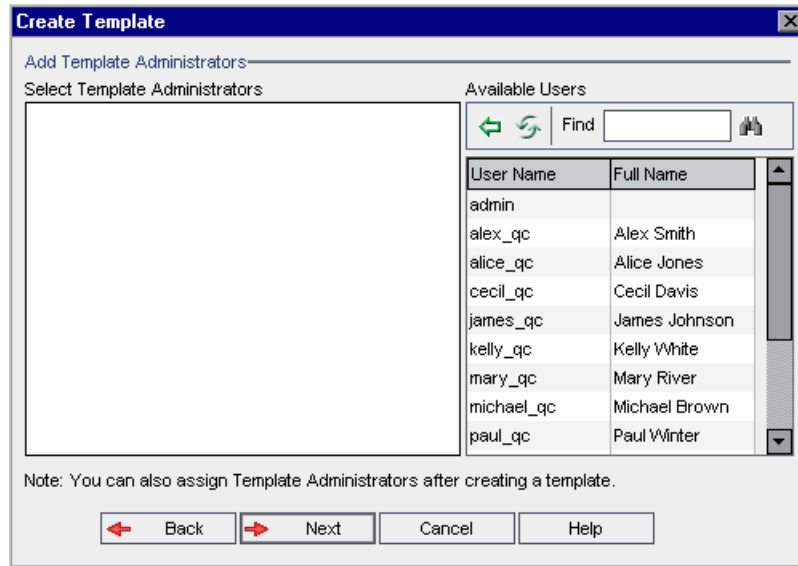
Selected Template Administrators lists Quality Center users that are assigned as template administrators. **Available Users** lists Quality Center users available in the template. When you assign template administrators, the users are moved from the Available Users list to the Selected Template Administrators list. Template administrator users can customize template projects and apply template customization to linked projects. For more information, see Chapter 16, "Cross Project Customization."

➤ **Refresh.** Click the **Refresh** button to refresh the list of available users.

➤ **Find.** Type the name of a user in the **Find** box, and click the **Find** button to search the Available Users list.

➤ **Add Selected Users.** Select the users you want to assign as template administrators, and click the **Add Selected Users** button. Alternatively, double-click a user name. The selected users are moved to the Selected Template Administrators list.

➤ **Delete.** To remove a user from the Selected Template Administrators list, right-click the user name and click **Delete**.

51

You can also assign template administrators after you have created the template. For more information, see "Assigning Project Administrators" on page 70.

13 Click **Next**. The following dialog box opens.
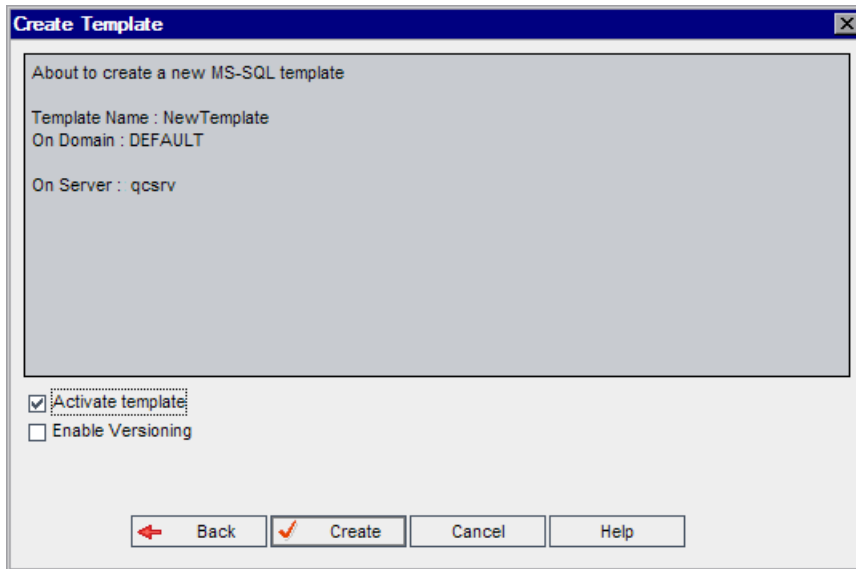
Verify the template details. To change any of the details, click **Back**.

14 Select **Activate template** to instruct Quality Center to activate the template. Only activated templates are available in the Quality Center Login window. For more information, see "Deactivating and Activating Projects" on page 79.

15 Select **Enable Versioning** to enable version control for the template. You can also enable version control after you have created the template. For more information, see "Enabling and Disabling Version Control for a Project" on page 80.

16 Click **Create**. The new template is added to the Projects list under **Template Projects**.

Creating a Template from an Existing Template

You can create a template project by copying an existing template. This
option copies both customization and project data from the source
template.

To create a template from an existing template:

1 In Site Administration, click the **Site Projects** tab.

2 Select the domain in which you want to create the template.

3 Click the **Create Template** button. The Create Template dialog box opens.
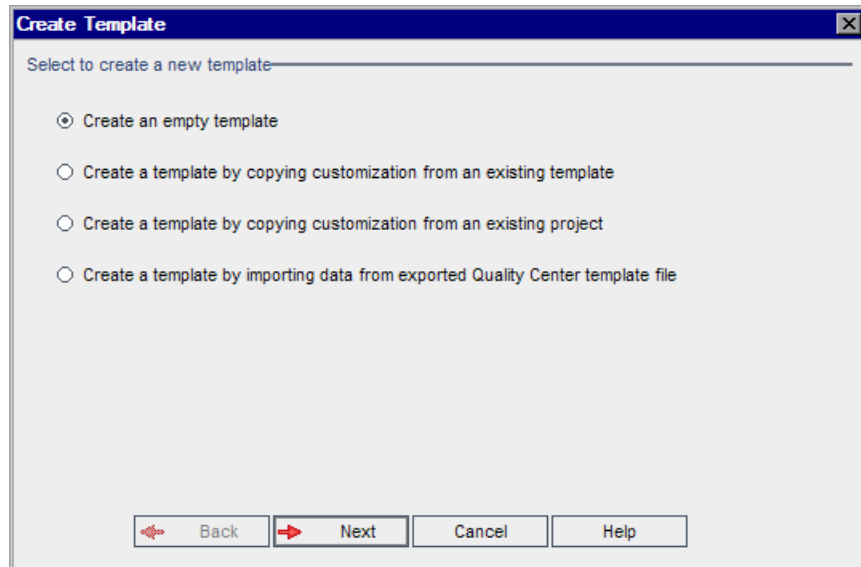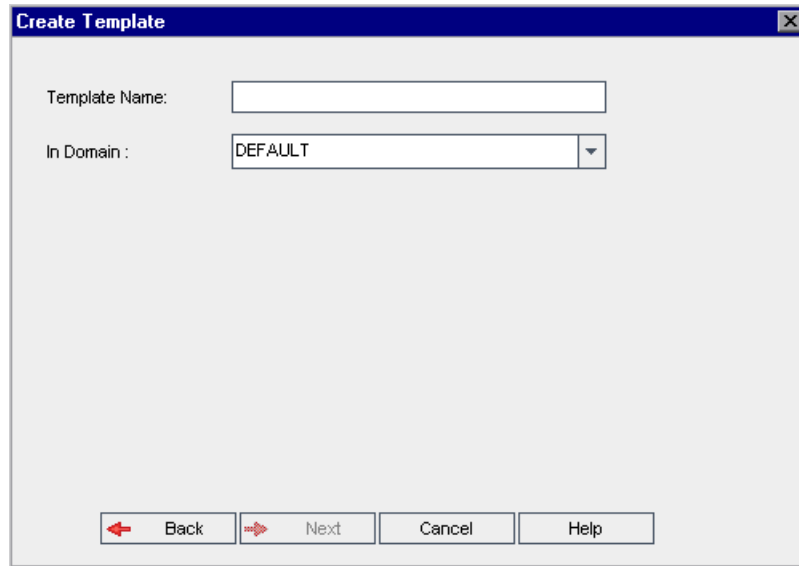
4 Select **Create a template by copying customization from an existing template** and click **Next**. The Copy Template dialog box opens.
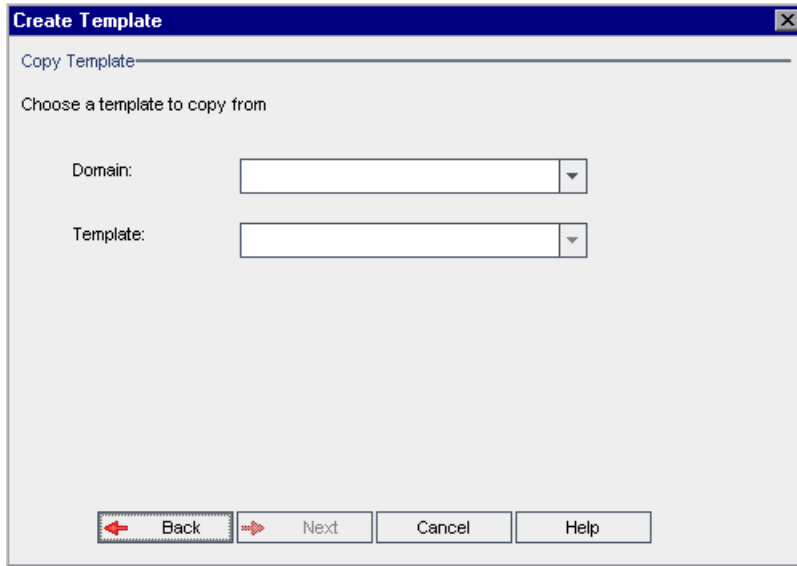
5 In the **Domain** box, select the domain where the template you want to copy is located.

6 In the **Template** box, select the template you want to copy.

7 Click Next. The following dialog box opens.

To continue, perform steps 5 to 16 on page 49 in "Creating a Template Project." After you successfully complete these steps, the new template is added to the Projects list under **Template Projects**.

Creating a Template from an Existing Project

You can create a template project by copying the customization of an existing project. This option copies customization from the project but does not copy project data.

You can choose to link the newly created template to the project from which it is copied. This enables the template administrator to apply template customization changes to the linked project.

Note: If the project from which you create the template contains workflow scripts, the scripts must be converted after the template is created. This enables the template administrator to apply template workflow customization to linked projects. For more information, see HP Software Self-solve knowledge base article KM494331 (http://h20230.www2.hp.com/selfsolve/document/KM494331).

To create a template from an existing project:

1 In Site Administration, click the **Site Projects** tab.

2 Select the domain where you want to create the template.

3 Click the **Create Template** button. The Create Template dialog box opens.
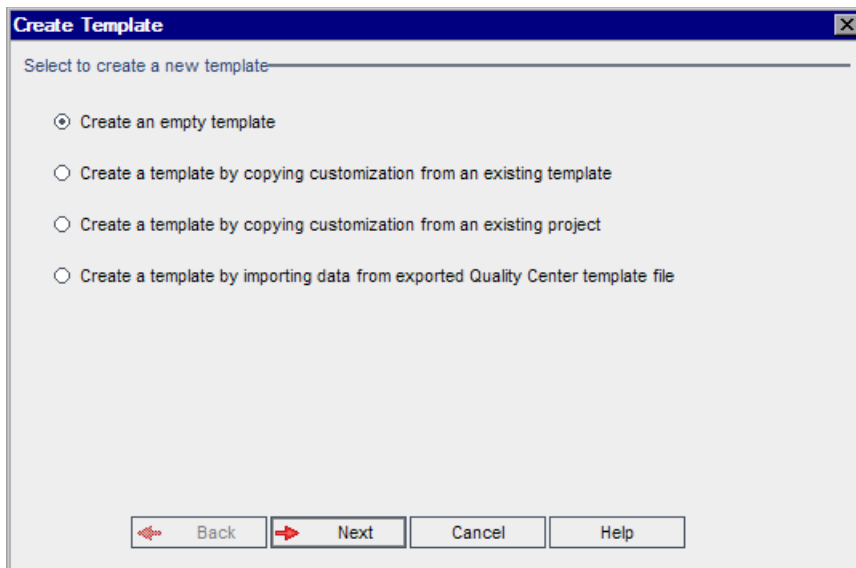
4 Select **Create a template by copying customization from an existing project** and click **Next**. The Copy from Project Customization dialog box opens.
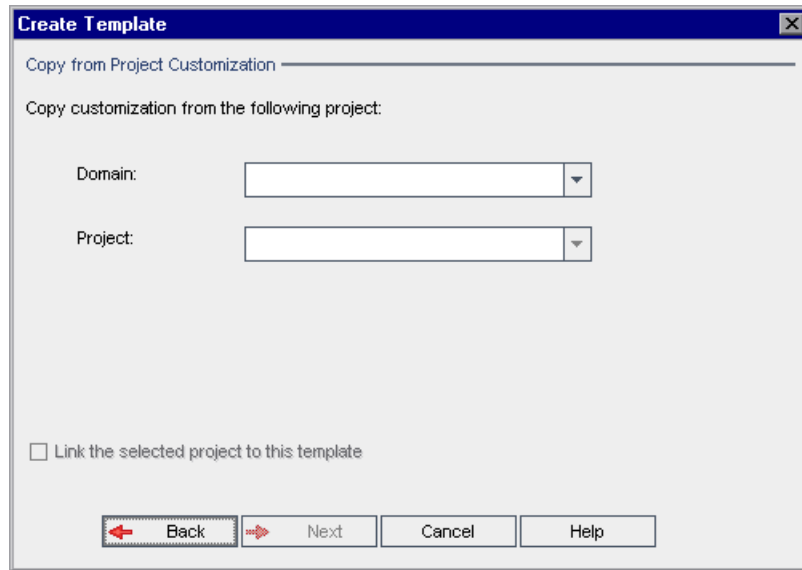
5 In the **Domain** box, select the domain where the project you want to copy is located.

6 In the **Project** box, select the project you want to copy.

7 Select **Link the selected project to this template** to link the project to the newly created template. This enables the template administrator to apply template customization changes to the linked project.

After you link a project to a template, the template administrator can apply template customization to the project. This applies the customization from the template to the linked project, and sets the applied customization to read-only in the project. For more information, see "Applying Template Customization to Linked Projects" on page 297.

8 Click **Next**. The following dialog box opens.
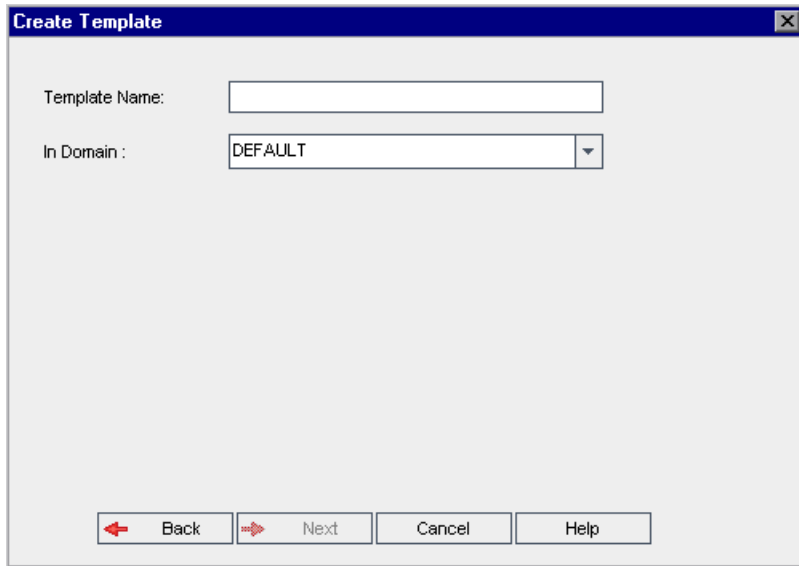
To continue, perform steps 5 to 16 in "Creating a Template Project" on page 47. After you successfully complete these steps, the new template is added to the Projects list under **Template Projects**.

Importing a Template Project

You can create a template project by importing data from an exported template project file created in the current version. For more information on exporting projects, see "Exporting Projects" on page 78.

If you import a template that was previously exported from the same server, Quality Center recognizes that the same template already exists on the server, based on the template ID. You can choose to replace the existing template, or cancel the import process. If you choose to replace the existing template when prompted, Quality Center overwrites the template, but does not overwrite connections to linked projects. The new template remains linked to the same projects.

To import a template project:

1 In Site Administration, click the **Site Projects** tab.

2 Select the domain where you want to create the template.

3 Click the **Create Template** button. The Create Template dialog box opens.
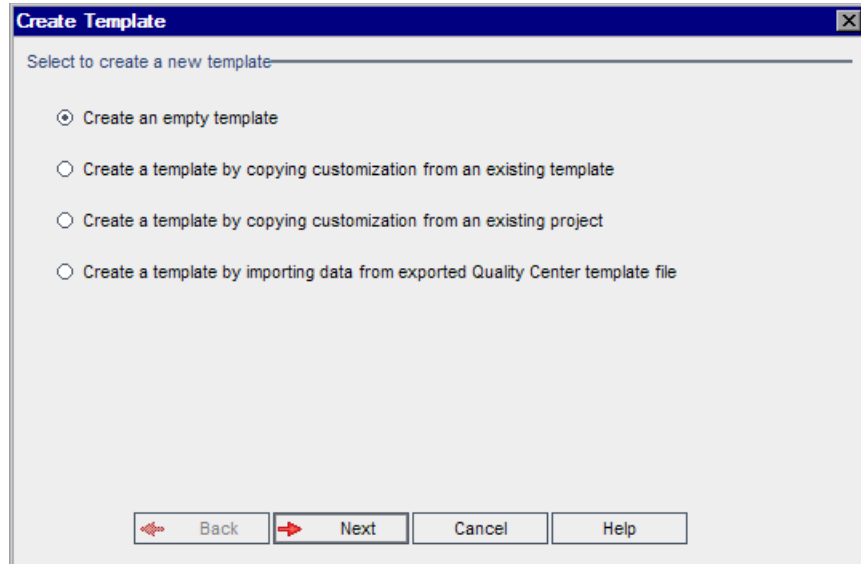
4 Select **Create a template by importing data from exported Quality Center template file**. The Create Template: Select File for Import dialog box opens.
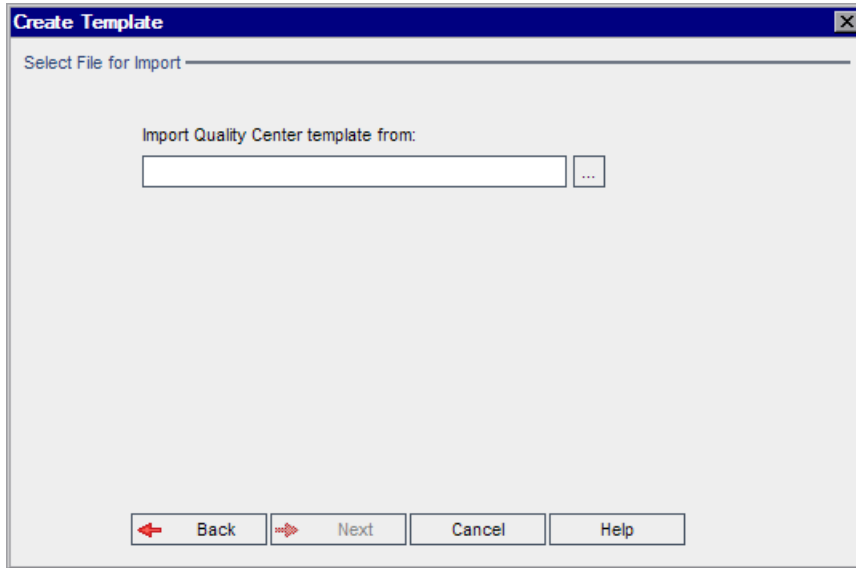
5 Click the browse button to the right of the **Import Quality Center template from** box to locate the template project that you want to import. The Open dialog box opens.

6 Locate the directory and select the Quality Center Project Export file that you want to import. Click **Open**. The selected file is displayed in the **Import Quality Center template from** box.

7 Click **Next** to continue, and perform steps 7 to 16 in "Creating a Template Project" on page 47. After you successfully complete these steps, the new template is added to the Projects list under **Template Projects**.

Linking a Template to Projects

You link a template to projects as part of cross project customization. The template administrator uses cross project customization to apply template customization to the linked projects. You can link a template to multiple projects, but you can link a project to only one template. For more information, see Chapter 16, "Cross Project Customization."

After you link a template to a project, the template administrator can apply template customization to the project. This applies the customization from the template to the linked project, and sets the applied customization in the project to read-only. For more information, see "Applying Template Customization to Linked Projects" on page 297.

You can also link a template to a project when you create a project. For more information, see "Creating Projects" on page 32. To link a template to a project when you create the template from an existing project, see "Creating a Template from an Existing Project" on page 55.

To link a template to projects:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a template project. In the right pane, click the **Linked Projects** tab. The Linked Projects list is displayed.
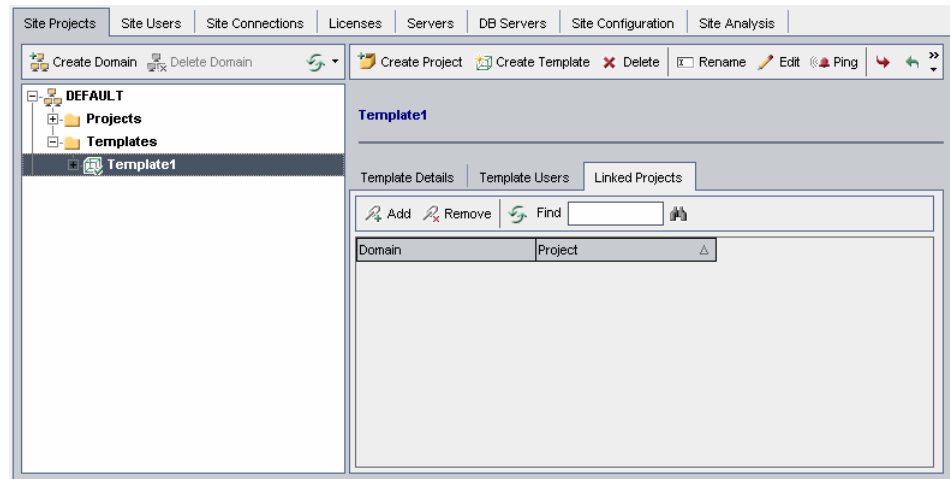
3 Click the **Add** button. The Projects list is displayed in the right pane.
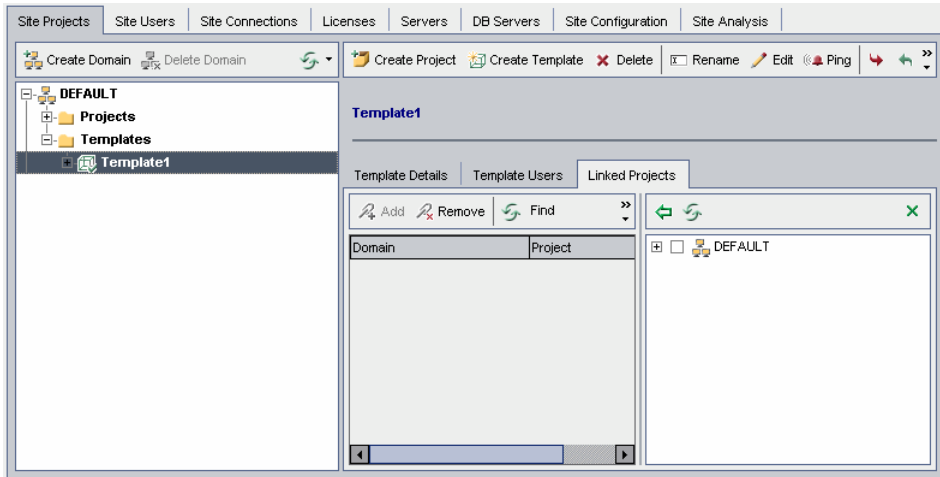
4 Select projects from the Projects list, and click the **Add Selected Projects** button. The selected projects are displayed in the Linked Projects list.

5 You can search for a project in the Linked Projects list by typing the name of a project in the **Find** box, and clicking the **Find** button. You can also click on a column heading to change the sort order of the projects in the Linked Projects list.

6 To remove a project from a template, in the Linked Projects list, select the project. To remove more than one project, press the CTRL key and select the projects. Click **Remove**. Click **OK** to confirm. This removes the project from the Linked Projects list, and the project is no longer linked to the template.

7 To refresh the Linked Projects list or the Projects list, click the **Refresh** button above the appropriate list.

Updating Project Details

You can update project details such as database type and project directory from the Project Details tab. You can also enable the automatic sending of defect email. Updated project details are written to the **dbid.xml** file, so that if a project is restored, the updated project data is used. For more information, see "Restoring Access to Projects" on page 85.

Tip: You can move a project to a different domain in the Projects list using a drag-and-drop operation. This does not change the physical location of the project.

Quality Center Premier Edition Cross Project Customization: If you are working with a template project, you update template details from the Template Details tab.

To update project details:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project. In the right pane, select the **Project Details** tab. The project's details are displayed.
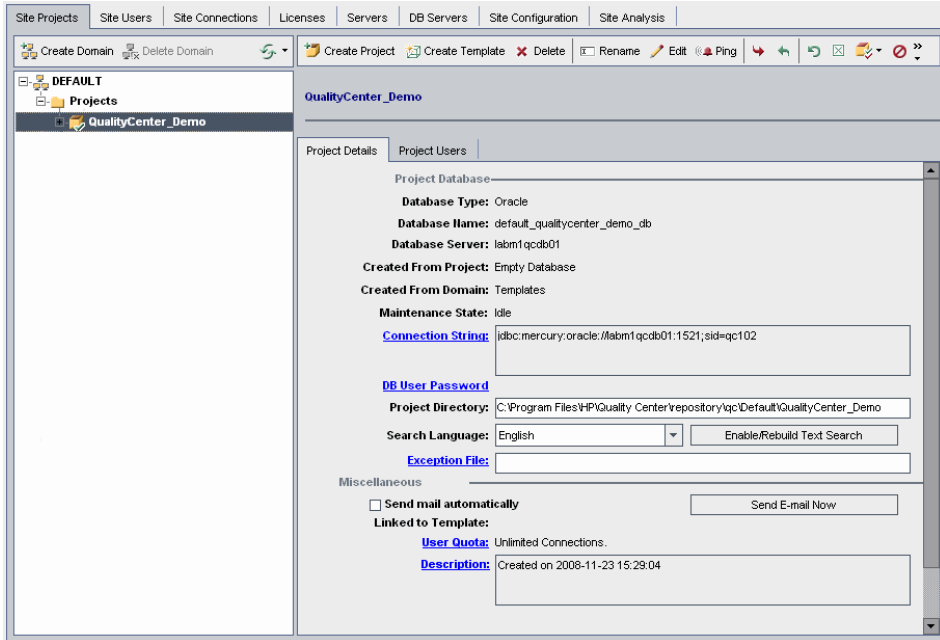
Note: If a project is inactive, the project icon is displayed in red. To activate, see "Deactivating and Activating Projects" on page 79.

3 Under **Project Database**, view the following project details:

Field	Description
Database Type	The database type can be MS-SQL or Oracle.
Database Name	The project name, as defined in the database.

Field	Description
Database Server	The name of the database server on which the database is located.
Created From Project	The project was copied from this project. An **Empty Database** value indicates that the project was not copied. For more information, see "Copying Projects" on page 40.
Created From Template	The project was copied from this template.
Restored From Project	The project was restored from this project. For more information, see "Restoring Access to Projects" on page 85.
Created From Domain	The project was copied from this domain.
Restored From Domain	The project was restored from this domain. For more information, see "Restoring Access to Projects" on page 85.
Maintenance State	Indicates whether a maintenance task is being performed on this project. Tasks include verifying, repairing, and upgrading a project. Possible values are: ➤ **Idle.** No maintenance is being performed on this project. ➤ **Corrupted.** Maintenance cannot be completed because the project is corrupted. To resume, a backup copy of this project must be restored. ➤ **Under maintenance task.** Maintenance is being performed on this project. For more information on maintaining projects, see "Upgrading Projects" on page 89.
Connection String	The connection string. To modify the connection string, see "Editing the Connection String" on page 83.
DB User Password	The user password for the Oracle server on which the database is located. To modify this password, see "Modifying Database Server Properties" on page 148.

Field	Description
Project Directory	The location of the project repository in the file system.
Search Language	Indicates the search languages for performing a text search. For more information, see "Selecting a Text Search Language for a Project" on page 154.
Exception File	Indicates the location of the exception file to be used when running the upgrade process. For more information, see "Upgrading Domains and Projects" on page 101.

4 Under **Miscellaneous**, select **Send mail automatically** to enable the mail configuration settings for a project. This instructs Quality Center to send email to specified users every time set defect fields are updated. If this check box is not selected, mail configuration settings for the project have no effect and email is not sent. For more information on configuring mail, see Chapter 13, "Configuring Automail."

Quality Center sends the defect messages automatically, at specified time intervals. You can edit the time interval using the MAIL_INTERVAL parameter in the **Site Configuration** tab. You can also specify if you want the email to include attachments and/or history. For more information, see "Setting Quality Center Configuration Parameters" on page 157.

To manually send the defect messages that have accumulated during the current time interval, click the **Send Email Now** button. If the **Send mail automatically** check box is not selected, defect messages do not accumulate, so this button has no effect.

5 If you enable the **Text Search** link in the **DB Servers** tab after you have added a project to the Projects list in the Site Projects tab (for example, after creating, upgrading, or migrating a project), you must also click the **Enable/Rebuild Text Search** button. For more information, see "Enabling Text Search in Quality Center" on page 152.

6 The **Linked to Template** field displays the name of the template that the project is linked to. For more information on linked templates, see "Updating Linked Template Details" on page 302.

7 To change the number of users allowed to connect concurrently to the project, click the **User Quota** link. The Project User Quota dialog box opens.
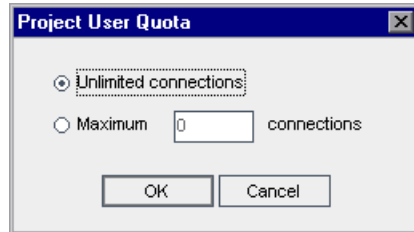
Choose **Maximum connections** and type the maximum number of concurrent connections allowed. Click **OK**.

Notes:

➤ The maximum number of users allowed to connect concurrently to the project should not exceed the number of users allowed to connect to its domain. For more information, see "Creating Domains" on page 30.

➤ **Quality Center Starter Edition:** Only five users can connect concurrently to the Quality Center server.

8 To add a description for the project, click the **Description** link. In the Edit Project Description dialog box, type your description and click **OK**.

9 Click the **Refresh Projects List** button to refresh the projects in the selected domain. To refresh projects in all domains, click the **Refresh Projects List** arrow and choose **Refresh All Domains**.

10 To assign users to a project, see "Assigning Users to Projects" on page 68.

Assigning Users to Projects

As a site administrator, you can control access to Quality Center projects or template projects by defining the users that can log on to the project. You can assign users to projects from the Quality Center Users list, or copy users from existing Quality Center projects. You can also assign users as project administrators. For more information on assigning project administrators, see "Assigning Project Administrators" on page 70.

When a user is no longer working on a project, remove the user from the project to ensure project security. Removing a user from a project does not delete the user from the Quality Center Users list. To remove the user from Quality Center, you must delete the user from the Site Users tab, as described in "Deleting Users" on page 131.

Notes:

➤ As a Quality Center project administrator, you can assign and remove users from projects, and change user privileges from the Project Customization window. For more information, see Chapter 10, "Managing Users in a Project."

➤ You can assign projects to users from the Site Users tab. For more information, see "Assigning Projects to Users" on page 128.

➤ Quality Center sends automatic email notification to project administrators when users are assigned or removed from a project in Site Administration. You can make automatic notification unavailable by adding the **AUTO_MAIL_USER_ NOTIFICATION** parameter in the Site Configuration tab. For more information, see "AUTO_MAIL_USER_ NOTIFICATION" on page 165.

Quality Center Premier Edition Cross Project Customization: If you are working with a template project, you assign users from the Template Users tab.

To assign users to a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project. In the right pane, select the **Project Users**
tab.

The users for the selected project are displayed.

You can click the **User Name** or **Full Name** column headers to change the
sort order of user names or full names in the Project Users list from
ascending to descending. You can also click the **Project Administrator**
column header to group users by project administrators.

3 Click the **Add** button, and choose one of the following options:

➤ **Add From The Users List.** The Users list is displayed to the right of the Project Users tab. Select the users that you want to assign to the project. You can search for users by typing a search string in the **Find** box above the Users list, and clicking the **Find** button.

➤ **Copy From Another Project.** The Projects list is displayed to the right of the Project Users tab. To copy a user, click a project to expand the project directory, and select the user name check box. To copy all users from a project, select the project's check box. To clear all selected users, click **Clear All**.

4 Select users from the Users list or Projects list, and click the **Add Selected Users** button. Alternatively, double-click a user. The selected users are displayed in the Project Users list.

5 To remove a user from a project, select the user in the Project Users list and click the **Remove** button. Click **Yes** to confirm. The user is removed from the Project Users list.

6 To refresh the Project Users list or Users list, click the **Refresh** button above the appropriate list.

Assigning Project Administrators

After you add users to projects you can assign users as project administrators (belonging to the TDAdmin user group). Project administrators have full privileges in the Quality Center project from the Project Customization window. For more information, see Chapter 11, "Managing User Groups and Permissions."

When you copy users from other projects, they are added with the same user group privileges they had in the project from which they were copied, provided the user group exists in this project. If the user group does not exist in this project, the users are added with Viewer group privileges. If you copy a user from another project in which the user is a project administrator, the user is automatically assigned as a project administrator in this project.

When you add users to the project from the Users list, those users are added with Viewer group privileges (read-only privileges).

Note: You can also assign project administrators when you create a new project. For more information, see "Creating Projects" on page 32.

Quality Center Premier Edition Cross Project Customization: If you are working with a template project, you assign users as template administrators from the Template Users tab.

To assign Project Administrator privileges to a user:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project. In the right pane, select the **Project Users** tab.

3 In the Project Users list, select the **Project Administrator** check box for each user you want to assign as a project administrator.

4 To remove a user from the Project Administrator group, clear the **Project Administrator** check box, and confirm you want to remove the user from the group.

Enabling Extensions for a Project

If you have a license for a Quality Center extension and the extension is installed on your Quality Center server, you must enable the extension for a project before you can use it with the project. Extensions add extra functionality to Quality Center. You cannot disable an extension for a project after you enable it.

Quality Center Premier Edition Cross Project Customization: If an extension is enabled for a template project, the extension must also be enabled for the template's linked projects. Linked projects can have additional extensions enabled.

To enable Quality Center extensions for a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project. In the right pane, click the **Project Extensions** tab. This tab is available only if you have a license for at least one extension and the extension is installed on the Quality Center server.
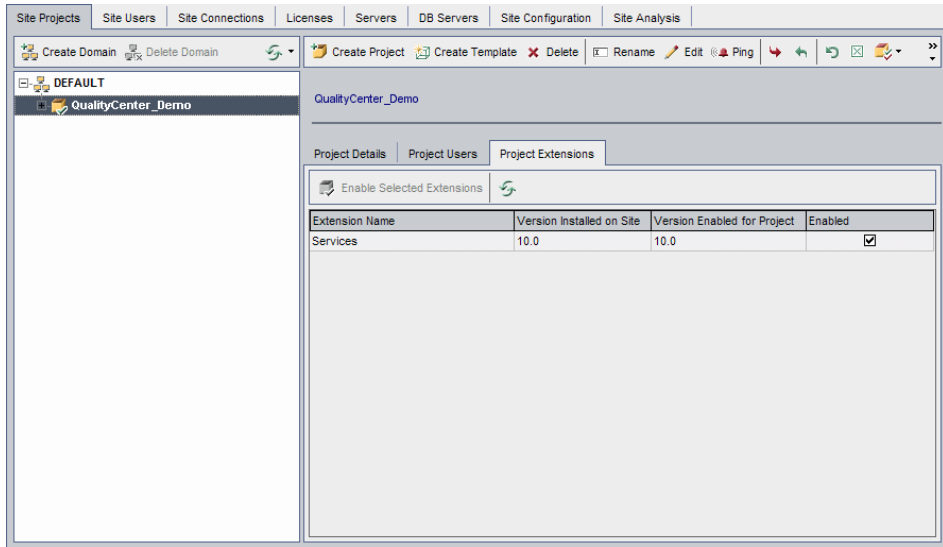
The Project Extensions tab includes the following fields:

Field	Description
Extension Name	Lists the Quality Center extensions installed on the Quality Center server.
Version Installed on Site	Lists the version number of the extensions installed on the Quality Center server.
Version Enabled for Project	Lists the version number of the extension enabled for the selected project.
Enabled	Indicates whether the extension is enabled for the selected project.

3 To enable a single extension for the project, in the Extensions list, select the **Enabled** check box for the extension you want to enable.

4 To enable more than one extension for the project, select the extensions you want to enable and click the **Enable Selected Extensions** button. Click **Yes** to confirm. The selected extensions are enabled for the project.

5 To refresh the Extensions list, click the **Refresh** button.

3

Managing Projects

Site Administration enables you to manage and maintain Quality Center domains and projects.

This chapter includes:

About Managing Projects

You manage Quality Center projects and template projects using Site Administration. After you create a project, you can export the project, query the contents of the project by defining and running SQL statements, deactivate/activate access to the project, and enable or disable version control for the project. You can also remove a project, and restore access to an existing project.

For more information on creating projects, see Chapter 2, "Creating Projects."

Quality Center Editions:

➤ **Quality Center Starter Edition:** Supports Microsoft SQL only. Allows you to concurrently connect a maximum of five users to the Quality Center server.

➤ **Quality Center Premier Edition:** Quality Center template projects are only available with Quality Center Premier Edition.

Querying Project Tables

You can query specific data that is stored in your project or template project. You query a project by defining and running SQL queries. The following examples show SQL queries and the results that they return.

Query	Results
select * from BUG where BG_STATUS = 'Open'	All defects that are open.
select * from BUG where BG_RESPONSIBLE = 'james_qc' or BG_RESPONSIBLE = 'mary_qc'	All defects assigned to either James or Mary.

Query	Results
select count (*) from BUG where BG_RESPONSIBLE = 'mary_qc'	The number of defects assigned to Mary.
select * from BUG where BG_RESPONSIBLE='james_qc' and BG_STATUS='open'	All open defects assigned to James.

Using the first query example, the SQL query returns the following:

To query a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, double-click a project.

3 Select a table. Quality Center automatically runs the "SELECT *" query for this table and displays all the data for the table in the SQL Query Results grid.

4 Define a query by typing an SQL statement in the SQL pane.

To navigate back to your previous SQL statement in the SQL pane, click the **Scroll SQL History Backward** button.

To navigate forward to your next SQL statement in the SQL pane, click the **Scroll SQL History Forward** button.

5 Click the **Execute SQL** button. The data returned by the query appears in the SQL Query Results grid.

To export query results, your database administrator can run the same queries on the project database and export the results for you.

Exporting Projects

Exporting Quality Center projects or template projects enables you to take project data from a Quality Center server, and back it up to another location or another media device. For example, you may want to create self-contained project image files that are backed up on a USB storage device or DVD. You can send the media device to a Quality Center server in another location, and import the project files. When you export a project file, it is saved and exported in ZIP format.

If you export a Quality Center project that has extensions installed, all data from the project is exported, including data for the extensions. You can only import such an exported project to a server that has the relevant extensions installed.

You can only import Quality Center project files created in the same Quality Center version. For more information on importing projects, see "Importing Projects" on page 44.

To export a Quality Center Project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project, and click the **Export Project to QC Project File** or **Export Template to QC Project File** button. Alternatively, right-click the project and choose **Export Project** or **Export Template**. If the project is active, you are prompted to deactivate it. For more information, see "Deactivating and Activating Projects" on page 79.

3 The Save As dialog box opens. Select the directory where you want to save the project data. Type a name for the project in the **File name** box. By default, the data is saved as a Quality Center Project Export file (**.qcp**).

4 Click **Save** to save the project data as a Quality Center Project Export file.

Deactivating and Activating Projects

You can deactivate or activate a Quality Center project or template project. When you deactivate a project, the project name is removed from the **Projects** box in the Quality Center Login window. The project is not deleted from the server. Any users currently connected to the project are forced to log out when you deactivate.

Note: It is recommended that you deactivate a project before you change any data that may cause inconsistency for connected users.

To deactivate a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project.

3 Click the **Deactivate Project** or **Deactivate Template** button. A message box indicates that all connected users will be disconnected.

4 Click **OK** to confirm. The project is deactivated and the project icon is changed in the Projects list.

To activate a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project.

3 Click the **Activate Project** or **Activate Template** button. The project is activated and the project icon is changed in the Projects list.

Enabling and Disabling Version Control for a Project

You can enable version control for a Quality Center project or template project. For more information on version control, refer to the *HP Quality Center User Guide*.

You can also disable version control for a project. When you disable version control for a project, Quality Center no longer stores previous versions, and deletes all version history for the project. If you enable version control for the project again, previous history is not available.

Note: After enabling version control for a project, you should review all its workflow scripts and make adjustments for each checked in entity. This includes the following entities: **Req**, **Test**, **Resource**, and **Component**. For each checked in entity that includes a **Post** function in its script, you must modify the script. To modify, add a **Checkout** function before every **Post** function. Making this modification prevents the Check Out dialog box from opening each time a call to a **Post** function is made. For more information, see "Workflow Event Reference" on page 337.

To enable version control for a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project.

3 Click the **Enable Versioning** button.

4 If the project is active, click **Yes** to deactivate it. Click **OK** to confirm.

5 When the process completes, click **OK**. Version control is enabled. Quality Center displays a lock icon next to the project name in the Projects list.

To disable version control for a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project.

3 Click the **Disable Versioning** button.

4 If the project is active, click **Yes** to deactivate it. Click **OK** to confirm.

5 A message displays, indicating that when you disable version control, Quality Center deletes all version history. Click **OK** to confirm.

6 Click **Yes** to disable version control. Version control is disabled. Quality Center removes the lock icon next to the project name in the Projects list.

Pinging Projects

You can check whether a project database or template project database is accessible from Site Administration.

To ping a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project.

3 Click the **Ping Project** or **Ping Template** button.

4 Click **OK** when prompted with a message that the ping was successful.

Renaming Projects

You can rename a project or template project in the Projects list.

To rename a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project.

3 Click the **Rename Project** or **Rename Template** button. If the project is active, you are prompted to deactivate it. For more information, see "Deactivating and Activating Projects" on page 79.

4 In the Rename Project dialog box, type the new name for the project and click **OK**. The project is renamed in the Projects list.

Removing Projects

You can remove a project or a template project from the Projects list in Site Administration. This does not delete the project from the server and you can restore the project if necessary. For more information on restoring access to a project, see "Restoring Access to Projects" on page 85.

To remove a project from the Projects list:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project.

3 Click the **Remove Project** or **Remove Template** button.

4 Click **OK** to confirm. If the project is still active, you are prompted to deactivate it. For more information, see "Deactivating and Activating Projects" on page 79.

5 Click **OK**.

Deleting Projects

You can delete a project or template project from the Projects list in Site Administration. This deletes the contents of the project from the server and you cannot restore the project.

To delete a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project.

3 Click the **Delete Project** or **Delete Template** button.

4 Click **OK** to confirm. If there are active users connected to the project, you are prompted to disconnected them.

The Database Admin Password dialog box opens. If you did not specify a database administrator user name or password, enter the database administrator's user name and password and click **OK**. If you previously specified a database administrator user name or password, these credentials are already entered in the dialog box.

5 Click **OK**.

Deleting Domains

You can delete a domain. It is removed from the Projects list, and its contents are deleted from the server.

Note: You cannot delete a domain if it contains projects or template projects. To delete the domain, you must first delete the projects. For more information, see "Deleting Projects" on page 82.

To delete a domain:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a domain.

3 Click the **Delete Domain** button.

4 Click **Yes** to confirm.

Editing the Connection String

You can edit a project's or a template project's connection string. For more information on connection strings, see "Defining New Database Servers" on page 145.

To edit the connection string:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project.

3 Click the **Edit Connection String** button or the **Connection String** link. If the project is still active, you are prompted to deactivate it. For more information, see "Deactivating and Activating Projects" on page 79.

The Connection String Editor dialog box opens.
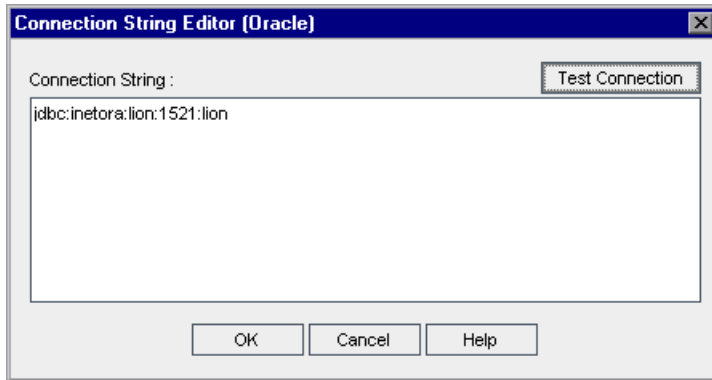
4 In the **Connection String** box, modify the attributes of the connection string, such as the database server name and port number.

5 To test the connection string, click **Test Connection**. In the Ping Database Server dialog box, type the database administrator user name and password and click **OK**. If the connection is successful, a confirmation message displays. Otherwise, an error message displays.

6 Click **OK** to save your connection string modification and close the Connection String Editor.

Restoring Access to Projects

You can restore access to a Quality Center project or template project that is not in your current Projects list in Site Administration. For example, you may want to access a project from another server. After you restore access to a project, it is added to the Projects list in Site Administration.

Notes:

➤ Before restoring the project, make sure that the database where the project resides exists in the **DB Servers** tab in Site Administration on your Quality Center server. The Quality Center server needs to access the contents of the restored project from the project's database. For more information, see Chapter 4, "Upgrading Projects."

➤ If a project has extensions installed, the server to which you restore it must also have the same extensions installed.

To restore access to a Quality Center project:

1 In Site Administration, click the **Site Projects** tab.

2 Click the **Restore Project** or **Restore Template** button. The Restore Project dialog box opens.

Restore Project	✕
dbid.xml file location:	...
Restore Into Domain: DEFAULT	▼
Restore Close Help	

3 To locate the file that includes the project that you want to restore, click the browse button to the right of the **dbid.xml file location** box. The Open File dialog box opens.

4 Locate the file. For information on the location of the **dbid.xml** file, see "Understanding the Project Structure" on page 27.

5 Select the **dbid.xml** file and click **Open**. The Restore Project dialog box opens and displays the database type, name, server, and the directory path of the project.
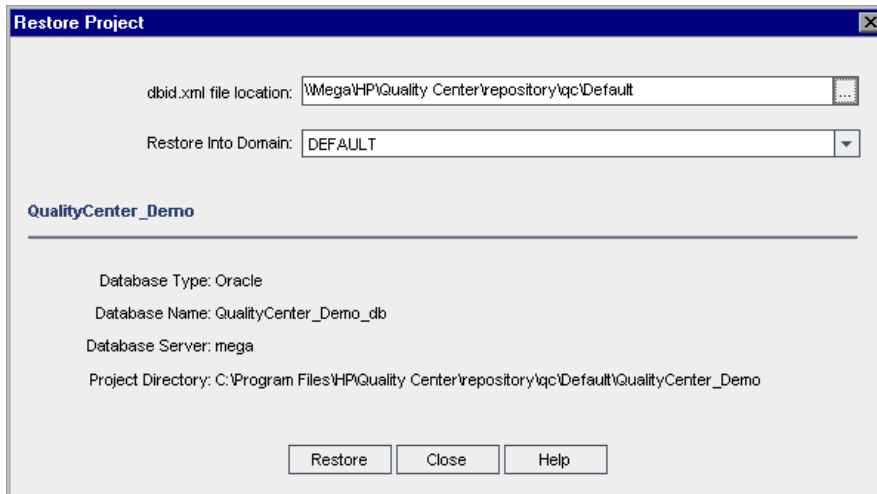
6 In the **Restore Into Domain** box, select the domain in which you want the restored project to be located.

7 Click **Restore**.

8 If your database server does not have the text search feature enabled, a message box opens. You can enable the text search feature before or after this process completes.

➤ Click **Yes** to continue this process. After the process completes, you can enable the text search feature.

➤ Click **No** to stop this process. Enable the text search feature and then restart the process.

For more information on enabling the text search feature, see "Configuring Text Search" on page 150.

9 When the restore process completes, click **OK**.

10 Click **Close** to close the Restore Project dialog box and view the restored project in the Projects list.

Renaming the Defects Module for a Project

You can rename the Defects module for a specific project or template project. For example, you can change the name of the Defects module from Defects to Bugs. You rename the Defects module by adding a parameter to the **DATACONST** table of the project. For more information on modifying project tables, see "Querying Project Tables" on page 76.

Note: You can rename any Quality Center module for all your projects by adding the **REPLACE_TITLE** parameter in the **Site Configuration** tab. For more information, see "REPLACE_TITLE" on page 173.

To rename the Defects module for a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, double-click the project for which you want to rename the Defects module.

3 Select the **DATACONST** table.

4 In the SQL pane, type an SQL INSERT statement to insert a row into the table with the following values:

➤ In the **DC_CONST_NAME** column, insert the parameter name REPLACE_TITLE.

➤ In the **DC_VALUE** column, insert a string that defines the new name for the Defects module, in the following format:

original title [singular];new title [singular];original title [plural];new title [plural]

For example, to change the name of the module from Defects to Bugs, type the following SQL statement into the SQL pane:

```
insert into dataconst values ('REPLACE_TITLE', 'Defect;Bug;Defects;Bugs')
```

5 Click the **Execute SQL** button. The new row is added to the **DATACONST** table. The Quality Center project displays the new Defects module name.

4

Upgrading Projects

To work with projects created in previous Quality Center versions, you must verify, repair, and upgrade your projects to align them with the required configurations of the current version of Quality Center.

This chapter includes:

About Upgrading Projects

To work with a project from a previous version, you must upgrade it to the current version of Quality Center. Projects from Quality Center 9.0 or 9.2 can be upgraded directly to Quality Center 10.00. Projects from Quality Center 8.x, TestDirector 8.0, or TestDirector 7.6 must first be upgraded to Quality Center 9.0 or 9.2.

The upgrade workflow consists of the following steps:

Verify Project

↓

Repair Project

↓
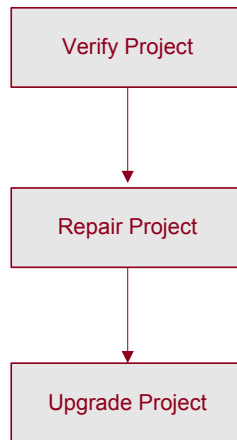
Upgrade Project

➤ **Verify project.** Detects problems in your environment, schema structure, and data integrity that could cause the project upgrade to fail.

The verification process generates a report which indicates problems that can be repaired by Quality Center and problems that you should repair manually. For more information, see "Verifying Domains and Projects" on page 92.

➤ **Repair project.** Fixes data and schema issues found by the verification process. If the verification process finds problems that can cause data loss, the repair process does not fix them automatically. You need to repair these problems manually. For more information, see "Repairing Domains and Projects" on page 96.

Before you start the repair process, you should back up your project. For more information, see "Backing Up Projects" on page 108.

➤ **Upgrade project.** Upgrades your project to the current version of Quality Center. For more information, see "Upgrading Domains and Projects" on page 101.

In the event that the upgrade fails, you must restore backed up projects before trying the upgrade process again. For more information, see "Restoring Projects" on page 109.

You can define an exception file to instruct Quality Center to ignore errors detected while running the verification, repair, or upgrade process. For more information, see "Defining an Exception File" on page 106.

Considerations for Upgrading to Quality Center 10.00

➤ **Version Control:** Projects from previous versions of Quality Center that use version control cannot be upgraded to Quality Center 10.00 while version control is enabled. After you disable version control for a project, previous history will not be available. For more information on disabling version control from previous versions, refer to the *HP Quality Center Installation Guide*.

➤ **Repository over Database Feature:** This feature is not available in Quality Center 10.00. If you used this feature in Quality Center 9.0 or 9.2, you should migrate the repository from the database to the file system before upgrading the project to Quality Center 10.00. To perform this migration, you must install Quality Center 9.0 Patch 26 or Quality Center 9.2 Patch 12. You can download these patches from HP Software Support Online (http://www.hp.com/go/hpsoftwaresupport).

➤ **Microsoft SQL Server 2000:** This database is not supported in Quality Center 10.00. To upgrade your projects, you must first migrate your database to a supported database. For more information, consult your database administrator. For more information on supported database servers, refer to the *HP Quality Center Installation Guide*.

➤ To upgrade from a previous Quality Center version to Quality Center 10.00 with the minimum possible interruption to your system operations, you should be familiar with the considerations and recommendations involved in the upgrade process. For more information, see Appendix A, "Guidelines for Upgrading Quality Center."

➤ For help with repairing project database schema and data problems that cannot be fixed by Quality Center, refer to the *HP Quality Center Upgrade Preparation Guide*.

Verifying Domains and Projects

Before you upgrade a Quality Center project, you run the verification process to check the correctness of your database user schema and data. Although your database user schema and data may be correct for your previous version of Quality Center, they may not be consistent with the specifications for the current version of Quality Center.

The verification process detects problems in your environment, settings, schema structure, and data integrity that could cause the upgrade to fail. It generates a verification report which alerts you to problems that can be repaired by Quality Center and problems that you should manually repair.

By default, the verification report is saved on the Quality Center server machine. The **VERIFY_REPORT_FOLDER** parameter enables you to change this default location. For more information, see "VERIFY_REPORT_FOLDER" on page 177.

After the project has been verified, you can still use it with a previous version of Quality Center.

This section includes:

➤ Verifying a Project

➤ Verifying a Domain

Verifying a Project

This section describes how to verify a single project.

To verify a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project.

3 Click the **Maintain Project** button and choose **Verify Project**. The Verify Project dialog box opens.
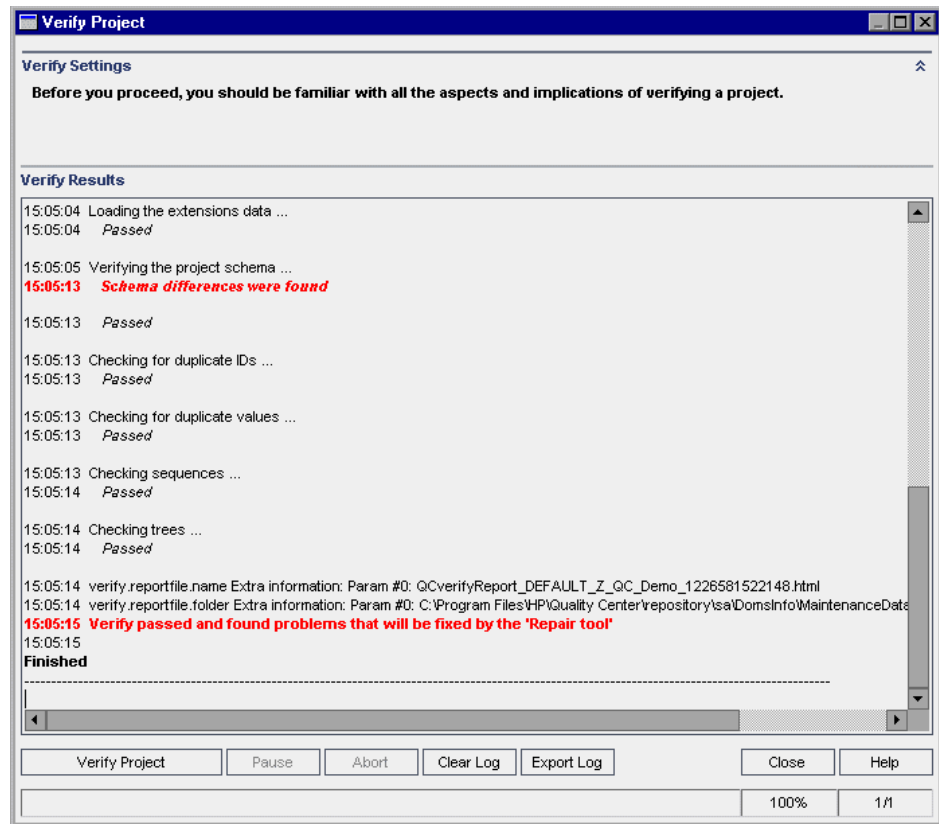
4 Click the **Verify Project** button to start the verification process. In the Verify Results pane, log messages are displayed.

If an error occurs while running the process, a message box opens. Click the **Abort** or **Retry** buttons accordingly.

5 To pause the verification process, click the **Pause** button. To continue, click the **Resume** button.

6 To abort the verification process, click the **Abort** button. Click **Yes** to confirm.

7 To save the messages displayed in the Verify Results pane to a text file, click the **Export Log** button. In the Export Log to File dialog box, choose a location and type a name for the file. Click **Save**.

8 To clear the messages displayed in the Verify Results pane, click the **Clear Log** button.

9 When the verification process completes, the Verify Results pane displays the location of the verification report. By default, the file is located in the following directory: **<Quality Center repository path>\sa\DomsInfo\ MaintenanceData\out\<Domain Name>\<Project Name>**.

10 Analyze the verification report. The report indicates both problems that can be repaired by Quality Center automatically, and the problems that you need to repair manually.

11 Click **Close** to close the Verify Project dialog box.

Verifying a Domain

This section describes how to verify all projects in a domain.

To verify a domain:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a domain.

3 Click the **Maintain Domain** button and choose **Verify Domain**. The Verify Domain dialog box opens.
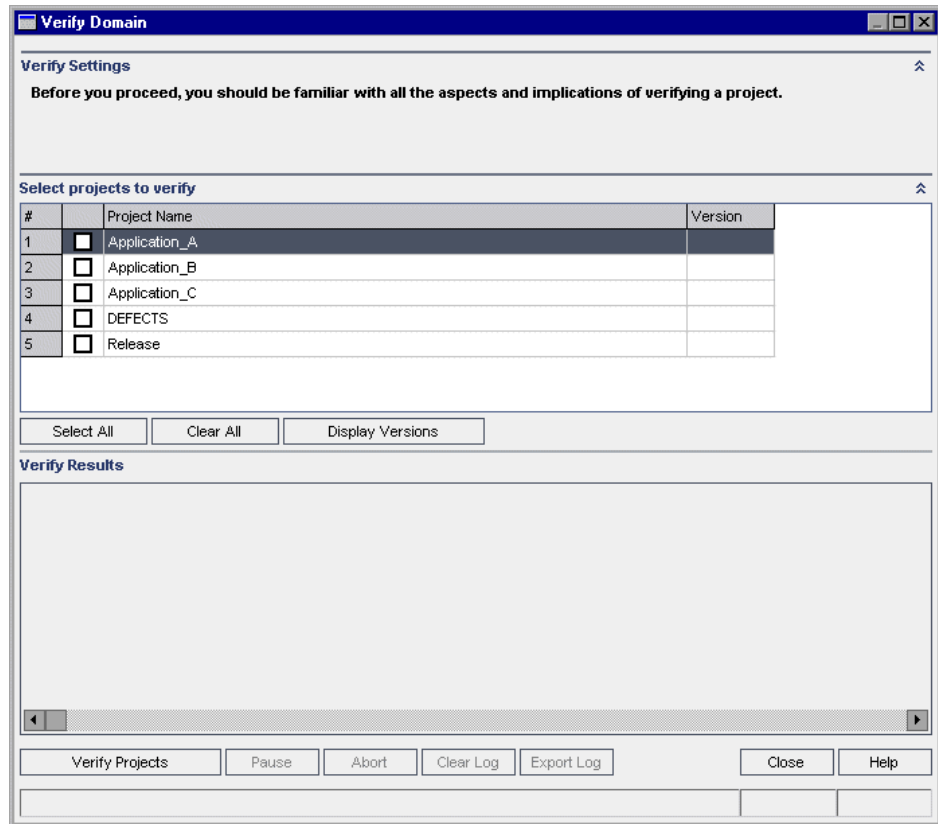
4 To view the current version numbers of your projects, select the project names, or click **Select All** to view version numbers for all projects. Click the **Display Versions** button.

The project version number is displayed in the **Version** column.

5 To verify your projects, select the project names, or click **Select All** to verify all projects. Click the **Verify Projects** button.

If an error occurs while running the process, a message box opens. Click the **Abort** or **Retry** buttons accordingly.

6 To pause the verification process, click the **Pause** button. To continue, click the **Resume** button.

7 To abort the verification process, click the **Abort** button. Click **Yes** to confirm.

8 To save the messages displayed in the Verify Results pane to a text file, click the **Export Log** button. In the Export Log to File dialog box, choose the location and type the name for the file. Click **Save**.

9 To clear the messages displayed in the Verify Results pane, click the **Clear Log** button.

10 When the verification process completes, the Verify Results pane displays the location of each verification report. By default, the files are located in the following directory: **<Quality Center repository path>\repository\sa\ DomsInfo\MaintenanceData\out\<Domain Name>\<Project Name>**.

11 Analyze the verification report. The report indicates problems that can be repaired by Quality Center and the problems that you need to repair manually.

12 Click **Close** to close the Verify Domain dialog box.

Repairing Domains and Projects

The repair process fixes most data and schema issues found by the verification process. If the verification process finds problems that can cause data loss, the repair process does not fix these automatically. You need to repair these problems manually. To find out whether a particular issue is handled automatically or manually, refer to the verification report.

By default, the repair process runs in non-silent mode. When running the process in non-silent mode, Quality Center may pause and prompt you for input when an error occurs. Instead, you can choose to run the process in silent mode. When an error occurs, Quality Center will abort the process without prompting you for input.

After the project has been repaired, you can still use it with a previous Quality Center version.

Repairing a Project

This section describes how to repair a single project.

To repair a project:

1 Back up your project. For more information, see "Backing Up Projects" on page 108.

2 Repair problems that cannot be fixed by Quality Center, as indicated in your verification report (see Step 9 on page 94).

3 In Site Administration, click the **Site Projects** tab.

4 In the Projects list, select a project.

5 Click the **Maintain Project** button and choose **Repair Project**. The Repair Project dialog box opens.
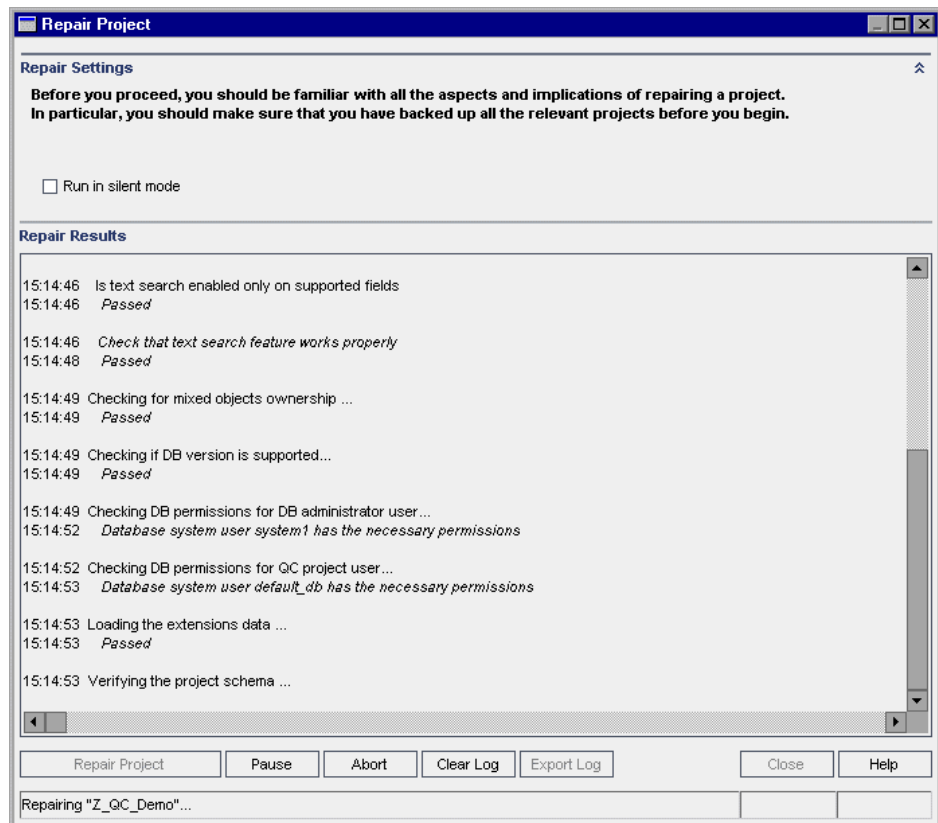
6 To run the repair process without any user interaction, select **Run in Silent Mode**.

7 To start the repair process, click the **Repair Project** button. If the project is active, you are prompted to deactivate it. For more information, see "Deactivating and Activating Projects" on page 79.

If an error occurs while running the process in non-silent mode, a message box opens. Click the **Abort** or **Retry** buttons accordingly.

8 To pause the repair process, click the **Pause** button. To continue, click the **Resume** button.

9 To abort the repair process, click the **Abort** button. Click **Yes** to confirm.

10 To save the messages displayed in the Repair Results pane to a text file, click the **Export Log** button. In the Export Log to File dialog box, choose a location and type a name for the file. Click **Save**.

11 To clear the messages displayed in the Repair Results pane, click the **Clear Log** button.

12 Click **Close** to close the Repair Project dialog box.

Repairing a Domain

This section describes how to repair all projects in a domain.

To repair a domain:

1 Back up your projects. For more information, see "Backing Up Projects" on page 108.

2 Repair problems that cannot be fixed by Quality Center, as indicated in your verification report (see Step 10 on page 96).

3 In Site Administration, click the **Site Projects** tab.

4 In the Projects list, select a domain.

5 Click the **Maintain Domain** button and choose **Repair Domain**. The Repair Domain dialog box opens.

6 In the **Repair Settings** area, under **Repair Mode**, you can select the following options:

➤ **Run in Silent Mode.** Runs the process without any user interaction.

➤ **Continue to next project if repair failed.** Proceeds to the next project if the repair process fails. This is the default option.

7 In the **Repair Settings** area, under **After the Repair**, you can select one of the following options:

➤ **Leave all projects deactivated.** Leaves all projects deactivated after the repair process completes.

➤ **Activate only currently active projects.** Reactivates previously-activated projects after the repair process completes. This is the default option.

➤ **Activate all projects.** Activates all projects after the repair process completes.

8 To view the current version numbers of your projects, select the project names, or click **Select All** to view version numbers for all projects. Click the **Display Versions** button.

The project version number is displayed in the **Version** column.

9 To repair your projects, select the project names, or click **Select All** to verify all projects. Click the **Verify Projects** button.

If an error occurs while running the process in non-silent mode, a message box opens. Click the **Abort** or **Retry** buttons accordingly.

10 To pause the repair process, click the **Pause** button. To continue, click the **Resume** button.

11 To abort the repair process, click the **Abort** button. Click **Yes** to confirm.

12 To save the messages displayed in the Repair Results pane in a text file, click the **Export Log** button. In the Export Log to File dialog box, choose a location and type a name for the file. Click **Save**.

13 To clear the messages displayed in the Repair Results pane, click the **Clear Log** button.

14 Click **Close** to close the Repair Domain dialog box.

Upgrading Domains and Projects

After the project has been verified and repaired, you can proceed to upgrade your project to the current version of Quality Center.

By default, the upgrade process runs in non-silent mode. When running the process in non-silent mode, Quality Center may pause and prompt you for input when an error occurs. Instead, you can choose to run the process in silent mode. When running the process in silent mode, Quality Center aborts the process without prompting you for input.

After the project has been upgraded, you can no longer use the project with a previous version of Quality Center.

Note: If the project you are upgrading includes QuickTest Professional assets, such as QuickTest tests, components, function libraries, and shared object repositories, you must use the HP QuickTest Professional Asset Upgrade Tool for Quality Center to upgrade these assets to the current version. For more information, see the *HP QuickTest Professional Asset Upgrade Tool for Quality Center Help* (available from the QuickTest Professional installation DVD).

Upgrading a Project

This section describes how to upgrade a single project.

To upgrade a project:

1 If you have backed up your project during the repair process (see "Repairing Domains and Projects" on page 96), proceed to step 3.

2 Back up your projects. For more information, see "Backing Up Projects" on page 108.

3 In Site Administration, click the **Site Projects** tab.

4 In the Projects list, select a project.

5 Click the **Maintain Project** button and choose **Upgrade Project**. The Upgrade Project dialog box opens.
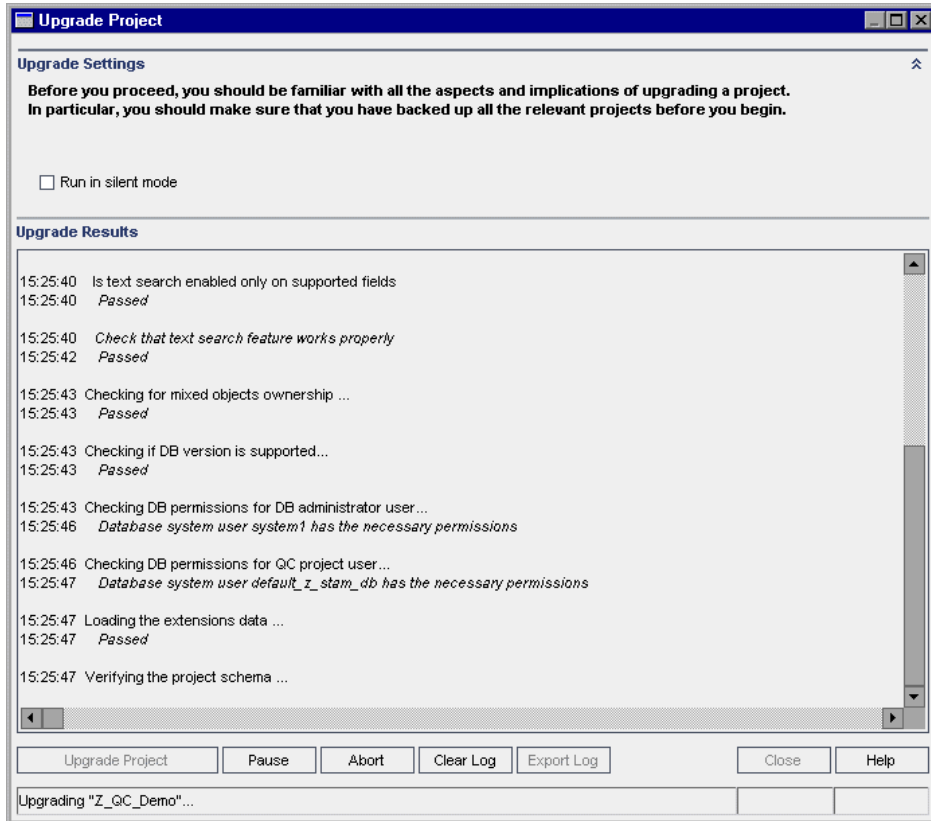
6 To run the upgrade process without any user interaction, select **Run in Silent Mode**.

7 To start the upgrade process, click the **Upgrade Project** button. If the project is active, you are prompted to deactivate it. For more information, see "Deactivating and Activating Projects" on page 79.

If an error occurs while running the process in non-silent mode, a message box opens. Click the **Abort** or **Retry** buttons accordingly.

If the upgrade fails, Quality Center displays an error message with reasons for the failure and refers you to the log file. You must restore the backed up project before you try to upgrade again. For more information, see "Restoring Projects" on page 109.

8 To pause the upgrade process, click the **Pause** button. To continue, click the **Resume** button.

9 To abort the upgrade process, click the **Abort** button. Click **Yes** to confirm.

10 To save the messages displayed in the Upgrade Results pane to a text file, click the **Export Log** button. In the Export Log to File dialog box, choose a location and type a name for the file. Click **Save**.

11 To clear the messages displayed in the Upgrade Results pane, click the **Clear Log** button.

12 Click **Close** to close the Upgrade Project dialog box.

Upgrading a Domain

This section describes how to upgrade all projects in a domain.

To upgrade a domain:

1 If you have backed up your project during the repair process (see "Repairing Domains and Projects" on page 96), proceed to step 3.

2 Back up your projects. For more information, see "Backing Up Projects" on page 108.

3 In Site Administration, click the **Site Projects** tab.

4 In the Projects list, select a domain.

5 Click the **Maintain Domain** button and choose **Upgrade Domain**. The Upgrade Domain dialog box opens.
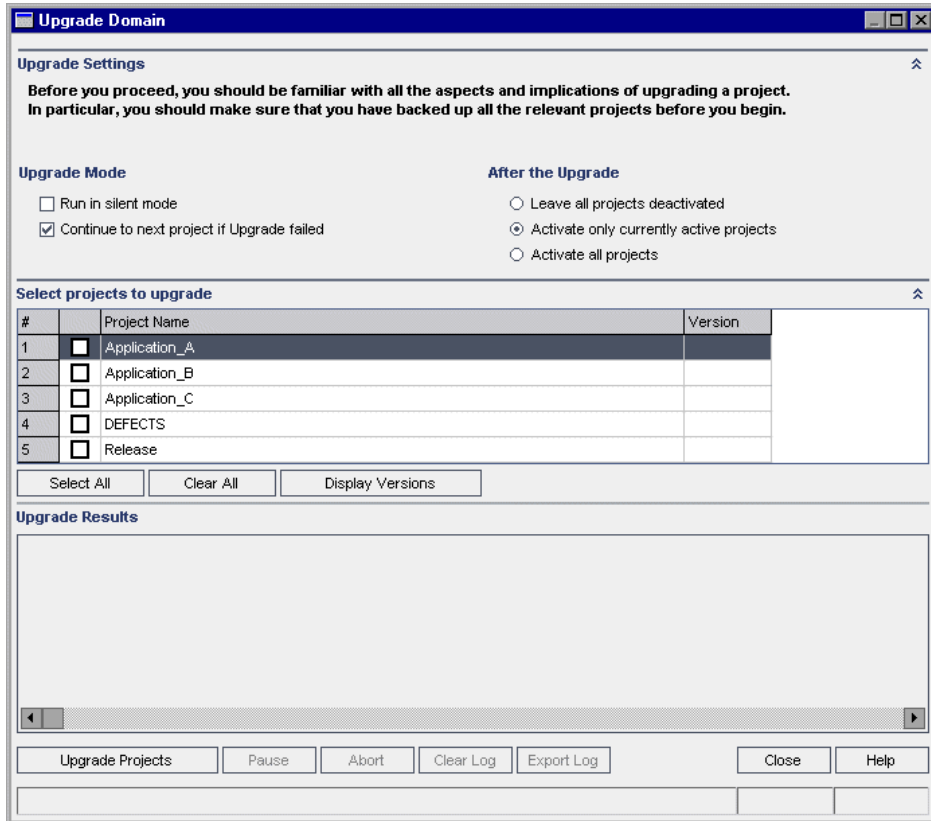
6 In the **Upgrade Settings** area, under **Upgrade Mode**, you can select the following options:

➤ **Run in Silent Mode.** Runs the process without any user interaction.

➤ **Continue to next project if upgrade failed.** Proceeds to the next project if the upgrade process fails. This is the default option.

7 In the **Upgrade Settings** area, under **After the Upgrade**, you can select one of the following options:

> ➤ **Leave all projects deactivated.** Leaves all projects deactivated after the upgrade process completes.

> ➤ **Activate only currently active projects.** Reactivates previously-activated projects after the upgrade process completes. This is the default option.

> ➤ **Activate all projects.** Activates all projects after the upgrade process completes.

8 To view the current version numbers of your projects, select the project names, or click **Select All** to view version numbers for all projects. Click the **Display Versions** button.

The project version number is displayed in the **Version** column.

9 To upgrade your projects, select the project names, or click **Select All** to verify all projects. Click the **Upgrade Projects** button.

If an error occurs while running the process in non-silent mode, a message box opens. Click the **Abort** or **Retry** buttons accordingly.

If the upgrade fails, Quality Center displays an error message with reasons for the failure and refers you to the log file. You must restore the backed up projects before you try to upgrade again. For more information, see "Restoring Projects" on page 109.

10 To pause the upgrade process, click the **Pause** button. To continue, click the **Resume** button.

11 To abort the upgrade process, click the **Abort** button. Click **Yes** to confirm.

12 To save the messages displayed in the Upgrade Results pane in a text file, click the **Export Log** button. In the Export Log to File dialog box, choose a location and type a name for the file. Click **Save**.

13 To clear the messages displayed in the Upgrade Results pane, click the **Clear Log** button.

14 Click **Close** to close the Upgrade Domain dialog box.

Defining an Exception File

You can define an exception file to instruct Quality Center to ignore warnings for objects that are added manually to the Quality Center database user schema, and are not defined in the Quality Center schema configuration file.

You can use the exception file to ignore warnings for extra tables, views, columns, and sequences. For any other problem that requires manual repair, consult with your database administrator.

You must use the same exception file when running the verification, repair, or upgrade process.

You can set an exception file for a single project or for all projects in Site Administration.

Important: Using the exception file to ignore warnings for objects that are added manually to the Quality Center schema, may compromise the stability of your project upgrade and the validity of the Quality Center database user schema.

To define an exception file:

1 Open the **SchemaExceptions.xml** file. By default, the file is located in the **<Quality Center repository path>\sa\DomsInfo\MaintenanceData** directory.

2 Edit the file and define the exceptions. You can edit the file using Java regular expressions. For example:

➤ For an extra table:

```
<TableMissing>
    <object pattern="MY_Table" type="extra"/>
</TableMissing>
```

➤ For an extra view:

```
<ViewMissing>
     <object pattern="MY_VIEW" type="extra"/>
</ViewMissing>
```

➤ For an extra column:

```
<ColumnMissing>
     <object pattern="MY_COLUMN" type="extra"/>
</ColumnMissing>
```

➤ For an extra sequence:

```
<SequenceMissing>
     <object pattern="MY_SEQUENCE" type="extra"/>
</SequenceMissing>
```

3 To set an exception file for a single project:

   a In Site Administration, click the **Site Projects** tab.

   b In the Projects list, select a project. In the right pane, select the **Project Details** tab. The project's details are displayed.

   c Under **Project Database**, click **Exception File**. The Edit Exception File dialog box opens.

   d Type the file location and click **OK**.

4 To set an exception file for all projects:

   a In Site Administration, click the **Site Configuration** tab.

   b Add the **UPGRADE_EXCEPTION_FILE** parameter to the list of parameters and define the exception file location. For more information on setting parameters, see "Setting Quality Center Configuration Parameters" on page 157.

Backing Up Projects

When you run the repair or upgrade process, Quality Center performs changes on your projects to align them with the specifications for the current version of Quality Center. You should back up your projects before you start to repair or upgrade them.

To back up a project:

➤ Back up the project database schema on the database server.

    ➤ **Microsoft SQL database.** For information on backing up a schema on a Microsoft SQL database, see HP Software Self-solve knowledge base article KM169526 (http://h20230.www2.hp.com/selfsolve/document/ KM169526).

    ➤ **Oracle database.** For information on backing up a schema on an Oracle database, see HP Software Self-solve knowledge base article KM205839 (http://h20230.www2.hp.com/selfsolve/document/KM205839).

➤ Back up the project data in the file system.

    ➤ In the file system, ensure that all data, including automated tests scripts and results, and attachments, is saved in the project directory under the repository defined during the installation of Quality Center. Make a copy of this project directory including all subdirectories and files.

    ➤ If your automated tests are stored outside the project directory, make a copy of them.

Tip: To find out whether your tests are outside the project directory, log in to the Site Administrator. In the **Site Projects** tab, expand the project you want to back up and click the **DATACONST** table. Select the **DC_CONST_NAME** parameter with the value **tests_directory** and verify the corresponding **DC_VALUE**. If it is not set as **tests** but is set instead to some other location, then your tests are outside of the project folder.

Restoring Projects

If the upgrade process fails, you must restore the backed up projects before trying the process again. You can restore projects that were backed up on an Oracle or Microsoft SQL database server, or in the file system.

This section includes:

➤ Restoring Projects from a Microsoft SQL Database Server

➤ Restoring Projects from an Oracle Database Server

➤ Restoring a Repository from the File System

Restoring Projects from a Microsoft SQL Database Server

This section describes how to restore a project backed up on a Microsoft SQL database server.

For more information, see HP Software Self-solve knowledge base article KM169526 (http://h20230.www2.hp.com/selfsolve/document/KM169526).

To restore a project from a Microsoft SQL database server:

1 From the SQL Server Enterprise Manager, navigate to the database and select **Tools** > **Restore Database**.

2 Navigate to the backup file, and follow the restore procedure to complete the data restore process.

3 In the Site Administrator, restore the project. If you are restoring your project from a different directory, or if you renamed your schema, you must update the **dbid.xml** file accordingly. For more information on restoring access to projects, see "Restoring Access to Projects" on page 85.

Restoring Projects from an Oracle Database Server

This section describes how to restore a project backed up on an Oracle database server.

For more information, see HP Software Self-solve knowledge base article KM205839 (http://h20230.www2.hp.com/selfsolve/document/KM205839).

To restore a project from an Oracle database server:

1 Copy the backup file to the Oracle server machine.

2 Using the SQL*Plus utility, log in to the Oracle server using the **system** account.

3 Create a user for the Quality Center project. Make sure you create it with the same name as the Quality Center project name (or the Oracle user name) when the project was exported.

Use these SQL statements:

CREATE USER [<project name>] IDENTIFIED BY tdtdtd DEFAULT TABLESPACE TD_data TEMPORARY TABLESPACE TD_TEMP;

GRANT CONNECT,RESOURCE TO [<project name>];

4 On the Quality Center installation DVD, locate the **\Utilities\Databases\Scripts** directory. Open the **qc_project_db___oracle.sql** file and follow the instructions.

5 Using the command line, type **imp** to run the import utility.

6 Follow the prompt, and log in to the Oracle server using the **system** account. Make sure you import all the dump files.

After all tables have been successfully imported, a confirmation message displays.

7 In Site Administrator, restore the project. If you are restoring your project from a different directory, or if you renamed your schema, you must update the **dbid.xml** file accordingly. For more information on restoring access to projects, see "Restoring Access to Projects" on page 85.

Restoring a Repository from the File System

This section describes how to restore a repository backed up in the file system.

To restore a repository from the file system:

1 Copy the backed up repository to the Quality Center repository.

2 In the Site Administrator, restore the project. If you are restoring your project from a different directory, or if you renamed your schema, you must update the **dbid.xml** file accordingly. For more information on restoring access to projects, see "Restoring Access to Projects" on page 85.

5

Managing Quality Center Users

You manage Quality Center users in Site Administration. You can add new Quality Center users, define user details, change user passwords, and define site administrators. You can also import users from LDAP and enable LDAP authentication for users. After you add users, you can assign projects to users.

This chapter includes:

About Managing Users

You use Site Administration to manage the users connected to your Quality Center projects. You begin by adding or importing new users to the Users list in Site Administration. You can then define user details and change or override a user's password. You can also enable users to log in to Quality Center using their LDAP passwords.

For each Quality Center user, you can select projects that the user can access. You can also define Quality Center users as site administrators. For more information, see "Defining Site Administrators" on page 23.

Note: You can monitor the users currently connected to a Quality Center server. For more information, see Chapter 6, "Managing User Connections and Licenses."

Adding a New User

You can add new users to the Users list in Site Administration. After the user is added, you can view users and define user details. For more information on updating user details, see "Updating User Details" on page 124.

You can also import new users from LDAP directories. For more information, see "Importing Users from LDAP" on page 116.

Note: Creating a new user for a Quality Center project consists of two steps:

➤ Adding the user to the Users list in Site Administration (as described in this section).

➤ Assigning the user to a user group using Project Customization. Each user group has access to certain Quality Center tasks. For more information, see Chapter 10, "Managing Users in a Project," and Chapter 11, "Managing User Groups and Permissions."

To add a new user:

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

| Site Projects | Site Users | Site Connections | Licenses | Servers | DB Servers | Site Configuration | Site Analysis |

Password

User Name	Full Name
alex_qc	Alex Smith
alice_qc	Alice Jones
cecil_qc	Cecil Davis
james_qc	James Johnson
kelly_qc	Kelly White
mary_qc	Mary River
michael_qc	Michael Brown
paul_qc	Paul Winter
peter_qc	Peter Adams
robert_qc	Robert Phillips
tim_qc	Tim Robins
tom_qc	Tom Veller

alex_qc

User Details | User Projects

User Name: alex_qc

Full Name: Alex Smith

E-mail:

Phone Number:

Description: Demo user

Apply

Total Users: 14

2 Click the **New User** button. The New User dialog box opens.

New User

User Name:

Full Name:

E-mail:

Phone Number:

Description:

OK   Cancel   Help

3 Type a **User Name** (maximum length 60 characters) and **Full Name**.

4 Type additional user information: **Email**, **Phone Number**, and a **Description**. The email information is important, as it enables users to receive project information directly to their mailboxes.

> **Note:** You can update user information in the User Details tab. For more
> information, see "Updating User Details" on page 124.

5 Click **OK**. The new user is added to the Users list.

Importing Users from LDAP

You can import users from an LDAP directory to the Users list in Site
Administration.

> **Notes:**
>
> ➤ Working with LDAP through SSL requires that you perform additional
> steps. For more information, see HP Software Self-solve knowledge base
> article KM188096 (http://h20230.www2.hp.com/selfsolve/document/
> KM188096).
>
> ➤ The **LDAP_TIMEOUT** parameter enables you to define a connection time-
> out between Quality Center and an LDAP server. By default, the value is
> set to 10 minutes. For more information, see "LDAP_TIMEOUT" on
> page 169.

To import a user from LDAP:

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

2 Ensure that the LDAP import settings are defined. For more information, see
"Defining LDAP Settings for Importing Users" on page 118.

3 Click the **Import LDAP Users** button. The Import LDAP Users dialog box opens.
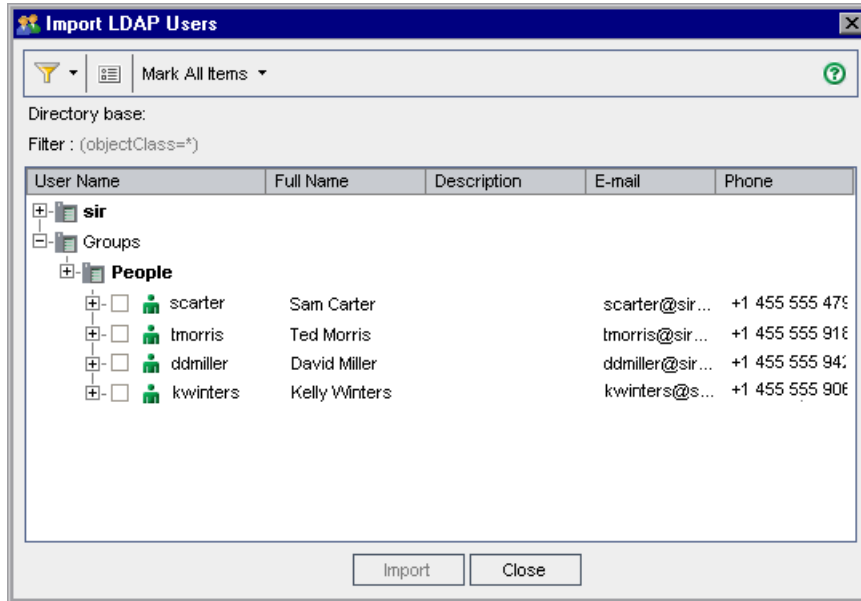
4 To filter the LDAP directory base, click the **Filter All** button. If you have preselected users, a warning message box opens. Click **OK** to clear all selections and continue. The Filter dialog box opens. Type a filter condition to display specific records from your LDAP directory base and click **OK**.

5 To view LDAP details for a user, select an item and click the **Show LDAP Details** button. The LDAP User Details dialog box opens and displays the user attributes.

6 You can use the following options to import users:

➤ To import a user, expand a directory and mark the user name by selecting the check box.

➤ To import a group of users, use CTRL or SHIFT to highlight users to be included. Click the **Mark All Items** arrow and choose **Mark Selected Items** to select the check boxes of the highlighted users.

➤ To import all users, click **Mark All Items**.

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7 To clear the check boxes of highlighted users, click the **Mark All Items** arrow and choose **Clear Selected Items**. To clear all check boxes, click the **Mark All Items** arrow and choose **Clear All**.

8 Click **Import**. A confirm message box opens. Click **Yes** to continue.

➤ If the users were imported successfully, a message box opens. Click **OK**. Proceed to step 9.

➤ If the same user names exist in the Users list, the Handle Conflict dialog box opens. For more information, see "Handling User Name Conflicts" on page 121.

9 Click **Close** to close the Import LDAP Users dialog box.

Defining LDAP Settings for Importing Users

To enable you to import users from an LDAP directory to the Users list in Site Administration, you must define your LDAP import settings.

When you import users from an LDAP directory, Quality Center copies attribute values from an LDAP directory into Quality Center. For each imported user, the following attribute values are copied:

➤ **Distinguished name (DN).** A unique name that is made up of a sequence of relative distinguished names (RDN) separated by commas.

For example: CN=John Smith, OU=QA, O=Mercury

where CN is the common name; OU is the organizational unit; and O is the organization.

➤ **Userid (UID).** The name that identifies a user as an authorized user. The UID attribute value is mapped to the **User Name** field in Quality Center.

➤ **Full Name, Description, Email and Phone.** Optional attributes that are used to populate the Full Name, Description, Email, and Phone Number fields for each user imported from an LDAP directory.

Note: The optional **LDAP_IMPORT_ATTRIBUTE_MASK** parameter enables you to define a regular expression that can be used to distinguish between different values for an LDAP attribute. For more information, see "Setting Quality Center Configuration Parameters" on page 157.

To define LDAP settings for importing users:

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

2 Click the **User Settings** button and choose **LDAP Import Settings**. The LDAP Import Settings dialog box opens.

3 In the **Directory provider URL** box, type the URL of the LDAP server (ldap://<server name>:<port number>).

4 Under **LDAP authentication type**:

➤ Select **Anonymous** to enable you to import users from the LDAP server using an anonymous account.

➤ Select **Simple** to enable you to import users from the LDAP server using an authorized user account and password.

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5 If you select **Simple**, the following options are enabled:

> ➤ In the **Authentication principal** box, type the authorized user name.

> ➤ In the **Authentication credentials** box, type the password.

6 Click the **Test Connection** button to test the URL of the LDAP server.

7 Choose one of the following options:

> ➤ To define additional LDAP settings, proceed to step 8.

> ➤ To close the LDAP Import Settings dialog box, click **Finish**.

8 To define additional LDAP settings, click **Next**. The following dialog box opens:
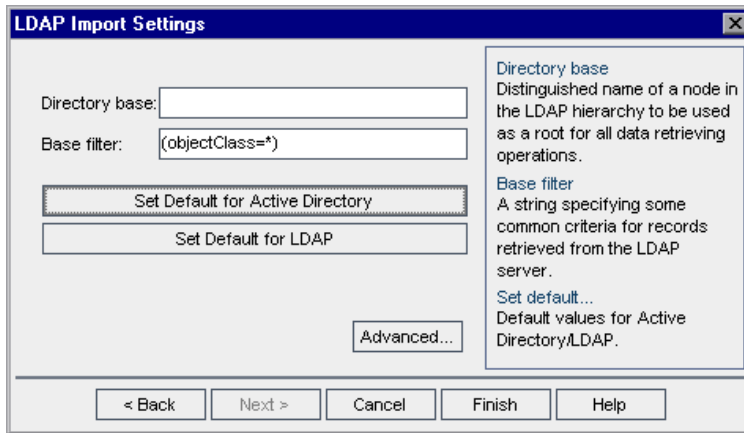
9 In the **Directory base** box, type the LDAP directory name.

10 In the **Base filter** box, define filter criteria.

11 To set the default values for the Active Directory, click the **Set Default for Active Directory** button.

12 To set the default values for LDAP, click the **Set Default for LDAP** button.

13 Choose one of the following options:

> ➤ To populate optional attributes in Quality Center for each user imported from an LDAP directory, proceed to step 14.

> ➤ To close the LDAP Import Settings dialog box, click **Finish**.

14 To populate optional attributes in Quality Center for each user imported from an LDAP directory, click **Advanced**. The following dialog box opens.

15 Define the corresponding LDAP field names. Note that **User Name** is a required field.

16 Click **Finish** to close the LDAP Import Settings dialog box.

Handling User Name Conflicts

When importing users from an LDAP directory to the Users list in Site Administration, you may encounter the following conflicts:

➤ **Same user.** A user with the same LDAP distinguished name already exists.

➤ **Same user name.** A user with the same user name already exists.

To resume the process of importing users, you can choose to skip the user, rename a user name, or update user information.

To handle user name conflicts:

1 Import users (see step 8 on page 118 in "Importing Users from LDAP"). If conflicts occur, the Handle Conflict dialog box opens.
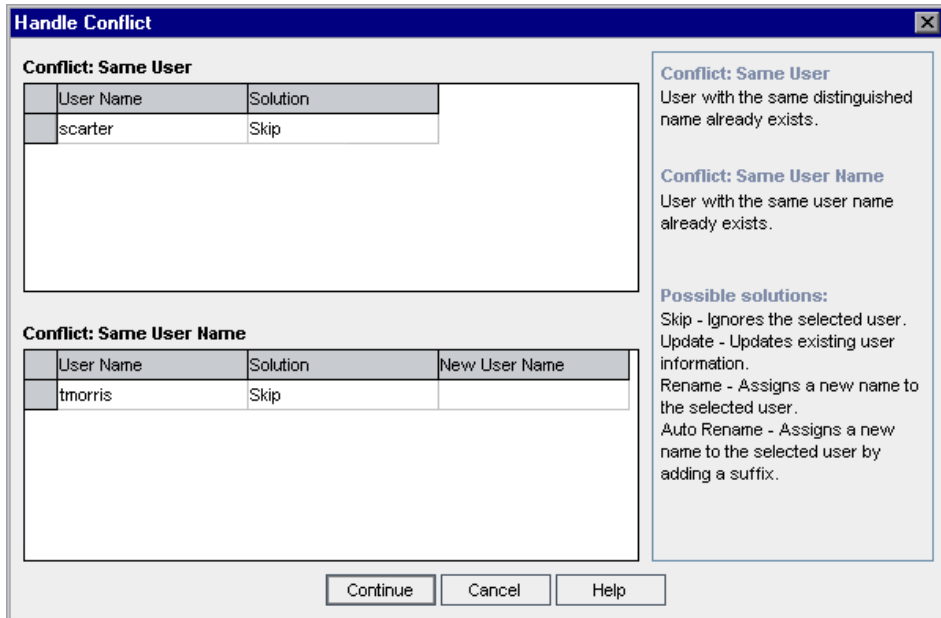
2 If the conflict is listed under **Conflict: Same User**, you can choose one of the following options to resume the process:

Option	Description
Update	Updates existing user information. Click the corresponding **Solution** box. Click the browse button and choose **Update**.
Skip	Does not import the selected user (default).

3 If the conflict is listed under **Conflict: Same User Name**, you can choose one of the following options to resume the process:

Option	Description
Rename	Assigns a new name to the selected user. Click the corresponding **Solution** box. Click the browse button and choose **Rename**. In the **New User Name** box, type the new name.
Auto Rename	Assigns a new name to the selected user by adding a suffix. Click the corresponding **Solution** box. Click the browse button and choose **Auto Rename**. The new name is displayed in the **New User Name** box.
Update	Updates existing user information. Click the corresponding **Solution** box. Click the browse button and choose **Update**.
Skip	Does not import the selected user (default).
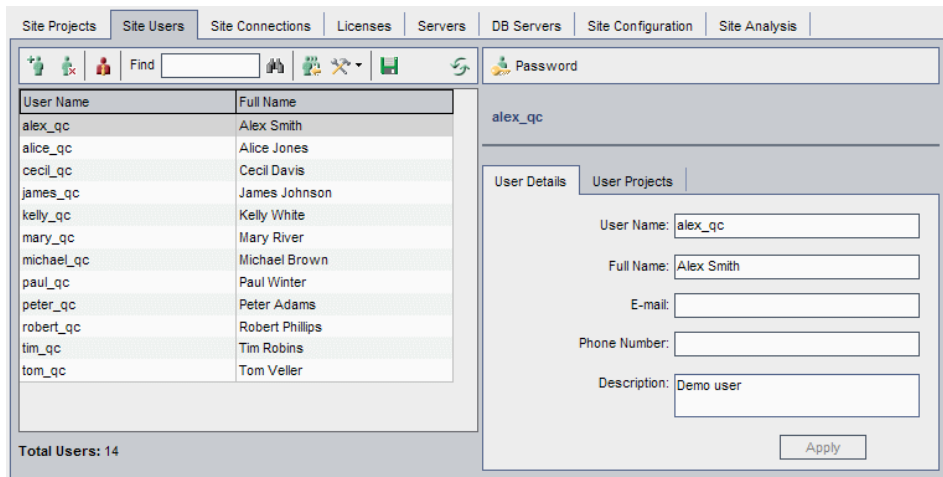
4 Click **Continue**.

Updating User Details

After you add a user, you can update user details. For example, you may need to update a user's full name or contact details. You can also define Quality Center users as site administrators. For more information, see "Defining Site Administrators" on page 23.

To update user details:

1 In Site Administration, click the **Site Users** tab. In the right pane, click the **User Details** tab.

2 Select a user from the Users list.

You can search for a user in the Users list by typing the name of a user in the **Find** box, and clicking the **Find** button. The first user that matches the searched text is highlighted. Click the button again to search for other users containing the searched text.

3 Edit the user detail fields.

Note: If the user was imported from an LDAP directory to Site Administration, the **Domain Authentication** box displays the LDAP authentication properties of the imported user. If the user was not imported, the **Domain Authentication** box is not displayed. For more information, see "Importing Users from LDAP" on page 116.

---

4 To assign projects to a user, click the **User Projects** tab. For more information, see "Assigning Projects to Users" on page 128.

5 Click **Apply** to save your changes.

Changing Passwords

The site administrator can change or override a user's password.

Notes:

➤ You can only change passwords for users that are set to log in to Quality Center using their Quality Center passwords. If LDAP passwords are in use, this option is unavailable. For more information on LDAP authentication, see "Defining LDAP Settings for Importing Users" on page 118.

➤ Users who are not administrators can change their passwords using the **User Properties** link in the Project Customization window. For more information, refer to the *HP Quality Center User Guide*.

To change a password:

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

2 Select a user from the Users list.

3 Click the **Password** button. The Set User Password dialog box opens.
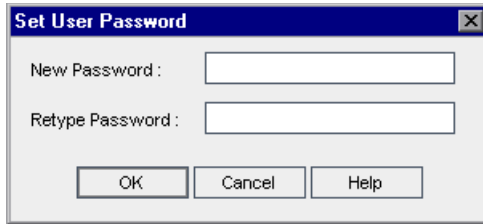
4 In the **New Password** box, type a new password (maximum length 20 characters).

5 In the **Retype Password** box, retype the user's new password.

6 Click **OK**.

Enabling LDAP Authentication for Users

You can allow users to log in to Quality Center using their LDAP passwords, instead of Quality Center passwords.

Working with LDAP through SSL requires that you perform additional steps. For more information, see HP Software Self-solve knowledge base article KM188096 (http://h20230.www2.hp.com/selfsolve/document/KM188096).

Extending LDAP Authentication

When users attempt to log in to Quality Center, they are authenticated against LDAP using the distinguished names (DN) that are stored in the Domain Authentication property in the Quality Center database. When the user attempts to log in, and the DN information in Quality Center is invalid, the user cannot log in to Quality Center.

You can enhance the search so that when the DN information is invalid, Quality Center also searches on the LDAP server, using the LDAP import settings defined in Site Administration. If the user is found, the DN is updated in Quality Center, and an automatic login attempt is performed.

To set this extended search, define a comma-separated list for the **LDAP_SEARCH_USER_CRITERIA** Site Configuration parameter. The possible values are **username**, **email**, **fullname**, **phone**, **description**. The order of the properties defines their priority if multiple results are found.

For example, if the parameter is set to username and email, and two users are found with the same user name on the LDAP server, their email addresses are checked. If more than one user is found answering the criteria, an error message is returned. If the search for the user succeeds, the user is logged in to Quality Center.

For more information, see "Setting Quality Center Configuration Parameters" on page 157.

Considerations

➤ After LDAP authentication is enabled, authentication will be performed against the LDAP server. Make sure that the site administrator is set up as an LDAP user before switching to LDAP authentication, otherwise the site administrator will not be able to log in after the authentication type is switched.

➤ After you enable LDAP authentication, you need to disable the password reset option, by defining the **PASSWORD_RESET_DISABLE** Site Configuration parameter. For more information, see "Setting Quality Center Configuration Parameters" on page 157.

To enable LDAP authentication for users:

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

2 Click the **User Settings** button and choose **Authentication Settings**. The Authentication Settings dialog box opens.
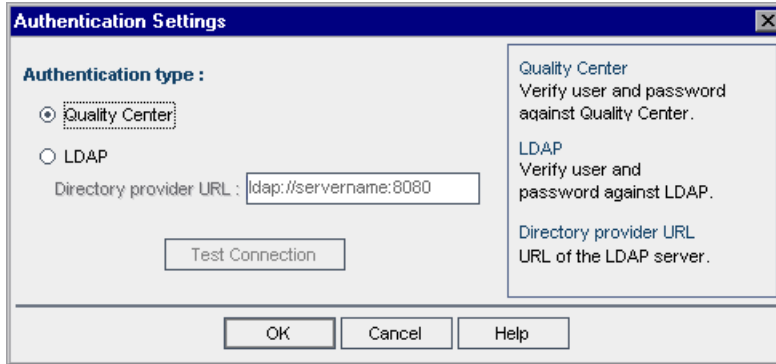
3 Under **Authentication type**, select **LDAP** to set the authentication type as LDAP for all users.

4 In the **Directory provider URL** box, type the URL of the LDAP server (ldap://<server name>:<port number>).

5 Click the **Test Connection** button to test the URL of the LDAP server.

6 Click **OK**.

Assigning Projects to Users

As a Quality Center site administrator, you can control user access to Quality Center projects by defining the projects to which a user can log on. When a user is no longer working on a project, remove the user from the User Projects list.

When you add a user to a project, the user is automatically assigned to the project with Viewer privileges. For more information on user groups and group privileges, see Chapter 10, "Managing Users in a Project," and Chapter 11, "Managing User Groups and Permissions."

Notes:

➤ You can assign users to projects from the Site Projects tab. For more information, see "Assigning Users to Projects" on page 68.

➤ Quality Center sends automatic email notification to project administrators when users are assigned or removed from a project in Site Administration. You can make automatic notification unavailable by adding the **AUTO_MAIL_USER_ NOTIFICATION** parameter in the Site Configuration tab. For more information, see "AUTO_MAIL_USER_ NOTIFICATION" on page 165.

To assign projects to a user:

1 In Site Administration, click the **Site Users** tab. In the right pane, select the **User Projects** tab. The Projects list for the selected user is displayed.
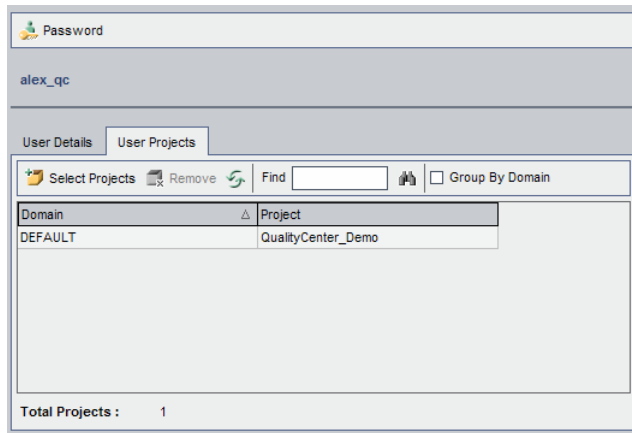
You can click the **Domain** column to change the sort order from ascending to descending domain names. You can also click the **Project** column to sort according to project instead of domain name.

2 In the Users list in the left pane, select a user. You can search for a user by typing the name of a user in the **Find** box, and clicking the **Find** button.

The selected user's projects are displayed in the User Projects list.

To group user projects by domain, select **Group By Domain**. Clear the check box to remove the group by settings.

3 In the User Projects tab, click the **Select Projects** button. The Quality Center Projects list is displayed in a new pane to the right of the User Projects tab.
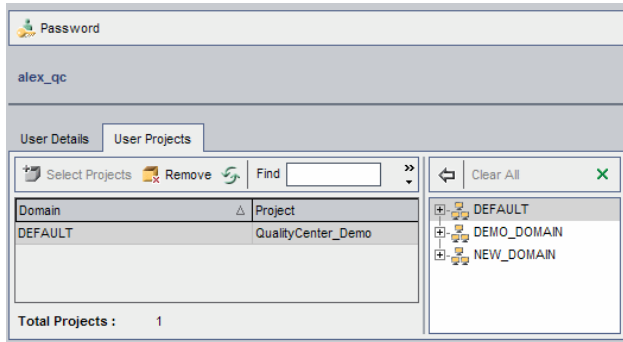
4 To select projects from the Projects list, expand the directory, and select the projects that you want to assign to the user.

To clear all selected projects, click **Clear All**.

5 Click the **Add current user to the selected projects** button. The selected projects are added to the User Projects list.

6 To remove a project from the User Projects list, select the project and click the **Remove** button. Click **OK** to confirm. The project is removed from the User Projects list. Note that this does not delete the project from the server.

7 To refresh the User Projects list, click the **Refresh Users List** button.

Exporting User Data

You can export the user name and full name of all site users from the Users list to a text file.

To export user data:

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

2 Click the **Export User Data To File** button. The Export Data To File dialog box opens.

3 Select the directory where you want to save the parameters, and type a name for the file in the **File name** box.

4 Click **Save** to export the data to a text file.

Deleting Users

You can delete a user from the Users list.

To delete a user:

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

2 Select a user from the Users list.

3 Click the **Delete User** button.

4 Click **Yes** to confirm.

6

Managing User Connections and Licenses

In Site Administration, you can monitor user connections and modify license information.

This chapter includes:

➤ About Managing User Connections and Licenses on page 133

➤ Monitoring User Connections on page 134

➤ Managing Quality Center Licenses on page 137

About Managing User Connections and Licenses

You use the **Site Connections** tab in Site Administration to monitor and manage the users connected to your Quality Center projects. For more information, see "Monitoring User Connections" on page 134.

You use the **Licenses** tab in Site Administration to view Quality Center license information and modify the license key, if needed. For more information, see "Managing Quality Center Licenses" on page 137.

Quality Center Starter Edition: Only five users can connect concurrently to the Quality Center server.

Monitoring User Connections

You can use the Site Connections tab to perform the following:

➤ Monitor the users currently connected to a Quality Center server. For each user, you can view the domain and project being used, the user's machine name, the time the user first logged in to the project, and the time the most recent action was performed. You can also view the client type connection to the Quality Center server.

➤ View the licenses that are currently being used by each user. The **HP Quality Center license** indicates that the user can access all modules in a specific project. The **Defects Module license** indicates that the user can access only the Defects module.

➤ Send messages to users connected to your Quality Center projects. You can also disconnect users from projects.

➤ Modify access to a Quality Center project using the **Module Access** link. For more information, see "Customizing Module Access for User Groups" on page 238.

Notes:

➤ To view the total number of licenses that are in use for each Quality Center module, click the **Licenses** tab. For more information, see "Managing Quality Center Licenses" on page 137.

➤ To view and analyze the number of licensed Quality Center users connected to your projects at specific points over a period of time, click the **Site Analysis** tab. For more information, see "Monitoring Site Usage" on page 182.

To monitor user connections:

1 In Site Administration, click the **Site Connections** tab.

| Site Projects | Site Users | Site Connections | Licenses | Servers | DB Servers | Site Configuration | Site Analysis |

Disconnect | Send Message ... | Group By... ▾

Domain	△	Project Name	User Name	Host	Login Time	Last Action	Client Type	🔒	📋
DEFAULT		QualityCenter_Demo	michael_qc	DOORS	2/7/2007 2:37 PM	2/7/2007 2:37 PM	OTAClient		✓
DEFAULT		QualityCenter_Demo	alice_qc	SHULIF	2/7/2007 12:46 PM	2/7/2007 1:49 PM	OTAClient	✓	✓
DEFAULT		QualityCenter_Demo1	alice_qc	DIGITIZE	2/7/2007 12:48 PM	2/7/2007 12:51 PM	OTAClient		✓

Total Connections :   3

🔒   Defects Module Licenses in Use

📋   HP Quality Center Licenses in Use

You can click any column heading to change the sort order of the column from ascending to descending.

2 To refresh the Connections list, click the **Refresh Connections List** button.

To instruct Quality Center to automatically refresh the Connections list, click the **Refresh Connections List** arrow and choose **Automatic Refresh**. By default, the Connections list is automatically refreshed every 60 seconds. To change the automatic refresh rate, click the **Refresh Connections List** arrow and choose **Set Refresh Rate**. In the Set Refresh Rate dialog box, specify a new refresh rate in seconds.

3 You can group connected users by clicking the **Group By** arrow, and choosing a Group By option. To group connected users by project, choose **Group By Project**. To group connected users by user, choose **Group By User**. To clear the Group By settings, click the **Group By** arrow and choose **Clear Group By**.

4 You can send a message to a connected user or group of users by clicking the **Send Message** button. For more information on sending messages, see "Sending Messages to Connected Users" on page 136.

5 To disconnect a user or group of users from a project, select the row of the user or group and click the **Disconnect Users** button. Click **Yes** to confirm.

Sending Messages to Connected Users

You can send messages to users connected to your Quality Center projects. This enables you to routinely inform connected users about important maintenance activities. For example, disconnecting a project, or restarting a Quality Center server.

When you send a message, a pop-up window automatically opens on the user's machine displaying the message text. The message box is displayed until the user closes it or disconnects from Quality Center. For more information, refer to the *HP Quality Center User Guide*.

To send messages to connected users:

1 In Site Administration, click the **Site Connections** tab.

2 Select the users to whom you want to send a message:

  ➤ To send a message to a user or group of users, select the row of the user or group.

  ➤ To send a message to multiple users, use **Ctrl** or **Shift** to highlight users to include.

3 Click the **Send Message** button. The Send Message dialog box opens.
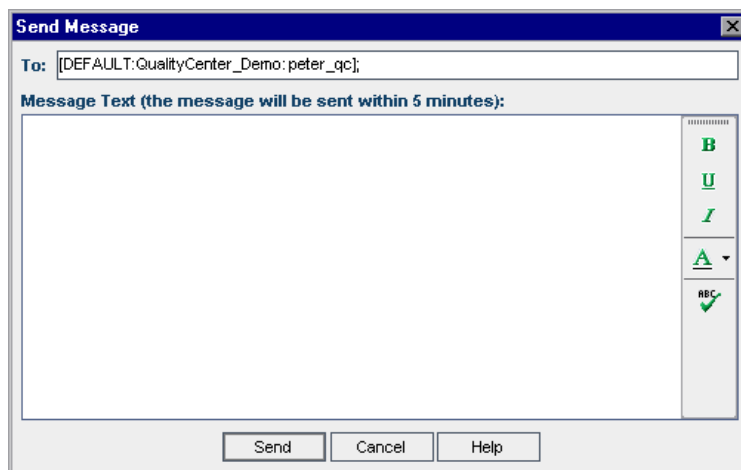
The **To** box displays the intended recipients of the message in the format [DOMAIN:Project Name:User Name].

 4 In the **Message Text** box, type a message.

 5 Click **Send**. Quality Center sends the message to user machines within five
minutes.

Managing Quality Center Licenses

You can view the total number of licenses in use, the maximum number of
licenses that you have for each Quality Center module, and the expiration
date of those licenses. When other HP tools, such as QuickTest Professional,
are connected to a Quality Center project, you can view the total number of
licenses in use for these tools. You can also modify and export your license
file. In addition, you can view the Quality Center edition installed on your
server.

Notes:

➤ To view the Quality Center licenses that are currently being used by each
user, click the **Site Connections** tab. For more information, see
"Monitoring User Connections" on page 134.

➤ To view and analyze the number of licensed Quality Center users
connected to your projects at specific points over a period of time, click
the **Site Analysis** tab. For more information, see "Monitoring Site Usage"
on page 182.

To manage Quality Center licenses:

1 In Site Administration, click the **Licenses** tab.
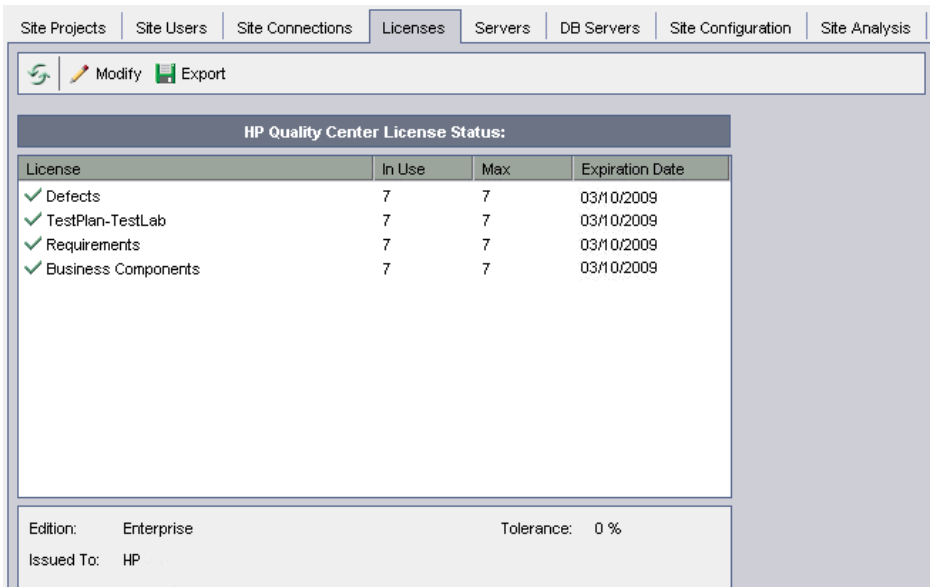
The Licenses tab includes the following fields:

Field	Description
License	Indicates the Quality Center module name.
In Use	Indicates the total number of licenses in use.
Max	Indicates the maximum number of licenses that you have for each Quality Center module.
Expiration Date	Indicates the expiration date of the license.
Edition	Indicates the Quality Center edition installed. For more information, refer to the *HP Quality Center User Guide*.
Issued To	Indicates to whom the product is licensed.

2 To refresh the license information displayed in the Licenses tab, click the **Refresh Licenses List** button.

3 To modify the license, click the **Modify License** button. The License Edit dialog box opens. To load the license file, click **Load License** and select the file. Alternatively, copy the content of the license file and click **Paste License**. Click **OK**.

4 To export your license key to a file, click the **Export License to File** button. The Save As dialog box opens. In the **File name** box, type the file name. Click **Save**.

7

Configuring Servers and Parameters

You use Site Administration to configure Quality Center servers, define and modify database servers, configure the text search, set configuration parameters, and define the Quality Center mail protocol.

This chapter includes:

➤ About Configuring Servers and Parameters on page 141

➤ Configuring Server Information on page 142

➤ Defining New Database Servers on page 145

➤ Modifying Database Server Properties on page 148

➤ Configuring Text Search on page 150

➤ Setting Quality Center Configuration Parameters on page 157

➤ Setting the Quality Center Mail Protocol on page 179

About Configuring Servers and Parameters

You use the **Servers** tab to configure Quality Center server information. You can set the server log files and maximum number of database handles. For more information, see "Configuring Server Information" on page 142.

You use the **DB Servers** tab to define database servers that were not defined during installation. For each database server, you enter the database type, database name, default connection string, and administrator user and password. For more information, see "Defining New Database Servers" on page 145.

You also use the **DB Servers** tab to modify existing database server definitions. For more information, see "Modifying Database Server Properties" on page 148. In addition, you can configure the text search option for a specified database server that has the text search feature installed and configured. For more information, see "Configuring Text Search" on page 150.

Quality Center Starter Edition: The DB Servers tab is not available in the Quality Center Starter Edition.

You use the **Site Configuration** tab to add and modify Quality Center configuration parameters. For more information, see "Setting Quality Center Configuration Parameters" on page 157. In addition, you can set the mail protocol to be used by all the server nodes in your Quality Center site. For more information, see "Setting the Quality Center Mail Protocol" on page 179.

Configuring Server Information

You can configure Quality Center server information. This includes:

➤ **Setting the Quality Center server log files.** The Quality Center server can write all Quality Center and Site Administration events to log files. The log files display the date and time a function was run. This is useful for when you contact Quality Center support.

➤ **Setting the maximum number of database connections.** The Quality Center server can open a number of connections for each project on a database server. You can set the maximum number of concurrent connections that can be opened by the Quality Center server for each project.

To configure Quality Center server information:

1 In Site Administration, click the **Servers** tab.
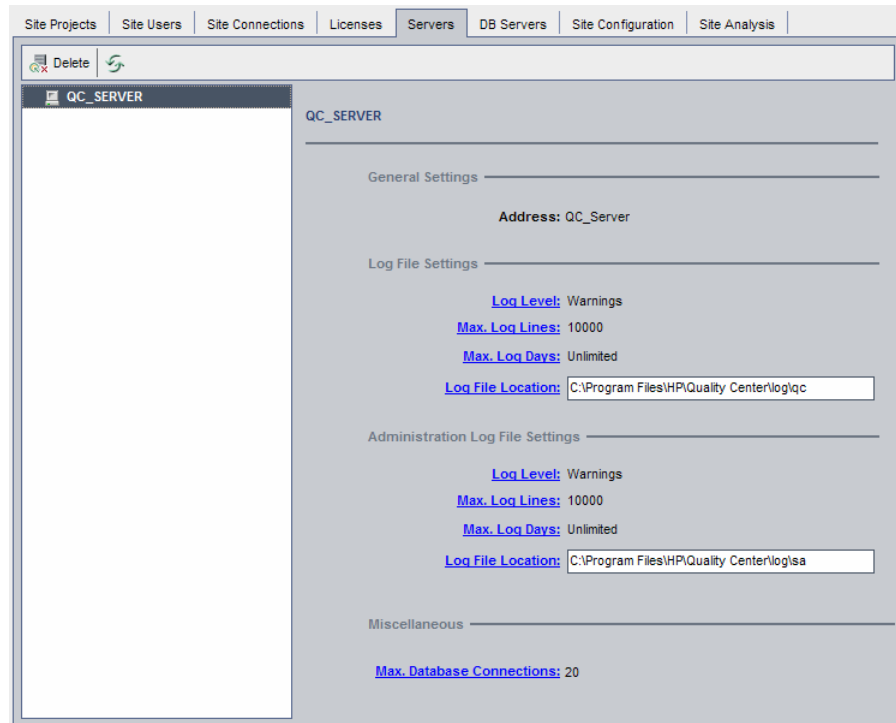
2 In the Server list, select a server.

The **General Settings** area displays the server name.

3 You configure Quality Center and Site Administration log file settings under the **Log File Settings** and **Administration Log File Settings** sections, respectively.

Click the **Log Level** link to configure the type of log file you want the server to create. Select one of the following options in the Log Level dialog box:

➤ **None.** Does not create a log file.

➤ **Errors.** Records error events.

➤ **Warnings.** Records potentially harmful situations.

➤ **Flow.** Records informational messages that highlight the application flow.

➤ **Debug.** Records events that are most useful for debugging.

4 Click the **Max. Log Lines** link to open the Maximum Log Lines dialog box and configure the maximum number of lines that the Quality Center server can write to the log file. Quality Center creates a new log file after the log file reaches the maximum number of lines. The default value is **10,000**.

5 Click the **Max. Log Days** link to open the Maximum Log Days dialog box and configure the maximum number of days that the Quality Center server keeps the log file. Quality Center automatically deletes the log files once the maximum number of days is reached. The default value is **Unlimited**.

6 Click the **Log File Location** link to change the directory path of the log file. In the Log File Location dialog box, type the new location for the log file.

7 You can set the maximum number of concurrent connections that can be opened by the Quality Center server for each project. Click the **Max. Database Connections** link to open the Maximum Database Connections dialog box and set the maximum number of concurrent connections.

8 To remove a Quality Center server from the Server list, select it and click the **Delete QC Server** button. Click **Yes** to confirm.

9 Click the **Refresh QC Servers List** button to refresh the servers list.

Defining New Database Servers

You can define additional database servers that were not defined during the installation process.

Notes:

➤ For information on the Oracle or Microsoft SQL permissions required by Quality Center, refer to the *HP Quality Center Installation Guide*.

➤ To make text search unavailable on a new database server, you must disable text search on the database server before you define the new database server in Quality Center.

➤ **Quality Center Starter Edition:** The DB Servers tab is not available.

To define a new database server:

1 In Site Administration, click the **DB Servers** tab.

| New | **2** Click the **New Database Server** button. The Create Database Server dialog box opens. |

Create Database Server

Database Type

MS-SQL (SQL Auth.)

Database Values

Database Name :

DB Admin User :   DB Admin Password :

Default Connection String

⊙ Connection String Parameters

Server Host :   Port : 1433

SID:

○ Connection String

jdbc:mercury:sqlserver://%HOST_NAME%:1433

| OK | Cancel | Ping | Help |

3 Under **Database Type**, select the type of database server you want to define:

➤ **MS-SQL (SQL Auth.).** Uses SQL authentication.

➤ **MS-SQL (Win Auth.).** Uses Microsoft Windows authentication.

➤ **Oracle.**

4 Under **Database Values**, in the **Database Name** box, type the database name.

5 In the **DB Admin User** box, type the login name of the database administrator.

> ➤ For Oracle database type, the default administrator user account enabling you to create Quality Center projects is **system**.

> ➤ For MS-SQL (SQL Auth.) database type, the default administrator user account enabling you to create Quality Center projects is **sa**.

> ➤ For MS-SQL (Win Auth.) database type, the **DB Admin User** box is unavailable. The login name of the database administrator is the Windows user that is set to run Quality Center as a service.

6 In the **DB Admin Password** box, type the password of the database administrator. This field is unavailable if you selected the **MS-SQL (Win Auth.)** database type.

7 Under **Default Connection String**, you can edit the default connection string parameters or the connection string, as follows:

> ➤ To edit the default connection string parameters, choose **Connection String Parameters** and define the following parameters:

Parameter	Description
Server Host	The server name.
Port	The port number of the database server.
SID	The service ID for an Oracle database server.

> ➤ To edit the connection string, choose **Connection String** and edit the connection string.

8 To check whether you can connect to the database server, click the **Ping Database Server** button. The DB admin user and password you entered are displayed in the Ping Database Server dialog box. Click **OK**.

9 Click **OK** to close the Create Database Server dialog box. The new database server you defined appears in the Database Servers list.

10 Click the **Refresh Database Servers List** button to refresh the database servers list.

Modifying Database Server Properties

You can modify the database server properties.

Notes:

➤ For information on the Oracle or Microsoft SQL permissions required by Quality Center, refer to the *HP Quality Center Installation Guide*.

➤ **Quality Center Starter Edition:** The DB Servers tab is not available.

To modify database server properties:

1 In Site Administration, click the **DB Servers** tab.
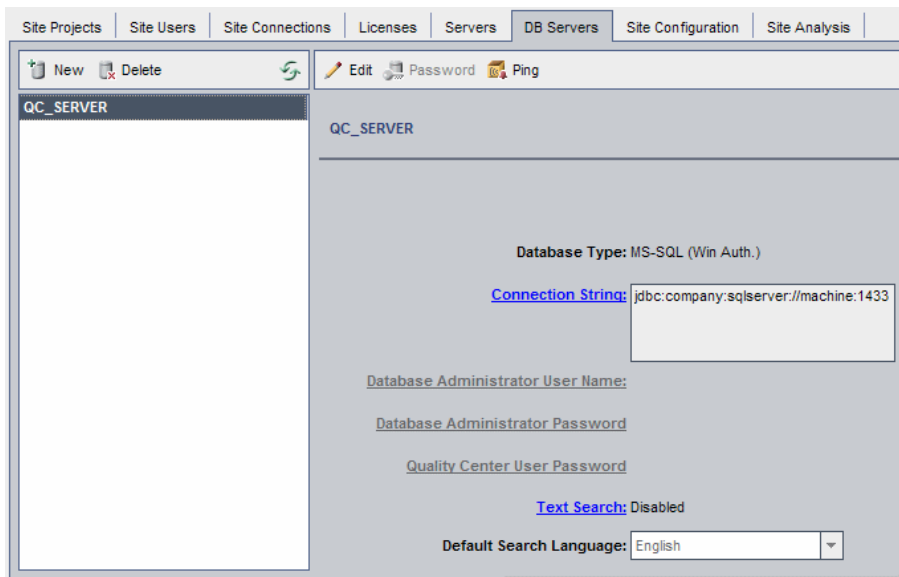
2 Select a database server in the Database Servers list.

3 To modify the connection string, click the **Edit Connection String** button, or click the **Connection String** link. Edit the connection string in the Connection String Editor and click **OK**. For more information on connection strings, see "Defining New Database Servers" on page 145.

4 To modify the database administrator's login name, click the **Database Administrator User Name** link. In the Database Administrator User Name dialog box, type the new login name and click **OK**.

For more information on defining a new login name for a database administrator, see "Defining New Database Servers" (step 5) on page 147.

5 To modify the database administrator's password, click the **Database Administrator Password** button, or click the **Database Administrator Password** link. In the Database Administrator Password dialog box, type the new password and then retype it. Click **OK**.

6 To modify the default Quality Center user password for accessing the database schema, click the **Quality Center User Password** link. In the Quality Center User Password dialog box, type the new password and retype it. Click **OK**.

Note: If you have existing Quality Center projects on your MS-SQL server, after you change the Quality Center user password, you must also update the password for each project.

---

7 To enable text search capabilities in Quality Center, click the **Text Search** link.

If the text search is enabled, you can set the default text search language for the database server in the **Default Search Language** list.

For more information on text search, see "Configuring Text Search" on page 150.

8 To check whether you can connect to the database server, click the **Ping Database Server** button. The DB admin user and password you entered are displayed in the Ping Database Server dialog box. Click **OK**.

9 To delete a database server from the Database Servers list, select it and click the **Delete Database Server** button. Click **Yes** to confirm.

10 Click the **Refresh Database Servers List** button to refresh the database servers list.

Configuring Text Search

Text search allows users to enter keywords and search specific project fields in the Requirements, Test Plan and Defects modules. For information on working with the text search feature, refer to the *HP Quality Center User Guide*.

Notes:

➤ The **Text Search** link is available only if you install and configure the Oracle or SQL text searching feature. For Microsoft SQL 2005 SP2 and Oracle 10.2.0.3, the text search feature is installed by default. For Oracle 9.2.0.6, you must install and configure the text searching feature on your Oracle database server.

➤ **Quality Center Starter Edition:** Text search is not available.

To configure text search, perform the following steps:

➤ Install and enable the text search feature on the database server. For more information, see "Enabling Text Search on the Database Server" on page 151.

➤ Perform setups on each database user schema on which you want to enable text search. For more information, see "Enabling Text Search on Database User Schemas" on page 152.

➤ In Site Administration, enable text search and define the default search language for a specified database server in the DB Servers tab. For more information, see "Enabling Text Search in Quality Center" on page 152.

➤ To specify a different search language for a specific project, change the search language from the Site Projects tab. For more information, see "Selecting a Text Search Language for a Project" on page 154.

➤ For a specific project, define the project fields to be included in the search from Project Customization. For more information, see "Defining Searchable Fields" on page 155.

Enabling Text Search on the Database Server

Text search is available only if the text searching feature has been installed and configured on an Oracle or SQL database server. For Microsoft SQL 2005 SP2 and Oracle 10.2.0.3, the text search feature is installed by default, and no configuration is required.

For Oracle 9.2.0.6, you must install the text search feature on your Oracle database server, and configure it using a predefined Quality Center package (QC_CTX_DDL) that is created in the CTXSYS user schema. You can create the QC_CTX_DDL package either by:

➤ Supplying the CTXSYS password in Site Administration when you enable the text search, as described in step 3 of "Enabling Text Search in Quality Center" on page 152. Contact your database administrator for the CTXSYS password.

➤ Having your database administrator manually create the QC_CTX_DDL package, and then enable the text search. For more information on creating the QC_CTX_DDL package, see the procedure that follows.

Note: For information on installing the text search feature, refer to the documentation provided with your database server.

To create the QC_CTX_DDL package on an Oracle 9.2.0.6 server:

1 Navigate to the **qc_ctxsys9i_db___oracle.sql** script located in the **\utilities\databases\scripts** folder on the Quality Center installation DVD.

2 Log in to the CTXSYS user account using Oracle SQL*Plus.

3 Run the following command to execute the package creation script:

```
@qc_ctxsys9i_db___oracle.sql.
```

4 Open the **qc_ctxsys9i_db___oracle.log** file that is created by the package, and check that no errors are specified in it.

5 In Site Administration, click the **DB Servers** tab.

6 In the Database Servers list, select a database server.

7 Click the **Text Search** link and click **Yes** to confirm.

Enabling Text Search on Database User Schemas

Before you enable text search in Quality Center, you must perform a set up step on each database user schema on which you want to enable text search.

To enable text search on an Oracle database user schema:

As Admin user, run the following command:

```
GRANT CTXAPP to <database user schema>
```

To enable text search on an SQL database user schema:

Enable full text indexing:

```
EXEC sp_fulltext_database 'enable'
```

Enabling Text Search in Quality Center

In Site Administration, you can enable text search for a specified database server that has the text search feature installed and configured. You can enable text search on a database server before or after you add projects to your Projects list.

If you enable text search on a database server before you add projects, the projects that you add afterwards are text search enabled. If you enable text search on a database server after you have added projects, you must manually enable text search for each existing project.

After you have enabled the text search for a specified database server, you set the default search language for the database server. You can change the default search language for a specific project from the Site Projects tab. For more information, see "Selecting a Text Search Language for a Project" on page 154.

To enable text search on a database server before adding projects:

1 In Site Administration, click the **DB Servers** tab.

2 In the Database Servers list, select a database server.

3 Click the **Text Search** link and click **Yes** to confirm.

If you are using an Oracle 9.2.0.6 database server and you are prompted for the **CTXSYS** user password, type the password in the Set CTXSYS Password dialog box and click **OK**. A password is not required if the QC_CTX_DDL package was manually created (see "Enabling Text Search on the Database Server" on page 151).

The **Text Search** value changes from **Disabled** to **Enabled**. You cannot disable the text search after you have enabled it.

4 In the **Default Search Language** list, set the default text search language for the database server.

To enable text search on a database server after adding projects:

1 In Site Administration, click the **DB Servers** tab.

2 In the Database Servers list, select a database server.

3 Click the **Text Search** link and click **Yes** to confirm.

If you are using an Oracle 9.2.0.6 database server and you are prompted for the **CTXSYS** user password, type the password in the Set CTXSYS Password dialog box and click **OK**. A password is not required if the QC_CTX_DDL package was manually created (see "Enabling Text Search on the Database Server" on page 151).

The **Text Search** value changes from **Disabled** to **Enabled**. You cannot disable the text search after you have enabled it.

4 In the **Default Search Language** list, set the default text search language for the database server.

5 Click the **Site Projects** tab, and select a project for which you want to enable text search.

6 In the **Project Details** tab, click the **Enable/Rebuild Text Search** button to enable and rebuild the text search indexes. Click **Yes** to confirm.

If the operation of enabling and rebuilding the text search indexes times out before it completes, you can change the default timeout value by defining the **TEXT_SEARCH_TIMEOUT** parameter. For more information, see "Setting Quality Center Configuration Parameters" on page 157.

7 To enable text search for additional projects, repeat steps 5 and 6.

Selecting a Text Search Language for a Project

For each project, you can specify a search language other than the default search language you set for the database server. For more information on enabling the text search and setting the default search language, see "Enabling Text Search in Quality Center" on page 152.

Note: Search languages are not available for a project created on a database server that does not have the text search feature enabled.

To select a search language for a project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, select a project. In the right pane, click the **Project Details** tab.

3 In the **Search Language** field, select a language for the project. For more information on updating project details in the Project Details tab, see "Updating Project Details" on page 63.

Defining Searchable Fields

For each project, you must define the fields to be included in the search. The searchable option is only available in the Requirement, Test, Test Step (for design steps only), and Defect entities. Note that only user-defined fields with field type **Memo** or **String**, or the following system fields are available as searchable fields:

Entity	Searchable Fields
Defect	➤ Comments ➤ Description ➤ Detected in Cycle ➤ Detected in Release ➤ Reproducible ➤ Summary ➤ Target Cycle ➤ Target Release
Requirement	➤ Comments ➤ Creation Time ➤ Description ➤ Name ➤ Target Cycle ➤ Target Release
Test	➤ Comments ➤ Description ➤ Path ➤ Template ➤ Test Name
Test Step (Design steps only)	➤ Description ➤ Expected ➤ Step Name

To define a searchable field:

1 In the Quality Center main window, select **Tools** > **Customize** from the common toolbar. The Project Customization window opens.

2 Click the **Project Entities** link. The Project Entities page opens. For more information on customizing project entities, see "Customizing Project Entities" on page 243.

3 Under **Project Entities**, expand an entity, and select a system or user-defined field that can be made searchable.
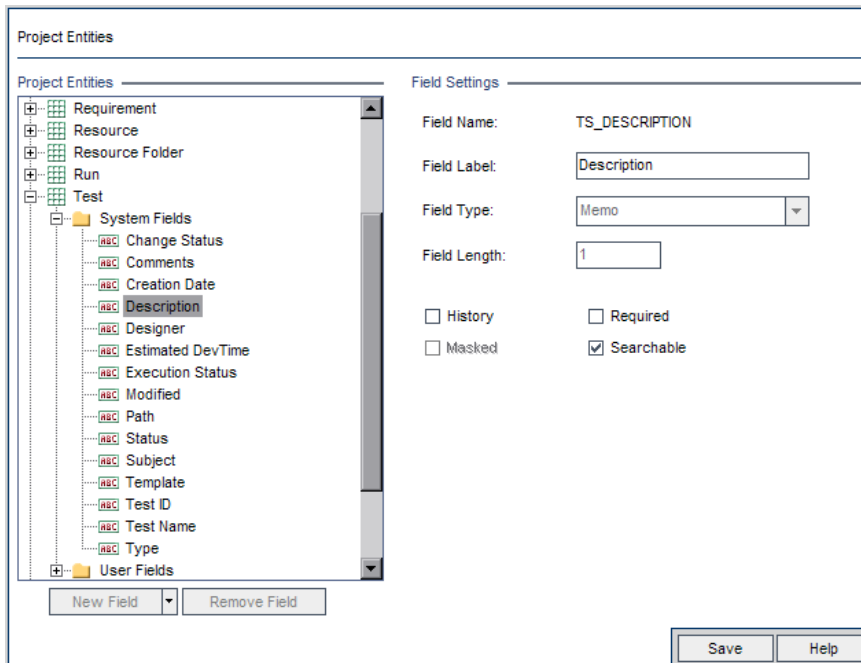
4 Select the **Searchable** check box.

5 Click **Save** to save your changes to the Project Entities page.

Setting Quality Center Configuration Parameters

You can set the default Quality Center configuration parameters and add optional ones.

This section includes:

➤ Default Quality Center Parameters

➤ Optional Quality Center Parameters

➤ Setting Quality Center Parameters

Default Quality Center Parameters

You can set the following default Quality Center configuration parameters:

Parameter	Description
ADD_NEW_USERS_FROM_ PROJECT **(formerly CUSTOM_ENABLE_USER_ ADMIN)**	If this parameter is set to "N", you can add new Quality Center users from Site Administration (**Site Users** tab) only. If this parameter is set to "Y" (default), new Quality Center users can also be added from Project Customization. In the Project Users page, click **Add User**. The Add User to Project dialog box opens. If this parameter is set to "Y", a **New** button is available for adding new Quality Center users. For more information, see "Adding a User to a Project" on page 200.
ATTACH_MAX_SIZE	The maximum size (in kilobytes) of an attachment that can be sent with email from Quality Center. If the attachment size is greater than the specified value, the email is sent without the attachment. By default, the maximum email attachment size is 3,000 KB.

Parameter	Description
AUTO_MAIL_WITH_ ATTACHMENT **(formerly SAQ_MAIL_ WITH_ATTACHMENT)**	If this parameter is set to "Y" (default), defect email is sent with attachments. This applies only if you select **Send mail automatically** in the **Site Projects** tab. For more information, see Chapter 13, "Configuring Automail." **Note:** The former parameter name is supported for purposes of backward compatibility.
AUTO_MAIL_WITH_ HISTORY **(formerly SAQ_MAIL_ WITH_HISTORY)**	If this parameter is set to "Y" (default), defect email is sent with the history. This applies only if you select **Send mail automatically** in the **Site Projects** tab. For more information, see Chapter 13, "Configuring Automail." **Note:** The former parameter name is supported for purposes of backward compatibility.
BASE_REPOSITORY_PATH	The base repository path. The Quality Center and Site Administration repositories are subfolders of this repository. If you change this parameter value, new projects you create are stored in this location. After you change the value of this parameter, you must restart all servers in the cluster.
CREATE_HTTP_SESSION	You can use this parameter if you are working with load balancing over a cluster of application servers. If the parameter is set to "Y", Quality Center creates an HTTP session. This causes the load balancer to operate in sticky mode, meaning that after a request sent by a client is directed to a particular node in the cluster, all subsequent requests sent by that client are directed to the same node. By default, this parameter is set to "N".
DISABLE_VERBOSE_ ERROR_MESSAGES	This parameter is a security feature that controls the level of detail that error messages display. If the parameter is set to "N" (default), the user can view system details connected to the error. To limit the details that users can view, set the parameter to "Y".

Parameter	Description
LDAP_SEARCH_USER_ CRITERIA	A comma-separated list of Quality Center user properties to be used as LDAP search criteria, if the Domain Authentication property does not contain the user's distinguished name (DN). The order of the properties defines their priority if multiple results are found. The following are the possible values: **username**, **email**, **fullname**, **phone**, **description**. For more information on LDAP, see "Enabling LDAP Authentication for Users" on page 126.
LICENSE_ARCHIVE_ PERIOD	The time interval in days during which license usage is archived. License usage information before this period is removed from the archive. By default, the value is set to **365** days. If you set the value to **-1**, the license archive period is unlimited.
LOCK_TIMEOUT	The maximum number of hours that Quality Center objects can remain locked. After this time, the lock is removed. By default, the value is set to **10** hours.
MAIL_FORMAT	The format Quality Center uses to send email. By default, the format is set to "HTML". To instruct Quality Center to send email as plain text, change the value to "Text".
MAIL_INTERVAL	The time interval in minutes for sending defect email according to your mail configuration settings. By default, the value is set to 10 minutes. Note that this applies only if you select **Send mail automatically** in the **Site Projects** tab. For more information, see Chapter 13, "Configuring Automail."
MAIL_MESSAGE_ CHARSET	The character set used by Quality Center to send email to users. By default, the value is set to **UTF-8**.

Parameter	Description
MAIL_PROTOCOL	Displays the mail service used to send email messages to users. To configure the mail protocol, use the **Settings** button. For more information, see "Setting the Quality Center Mail Protocol" on page 179.
MAIL_SERVER_HOST	Displays the server name used by the SMTP mail service. To configure the server name, use the **Settings** button. For more information, see "Setting the Quality Center Mail Protocol" on page 179.
REPORT_QUERY_ RECORDS_LIMIT	The maximum number of records that can be retrieved from the database for an Excel report. If you set the value to **-1**, the number is unlimited.
REPORT_QUERY_ TIMEOUT	The maximum length of time in seconds that the Quality Center server waits for an SQL query for an Excel report to be executed. If the query takes longer than this time to be executed, the query is cancelled.

Parameter	Description
RESTRICT_SERVER_ FOLDERS	This parameter enables you to access restricted-access server directories using the OTA **ExtendedStorage.ServerPath** property.
	If this parameter does not exist, or is set to "Y", you can only use the **ExtendedStorage.ServerPath** property to access the following directories:
	➤ the Site Administration (**SA**) directory
	➤ the root directory for a project
	➤ the **attach** subdirectory for a project
	➤ the **baseline** subdirectory for a project
	➤ the **checkouts** subdirectory for a project
	➤ the **components** subdirectory for a project
	➤ the **hist** subdirectory for a project
	➤ the **resources** subdirectory for a project
	➤ the **StyleSheets** subdirectory for a project
	➤ the **tests** subdirectory for a project
	If this parameter is set to "N", you can access all server directories using the **ExtendedStorage.ServerPath** property.
	For more information on this property, refer to the *HP Quality Center Open Test Architecture API Reference*. For more information about Quality Center project structure, see "Understanding the Project Structure" on page 27.

Parameter	Description
SITE_ANALYSIS	If this parameter is set to "Y" (default), you can track Quality Center license usage over time from the **Site Analysis** tab. If this parameter is set to "N", the Site Analysis tab is unavailable. For more information, see Chapter 8, "Analyzing Site Usage."
WAIT_BEFORE_ DISCONNECT	The time interval in minutes that the Quality Center client can be inactive before it is disconnected from the Quality Center server. Disconnecting the client enables the license to be used by another Quality Center user. By default, the value is set to **600** minutes. For performance reasons, it is recommended to set a value of at least 60 minutes. If you set the value to **-1**, Quality Center is not disconnected, regardless of how long the client is inactive.

Optional Quality Center Parameters

You can add the following optional Quality Center configuration parameters:

Parameter	Description
ALLOW_MULTIPLE_ VALUES	This parameter determines whether the **Allow Multiple Values** check box is visible in the Project Entities page in Project Customization.
	If this parameter is set to "N", then the **Allow Multiple Values** check box is unavailable. If this parameter does not exist or is set to "Y", then the **Allow Multiple Values** check box is available.
	For more information on the **Allow Multiple Values** check box, see "Allow Multiple Values" on page 247.
ALLOW_REQ_COVERAGE_ BY_TEST_INSTANCE	This parameter determines whether the option to create coverage between requirements and test instances is available.
	If the parameter does not exist, is empty, or is set to "N", then this option is unavailable. If the parameter is set to "Y", you can create and view coverage between requirements and test instances from the following locations:
	➤ In the Requirements module, in the Requirement Details view, in the Test Coverage tab.
	➤ In the Test Plan module, in the Test Instance Properties dialog box, in the Linkage and Coverage view.

Parameter	Description
ALLOW_UPDATE_USER_ PROPERTIES_FROM_ CUSTOMIZATION	User details are set in Site Administration. A project administrator cannot change details of project users in Project Customization.
	If this parameter is set to "Y", the project administrator is able to change the details of project users in Project Customization. This option may cause a security risk, as it allows the project administrator to replace a user's e-mail address with his own. By doing so, the project administrator can then use the Forgot Password link to reset and change a user's password.
	If this parameter does not exist, or is set to "N", only the user can change his details in Project Customization.
AUTO_LOGOUT_ON_ SERVER_DISCONNECT	The Quality Center server can disconnect a Quality Center client session. This occurs if:
	➤ The site administrator disconnects the session.
	➤ The session is automatically disconnected, according to the inactivity time interval setting. For more information on setting a timeout, see "WAIT_BEFORE_ DISCONNECT" on page 162.
	The Quality Center client machine displays a message, informing the user that the session has been disconnected.
	If this parameter is set to "Y", the client machine also automatically performs logout actions and returns the user to the Quality Center Login window. This ensures that the user does not continue to work in a session which is no longer connected to the server. If this parameter is set to "N", no logout action is performed on disconnect.

Parameter	Description
AUTO_MAIL_SUBJECT_ FORMAT **(formerly SAQFORMAT)**	This parameter enables you to customize the subject line of defect email sent automatically to users. For example, you can define a subject line such as Defect no. 4321 has changed by providing the value Defect no. ?BG_BUG_ID has changed, where Defect no. and has changed are strings, and **BG_BUG_ID** is a Quality Center field name. To customize the subject line for a specific project, see "Customizing the Subject of Defect Mail" on page 269. **Note:** The former parameter name is supported for purposes of backward compatibility.
AUTO_MAIL_USER_ NOTIFICATION	This parameter enables you to prevent Quality Center sending automatic email notification to project administrators when users are assigned or removed from a project in Site Administration. If this parameter is set to "N", then automatic notification is not sent to project administrators. If this parameter does not exist, is empty, or is set to "Y", then automatic notification is sent. For more information on assigning users to projects, see "Assigning Users to Projects" on page 68.
BACKWARD_SUPPORT_ ALL_DOMAINS_PROJECTS	This parameter enables the use of DomainsList and ProjectsList properties for the purposes of backward compatibility. If this parameter is set to "Y", then the DomainsList and ProjectsList properties are supported. If the parameter does not exist or is empty, the default value is "N", and these properties are not supported.

Parameter	Description
BACKWARD_SUPPORT_ SA_DEFAULT_USER	This parameter enables the use of the old connection method to Site Administration for the purposes of backward compatibility. To work with scripts that use the old connection method (where the site administrator only required a password to log in), a user should be defined, and this user's password is used during login. The value of this parameter is a user name, whose password is used. If the parameter does not exist or is empty, an empty string is used.
COPY_CHANGES_ USER_FIELDS **(formerly COPY_PASTE_ CHANGES_OWNER)**	This parameter enables you to specify that the user who copies a record is listed in the specified User List fields of the copy. For more information on fields that have User List as their Field Type, see "Customizing Project Entities" on page 243. The value of this parameter is a comma-separated list of User List fields. For example, set the value of the parameter to BG_DETECTED_BY. Assume defect 10 is detected by user Cecil_qc, and user Shelly_qc copies defect 10. Quality Center creates a copy of the defect with Shelly_qc as the user who detected the defect, not Cecil_qc.
DASHBOARD_PAGE_ ITEM_LIMIT	By default, dashboard pages can include up to four graphs. This parameter enables you to set a different number of maximum graphs that dashboard pages can include. Increasing the number of graphs may reduce the system's performance. For more information on dashboard pages, refer to the *HP Quality Center User Guide*.

Parameter	Description
DISABLE_COMMAND_ INTERFACE	If this parameter is set to "Y" (default), only users belonging to the TDAdmin group can use the OTA **Command** object.
	If it is set to "N", any user can use it.
	If it is set to "ALL", no users can use it.
	For more information, refer to the *HP Quality Center Open Test Architecture API Reference*.
DISABLE_CONSOLE_ DEBUG_INFO	This parameter enables you to allow access to the Quality Center debug info console page (access to it is disabled by default).
	If this parameter exists and is set to "N", the debug info console page can be accessed.
DISABLE_EXTENDED_ STORAGE	This parameter controls user access to the OTA **ExtendedStorage** object. This is a security feature that can be used to limit access to the file system of the project.
	If this parameter is set to "Y" (default), the ExtendedStorage object cannot be accessed from TDConnection. Users can access the object from a specific entity for read-only, but no changes can be made.
	If it is set to "N", the ExtendedStorage object can be accessed by all users, from a specific entity or from TDConnection.
	For more information about the ExtendedStorage object, refer to the *HP Quality Center Open Test Architecture API Reference*.
DISABLE_HTTP_ COMPRESSION	By default, the data transferred from the Quality Center server to clients is compressed to improve performance.
	If this parameter exists and is set to "Y", the data compression is disabled.

Parameter	Description
DISPLAY_LAST_USER_ INFO	This parameter enables you to add additional security to the client Quality Center Login window. By default, Quality Center displays the last user login information (user name, domain and project). If this parameter is set to "N", the last user login information is not saved on the client machine and is not displayed in the Quality Center Login window. To activate this parameter, you must log in to Quality Center, log out, and log in again. If this parameter is set to "Y" or does not exist, the last user information is displayed.
FAVORITES_DEPTH	Defines the number of most recently used favorite views displayed on the **Favorites** menu. By default, Quality Center displays the four most recently used views on the menu. To hide the list of recently used views completely, set the parameter to "0". For more information on favorite views, refer to the *HP Quality Center User Guide*.
HEBREW	If this parameter is set to "Y", it indicates that the Quality Center server is Hebrew-enabled. On a per project basis, you can then enable Hebrew by selecting **Allow Hebrew language** in the **Site Projects** tab. When users work in a Hebrew-enabled project, they can toggle between English and Hebrew by choosing **Tools** > **Reading Order** > **Right to Left**.

Parameter	Description
LDAP_IMPORT_ ATTRIBUTE_MASK	This parameter enables you to define a regular expression that can be used to distinguish between different values for an LDAP attribute when importing users from an LDAP directory. When importing users, Quality Center chooses a value for the attribute that matches the regular expression.
	The parameter should be of the format: **<LDAP attribute name> = <regular expression>**, where **<LDAP attribute name>** is the name of the LDAP attribute whose value you want to choose, and **<regular expression>** is a regular expression. This regular expression should conform to the standard Java syntax for regular expressions.
	For example, a parameter value uid=^\D\w+$ would choose values for the LDAP attribute uid consisting of a non-digit followed by any number of word characters (letters, numerals or the underscore character).
	For more information on importing users from an LDAP directory, see "Importing Users from LDAP" on page 116.
LDAP_TIMEOUT **(formerly DIRECTORY_TIME_LIMIT_ CONSTRAINT)**	The length of time, in milliseconds, that Quality Center waits before canceling an LDAP operation.
	The time limit on LDAP operations prevents a situation where LDAP encounters a problem and causes Quality Center to wait indefinitely. The default timeout value is 10 minutes.
	For more information about using LDAP, see Chapter 5, "Managing Quality Center Users."
LIBRARY_BROKEN_LINKS _VERIFICATION_FUSE	The maximum number of broken links to be displayed in the Broken Links Verification log created during baseline creation. By default, the maximum number of broken links displayed is 1000.
	For more information on creating baselines, refer to the *HP Quality Center User Guide*.

Parameter	Description
LR DIRECTFILEACCESS	This parameter applies if you are integrating with HP LoadRunner. If set to "Y", it enables the direct accessing of scripts located within the same LAN as your Quality Center client/server. **Note:** In a UNIX or Linux environment, you must also set the UNIX_SERVER parameter.
NEWREQTYPE	This parameter determines whether the Create New Requirement dialog box is displayed when adding a requirement. If the parameter does not exist, is empty, or is set to "Y", then the Create New Requirement dialog box is displayed when adding a requirement. If the parameter is set to "N", the Create New Requirement dialog box is unavailable and the New Requirements dialog box is opened directly.
NLS_SEARCH_LOCALE	The language used by the **Find Similar Defects** command to tokenize the defect summary. This parameter is needed only if the default locale on the server does not match the language in which the defect summary is written, in terms of whether spaces are used to separate words. The value should be a string value that matches a language code listed in ISO 639 (http://www.w3.org/WAI/ER/IG/ert/iso639.htm). For example, if the default locale is English and the text is in Japanese, which does not use spaces to separate words, set NLS_SEARCH_LOCALE=ja. If this parameter is not defined or is invalid, the default locale of the server is used.

Parameter	Description
PASSWORD_RESET_ DISABLE	This parameter determines whether Quality Center users can reset their passwords using the Forgot Password link in the Quality Center Login window.
	If this parameter is not defined, or if the parameter is set to "N", users can reset their passwords using the Forgot Password link. If the parameter is set to "Y", a message is displayed. This message is set by the PASSWORD_RESET_UNAVAILABLE_MESSAGE parameter. For more information, see "PASSWORD_RESET_ UNAVAILABLE_MESSAGE" on page 171.
	If LDAP authentication is enabled, you need to set this parameter to "Y". For more information, see "Enabling LDAP Authentication for Users" on page 126.
	For more information on resetting passwords, refer to the *HP Quality Center User Guide*.
PASSWORD_RESET_ ELAPSED_TIME	If a user clicks the Forgot Password link in the Quality Center Login window, by default 24 hours have to elapse before the same user can make another password reset request.
	This parameter allows you to change the length of time, in hours, that has to elapse before a user can make another password reset request.
	For more information on resetting passwords, refer to the *HP Quality Center User Guide*.
PASSWORD_RESET_ UNAVAILABLE_MESSAGE	The message that displays when a user clicks the Forgot Password link in the Quality Center Login window, and the PASSWORD_RESET_DISABLE parameter is set to "Y". For more information, see "PASSWORD_RESET_ DISABLE."
	By default, the message that displays is: "The reset password feature is not available. Please contact your administrator."

Parameter	Description
PASSWORD_RESET_ VALID_PERIOD	If a user clicks the Forgot Password link in the Quality Center Login window, an email notification is sent to the user with a link to specify a new password. By default, the link is valid for 24 hours. This parameter allows you to change the length of time, in hours, that the link is valid. For more information on resetting passwords, refer to the *HP Quality Center User Guide*.
PROJECT_SELECTION_ MAX_PROJECTS	By default, cross-project graphs can include up to six projects. This parameter enables you to set a different number of maximum projects that cross-project graphs can include. Increasing the number of projects may reduce the system's performance. For more information on cross-project graphs, refer to the *HP Quality Center User Guide*.

Parameter	Description
REPLACE_TITLE	This parameter enables you to change the names of Quality Center modules across all your projects.
	Rename one or more modules by entering the following parameter value: <original title1 [singular]>;<new title1 [singular]>; <original title1 [plural]>;<new title1 [plural]>; <original title2 [singular]>;<new title2 [singular]>;...
	For example, if you want to change the name of the Defects module to **Bugs**, and the Requirements module to **Goals**, enter the following: Defect;Bug;Defects;Bugs;Requirement;Goal; Requirements;Goals
	Renaming the Releases module does not change the module name in the following locations:
	➤ The **Releases** command in the Releases module menu bar.
	➤ The **New Release Folder** menu command and dialog box.
	➤ The **New Release** menu command and dialog box.
	Note: To rename the Defects module for a specific project only, see "Renaming the Defects Module for a Project" on page 87.

Parameter	Description
REQ_SHOW_ NUMERATION	This parameter determines whether the option to display numeration is available in the Requirements module and in the requirements coverage grid.
	If the parameter does not exist, is empty, or is set to "N", then this option is unavailable. If the parameter is set to "Y", you can display numeration in the following ways:
	➤ **Requirements Module.** Select **View** > **Numeration**.
	➤ **Requirements coverage grid.** Right-click the coverage grid and choose **Numeration**.
	Note that the numeration of the requirements is correct only if you do not sort or filter in the requirements tree. In addition, you cannot view the icons for requirement types in the requirements tree if numeration is displayed.
REQUIREMENT_ REVIEWED_FIELD_ AUTOMATIC_UPDATE	If this parameter is set to "Y" (default), then any change to a requirement field automatically sets the **Reviewed (RQ_REQ_REVIEWED)** field to "Not Reviewed".
	If it is set to "N", then a change to a requirement field does not affect the value of the Reviewed field.
SECURED_QC_URL	When Quality Center generates email, it includes a link to Quality Center in the email.
	If this parameter is set to "Y", the Quality Center URL uses an SSL connection (starting with https:).
	If it is set to "N" (default), SSL is not used.
SQL_QUERY_ VALIDATION_ENABLED	By default, Quality Center checks SQL queries in Excel reports to ensure that they are valid and do not alter the project database. For more information on this validation, see the *HP Quality Center User Guide*.
	If this parameter is set to "N", this validation is not performed. If this parameter does not exist, is empty, or is set to "Y", this validation is performed.

Parameter	Description
SQL_QUERY_ VALIDATION_BLACK_LIST	By default, Quality Center checks that SQL queries for an Excel reports do not include any of the following commands: **INSERT**, **DELETE**, **UPDATE**, **DROP**, **CREATE**, **COMMIT**, **ROLLBACK**, **ALTER**, **EXEC**, **EXECUTE**, **MERGE**, **GRANT**, **REVOKE**, **SET**, **INTO**, or **TRUNCATE**. This ensures that you do not inadvertently modify or delete records in the project database.
	You can modify which commands are on this list by adding this parameter. The parameter's value must be a comma-separated list of SQL commands that Quality Center should verify are not included in SQL queries for an Excel report.
	Note that this verification is not performed if the **SQL_QUERY_VALIDATION_ENABLED** parameter exists and is set to "N".
TEXT_SEARCH_TIMEOUT	The length of time, in minutes, that Quality Center waits before canceling the operation of enabling and rebuilding the text search indexes. This operation is activated by clicking the **Enable/Rebuild Text Search** button in the Site Projects tab of the Site Administration. The default timeout value is 20 minutes.
	For more information on configuring text search, see "Configuring Text Search" on page 150.

Parameter	Description

UNIX_SERVER	If this parameter is set to "Y", it enables direct file access from a testing tool on a Windows machine to a UNIX based repository.
	
	You must then add a new parameter for each directory on the UNIX server machine you want to be able to access externally and specify the corresponding Windows path, as follows:
	
	➤ **Parameter name** is FOLDER_MAPPING_*n* where *n* is an identifying number. For example, FOLDER_MAPPING_1
	➤ **Parameter value** is in the format *UNIXpath->Windowspath*
	    For example,
	    /opt/Mercury/repository/qc/->\\netapp\qc\repository\
	
	Note: This parameter applies to the following testing tools: HP WinRunner and HP LoadRunner.

UPGRADE_EXCEPTION_ FILE	This parameter defines the location of the global exception file to be used when upgrading projects. This file defines exceptions for the Quality Center database user schema. By default, the **SchemaExceptions.xml** file is saved in the **<Quality Center repository path>\sa\DomsInfo \MaintenanceData** directory. For more information on upgrading projects, see "Upgrading Domains and Projects" on page 101.

Parameter	Description
VERIFY_REPORT_FOLDER	This parameter determines where the verification report is saved when the project verification process completes. By default, the output is saved in **<Quality Center repository path>\sa\DomsInfo \MaintenanceData\out** on your Quality Center server machine. For more information on verifying projects, see "Verifying Domains and Projects" on page 92.
WR DIRECTFILEACCESS	This parameter applies if you are integrating with HP WinRunner. If set to "Y", it enables the direct accessing of scripts located within the same LAN as your Quality Center client/server. **Note:** In a UNIX or Linux environment, you must also set the UNIX_SERVER parameter.

Setting Quality Center Parameters

You can add, modify, and delete parameters in the Site Configuration tab. You can also export parameters to a text file.

Notes:

➤ You cannot add or delete default parameters, you can only modify them.

➤ You must reconnect to any open projects to work with the new settings.

To set Quality Center parameters:

1 In Site Administration, click the **Site Configuration** tab.
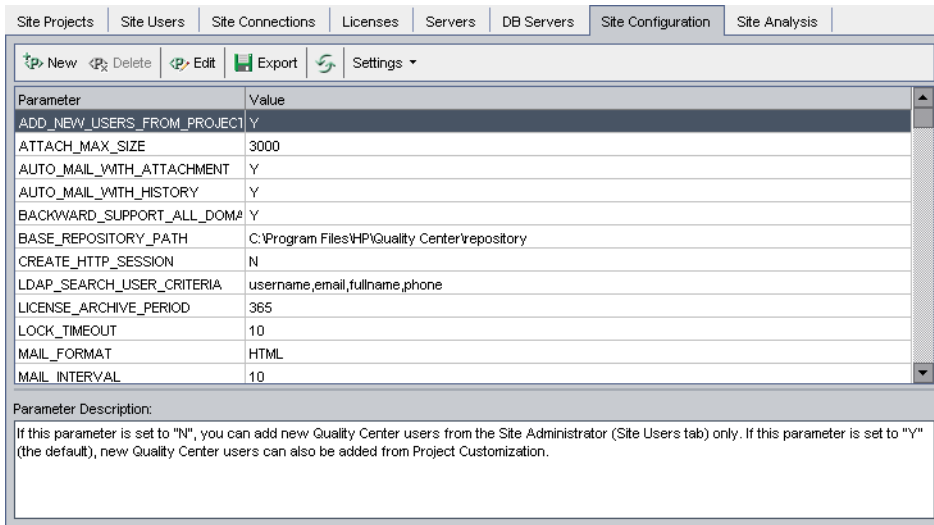
2 To add a new parameter to the list, click the **New Parameter** button. The New Parameter dialog box opens. Type a name, value, and description for the parameter you want to add. Click **OK**.

3 To delete a parameter from the list, select it and click the **Delete Parameter** button. Click **Yes** to confirm.

4 To edit a parameter, select it from the list and click the **Edit Parameter** button. The Edit Parameter dialog box opens. Type a new value and value description, and click **OK**.

5 To export parameters from the site configuration grid to a text file, click the **Export** button. The Export Data To File dialog box opens. Select the directory where you want to save the parameters, and type a name for the file in the **File name** box. Click **Save**.

6 You can click the **Refresh Parameters List** button to refresh the parameter list.

Setting the Quality Center Mail Protocol

Quality Center uses email to send project information to users. You can select the mail service to be used by all the server nodes in your Quality Center site. Quality Center supports the SMTP mail protocols.

For more information on setting the Quality Center mail protocol, refer to the *HP Quality Center Installation Guide*.

To set the Quality Center mail protocol:

1 In Site Administration, click the **Site Configuration** tab.

2 Click the **Settings** button and choose **Set Mail Protocol**. The Set Mail Protocol dialog box opens.
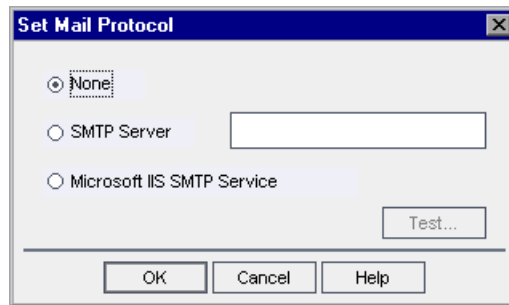
3 Select one of the following options:

  ➤ **None.** Quality Center does not send email.

  ➤ **SMTP Server.** Quality Center sends email from an SMTP server on the network. Type the address of an SMTP server available on your local area network.

  ➤ **Microsoft IIS SMTP Service.** Quality Center sends email from the Quality Center server machines. This option is available if you installed Microsoft IIS SMTP Service on your Quality Center server machines during IIS installation.

4 Click **Test** to send a test email to your mailbox. The Test Mail dialog box opens. Type your email address and click **Send**. A pop-up message confirms whether the mail was sent successfully.

5 Click **OK** to close the Set Mail Protocol dialog box.

8

Analyzing Site Usage

In Site Administration, you can track the number of licensed users that have connected to your Quality Center site at specific points over a period of time. You can also analyze Quality Center usage by filtering the number of licensed users by projects or users.

This chapter includes:

About Analyzing Site Usage

You use the **Site Analysis** tab in Site Administration to monitor license usage for each time interval displayed. You can specify the time interval displayed along the x-axis. You can also specify what information appears in the graph by filtering the graph content by projects or users.

For example, you may want to charge each department in your organization according to license usage. You can filter by projects in a specific department to view license usage for the department. You can also view license usage for a specific group of users by filtering according to selected users.

If the **Site Analysis** tab is not displayed, you can make it available by changing the **SITE_ANALYSIS** parameter in the **Site Configuration** tab. For more information, see "SITE_ANALYSIS" on page 162.

Monitoring Site Usage

You can monitor the number of licensed users that have connected to a Quality Center site over a period of time. You can view site usage for the last seven days, the last five weeks, the last twelve months, or for all days that users were connected to a Quality Center server.

You can also monitor usage of different license types:

➤ Users with **Full Licenses** can access all modules in a specific project.

➤ Users with **Defect Licenses** can access only the Defects module.

➤ Users with **Requirement Licenses** can access only the Requirements module.

This data can be displayed in line graphs or data grids.

In addition, you can filter records by projects or users, refresh and clear filter settings, and save data to a file.

Note: You can monitor the users currently connected to a Quality Center server. For more information, see Chapter 6, "Managing User Connections and Licenses."

To monitor site usage:

1 In Site Administration, click the **Site Analysis** tab.
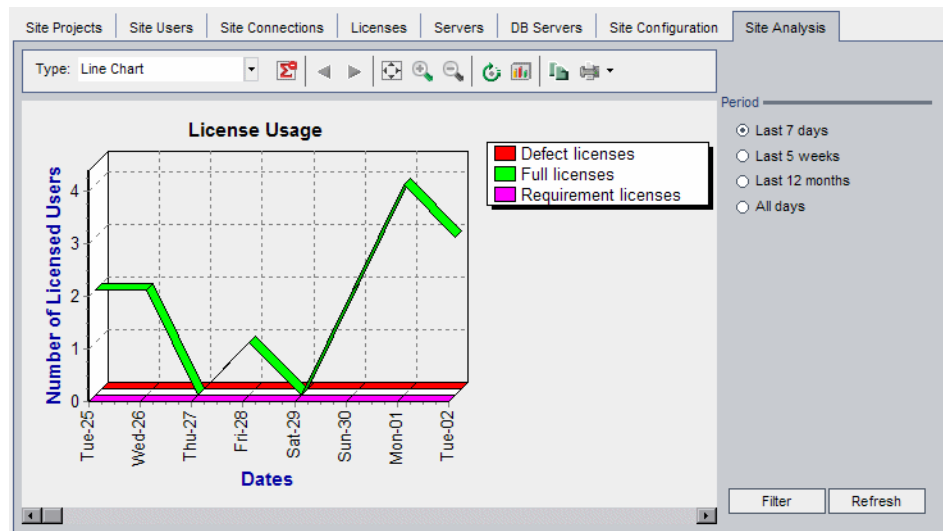
2 In the **Type** box, select a display type:

➤ **Line Chart.** Displays the data as a line graph.

➤ **Data Grid.** Displays the data as a grid.

3 In the right pane under **Period**, select the period of time you want the line graph or data grid to show.

4 Click the **Filter** button to open the Set Filter dialog box and filter the graph contents. For more information, see "Filtering Site Usage" on page 184.

5 To customize the appearance of a Line Chart graph, see "Customizing the Site Analysis Line Chart Graph" on page 186.

6 If you chose Data Grid, you can save the contents of a data grid as a text file, Microsoft Excel spreadsheet, Microsoft Word document, or HTML document. To save, click the **Save As** button. For more information, see "Exporting Site Analysis Data to a File" on page 185.

7 To refresh data in the graph, click the **Refresh** button.

Filtering Site Usage

You can analyze the number of users that have connected to your Quality Center site at specific points over time by filtering by projects or users.

To filter site usage:

1 Click the **Filter** button. The Set Filter dialog box opens.
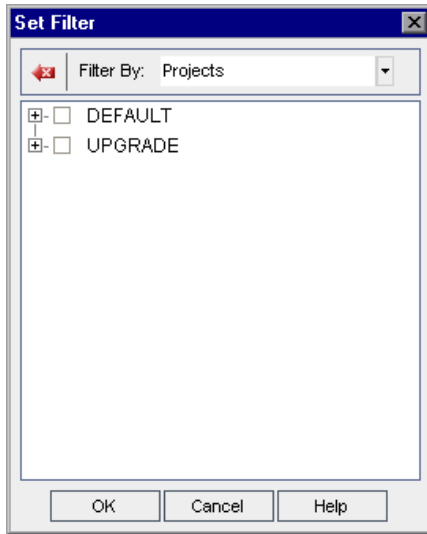
2 Under **Filter By**, select the category that you want to filter:

➤ **Projects.** Displays all the Quality Center domains and projects.

➤ **Users.** Displays all the Quality Center site users.

3 Click the items you want to include in the filter.

➤ For **Projects**, double-click the domain folder to display the domain's projects, and select the projects you want to include. To filter all projects in the domain, select the domain folder.

➤ For **Users**, select the users you want to include.

4 To clear the selected projects or users in a filter, click the **Clear** button.

5 Click **OK** to apply the filter and close the Set Filter dialog box. The new line chart or data grid is displayed.

Exporting Site Analysis Data to a File

You can export site analysis data in a Data Grid as a text file, Microsoft Excel spreadsheet, Microsoft Word document, HTML document, or XML document.

To export Site Analysis data to a file:

1 In Site Administration, click the **Site Analysis** tab.

2 In the **Type** field, select the **Data Grid** display type.

3 Select the graph period and filter.

4 Click **Save as**, and select one of the following formats:

> ➤ **Text Format.** Saves the data as a Text file.

> ➤ **Excel Sheet.** Saves the data as an Excel sheet.

> ➤ **Word Document.** Saves the data as a Word document.

> ➤ **HTML Document.** Saves the data as an HTML document.

5 In the **Save in** box, choose a location for the file.

6 In the **File name** box, type a name for the file.

The **Save as type** box is automatically filled according to the format you selected.

7 Click **Save**.

Customizing the Site Analysis Line Chart Graph

You can determine how information appears in the Line Chart graph using the line chart toolbar. The toolbar includes the following buttons:

Show Total Values. Toggles between displaying and hiding a total value in the graph.

Scroll to the Left. Scrolls the graph to the left. (This button is enabled when the Zoom In and Zoom Out buttons are in use.)

Scroll to the Right. Scrolls the graph to the right. (This button is enabled when the Zoom In and Zoom Out buttons are in use.)

Show All. Returns the graph to its normal size. (This button is enabled when the Zoom In and Zoom Out buttons are in use.)

Zoom In. Increases the magnification of the selected portion of the graph.

Zoom Out. Decreases the magnification of the selected portion of the graph.

Rotate Bottom Labels. Toggles between displaying the text on the x-axis vertically and horizontally.

Set 2D/3D Graph. Toggles the graph from two to three dimensions.

Copy Graph to Clipboard. Copies the graph to the Clipboard.

Print Graph. You can choose to print the graph in portrait or landscape view.

Part II

Project Customization

9

Project Customization at a Glance

As a Quality Center project administrator, you use Project Customization to control access to a project by defining the users who can access the project and by determining the types of tasks each user can perform. You can also customize a project to meet the specific requirements of your organization.

Quality Center Premier Edition Cross Project Customization: As a Quality Center template administrator, you can customize a template project and apply the customization to one or more Quality Center projects using cross project customization. This enables you to standardize policies and procedures across projects in your organization. For more information, see Chapter 16, "Cross Project Customization."

This chapter includes:

➤ Starting Project Customization on page 189

➤ Understanding the Project Customization Window on page 194

Starting Project Customization

You can customize your Quality Center projects using the Project Customization window.

Note: Users belonging to the Viewers group cannot view or change any settings in the Project Customization window.

You can also open the Project Customization window without logging in to a Quality Center project, if necessary. For more information, see "Starting Project Customization Without Logging In to a Project" on page 193.

To start project customization:

1 Open your Web browser and type your Quality Center URL http://<Quality Center server name>[<:port number>]/qcbin. The Quality Center Options window opens.

2 Click the **Quality Center** link.

The first time you run Quality Center, files are downloaded to your workstation. Subsequently, Quality Center carries out a version check. If there is a newer version on the server, updated files are downloaded to your workstation.

Note: To download files to your computer, you must log in with administrator privileges. This applies if you are running Quality Center for the first time, upgrading to a newer version, or applying a service pack.

After the Quality Center version has been checked and files have been updated if necessary, the Quality Center Login window opens.

3 In the **Login Name** box, type your user name.

If you type a user name that does not have administrator privileges for a particular project, you are restricted to the customization functions available for that user group. For more information, see "About Managing User Groups and Permissions" on page 206.

4 In the **Password** box, type your password. If you cannot remember your password, click the **Forgot Password** link. For more information, refer to the *HP Quality Center User Guide*.

After you log in to Quality Center, you can change your password from the Project Customization window. For more information, refer to the *HP Quality Center User Guide*. In addition, site administrators can change a user's password from Site Administration. For more information, see "Changing Passwords" on page 125.

5 Select the **Automatically log in to my last domain and project on this machine** check box if you want Quality Center to automatically log in to the last project in which you were working.

6 Click **Authenticate**. Quality Center verifies your user name and password and determines which domains and projects you may access. If you specified automatic login, Quality Center opens.

7 In the **Domain** list, select a domain. By default, the last domain in which you were working is displayed.

8 In the **Project** list, select a project. By default, the last project in which you were working is displayed.

9 Click **Login**. Quality Center opens and displays the module in which you last worked during your previous session.

10 Choose **Tools > Customize** on the upper-left corner of the window. The Project Customization window opens and displays the customization functions available for the user group to which the user belongs. For more information, see "Understanding the Project Customization Window" on page 194.

11 To exit the Project Customization window and return to your Quality Center project, click the **Return** button located on the upper-right corner of the window.

Starting Project Customization Without Logging In to a Project

You can open the Project Customization window without logging in to a Quality Center project. This can be useful when a workflow script prevents you logging in to a project and you need to access Project Customization to fix the workflow script. You can only access the customization functions available for the user group to which you belong.

To start Project Customization without logging in to a project:

1 Type the following URL in your Web browser:

testdirector:[server name]:[port number]/qcbin,[domain],[project],
[username];13:[ignore_workflow_parameter]

2 To bypass workflow events, set the value of **ignore_workflow_parameter** to "1". Otherwise, workflow events are triggered. Only users belonging to the **TDAdmin** group can activate this option to bypass workflow events.

For example, suppose that you have user name alex_qc. You want to customize the project MyProject in the domain MyDomain on the server MyServer. To start Project Customization without triggering workflow events, type the following URL:

testdirector:MyServer:8080/qcbin,MyDomain,MyProject,alex_qc;13:1

3 When the Quality Center Login window opens, type the password and click **Authenticate**.

Understanding the Project Customization Window

As a Quality Center project administrator, you can customize a project to meet the specific requirements of your organization in the Project Customization window.
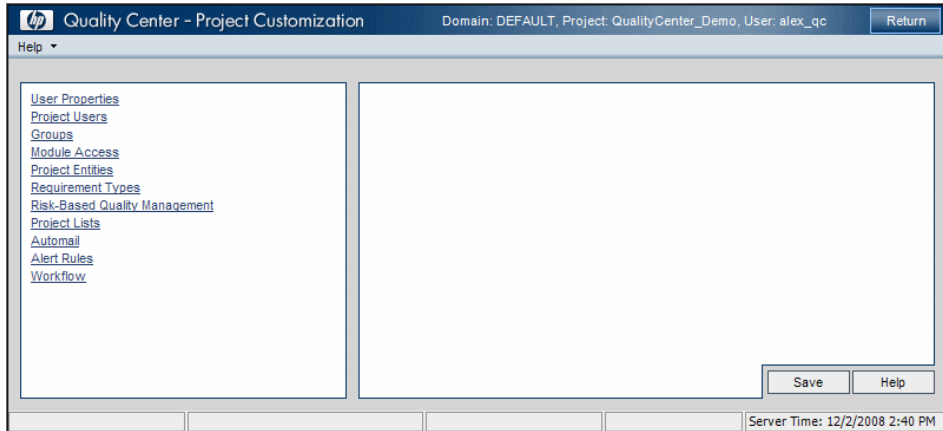
The Project Customization window contains the following links:

Quality Center Editions: Some functionality in Project Customization is unavailable for the Quality Center Starter Edition and Enterprise Edition. This includes the following:

➤ **Quality Center Starter Edition:** The **Requirement Types** and **Risk-based Quality Management** links are unavailable.

➤ **Quality Center Starter Edition and Enterprise Edition:** Cross project customization is only available with Quality Center Premier Edition.

➤ **User Properties.** All users can use this option to change their user properties and password. For more information, refer to the *HP Quality Center User Guide*.

In Site Administration, a site administrator can override and change a user's properties and password from the **Site Users** tab. For more information, see "Updating User Details" on page 124, and "Changing Passwords" on page 125.

➤ **Project Users.** You can add and remove users from a Quality Center project. You can also assign users to user groups to restrict user access privileges. For more information, see Chapter 10, "Managing Users in a Project."

Note that you create Quality Center users and define user properties from Site Administration. For more information, see Chapter 5, "Managing Quality Center Users."

➤ **Groups.** You can assign privileges to user groups by specifying permission settings. This includes specifying transition rules and hiding data. For more information, see Chapter 11, "Managing User Groups and Permissions."

➤ **Module Access.** You can control the modules that each user group can access. By preventing users from accessing unnecessary modules, you can better utilize your Quality Center licenses. For more information, see "Customizing Module Access for User Groups" on page 238.

➤ **Project Entities.** You can customize your Quality Center project to suit your environment. A project can contain system fields and user-defined fields. System fields can be modified. User-defined fields can be added, modified, and deleted. For more information, see "Customizing Project Entities" on page 243.

➤ **Requirement Types.** You can add requirement types to your Quality Center project and define which fields are available and which fields are required for each requirement type. For more information, see "Customizing Project Requirement Types" on page 253.

➤ **Risk-Based Quality Management.** You can customize criteria and criterion values for risk-based testing, and customize default testing efforts and testing levels. For more information, see Chapter 14, "Customizing Risk-Based Quality Management."

➤ **Project Lists.** You can add customized field lists to a project. A field list contains values that the user can enter in system fields or user-defined fields. For more information, see "Customizing Project Lists" on page 259.

➤ **Automail.** You can set up automatic mail notification rules to inform users via email about defect repair activity. For more information, see Chapter 13, "Configuring Automail."

➤ **Alert Rules.** You can activate alert rules for your project. This instructs Quality Center to create alerts and send email when changes occur in the project. For more information, see Chapter 15, "Activating Alert Rules."

➤ **Workflow.** You can generate scripts to perform commonly needed customizations on the fields of the Defects module dialog boxes. For more information, see Chapter 17, "Generating Workflow Scripts."

In addition, you can write scripts to customize dialog boxes in any module, and to control the actions that users can perform. For more information, see Chapter 18, "Workflow Customization at a Glance."

Cross Project Customization

Quality Center Premier Edition: If you are working with cross project customization, the Project Customization window contains the following links:

➤ **Groups (Shared).** This link is available in a template project and displays the same options as the **Groups** link.

➤ **Project Entities (Shared).** This link is available in a template project and displays the same options as the **Project Entities** link.

➤ **Requirement Types (Shared).** This link is available in a template project and displays the same options as the **Requirement Types** link.

➤ **Project Lists (Shared).** This link is available in a template project and displays the same options as the **Project Lists** link.

➤ **Workflow (Shared).** This link is available in a template project and displays the same options as the **Workflow** link.

➤ **Cross Project Customization.** This link displays one of the following pages:

➤ **Cross Project Customization - Linked Projects.** This page is available in a template project. You can view projects linked to the template project and apply template customization. For more information, see Chapter 16, "Cross Project Customization."

➤ **Cross Project Customization - Linked Template.** This page is available in a project that is linked to a template project. You can view details about the template project and set options for receiving template customization updates. For more information, see "Updating Linked Template Details" on page 302.

10

Managing Users in a Project

As a Quality Center project administrator, you can control access to a project by defining the users who can log in to the project and by specifying the types of tasks each user may perform.

This chapter includes:

➤ About Managing Users in a Project on page 199
➤ Adding a User to a Project on page 200
➤ Assigning Users to a User Group on page 202
➤ Removing a User from a Project on page 203

About Managing Users in a Project

For each Quality Center project, you must select a list of valid users from the overall Quality Center users list. (The users list is created in Site Administration. For more information, see Chapter 5, "Managing Quality Center Users.")

You then need to assign each project user to a user group. Each group has permissions to perform certain Quality Center tasks.

Adding a User to a Project

You add new users to a Quality Center project.

To add a user to a project:

1 In the Project Customization window, click the **Project Users** link. The Project Users page opens.

You can click the **User Name** column to change the sort order from ascending to descending user names. You can also click the **Full Name** column to sort according to full names instead of user names.

2 Click the **Add User** button. The Add User to Project dialog box opens.
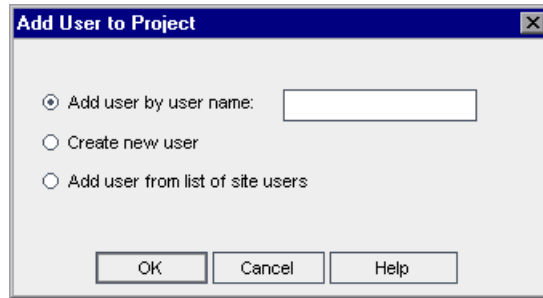
3 Add users to the project using one of the following options:

➤ To add an existing user by user name, select **Add user by user name** and type the user name. Click **OK**.

➤ To create a new user in the Site Users list and add the user to the project, select **Create new user** and click **OK**. In the New User dialog box, type the details for the new user and click **OK**. If this option is not available, you can enable it by setting the **ADD_NEW_USERS_FROM_PROJECT** parameter in Site Administration. For more information, see "ADD_NEW_USERS_FROM_ PROJECT" on page 157.

➤ To add existing users from the Site Users list, select **Add user from list of site users** and click **OK**. In the Add Users dialog box that opens, select the users you want to add to the project and click **OK**.

The users are added to the Project Users list and the user details are displayed. User details are defined in Site Administration. For more information, see "Updating User Details" on page 124.

4 Click **Save** to save your changes to the Project Users page.

Assigning Users to a User Group

After you add a user to the project, you can assign the user to one or more user groups. By default, new users are assigned to the project as members of the **Viewer** user group. You can assign a user to a default user group, or to a customized user group. For more information on customizing a user group, see Chapter 11, "Managing User Groups and Permissions." You can change the access privileges for existing users at any time by changing the user group to which they are assigned.

To assign a user to a user group:

1 In the Project Customization window, click the **Project Users** link. The Project Users page opens.

2 In the **Project Users** list, select the user you want to assign to a user group. The user properties are displayed (name, email, phone, and description).

The email information is important as it enables a user to receive defects, tests, requirements, and test set notifications directly to their mailbox.

The user details are defined in Site Administration. For more information, see "Updating User Details" on page 124.
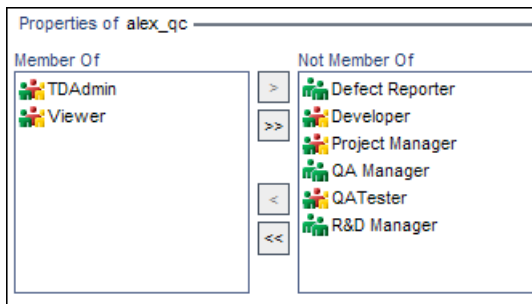
3 To assign the selected user to a user group, click a user group name in the **Not Member Of** list and click the left arrow button.

4 To remove the user from the currently selected user group, click a user group name in the **Member Of** list and click the right arrow button.

> **Note:** The **Member Of** list can never be empty. A user must always belong to at least one user group.

5 To move all the user groups from one list to the other, click the double arrow buttons.

6 Click **Save** to save your changes to the Project Users page.

Removing a User from a Project

To ensure the security of a project, remove any users who are no longer working on the project. Removing a user from a project does not delete the user from the Quality Center users list in Site Administration.

To remove a user from a project:

1 In the Project Customization window, click the **Project Users** link. The Project Users page opens.

2 In the **Project Users** list, select the user you want to remove and click the **Remove User** button.

3 Click **OK** to confirm. The user is removed from the Project Users list.

4 Click **Save** to save your changes to the Project Users page.

11

Managing User Groups and Permissions

You can control access to Quality Center projects and modules by defining the user groups that can enter them, and by determining the types of tasks each user group performs.

This chapter includes:

About Managing User Groups and Permissions

To protect a project from unauthorized access, Quality Center enables you to assign each user to one or more groups. Quality Center includes predefined groups with default privileges. Each group has access to certain Quality Center tasks.

When a project requires that certain user groups have privileges that are outside the scope of their default permissions, you can add your own customized user groups and assign each group a unique set of privileges.

After you set user group permissions, you can also define the Quality Center modules to which you want to give a user group access. When a user group member logs in to a project, only the authorized modules are displayed.

Cross Project Customization

Quality Center Premier Edition: If you are working with cross project customization, consider the following:

➤ **Working with a Template Project:** If you are working with a template project, in Project Customization, you use the **Groups (Shared)** link to manage user groups and permissions. User groups created in a template project are created in the linked projects when you apply the template customization. The users assigned to the user group in the template project are not applied to linked projects. For more information on applying template customization, see "Applying Template Customization to Linked Projects" on page 297.

➤ **Working with a Linked Project:** User groups defined by a template project are displayed with a template icon in the linked project. You can assign users to user groups defined by the template project. You cannot modify, rename, or delete a user group defined by the template project. You can, however, limit the records that the user group can view. For more information, see "Hiding Data for a User Group" on page 215.

For more information on cross project customization, see Chapter 16, "Cross Project Customization."

Adding User Groups

If you determine that the default user groups do not meet the needs of your project, you can create additional user groups for your project.

To add a user group:

1 In the Project Customization window, click the **Groups** link. The Groups page opens.
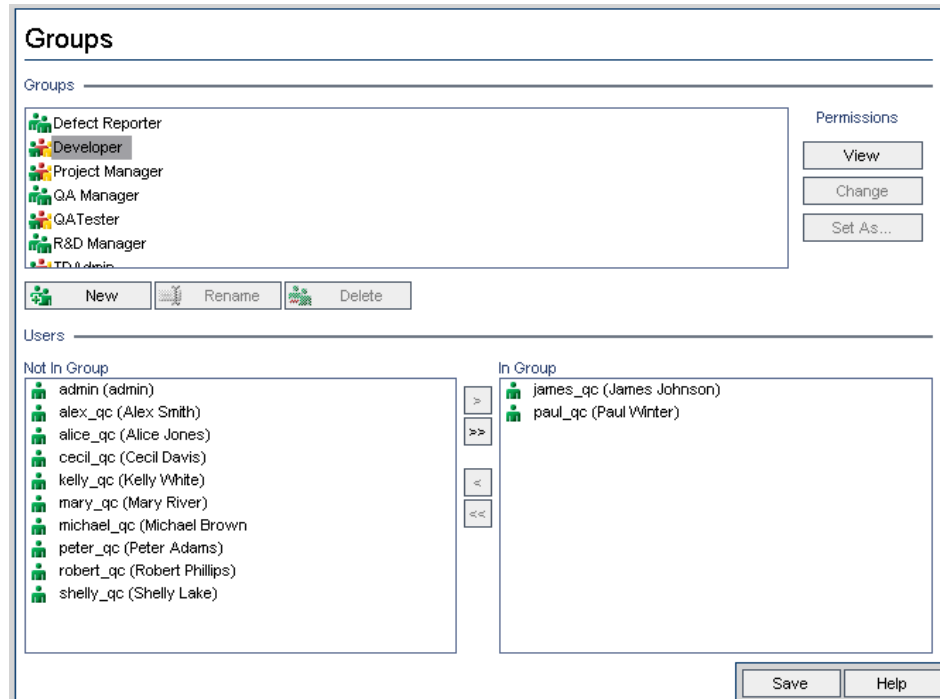
2 Click the **New** button. The New Group dialog box opens.
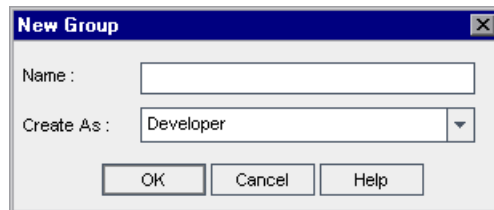
3 In the **Name** box, type a name for the group.

4 In the **Create As** list, assign the privileges of an existing user group to the new group.

Tip: Choose an existing user group that has similar access privileges to the new user group you want to create. This minimizes the level of customization you need to do.

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5 Click **OK**.

6 Click **Yes** to confirm. The new group name is added to the Groups list in the Groups page.

7 Click **Save** to save your changes to the Groups page.

Setting User Group Permissions

Every user group has a set of privileges, or permissions, which are defined by the Quality Center project administrator. For example, suppose a group of users called DOC has Viewer permissions. To work more effectively on the project, they need to add, modify, and delete defects. As the Quality Center project administrator, you can assign these privileges to the DOC group by specifying permission settings.

Note: You cannot modify the privileges of a default user group. To view permissions for these groups, in the Groups page, select the user group in the **Groups** list and click the **View** button. For more information, see "Understanding the Permission Settings Tasks" on page 220.

Quality Center Premier Edition Cross Project Customization - Working with a Linked Project: User groups defined by a template project are displayed with a template icon ⛏ in the linked project. If you are working with a project that is linked to a template project, you cannot modify the permissions of a user group defined by the template project. You can, however, limit the records that the user group can view. For more information, see "Hiding Data for a User Group" on page 215.

To set user group permissions:

1 In the Project Customization window, click the **Groups** link. The Groups page opens.

2 In the **Groups** list, choose the user group for which you want to set permissions.

3 Click the **Change** button. The Permission Settings dialog box opens.
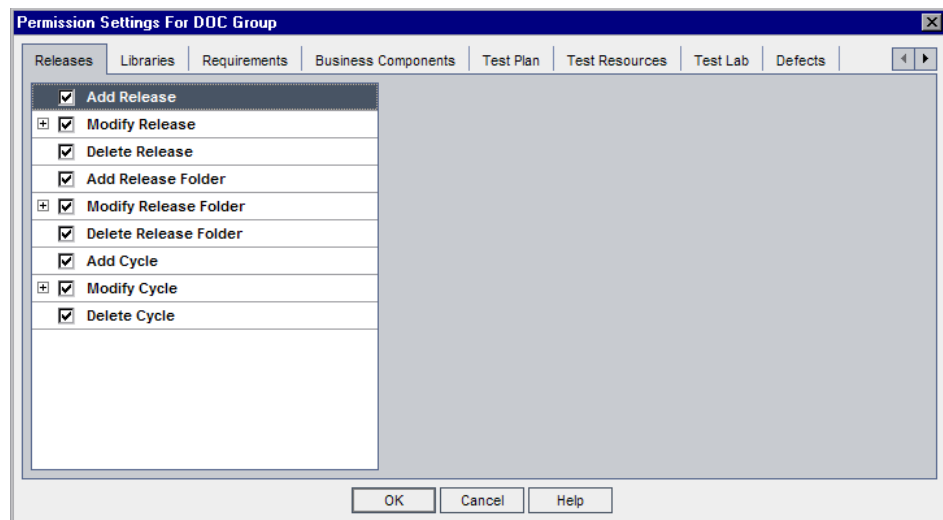
4 Click a permission tab. For example, click **Defects**. The tab displays the tasks available in the Defects module.
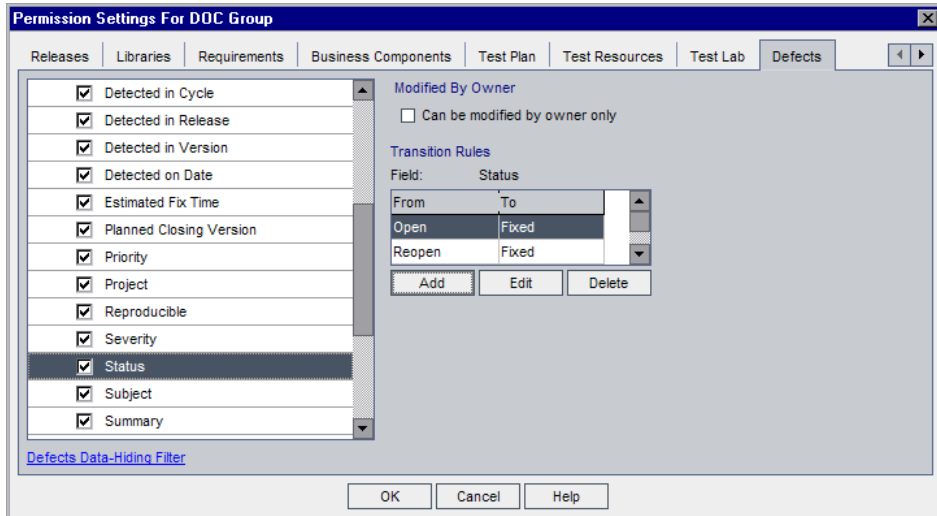
5 Select the tasks that the selected user group can perform. For more information on the available tasks, see "Understanding the Permission Settings Tasks" on page 220.

6 If a task has sublevels, expand the task to display the list of associated fields. Then, select the fields that the selected user group can use.

7 To limit the capabilities of modifying a field, do any of the following:

➤ To ensure that only the user who owns the record can change the field value, select **Can be modified by owner only**. For more information, see "Owning Quality Center Objects" on page 211.

➤ To limit the values a user group can select from a lookup list type field, set transition rules of permissible field values. For more information, see "Setting Transition Rules" on page 212.

8 For deleting tasks, you can ensure that only the person who owns the record can delete the value by selecting **Can be deleted by owner only**. For more information, see "Owning Quality Center Objects" on page 211.

9 You can click the **Data-Hiding Filter** link to hide data from the current user group in the Requirements, Test Plan, Test Lab, and Defects modules. For more information, see "Hiding Data for a User Group" on page 215.

10 Click **OK** to close the Permission Settings dialog box.

11 Click **Save** to save your changes to the Groups page.

Owning Quality Center Objects

When setting group permissions, you can limit the capabilities of modifying or deleting a field value, so that only the user who owns the record can change or delete the value. The following table describes the objects in Quality Center and the users that are defined as the default owners of the objects.

Quality Center Object	Owner
Requirement	The **Author** field (**RQ_REQ_AUTHOR**).
Test in the Test Plan module	The **Designer** field (**TS_RESPONSIBLE**).
Resource in the Test Resources module	The **Created By** field (**RSC_CREATED_BY**).
Test in the Test Lab module	The **Responsible Tester** field (**TC_TESTER_NAME**).
Test run in the Test Lab module	The **Tester** field (**RN_TESTER_NAME**).
Defect	The **Assigned To** field (**BG_RESPONSIBLE**).
Analysis item	The **Owner** field (**AI_OWNER**).
Analysis folder	The **Owner** field (**AIF_OWNER**).
Dashboard page	The **Page Owner** field (**DP_OWNER**).
Dashboard folder	The **Folder Owner** field (**DF_OWNER**).

Note: You can change the owner of a Quality Center object by modifying the value of **TB_OWNER_FIELD_NAME** in the **Tables** table. For more information on the **Tables** table, refer to the *HP Quality Center Database Reference*.

Setting Transition Rules

You can limit a group's modifying privileges by setting transition rules for modifying values in fields. These rules determine the values that the group can modify in fields that you specify. Transition rules can be set only for lookup and user list fields.

For example, when modifying defect information, you can limit the items a user group can select in the **Status** field of a defect record. You can set a transition rule that only allows a user group to edit the **Status** field from "Fixed" to "Closed".

Note: When Workflow has been used to change a list of values for a field that is set with transition rules, the field may only be modified in a way that satisfies both the workflow script and the transition rules. For more information, see Chapter 20, "Workflow Event Reference."

To set transition rules:

1 In the Project Customization window, click the **Groups** link. The Groups page opens.

2 In the **Groups** list, choose the user group for which you want to set permissions.

3 Click the **Change** button. The Permission Settings dialog box opens.

4 Click a permission tab. For example, click **Defects**. The tab displays the tasks available in the Defects module.

5 Select a task. For example, select **Modify Defect**. The task expands and lists available fields.

For more information on the available tasks, see "Understanding the Permission Settings Tasks" on page 220.

6 Under the selected task, select a field. For example, select **Status**. The Transition Rules grid appears on the right pane of the Permission Settings dialog box.
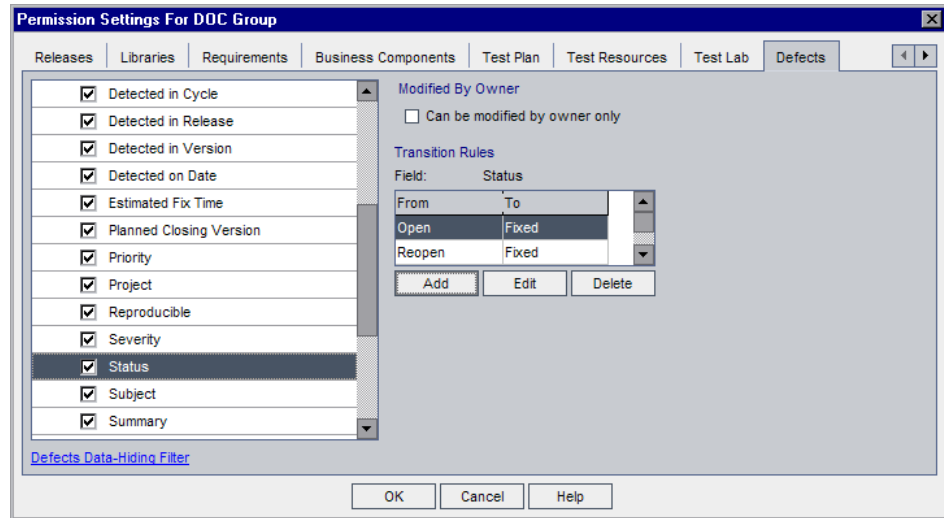
7 Click **Add** to add a transition rule. The Transition Rules dialog box opens.

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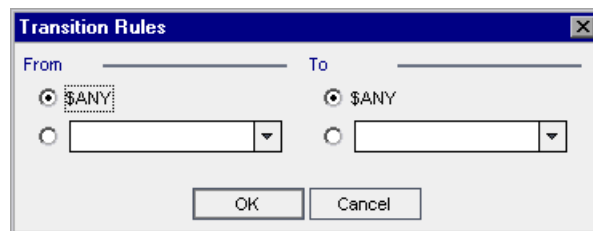
8 Under **From**, you can:

➤ Select **$ANY** to allow a user group to modify the field, irrespective of the currently displayed value.

➤ Select a value from the list. A user group is able to modify the selected field only when the field displays the value you select. For example, to allow a user group to edit the Status field of a defect only if "Fixed" is the current value, select **Fixed**.

9 Under **To**, you can:

➤ Select **$ANY** to allow a user group to change the field to any value.

➤ Select a value from the list. A user group is able to change the value of the selected field to only the value that you specify. For example, to allow a user group to change the value of the Status field only to "Closed", select **Closed**.

10 Click **OK** to save and close the Transition Rules Editor dialog box. The new rules are displayed in the Transition Rules grid.

11 To modify a transition rule, select a rule from the Transition Rules grid and click the **Edit** button. In the Transition Rules Editor dialog box, modify the rule. Click **OK**.

12 To delete a transition rule, select a rule from the Transition Rules grid and click the **Delete** button. Click **OK** to confirm.

13 Click **OK** to close the Permission Settings dialog box.

14 Click **Save** to save your changes to the Groups page.

Hiding Data for a User Group

You can instruct Quality Center to hide specific records that a user group can view in the Libraries, Requirements, Test Plan, Test Resources, Test Lab, and Defects modules. This includes the following options:

➤ **Filtering Data.** You can set filters for specific fields, limiting the records that the user group can view. For example, you can set the filter for the field **Assigned To** to "[CurrentUser]". This instructs Quality Center to display only the records that are assigned to the current user.

For more information on filtering, refer to the *HP Quality Center User Guide*.

➤ **Defining Visible Fields.** You can select which fields in a module the user group can see and which should be hidden. Users belonging to a specific user group need to view only data that relates to their work. For example, you may want to hide the **Path** field in the Test Plan module from user groups that should not be able to access test scripts from the file system. You cannot hide required fields.

Quality Center Premier Edition Cross Project Customization: For more information about hiding data in a project linked to a template project, see "Cross Project Customization" on page 217.

To hide data:

1 In the Project Customization window, click the **Groups** link. The Groups page opens.

2 In the **Groups** list, choose the user group for which you want to set permissions.

3 Click the **Change** button. The Permission Settings dialog box opens.

4 Click a permission tab. For example, click **Defects**. The tab displays the tasks available in the Defects module.

5 Click the **Data-Hiding Filter** link located at the bottom left corner of the dialog box. For example, in the Defects tab, click the **Defects Data-Hiding Filter**. The Defects Data-Hiding Filter dialog box opens and displays the Filter tab.
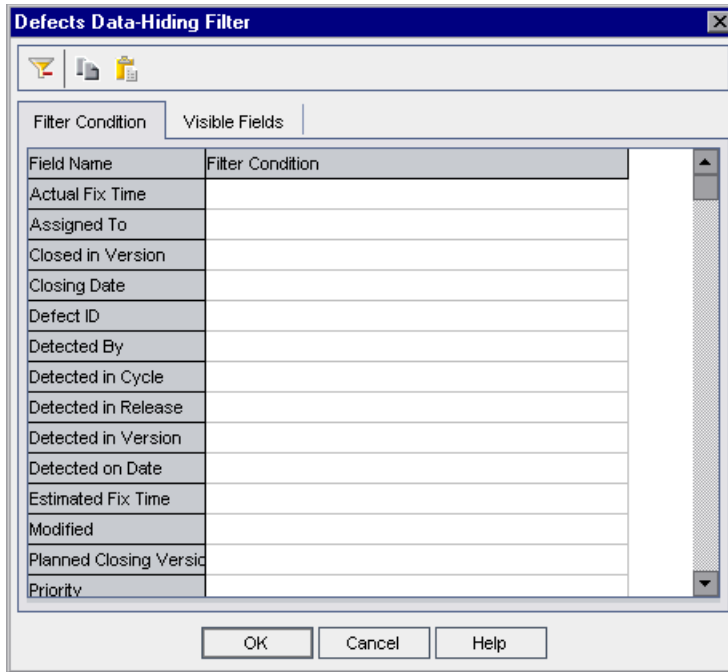
6 Set one or more filters. The filter determines the records that a user group can view in Quality Center. For more information, refer to the *HP Quality Center User Guide*.

7 Click the **Visible Fields** tab.
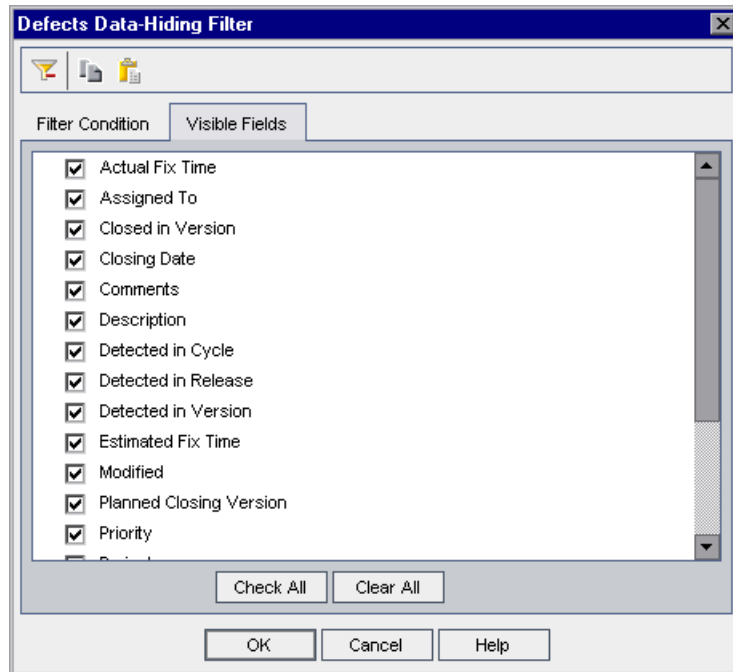
8 Select or clear the appropriate fields.

9 Click **OK** to close the Data-Hiding Filter dialog box.

10 Click **OK** to close the Permission Settings dialog box.

11 Click **Save** to save your changes to the Groups page.

Cross Project Customization

Quality Center Premier Edition: If you are working with a project that is linked to a template project, you cannot hide data for any field defined by the template project.

For user groups defined by the template project, you can hide the data of user-defined fields defined by the project. In the Groups page, select the user group in the **Groups** list, and click the **View** button to display permission settings.

The following example displays the Defects Data-Hiding Filter dialog box for a user group defined by the template project.
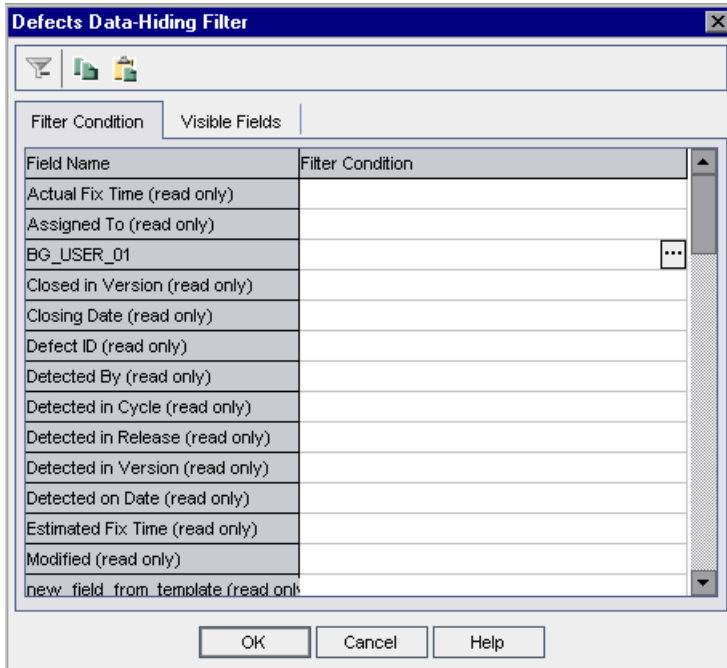
The BG_USER_01 field, for example, is a user-defined field defined by the project, and can be defined as a data-hiding filter. System and user-defined fields defined by the template project are marked as **read-only**.

Assigning Existing Sets of Permissions to User Groups

You can assign one user group another user group's permissions.

To assign an existing set of permissions to a user group:

1 In the Project Customization window, click the **Groups** link. The Groups page opens.

2 In the **Groups** list, select a group name.

3 Click the **Set As** button. The Set Group As dialog box opens.
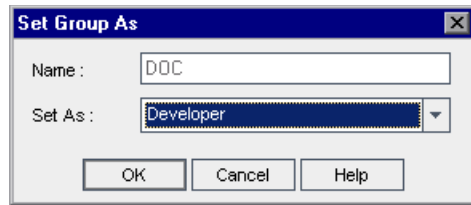
4 In the **Set As** list, select a group name.

5 Click **OK**.

Renaming User Groups

You can rename a user group. All customization performed on the group remains.

Quality Center Premier Edition Cross Project Customization - Working with a Linked Project: If you are working with a project that is linked to a template project, you cannot rename a user group defined by the template project.

To rename a user group:

1 In the Project Customization window, click the **Groups** link. The Groups page opens.

2 In the **Groups** list, select a group name.

3 Click the **Rename** button. The Rename Group dialog box opens.

4 Type a new name for the group.

5 Click **OK** to save your changes.

Deleting User Groups

You can delete user groups that were added to a Quality Center project.

Quality Center Premier Edition Cross Project Customization. If you are working with cross project customization, consider the following:

➤ **Working with a Template Project:** If you delete a user group from a template project, Quality Center does not delete the group from the linked projects. After you next apply template customization to the linked projects, the user group is no longer read-only in the project and can be modified, renamed, or deleted by the project administrator.

➤ **Working with a Linked Project:** If you are working with a project that is linked to a template project, you cannot delete a user group defined by the template project.

To delete a user group:

1 In the Project Customization window, click the **Groups** link. The Groups page opens.

2 In the **Groups** list, select a group name.

3 Click the **Delete** button.

4 Click **OK** to confirm.

Understanding the Permission Settings Tasks

You can display the permissions of user groups in the Permission Settings dialog box. You can modify the permissions of custom user groups at any time. You cannot modify the permissions of the default user groups (TDAdmin, QATester, Project Manager, Developer, and Viewer).

Quality Center Starter and Enterprise Editions: Some permission settings may not be applicable, according to the available functionality with each Quality Center edition.

Quality Center Premier Edition Cross Project Customization - Working with a Linked Project: If you are working with a project that is linked to a template project, you cannot modify the permissions of user groups defined in the template. You can, however, limit the records that the user group can view. For more information, see "Hiding Data for a User Group" on page 215.

To display permissions for a custom user group, in the Groups page, select the user group in the **Groups** list, and click the **View** or **Change** button. For a default user group, click the **View** button. The Permission Settings dialog box opens.

The Permission Settings dialog box contains the following tabs:

➤ Releases Tasks on page 222

➤ Libraries Tasks on page 223

➤ Requirements Tasks on page 225

➤ Test Plan Tasks on page 227

➤ Test Resources Tasks on page 229

➤ Test Lab Tasks on page 230

➤ Defects Tasks on page 232

➤ Dashboard Tasks on page 234

➤ Administration Tasks on page 236

If you use HP Business Process Testing, refer to the *HP Business Process Testing User Guide*.

Releases Tasks

The Releases tab displays the tasks available in the Releases module.
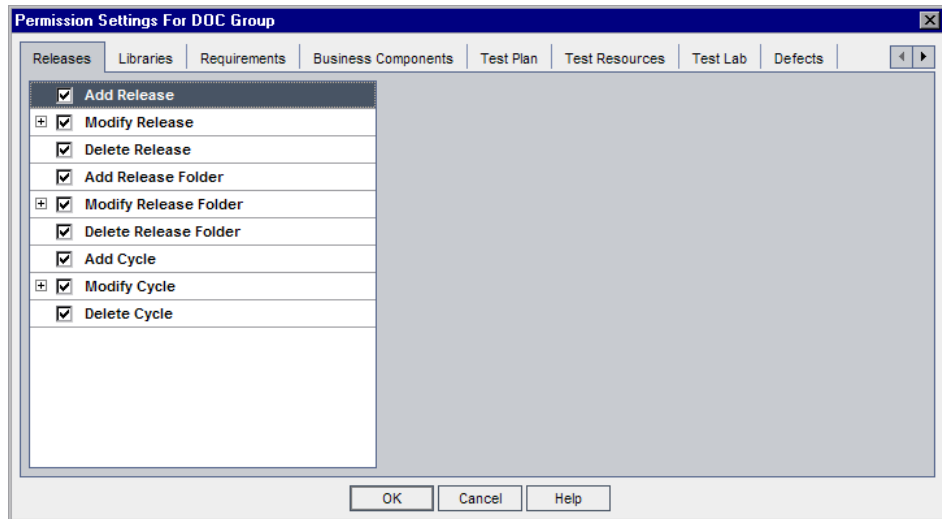
The Releases tab includes the following tasks:

Task	Description
Add Release	User group can add releases to release folders in the releases tree. By default, the user group can also modify releases.
Modify Release	User group can modify releases in release folders. This task enables you to specify the fields that the selected user group can modify.
Delete Release	User group can delete releases and cycles from the releases tree.
Add Release Folder	User group can add release folders to the releases tree. By default, the user group can also modify release folders.
Modify Release Folder	User group can modify release folders in the releases tree. This task enables you to specify the fields that the selected user group can modify.

Task	Description
Delete Release Folder	User group can delete release folders, releases, and cycles from the releases tree.
Add Cycle	User group can add cycles to the releases tree. By default, the user group can also modify cycles.
Modify Cycle	User group can modify cycles in the releases tree. This task enables you to specify the fields that the selected user group can modify.
Delete Cycle	User group can delete cycles from the releases tree.

Libraries Tasks

The Libraries tab displays the tasks available in the Libraries module.

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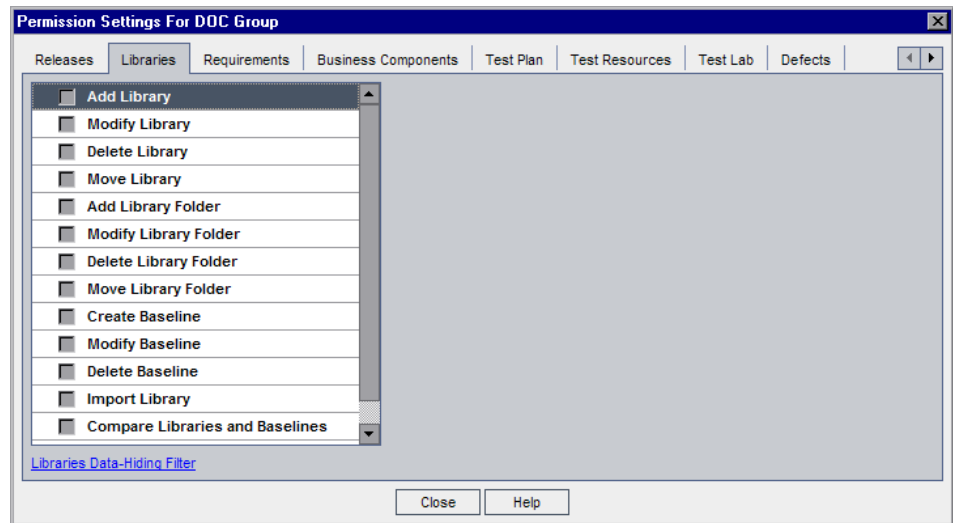
The Libraries tab includes the following tasks:

Task	Description
Add Library	User group can add libraries to library folders in the libraries tree. By default, the user group can also modify libraries.
Modify Library	User group can modify libraries in library folders.
Delete Library	User group can delete libraries from the libraries tree.
Move Library	User group can move libraries to different library folders in the libraries tree.
Add Library Folder	User group can add library folders to the libraries tree. By default, the user group can also modify library folders.
Modify Library Folder	User group can modify library folders in the libraries tree.
Delete Library Folder	User group can delete library folders.
Move Library Folder	User group can move library folders to different library folders in the libraries tree.
Create Baseline	User group can create baselines for libraries. By default, the user group can also modify baselines.
Modify Baseline	User group can modify baselines.
Delete Baseline	User group can delete baselines.
Import Library	User group can import a library to the libraries tree.
Compare Libraries and Baselines	User group can compare libraries and baselines in the libraries tree.
Synchronize Library to Baseline	User group can synchronize libraries in the libraries tree.

Requirements Tasks

The Requirements tab displays the tasks available in the Requirements module.
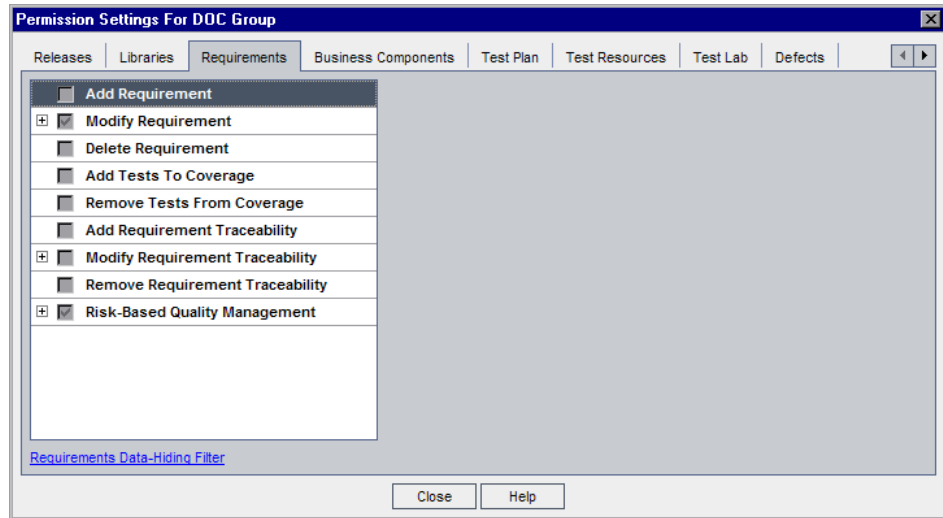
The Requirements tab includes the following tasks:

Task	Description
Add Requirement	User group can add requirements to the requirements tree.
Modify Requirement	User group can modify requirements in the requirements tree. This task enables you to specify the fields that the selected user group can modify. To ensure that only the owner of the requirement can modify it, select **Can be modified by owner only**.
Delete Requirement	User group can delete requirements from the requirements tree. To ensure that only the owner of the requirement can delete it, select **Can be deleted by owner only**.
Add Tests to Coverage	User group can add tests coverage to a requirement and requirements coverage to a test.

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Task	Description
Remove Tests from Coverage	User group can remove tests coverage from a requirement and requirements coverage from a test.
Add Requirement Traceability	User group can add traceability links to a requirement.
Modify Requirement Traceability	User group can modify traceability links for a requirement. This task enables you to specify whether the user group can modify the comment for a traceability link. To ensure that only the owner of the requirement can modify the traceability link, select **Can be modified by owner only**.
Remove Requirement Traceability	User group can remove traceability links from a requirement. To ensure that only the owner of the requirement can remove the traceability link, select **Can be removed by owner only**.
Risk-Based Quality Management	Enables you to specify permission settings for the following risk-based quality management tasks: ➤ **Assess Business Criticality.** User group can assess the Business Criticality and override calculated analysis results of a requirement. ➤ **Assess Failure Probability.** User group can assess the Failure Probability and override calculated analysis results of a requirement. ➤ **Assess Functional Complexity.** User group can assess the Functional Complexity and override calculated analysis results of a requirement. ➤ **Analyze.** User group can perform risk-based quality management analysis on a requirement and its children. For more information on risk-based quality management, see the *HP Quality Center User Guide*.

Test Plan Tasks

The Test Plan tab displays the tasks available in the Test Plan module.
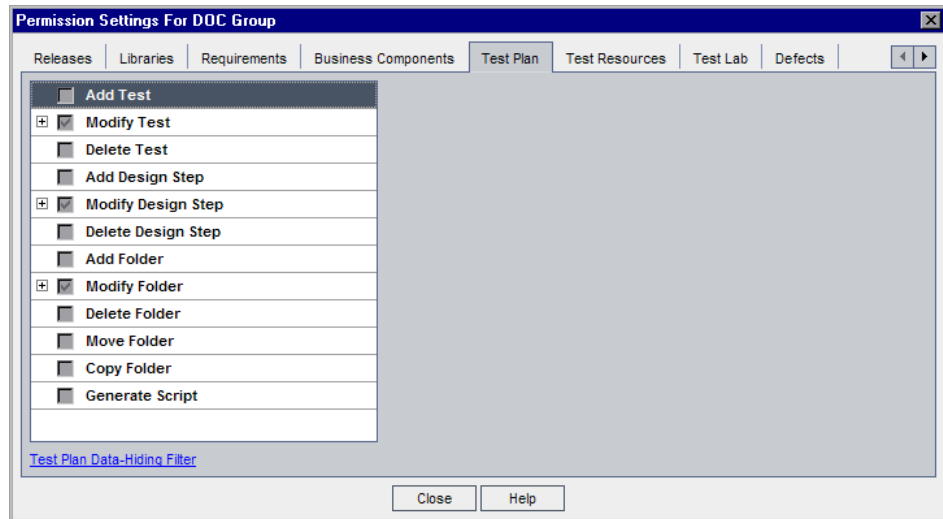
The Test Plan tab includes the following tasks:

Task	Description
Add Test	User group can add tests to the test plan tree.
Modify Test	User group can modify tests in the test plan tree. This task enables you to specify the fields that the selected user group can modify. To ensure that only the owner of the test can modify it, select **Can be modified by owner only**.
	The **Parameter Settings** sub-task enables you to specify whether the user group can manage test parameters. Users can assign values to test parameters without this permission.
Delete Test	User group can delete tests from the test plan tree. To ensure that only the owner of the test can delete it, select **Can be deleted by owner only**.

Task	Description
Add Design Step	User group can add design steps in the Design Steps tab.
Modify Design Step	User group can modify design steps in the Design Steps tab. This task enables you to specify the fields that the selected user group can modify.
Delete Design Step	User group can delete design steps from the Design Steps tab. To ensure that only the owner of the design step can delete it, select **Can be deleted by owner only**.
Add Folder	User group can add folders to the test plan tree.
Modify Folder	User group can modify folders in the test plan tree. This task enables you to specify the fields that the selected user group can modify.
Delete Folder	User group can delete folders from the test plan tree.
Move Folder	User group can move folders in the test plan tree.
Copy Folder	User group can copy folders in the test plan tree.
Generate Script	User group can convert the test steps of a manual test, displayed in the Design Steps tab, into an automated test.

Test Resources Tasks

The Test Resources tab displays the tasks available in the Test Resources module.
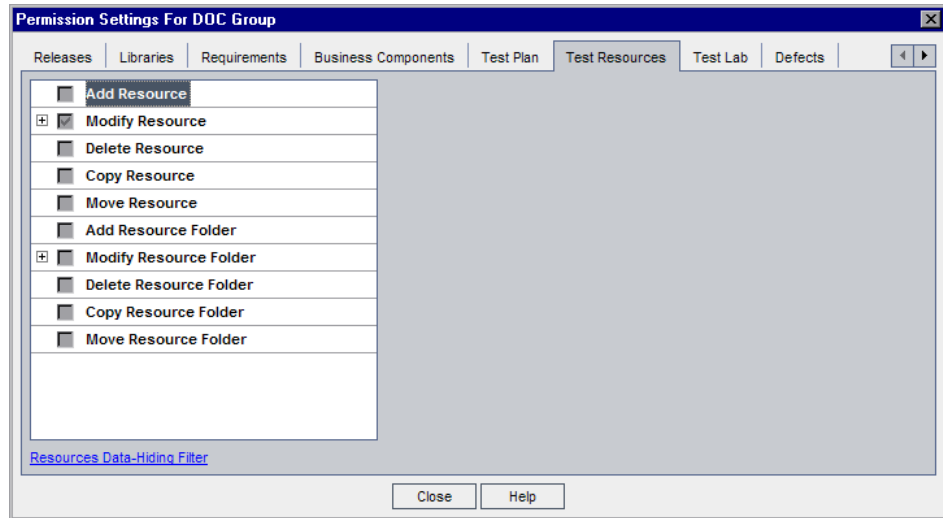
The Test Resources tab includes the following tasks:

Task	Description
Add Resource	User group can add resources to the resource tree.
Modify Resource	User group can modify resources in the resource tree and upload resources to the Quality Center repository. This task enables you to specify the fields that the selected user group can modify. To ensure that only the owner can modify a resource field, select **Can be modified by owner only**.
Delete Resource	User group can delete resources from the resource tree. To ensure that only the owner of a resource can delete it, select **Can be deleted by owner only** check box.
Copy Resource	User group can copy resources to folders in the resource tree.

Task	Description
Move Resource	User group can move resources to different folders in the resource tree.
Add Resource Folder	User group can add folders to the resource tree.
Modify Resource Folder	User group can modify folders in the resource tree. This task enables you to specify the fields that the selected user group can modify.
Delete Resource Folder	User group can delete folders from the resource tree.
Copy Resource Folder	User group can copy folders in the resource tree.
Move Resource Folder	User group can move folders in the resource tree.

Test Lab Tasks

The Test Lab tab displays the tasks available in the Test Lab module.
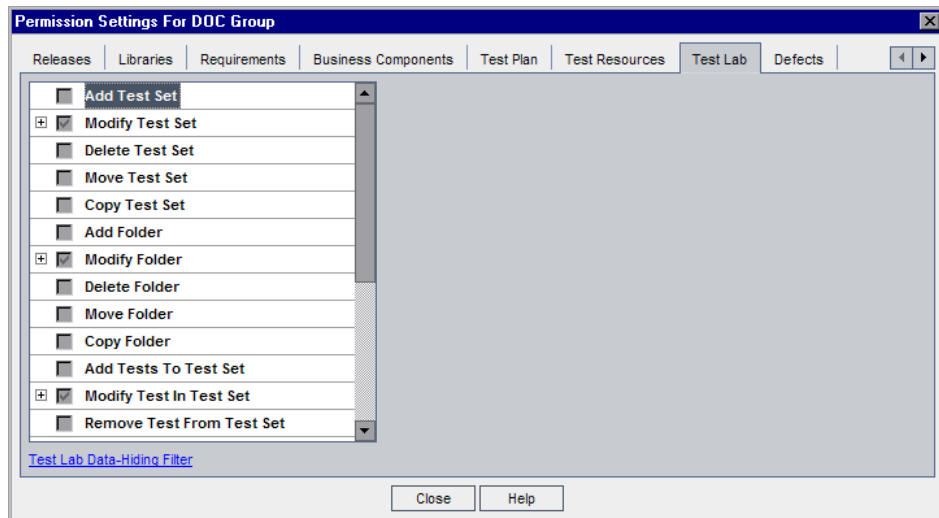
The Test Lab tab includes the following tasks:

Task	Description
Add Test Set	User group can add test sets.
Modify Test Set	User group can modify test sets. This task enables you to specify the fields that the selected user group can modify.
Delete Test Set	User group can delete test sets.
Move Test Set	User group can move test sets to different folders in the test sets tree.
Copy Test Set	User group can copy test sets to folders in the test sets tree.
Add Folder	User group can add folders to the test sets tree.
Modify Folder	User group can modify folders in the test sets tree. This task enables you to specify the fields that the selected user group can modify.
Delete Folder	User group can delete folders in the test sets tree.
Move Folder	User group can move folders in the test sets tree.
Copy Folder	User group can copy folders in the test sets tree.
Add Tests to Test Set	User group can add tests to a test set.
Modify Test in Test Set	User group can modify tests in a test set. This task enables you to specify the fields that the selected user group can modify. To ensure that only the owner of the test set can modify it, select **Can be modified by owner only**.
Remove Test from Test Set	User group can remove tests from a test set.
Run Test	User group can run tests.
Modify Run	User group can modify test run information. This task enables you to specify the fields that the selected user group can modify. To ensure that only the owner of the run can modify it, select **Can be modified by owner only**.

Task	Description
Delete Run	User group can delete test run information. To ensure that only the owner of the run can delete it, select **Can be deleted by owner only**.
Reset Test Set	User group can clear all runs in a test set.
Add Hosts	User group can add hosts for running tests.
Modify Hosts	User group can modify host information.
Delete Hosts	User group can delete hosts.
Add Host Group	User group can add host groups for running tests.
Modify Host Group	User group can modify host group information.
Delete Host Group	User group can delete host groups.

Defects Tasks

The Defects tab displays the tasks available in the Defects module.
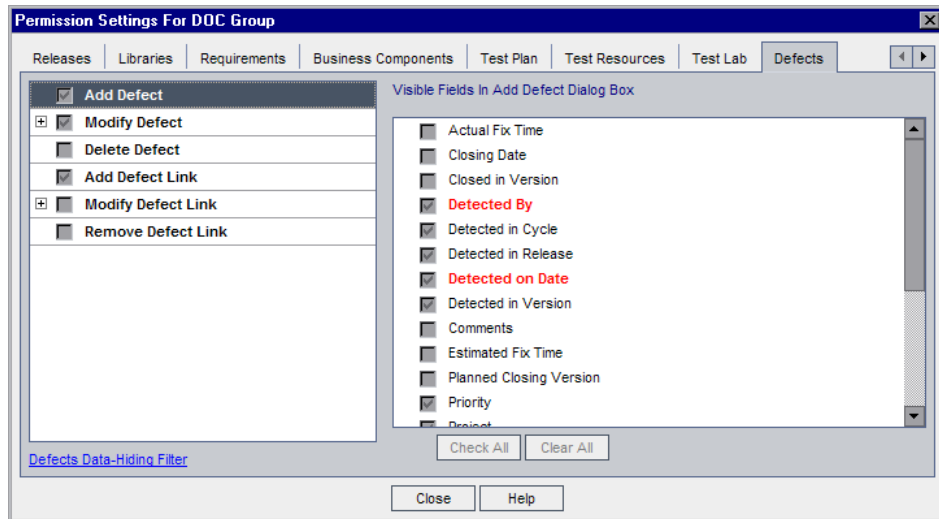
The Defects tab includes the following tasks:

Task	Description
Add Defect	User group can add defects to the Defects Grid. You can customize the fields that appear in the Add Defect dialog box. Under **Visible Fields in Add Defect Dialog Box,** select the fields you want to be visible. Fields that are marked in red are mandatory if they are visible.
Modify Defect	User group can modify defects in the Defects Grid. This task enables you to specify the fields that the selected user group can modify. To ensure that only the owner of the defect can modify it, select **Can be modified by owner only**.
Delete Defect	User group can delete defects from the Defects Grid. To ensure that only the owner of the defect can delete it, select **Can be deleted by owner only**.
Add Defect Link	User group can add defect links to the Quality Center entities.
Modify Defect Link	User group can modify defect links. This task enables you to specify the fields that the selected user group can modify. To ensure that only the owner of the defect link can modify it, select **Can be modified by owner only**.
Remove Defect Link	User group can remove defect links from the Quality Center entities. To ensure that only the owner of the defect link can remove it, select **Can be removed by owner only**.

Dashboard Tasks

The Dashboard tab displays the tasks available in the Dashboard module.
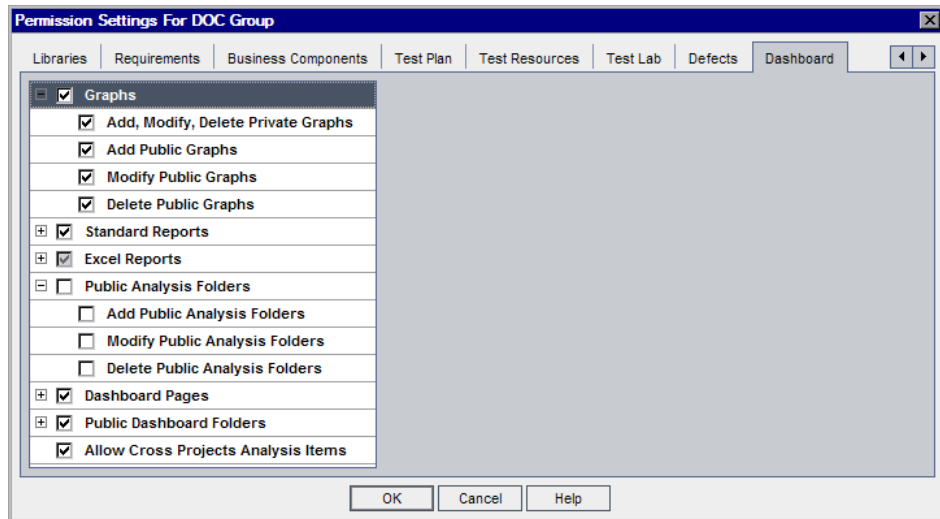
The Dashboard tab includes the following tasks:

Task	Description
Graphs	User group can manage graphs in the analysis tree. This task enables you to specify whether the user group can manage private graphs, and add, modify, and delete public graphs. To ensure that only the owner can modify and delete public graphs, select **Can be modified/deleted by owner only.**
Standard Reports	User group can manage standard reports in the analysis tree. This task enables you to specify whether the user group can manage private standard reports, and add, modify, and delete public standard reports. To ensure that only the owner can modify and delete public standard reports, select **Can be modified/deleted by owner only.**

Task	Description
Excel Reports	User group can manage Excel reports in the analysis tree. This task enables you to specify whether the user group can manage private Excel reports, and add, modify, and delete public Excel reports, and generate Excel reports. To ensure that only the owner can modify and delete public Excel reports, select **Can be modified/deleted by owner only**.
Public Analysis Folders	User group can manage public analysis folders in the analysis tree. This task enables you to specify whether the user group can add, modify, and delete public analysis folders. To delete public analysis folders, a group must have delete permissions for all the analysis types.
Dashboard Pages	User group can manage dashboard pages. This task enables you to specify whether the user group can manage private dashboard pages, and add, modify, and delete public dashboard pages. To ensure that only the owner can modify and delete public dashboard pages, select **Can be modified/deleted by owner only**.
Public Dashboard Folders	User group can manage public dashboard folders in the analysis tree. This task enables you to specify whether the user group can add, modify, and delete public dashboard folders. To delete public dashboard folders, a group must have delete permissions for dashboard pages.
Allow Cross Project Analysis Items	User group can include multiple projects in graphs. If this task is not selected, the user group can create graphs for the current project only. **Caution:** Cross-project analysis items use many system resources. To avoid a reduction in system performance, you should use this permission selectively.

Administration Tasks

The Administration tab displays the administrative tasks available in Quality Center.
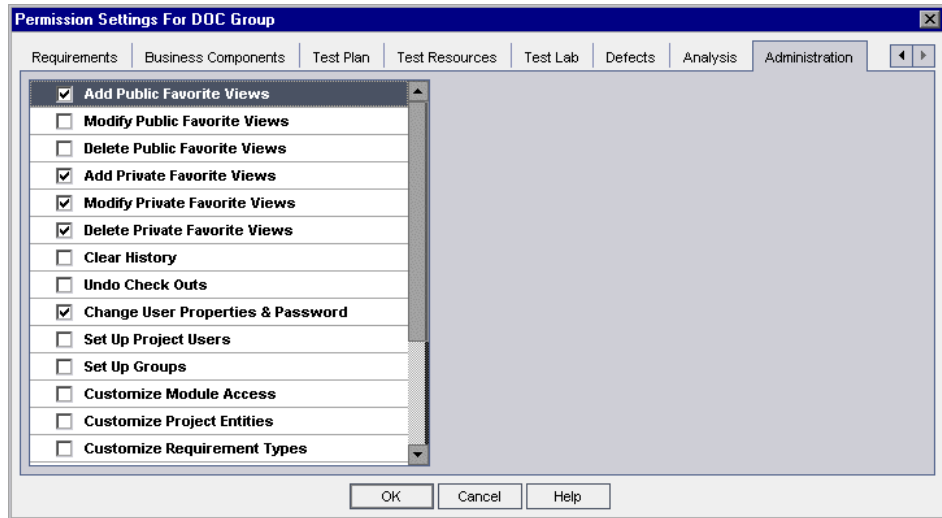
The Administration tab includes the following tasks:

Task	Description
Add Public Favorite Views	User group can add public favorite views.
Modify Public Favorite Views	User group can modify public favorite views.
Delete Public Favorite Views	User group can delete public favorite views.
Add Private Favorite Views	User group can add private favorite views.
Modify Private Favorite Views	User group can modify private favorite views.
Delete Private Favorite Views	User group can delete private favorite views.
Clear History	User group can clear the information displayed in the History table. For instructions on clearing history, refer to the *HP Quality Center User Guide*.

Task	Description
Undo Check Outs	User group can cancel the check out of a versioned entity that was checked out by another user. For more information on version control, refer to the *HP Quality Center User Guide*.
Change User Properties & Password	User group can change their properties and password, using the **User Properties** link in the Project Customization window.
Set Up Project Users	User group can add and remove users from a Quality Center project, using the **Project Users** link in the Project Customization window.
Set Up Groups	User group can assign privileges to user groups and specify permission settings, using the **Groups** link in the Project Customization window.
Customize Module Access	User group can decide the type of access a user group can have for Quality Center, using the **Module Access** link in the Project Customization window.
Customize Project Entities	User group can customize fields in a Quality Center project, using the **Project Entities** link in the Project Customization window.
Customize Requirement Types	User group can customize requirement types in a Quality Center project, using the **Requirement Types** link in the Project Customization window.
Customize Risk-Based Quality Management	User group can customize criteria and default settings for risk-based testing using the **Risk-Based Quality Management** link in the Project Customization window.
Customize Project Lists	User group can add their own customized lists to a project, using the **Project Lists** link in the Project Customization window.
Configure Automail	User group can set up a mailing configuration to routinely inform users about defect repair activity, using the **Automail** link in the Project Customization window.

Task	Description
Set Up Alert Rules	User group can set up alert rules, using the **Alert Rules** link in the Project Customization window.
Set Up Workflow	User group can write and/or generate scripts that dynamically change the user interface in the Quality Center modules, using the **Workflow** link in the Project Customization window.
Set Up KPI	This task is not in use in this version of Quality Center.
Set Up Cross Project Customization	User group can manage cross project customization in template and linked projects, using the **Cross Project Customization** link in the Project Customization window.

Customizing Module Access for User Groups

For each Quality Center project, you can control the modules that each user group can access. By preventing users from accessing unnecessary modules, you can better utilize your Quality Center licenses. For example, if a user group uses Quality Center only to add defects to a project, you can limit the group's access to the Defects module only.

You can specify module access for the following modules: Management, Requirements, Business Components, Test Plan, Test Lab, and Defects.

If access to the Business Components module is not enabled for a user group, those users can still view existing business process tests in read-only mode. For more information about user group permissions, refer to the *HP Business Process Testing User Guide*.

Quality Center Starter Edition: Some modules may not be applicable if you are working with the Quality Center Starter Edition.

To customize module access for user groups:

1 In the Project Customization window, click the **Module Access** link. The Module Access page opens.

The ✔ icon indicates the modules that the user group can access.

2 To select or clear a cell in the table, double-click the cell, or select the cell and press the space bar.

3 To select all modules for a user group, select a row and click **Enable All**.

4 To clear all modules for a user group, select a row and click **Disable All**.

5 Click **Save** to save your changes.

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Customizing Quality Center Projects

As a Quality Center project administrator, you can customize a project to meet the specific needs of your organization. For example, you can add or customize fields, customize requirement types, and create categories and lists that reflect the needs of your project.

This chapter includes:

About Customizing Quality Center Projects

Before you begin a project, you can customize your project to reflect your unique requirements. As a project progresses, you can further adjust the project to meet its changing needs.

Quality Center contains system fields in which you enter information about Quality Center entities. You can modify the behavior of these fields by restricting users to selecting values only from associated lists, by making entry in certain fields mandatory, and by preserving a history of values entered in the field. In addition, you can include data unique to your project by creating user-defined fields. You can associate these fields with Quality Center system and user-defined lists.

For example, if you are running tests on several builds of an application, you can add a **Detected in Build** field to the Add Defect dialog box. You can then create a selection list containing the values **Build1**, **Build2**, and **Build3**, and associate the list with the **Detected in Build** field.

In the Requirements module, you can also assign each requirement to a requirement type. A requirement type defines which fields are available and which fields are required for a requirement of that type. This enables you to make available for a requirement only the fields relevant to the type to which it is assigned.

Customizing Project Entities

Using the Project Entities page, you can customize your Quality Center project to suit your environment.

Each Quality Center project is divided into project entities. **Entities** contain data entered by users for a specific application management process and the data is stored in tables.

Quality Center Starter Edition: Some entities are not available if you are working with Quality Center Starter Edition.

The following entities are available:

Entity	Description
Business Component	Component data in the Business Components module. For more information on business components, refer to the *HP Business Process Testing User Guide*.
Cycle	Cycle data in the Releases module.
Defect	Defect data in the Defects module.
Library	Library data in the Libraries module.
Release	Release data in the Releases module.
Release Folder	Release folder data in the Releases module.
Requirement	Requirement data in the Requirements module.
Resource	Resource data in the Test Resources module.
Resource Folder	Resource folder data in the Test Resources module.
Run	Test run data in the Test Lab module.
Test	Test data in the Test Plan module.
Test Instance	Test instance data in the Test Lab module.
Test Parameter	Test parameter data in the Test Plan module.
Test Set	Test set data in the Test Lab module.
Test Step	Design step data in the Test Plan module, and test step data in the Test Lab module.

Each entity contains system fields and user-defined fields:

➤ **System fields.** These are Quality Center default fields. You cannot add or delete system fields, you can only modify them.

➤ **User fields.** These are fields that you can define and include in a Quality Center project to customize for your specific project needs. You can add, modify, and delete user-defined fields.

For detailed information on Quality Center entities and fields, refer to the *HP Quality Center Database Reference*.

The **Field Settings** section displays the field properties. The following properties are available:

Properties	Description
Field Name	Indicates the field name used in the Quality Center database table.
Field Label	Indicates the field name as it is displayed in Quality Center. You can type a new name or use the default name.
Field Type	Specifies the type of data that the user can enter in the field. It includes the following types: ➤ **Number.** Enables integer entry only. ➤ **String.** Enables the entry of any character string. ➤ **Date.** Enables the selection of a date. ➤ **Lookup List.** Displays the Lookup List area and enables the selection from a drop-down list. ➤ **User List.** Enables the selection of a user name from your Quality Center users list. ➤ **Memo.** Enables the entry of blocks of data. Note that you can add up to 5 memo fields to each Quality Center entity.
Field Length	Indicates the field size. (Available only when the **String** type is selected.) **Note:** The maximum field length is 255 characters.
History	Preserves a log of values entered in the selected field.
Required	Indicates that a user must enter a value for the field. **Note:** If you set a field as required in a project that already contains data, users do not need to enter a value for the field when they modify an existing record if the field is already empty.
Masked	Indicates the input data mask for the field. (Available only when the **String** type is selected.) For more information, see "Defining Input Masks" on page 250.

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Properties	Description
Searchable	Indicates a searchable field. (Available only when the **Text Search** option is enabled in the DB Servers tab. For more information, see "Defining Searchable Fields" on page 155.)
Lookup List	Includes a list of predefined lists. (Available only when the **Lookup List** type is selected.) To associate a field with a predefined list, select a list from the **Lookup List** box. To view or modify the selected list, click the **Goto List** button.
New List	Creates a new list. (Available only when the **Lookup List** type is selected.) To associate a field with a new list, click the **New List** button. The Project Lists dialog box opens. For more information on customizing a list, see "Customizing Project Lists" on page 259.
Goto List	Displays a predefined list. (Available only when the **Lookup List** type is selected.) To open a predefined list, select a list from the **Lookup List** box. Click the **Goto List** button. The Project Lists dialog box opens. For more information on customizing a list, see "Customizing Project Lists" on page 259.

Properties	Description
Verify Value	Limits the user to select a value only from the items that are listed in the list box. (Available when **Lookup List** or **User List** is selected.)
Allow Multiple Values	For user-defined fields, this option allows the user to select more than one value in any field that is associated with a predefined lookup list. (Available only when the **Lookup List** type is selected.)
	For example, if you create a **Language** user field in the Defect entity and enable the **Allow Multiple Values** option, a user can select English, French, and German language values at the same time when entering this field's value.
	Note:
	➤ This option is not available in the TEST STEP entity.
	➤ If you group a data grid or summary graph by a field containing multiple values, the information in each value is grouped as its entire value. This value is the category for grouping. For example, a value with English and French is grouped once as English;French, and not as part of separate English and French categories.
	For more information on customizing a list, see "Customizing Project Lists" on page 259.

Cross Project Customization

Quality Center Premier Edition: If you are working with cross project customization, consider the following:

➤ **Working with a Template Project:** If you are working with a template project, you use the **Project Entities (Shared)** link to customize system fields and create user-defined fields. System and user-defined fields in a template project are applied to the linked projects when you apply the template customization. For more information on applying template customization, see "Applying Template Customization to Linked Projects" on page 297.

➤ **Working with a Linked Project:** If you are working with a project that is linked to a template project, you cannot modify system or user-defined fields that are defined by the template project.

Adding User-Defined Fields

You can customize a Quality Center project by adding up to 99 user-defined fields to each Quality Center entity.

Quality Center Premier Edition Cross Project Customization: The template project and linked projects can each contain up to 99 user-defined fields for each Quality Center entity.

To add a user-defined field:

1 In the Project Customization window, click the **Project Entities** link. The Project Entities page opens.

2 Under **Project Entities**, expand an entity.

3 Click the **User Fields** folder.

4 To add a user-defined field, you can:

➤ Click the **New Field** button to add a number, string, date, or list type field.

➤ Click the **New Field** arrow and choose **New Memo Field** to add a memo field. You can add up to 5 memo fields to each Quality Center entity.

5 In the **Field Settings** section, set properties for the field. For more information, see the "Field Settings" section on page 245.

6 Click **Save** to save your changes to the Project Entities page.

Modifying System and User-Defined Fields

You can modify the properties of system and user-defined fields in your Quality Center project.

Note: You cannot modify the **Field Type** or **Field Length** properties for system fields. In addition, for system fields of type **Lookup List**, you cannot modify which list is associated with the field, or allow multiple values to be selected. For more information, see the "Field Settings" section on page 245.

Quality Center Premier Edition Cross Project Customization: If you are working with a project that is linked to a template project, you cannot modify system or user-defined fields that are defined by the template project. Fields defined by a template project are displayed with a template icon .

To modify a system or user-defined field:

1 In the Project Customization window, click the **Project Entities** link. The Project Entities page opens.

2 Under **Project Entities**, expand an entity.

3 Expand the **System Fields** folder or the **User Fields** folder.

4 Click the field that you want to customize. The settings for that field appear under **Field Settings**.

5 Modify the properties for the selected field. For more information, see the "Field Settings" section on page 245.

6 Click **Save** to save your changes to the Project Entities page.

Deleting User-Defined Fields

You can delete user-defined fields from your Quality Center project.

Quality Center Premier Edition Cross Project Customization - Working with a Linked Project: If you are working with a project that is linked to a template project, you cannot delete user-defined fields defined by the template project.

To delete a user-defined field:

1 In the Project Customization window, click the **Project Entities** link. The Project Entities page opens.

2 Under **Project Entities**, expand an entity.

3 Expand the **User Fields** folder.

4 Click the field that you want to delete and click the **Remove Field** button.

5 Click **OK** to confirm. The field is removed from the **User Fields** folder.

6 Click **Save** to save your changes to the Project Entities page.

Defining Input Masks

The input mask option is used to prompt users for data input using a mask pattern. If the user attempts to enter a character that conflicts with the input mask, an error occurs. For example, to prompt the user to enter a phone number, you can define the following input mask:

!\(000\)000-0000

This input mask limits the user to numeric characters only. It is displayed in an edit box as follows:

(___) ___ - ____

Note: You can define input masks for string type fields only.

To define an input mask:

1 In the Field Settings section, select **Masked**. For more information, see the "Field Settings" section on page 245.

2 Under **Masked Edit Attributes**, click the **Define** button. The Input Mask Editor dialog box opens.
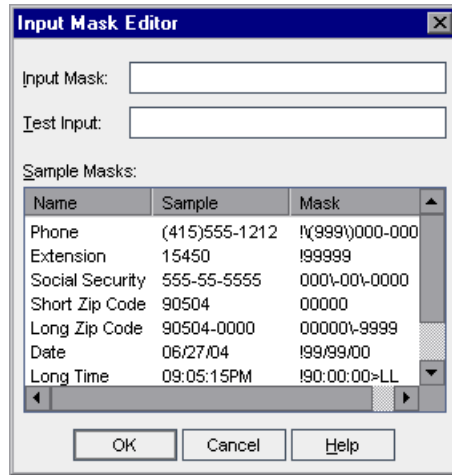
3 In the **Input Mask** box, type an input mask or select a predefined mask.

You can use the following characters when defining input masks:

Mask Character	Description
!	A space for a leading or trailing blank.
#	A digit.
.	A decimal.
:	A time separator.
/	A date separator.
\	Treats the next character in the mask string as a literal. For example, you can include the (,), #, &, A, and ? characters in the mask.
>	Converts all the characters that follow to uppercase.

Mask Character	Description
<	Converts all the characters that follow to lowercase.
A	An alphanumeric character (entry required). For example: a – z, A – Z, or 0 – 9.
a	An alphanumeric character (entry optional). For example: a – z, A – Z, or 0 – 9.
C	A character (entry required). Valid values are ANSI characters in the following ranges: 32-126 and 128-255.
c	A character (entry optional). Valid values are ANSI characters in the following ranges: 32-126 and 128-255.
L	An alphabetic character or space (entry required). For example: a – z or A – Z.
l	An alphabetic character or space (entry optional). For example: a – z or A – Z.
0	A digit (entry required). For example: 0 – 9.
9	A digit (entry optional). For example: 0 – 9.
_	Inserts spaces. When the user types characters in the field box, the cursor skips the _ character.

 4 In the **Test Input** box, you can test the input mask.

 5 Click **OK** to close the Input Mask Editor dialog box.

 6 Click **Save** to save your changes to the Project Entities page.

Customizing Project Requirement Types

Using the Requirement Types page, you can create requirement types for
your project, and customize their properties.

Quality Center Editions: Requirement Types is available for Quality Center
Enterprise Edition and Quality Center Premier Edition.

You can assign each requirement in the Requirements module to a
requirement type. A **requirement type** defines which fields are optional and
which user-defined fields are available. This enables you to create
user-defined fields that are only available for requirements of a specific type.

For example, you might create a requirement type Security Requirement for requirements connected to security. You could then create a user-defined field Security Hazards containing a list of possible security hazards a requirement might cover. This field is not relevant for requirements of types other than Security Requirement, so you would not make it available for any type except for Security Requirement.

Each requirement type has an associated icon, which is displayed next to the requirement in Requirements module tree views, enabling you to easily identify to which type a requirement belongs. In addition, for each requirement type you can determine whether test coverage and risk-based quality management are available.

Cross Project Customization

Quality Center Premier Edition: If you are working with cross project customization, consider the following:

➤ **Working with a Template Project:** If you are working with a template project, you use the **Requirement Types (Shared)** link to create and customize requirement types. Requirement types defined in a template project are applied to the linked projects when you apply the template customization.

➤ **Working with a Linked Project:** If you are working with a project that is linked to a template project, you cannot modify the default requirement types or requirement types that are defined by the template project.

Creating Requirement Types

You can create a requirement type. Quality Center provides the default requirement types **Business**, **Folder**, **Functional**, **Group**, **Testing**, and **Undefined**. For more information on these types, refer to the *HP Quality Center User Guide*.

To create a requirement type:

1 In the Project Customization window, click the **Requirement Types** link. The Requirement Types page opens.

2 Click the **New** button. The New Type dialog box opens.
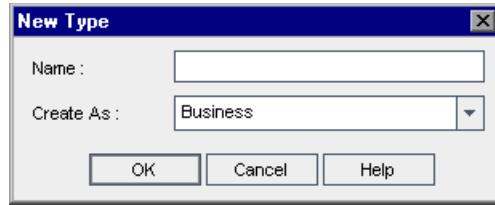
3 In the **Name** box, type a name for the type.

4 In the **Create As** list, assign the new type properties of an existing requirement type.

Tip: Choose an existing requirement type that has similar properties to the new type you want to create. This minimizes the level of customization you need to do.

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5 Click **OK**. The New Type dialog box closes and the new type is added to the Types list.

6 Click **Save** to save your changes to the Requirement Types page.

Customizing Requirement Types

You can customize a requirement type by changing its icon, and by setting options for test coverage and risk analysis. You can also define which fields are available and which are required for each requirement type.

Quality Center Premier Edition Cross Project Customization - Working with a Linked Project: If you are working with a project that is linked to a template project, you cannot modify the default requirement types or requirement types defined by the template project. For requirement types defined by the template project, you can choose which user-defined fields defined in the project are available to requirements of the type.

To customize a requirement type:

1 In the Project Customization window, click the **Requirement Types** link. The Requirement Types page opens.

2 Under **Types**, select a requirement type.

3 To change which icon is displayed next to requirements of the type in Requirements module tree views, under **Properties**, click the **Replace** button. The Choose Image for Type dialog box opens, displaying available icons for the type. Select an icon and click **OK**. The Choose Image for Type dialog box closes and the icon is changed.

Note: You cannot change the icon for the default requirement types **Folder** and **Group**.

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4 Under **Properties**, in the **Risk-Based Quality Management** box, you can select whether to **Perform Analysis** or **Perform Assessment** for risk-based quality management on requirements of the type. You can select **None** if you do not want to enable risk-based quality management for requirements of the type. For more information on risk-based quality management, refer to the *HP Quality Center User Guide*.

5 Under **Properties,** in the **Test Coverage** box, you can select whether to enable adding test coverage to requirements of the type. The following options are available:

➤ **Has Coverage.** You can add test coverage to requirements of this type.

➤ **None.** You cannot add test coverage to requirements of this type.

Note: You cannot select the **None** option for a requirement type, if there are requirements of that type which already have test coverage. To clear the **Testing Coverage** check box for the type, you must either delete the requirements of that type with test coverage, remove the test coverage from those requirements, or change their type.

---

6 Under **User Fields**, you can choose which user fields are available for requirements of the type, and which available fields are required:

➤ To determine which user-defined fields are available, select one or more fields from the **Not In Type** or **In Type** lists, and click the arrow buttons (> and <) to move the fields from one list to the other. You can click the double arrow buttons (>> and <<) to move all the fields from one list to the other. For more information on user-defined fields, see "Customizing Project Entities" on page 243.

➤ To make a user-defined field that is available for the type a required field, in the **In Type** list, select the check box in the **Required** column for the field.

7 To make a system field a required field for the type, under **System Fields**, select the check box in the **Required** column for the field. Note that all system fields are automatically included in every type, and that some system fields cannot be set as optional.

8 Click **Save** to save your changes to the Requirement Types page.

Renaming Requirement Types

You can rename a requirement type.

Quality Center Premier Edition Cross Project Customization - Working with a Linked Project: If you are working with a project that is linked to a template project, you cannot rename the default requirement types or requirement types defined by the template project.

To rename a requirement type:

1 In the Project Customization window, click the **Requirement Types** link. The Requirement Types page opens.

2 Under **Types**, select a requirement type.

3 Click the **Rename** button. The Rename Type dialog box opens.

4 Type a new name for the requirement type.

5 Click **OK** to close the Rename Type dialog box. The requirement type name is updated.

6 Click **Save** to save your changes to the Requirement Types page.

Deleting Requirement Types

You can delete a requirement type. You cannot delete a type if there are requirements of the type in your project. To delete a type, you must first delete all requirements of the type, or change their types. You cannot delete the following default requirement types: **Folder, Group,** and **Undefined**.

Quality Center Premier Edition Cross Project Customization - Working with a Linked Project: If you are working with a project that is linked to a template project, you cannot delete the default requirement types or requirement types defined by the template project.

To delete a requirement type:

1 In the Project Customization window, click the **Requirement Types** link. The Requirement Types page opens.

2 Under **Type**, select a requirement type.

3 Click the **Delete** button.

4 Click **OK** to confirm. The requirement type is deleted.

5 Click **Save** to save your changes to the Requirement Types page.

Customizing Project Lists

Using the Project Lists page, you can create, rename, and delete user-defined lists.
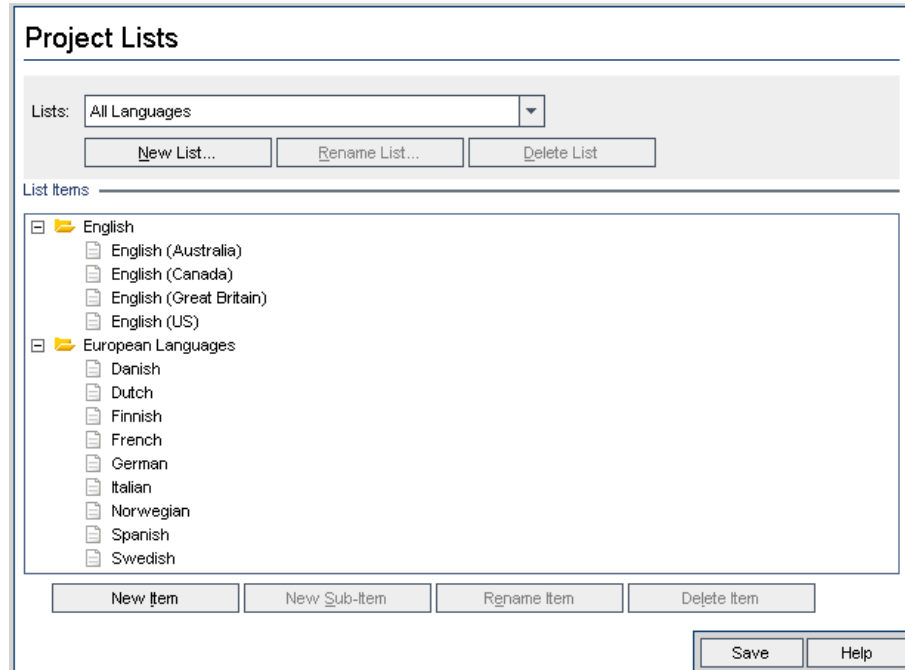
A list contains items, which are values that you can enter in a field. For example, the selection list for the Languages user-defined field may contain the items English and European Languages.

The list can also contain several levels of sub-items. For example, the item English can contain a sublist with the sub-items English (Australia), English (Canada), English (Great Britain), and English (US).

You can allow the user to select more than one value from a list by enabling the **Allow Multiple Values** option for the relevant field in the Project Entities page. For more information, see "Allow Multiple Values" in the Field Settings table on page 247.

Note: To associate a list with a field, see "Customizing Project Entities" on page 243.

Cross Project Customization

Quality Center Premier Edition: If you are working with cross project customization, consider the following:

➤ **Working with a Template Project:** If you are working with a template project, you use the **Project Lists (Shared)** link to create and customize user-defined lists. Project lists defined in a template project are applied to the linked projects when you apply the template customization.

➤ **Working with a Linked Project:** If you are working with a project that is linked to a template project, you cannot modify, rename, or delete user-defined lists that are defined by the template project.

Creating Lists

You can create a list to be assigned to one or more fields.

To create a list:

1 In the Project Customization window, click the **Project Lists** link. The Project Lists page opens.

2 Click the **New List** button. The New List dialog box opens.

3 Type a name for the new list (maximum length 255 characters) and click **OK**. The list name appears in the Lists box.

4 To add an item to the new list or to an existing list, select the list name in the **Lists** box and click the **New Item** button. The New Item dialog box opens. Type a name for the item and click **OK**.

Note: You should not use a semi-colon (";") as part of any list item if the list is to be used in a multiple value field. For more information on multiple value fields, see "Allow Multiple Values" in the Field Settings table on page 247.

---

5 To create a sub-item, select an item in **List Items** and click the **New Sub-Item** button. The New Sub-Item dialog box opens. Type a name for the sub-item and click **OK**.

6 Click **Save** to save your changes to the Project Lists page.

Renaming Lists, Items, or Sub-Items

You can rename user-defined lists, and system and user-defined items or sub-items.

Note: You cannot change some system list items. For example, the Y and N in the **YesNo** list. For more information on system items that cannot be changed, see HP Software Self-solve knowledge base article KM206085 (http://h20230.www2.hp.com/selfsolve/document/KM206085).

Quality Center Premier Edition Cross Project Customization - Working with a Linked Project: If you are working with a project that is linked to a template project, you cannot rename lists, items, or sub-items defined by the template project.

To rename a list:

1 In the Project Customization window, click the **Project Lists** link. The Project Lists page opens.

2 In the **Lists** box, select a list.

3 Click the **Rename List** button. The Rename List dialog box opens.

4 Type a new name for the list.

5 Click **OK** to close the Rename List dialog box.

6 Click **Save** to save your changes to the Project Lists page.

To rename an item or sub-item:

1 In the Project Customization window, click the **Project Lists** link. The Project Lists page opens.

2 In the **Lists** box, select a list.

3 Under **List Items**, select an item.

4 Click the **Rename Item** button. The Rename List Item dialog box opens.

5 Type a new name for the item. Click **OK**.

6 Click **Save** to save your changes to the Project Lists page.

Deleting Lists, Items, or Sub-Items

You can delete user-defined lists, and system and user-defined items or sub-items.

Note:

➤ You cannot delete a user-defined list that is being used as a lookup list for a field.

➤ You cannot delete some system list items. For example, the Y and N in the **YesNo** list. For more information on system items that cannot be deleted, see HP Software Self-solve knowledge base article KM206085 (http://h20230.www2.hp.com/selfsolve/document/KM206085).

Quality Center Premier Edition Cross Project Customization - Working with a Linked Project: If you are working with a project that is linked to a template project, you cannot delete lists, items, or sub-items defined by the template project.

To delete a list:

1 In the Project Customization window, click the **Project Lists** link. The Project Lists page opens.

2 In the **Lists** box, select a user-defined list name.

3 Click the **Delete List** button.

4 Click **Yes** to confirm.

5 Click **Save** to save your changes to the Project Lists page.

To delete an item or sub-item:

1 In the Project Customization window, click the **Project Lists** link. The Project Lists page opens.

2 In the **Lists** box, select a list name.

3 Under **List Items**, select a list item.

4 Click the **Delete Item** button.

5 Click **Yes** to confirm.

6 Click **Save** to save your changes to the Project Lists page.

13

Configuring Automail

As a Quality Center project administrator, you can routinely inform your personnel about defect repair activity. You determine the conditions for sending defect messages to each recipient by defining a mailing configuration.

This chapter includes:

➤ About Setting Automail on page 265

➤ Designating Automail Fields on page 267

➤ Defining Automail Conditions on page 268

➤ Customizing the Subject of Defect Mail on page 269

About Setting Automail

Quality Center enables you to automatically notify users through email each time changes are made to specified defect fields. Configuring mail for a Quality Center project involves the following steps:

➤ Click the **Automail** link to define the defect fields and specify the users and conditions. See "Designating Automail Fields" on page 267, and "Defining Automail Conditions" on page 268.

➤ In Site Administration's **Site Projects** tab, enable the mail configuration for a project by selecting the **Send mail automatically** check box. Note that this check box must be selected for your mail configuration to work. For more information, see "Updating Project Details" on page 63.

➤ In Site Administration's **Site Configuration** tab, you can edit the MAIL_INTERVAL parameter, which defines the time interval for sending defect email in all projects. You can also set parameters to define the format and character set of mail, and whether attachments or history are included in the mail. For more information, see "Setting Quality Center Configuration Parameters" on page 157.

➤ You can customize the subject line of defect email for all projects or for a specific project. For more information, see "Customizing the Subject of Defect Mail" on page 269.

➤ In Site Administration's **Site Users** tab, make sure you have specified the email addresses of the users who should receive defect messages. For more information, see "Updating User Details" on page 124.

Designating Automail Fields

When you designate a field as a mail field, any changes made to that field cause Quality Center to send an email message in the next time interval. For example, suppose you designate Status as a mail field and then update the Status field for a particular defect. In the next time interval, the details of the defect, including the updated status information, are sent to designated users.

To designate Automail fields:

1 In the Project Customization window, click the **Automail** link. The Automail page opens.

Available Defect Fields contains the names of the fields that appear in the Defects Grid. **Mail On Change Of** contains the names of the fields currently assigned as mail fields.

2 Choose one or more fields and click the arrow buttons (> and <) to move the fields from one list to the other. Click the double arrow buttons (>> and <<) to move all the fields from one list to the other.

3 Click **Save** to save your changes.

Defining Automail Conditions

Mail conditions determine when various users receive defect messages. For each user, you can define separate mail conditions. For example, you can specify that a user receives messages only for defects assigned an urgent priority.

To define Automail conditions:

1 In the Project Customization window, click the **Automail** link. The Automail page opens.

2 Click the **Condition** tab.
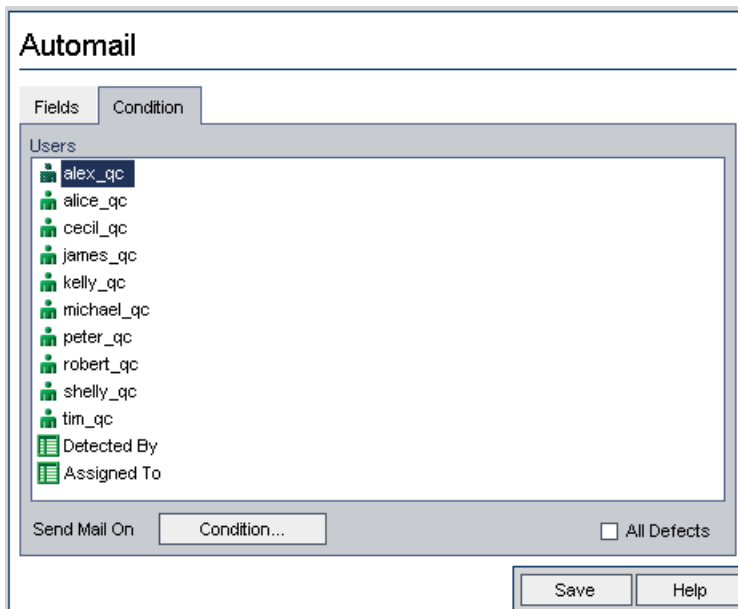
3 Choose a name from the **Users** list.

4 Alternatively, choose **Detected By** or **Assigned To**. Select these items to notify users when defects that they detected or are responsible for repairing are modified.

5 Select the **All Defects** check box to notify the selected user of every change to a defect.

6 Alternatively, click the **Condition** button to define a filter under which the selected user receives mail. If you define multiple filters, the selected user only receives mail if all of the conditions are met. For more information on filtering, refer to the *HP Quality Center User Guide*.

7 Click **Save** to save your changes.

Customizing the Subject of Defect Mail

You can customize the subject line of defect email sent automatically to users, for all projects or for a specific project. For example, you can define a subject line such as the following:

Defect # 4321 has been created or updated - Buttons on print dialog are not aligned

The line can contain the values of Quality Center fields. To include a field value from the defect that is being sent, prefix the field name with a question mark (?). Field names must be upper-case. For example:

Defect # ?BG_BUG_ID has been created or updated - ?BG_SUMMARY

To customize the subject of defect mail for all projects:

You can customize the subject line for all your projects by adding the **AUTO_MAIL_SUBJECT_FORMAT** parameter in the **Site Configuration** tab. For more information, see "AUTO_MAIL_SUBJECT_ FORMAT" on page 165.

To customize the subject of defect mail for a specific project:

1 In Site Administration, click the **Site Projects** tab.

2 In the Projects list, double-click the project for which you want to customize the email subject line.

3 Select the **DATACONST** table.

4 In the SQL pane, type an SQL INSERT statement to insert a row into the
table with the following values:

> ➤ In the **DC_CONST_NAME** column, insert the parameter name
> **AUTO_MAIL_SUBJECT_FORMAT**.

> ➤ In the **DC_VALUE** column, insert the strings and the names of fields to be
> placed in the subject line.

For example, type the following SQL statement into the SQL pane:

```
insert into dataconst values ('AUTO_MAIL_SUBJECT_FORMAT',
'DEFAULT.TESTPROJ - Defect # ?BG_BUG_ID has been created or updated -
?BG_SUMMARY')
```

The subject line you define is specific to the project, so you can include the
project name in the line.

For more information on modifying project tables, see "Querying Project
Tables" on page 76.

5 Click the **Execute SQL** button. The row is added to the **DATACONST** table to
set the email subject.

14

Customizing Risk-Based Quality Management

This chapter describes how to customize the criteria and the constant values used in risk-based quality management.

Quality Center Editions: The Risk-based Quality Management link in Project Customization is available for Quality Center Enterprise Edition and Quality Center Premier Edition.

This chapter includes:

About Customizing Risk-Based Quality Management

You use risk-based quality management to determine at which Testing Level to test each requirement in the Requirements module. Quality Center then calculates the total estimated Testing Time for an analysis requirement based on the Testing Levels of its child assessment requirements. You compare this with the resources you have available to test the analysis requirement, and if necessary make adjustments to the Testing Levels for the requirement and its children. This enables you to plan the testing strategy for your requirements. For more information on risk-based quality management, see the *HP Quality Center User Guide*.

The Testing Level is determined by the requirement's Risk and Functional Complexity. Risk is comprised of the Business Criticality and Failure Probability. You determine values for these factors by assigning values to a series of criteria associated with each factor. Each criterion has a number of possible values. You can customize these criteria and values and how Quality Center uses these to determine the Business Criticality, Failure Probability, and Functional Complexity. For more information, see "Customizing Risk-Based Quality Management Criteria" on page 273.

You can customize how the Risk is calculated from the Business Criticality and Failure Probability. For more information, see "Customizing Risk Calculations" on page 280.

You can also customize which Testing Time is associated by default with each Testing Level and Functional Complexity. In addition, you can customize how Quality Center determines the Testing Level with which to test a requirement based on the requirement's Risk and Functional Complexity. For more information, see "Customizing Risk-Based Quality Management Constants" on page 281.

In addition, you can customize for each requirement type whether requirements of the type enable risk assessment, risk analysis, or do not enable risk-based quality management. For more information, see "Customizing Requirement Types" on page 255.

Customizing Risk-Based Quality Management Criteria

You can customize the criteria used to determine the Risk and Functional Complexity of a requirement, the possible values for each criterion and the weight assigned to each value. You can then define how the total of these weights determines the Risk and Functional Complexity Categories.

Note: If you already calculated the Risk or Functional Complexity for a requirement, modifying these criteria does not automatically recalculate the requirement's Risk or Functional Complexity Category. To recalculate, you must reassess the requirement and change at least one of its criterion values.

This section contains the following topics:

➤ Customizing Criteria and Values

➤ Customizing Weight Boundaries

Customizing Criteria and Values

You can customize the criteria, criterion values, and weights used by Quality Center to determine the Risk and Functional Complexity Categories for each requirement. Risk is comprised of the Business Criticality and Failure Probability.

Quality Center provides a default set of criteria when you create a new project. You can delete these criteria if you do not want to use them.

To customize criteria and values:

1 In the Project Customization window, click the **Risk-Based Quality Management** link. The Risk-Based Quality Management page opens.

2 Click one of the following tabs:

➤ To customize criteria for determining Business Criticality, click the **Business Criticality** tab.

➤ To customize criteria for determining Failure Probability, click the **Failure Probability** tab.

➤ To customize criteria for determining Functional Complexity, click the **Functional Complexity** tab.

The selected tab displays the relevant criteria.

3 To add a new criterion, select the **Criterion** list and click the **New** button. A new row is added to the end of the **Criterion** list. Type a name for the criterion in the new row.

4 To add a description for a criterion, select the criterion from the **Criterion** list and type the description in the **Description** box. This description is displayed in the Risk tab of the Requirements module when a user assesses Business Criticality, Failure Probability, and Functional Complexity. By providing a full description of each criterion, including an explanation of its available values, you help the user decide which value to assign to each criterion for a requirement.

5 To add a value for a criterion, select the criterion from the **Criterion** list and select the **Value** list. Click the **New** button. A new row is added to the **Value** list. Type a name for the value in the new row.

Note: Each value for a criterion must be unique.

---

6 To assign a weight to a criterion value, select the criterion from the **Criterion** list and then select the value from the **Value** list. In the **Weight** column for the value, type the weight to assign to the value.

When Quality Center calculates the Business Criticality, Failure Probability, or Functional Complexity of a requirement, it checks the values assigned to each criterion and calculates the sum of the corresponding weights for each value. This sum determines the Business Criticality, Failure Probability, or Functional Complexity. For more information, see "Customizing Weight Boundaries" on page 276.

7 You can delete a criterion or a value for a criterion:

➤ To delete a criterion, select the criterion from the **Criterion** list and click the **Delete** button. The criterion is deleted.

➤ To delete a criterion's value, select the criterion from the **Criterion** list and the value from the **Value** list. Click the **Delete** button. The value is deleted.

Note: Business Criticality, Failure Probability, and Functional Complexity must each have at least one associated criterion defined. In addition, each criterion must have at least one possible value.

---

8 To change the order in which criteria are displayed in the **Criterion** list, select a criterion and click the **Move Up** or **Move Down** buttons. Note that values for a criterion are automatically ordered by their weights.

9 Click **Save** to save your changes to the Risk-Based Quality Management page.

Customizing Weight Boundaries

You can customize how Quality Center uses the values assigned to risk-based quality management criteria to determine the Business Criticality, Failure Probability, and Functional Complexity for a requirement.

Customizing Weight Boundaries for Business Criticality

For each requirement, Quality Center calculates the total of the weights (**TW**) of the values assigned to each of the Business Criticality criteria. Quality Center then uses this total to categorize the Business Criticality of the requirement as either **C- Nice to Have**, **B - Important**, or **A - Critical**. Quality Center automatically calculates the highest and lowest possible total weight and uses these to define the upper boundary of the **Critical** category and the lower boundary of the **Nice to Have** category. You define the boundaries between the **Nice to Have** and **Important** categories, and between the **Important** and **Critical** categories.

For example, suppose there are two criteria for Business Criticality, each with three possible values whose weights are 20, 60, and 100. The minimum total weight is therefore 40 (if both criteria are assigned the value with weight 20) and the maximum total weight is 200 (if both criteria are assigned the value with weight 100). Quality Center automatically calculates these totals and uses them to determine the lower and upper boundaries for the categories. You determine the boundaries between the categories by typing 100 in the **Nice to Have** box and 160 in the **Critical** box.

Calculation of Business Criticality value based on total weights		
Grade: C - Nice to have	B - Important	A - Critical
Range: 40 <= TW < 100	100 <= TW < 160	160 <= TW < 200

In this example, Quality Center determines the Business Criticality for a requirement as follows:

➤ If the sum of the weights of each of the criteria for a requirement is less than or equal to 100, the requirement will have Nice to Have Business Criticality. This could happen, for example, if the criteria have values with weights 20 and 60, so the total weight is 80.

➤ If the sum is greater than 100 but less than 160, the requirement will have Important Business Criticality. This could happen, for example, if the criteria have values with weights 60 and 60, so the total weight is 120.

➤ If the sum is greater than or equal to 160, the requirement will have Critical Business Criticality. This could happen, for example, if the criteria have values with weights 100 and 60, so the total weight is 160.

To customize weight boundaries for Business Criticality:

1 In the Project Customization window, click the **Risk-Based Quality Management** link. The Risk-Based Quality Management page opens.

2 Click the **Business Criticality** tab. The Business Criticality tab displays criteria used to determine Business Criticality.

3 Under **Calculation of Business Criticality value based on total weights**, define the boundaries between different Business Criticality values. To define these boundaries, type the relevant values in the **Nice to Have** and **Critical** boxes.

4 Click **Save** to save your changes to the Risk-Based Quality Management page.

Customizing Weight Boundaries for Failure Probability

For each requirement, Quality Center calculates the total of the weights (**TW**) of the values assigned to each of the Failure Probability criteria. Quality Center then uses this total to categorize the Probability of the requirement as either **3 - Low**, **2 - Medium**, or **1- High**. Quality Center automatically calculates the highest and lowest possible total weight and uses these to define the upper boundary of the **High** category and the lower boundary of the **Low** category. You define the boundaries between the **Low** and **Medium** categories, and between the **Medium** and **High** categories.

For example, suppose there are two criteria for Failure Probability, each with three possible values whose weights are 20, 60, and 100. The minimum total weight is therefore 40 (if both criteria are assigned the value with weight 20) and the maximum total weight is 200 (if both criteria are assigned the value with weight 100). Quality Center automatically calculates these totals and uses them to determine the lower and upper boundaries for the categories. You determine the boundaries between the categories by typing 100 in the **Low** box and 160 in the **High** box.

In this example, Quality Center determines the Failure Probability for a requirement as follows:

➤ If the sum of the weights of each of the criteria for a requirement is less than or equal to 100, the requirement will have Low Failure Probability. This could happen, for example, if the criteria have values with weights 20 and 60 so the total weight is 80.

➤ If the sum is greater than 100 but less than 160, the requirement will have Medium Failure Probability. This could happen, for example, if the criteria have values with weights 60 and 60 so the total weight is 120.

➤ If the sum is greater than or equal to 160, the requirement will have High Failure Probability. This could happen, for example, if the criteria have values with weights 100 and 60 so the total weight is 160.

To customize weight boundaries for Failure Probability:

1 In the Project Customization window, click the **Risk-Based Quality Management** link. The Risk-Based Quality Management page opens.

2 Click the **Failure Probability** tab. The Failure Probability tab displays criteria used to determine Failure Probability.

3 Under **Calculation of Failure Probability value based on total weights**, define the boundaries between different Failure Probability values. To define these boundaries, type the relevant values in the **Low** and **High** boxes.

4 Click **Save** to save your changes to the Risk-Based Quality Management page.

Customizing Weight Boundaries for Functional Complexity

For each requirement, Quality Center calculates the total of the weights (**TW**) of the values assigned to each of the Functional Complexity criteria. Quality Center then uses this total to categorize the Functional Complexity of the requirement as either **3 - Low**, **2 - Medium**, or **1- High**. Quality Center automatically calculates the highest and lowest possible total weight and uses these to define the upper boundary of the **High** category and the lower boundary of the **Low** category. You define the boundaries between the **Low** and **Medium** categories, and between the **Medium** and **High** categories.

For example, suppose there are two criteria for Functional Complexity, each with three possible values whose weights are 20, 60, and 100. The minimum total weight is therefore 40 (if both criteria are assigned the value with weight 20) and the maximum total weight is 200 (if both criteria are assigned the value with weight 100). Quality Center automatically calculates these totals and uses them to determine the lower and upper boundaries for the categories. You determine the boundaries between the categories by typing 100 in the **Low** box and 160 in the **High** box.

Calculation of Functional Complexity value based on total weights		
Grade: **3 - Low**	**2 - Medium**	**1 - High**
Range: $40 <= TW <$ `100`	$100 <= TW < 160$	`160` $<= TW < 200$

In this example, Quality Center determines the Functional Complexity for a requirement as follows:

➤ If the sum of the weights of each of the criteria for a requirement is less than or equal to 100, the requirement will have Low Functional Complexity. This could happen, for example, if the criteria have values with weights 20 and 60 so the total weight is 80.

➤ If the sum is greater than 100 but less than 160, the requirement will have Medium Functional Complexity. This could happen, for example, if the criteria have values with weights 60 and 60 so the total weight is 120.

➤ If the sum is greater than or equal to 160, the requirement will have High Functional Complexity. This could happen, for example, if the criteria have values with weights 100 and 60 so the total weight is 160.

To customize weight boundaries for Functional Complexity:

1 In the Project Customization window, click the **Risk-Based Quality Management** link. The Risk-Based Quality Management page opens.

2 Click the **Functional Complexity** tab. The Functional Complexity tab displays criteria used to determine Functional Complexity.

3 Under **Calculation of Functional Complexity value based on total weights**, define the boundaries between different Functional Complexity values. To define these boundaries, type the relevant values in the **Low** and **High** boxes.

4 Click **Save** to save your changes to the Risk-Based Quality Management page.

Customizing Risk Calculations

You can define how Quality Center calculates the Risk value of an assessment requirement from its Business Criticality and Failure Probability.

To customize risk calculations:

1 In the Project Customization window, click the **Risk-Based Quality Management** link. The Risk-Based Quality Management page opens.

2 Click the **Risk Calculation** tab.

Risk Calculation Policy

Business Criticality	Failure Probability		
	1 - High	2 - Medium	3 - Low
A - Critical	A - High	A - High	B - Medium
B - Important	A - High	B - Medium	C - Low
C - Nice To Have	B - Medium	C - Low	C - Low

3 In the **Risk Calculation Policy** grid, you can define the Risk policy for testing a requirement.

To define Risk calculations based on Business Criticality and Failure Probability, click the arrow next to the cell in the grid corresponding to a particular Business Criticality and Failure Probability value. Select a value. The available values are **A - High**, **B - Medium**, and **C - Low**.

Customizing Risk-Based Quality Management Constants

You can define the default estimated Testing Times required to test a requirement with each Functional Complexity value at each Testing Level. You can also define the default Testing Level used with each Risk and Functional Complexity Category. If the user does not enter different values for a requirement in the Requirements module, Quality Center uses these default values when calculating the estimated Testing Time for the requirement during the risk analysis.

Note: Modifying these criteria does not automatically affect the results of existing risk analyses. To update the results of a risk analysis, you must perform the analysis again.

To customize risk-based quality management constants:

1 In the Project Customization window, click the **Risk-Based Quality Management** link. The Risk-Based Quality Management page opens.

2 Click the **Risk Constants** tab. The Risk tab displays constants used by default when calculating the Testing Time and Testing Level for a requirement.

3 In the **Units used to measure Testing Effort** box, select the unit of measurement that you want Quality Center to display when measuring Testing Time. The available units are **Hours**, **Days**, **Weeks**, and **Months**.

Note: If you change the units of measurement for a project, the Testing Time values are not updated automatically. For example, if a requirement has Testing Time 48 hours and you change the units of measurement from **Hours** to **Days**, the requirement has Testing Time 48 days and not 2 days.

4 Under **Testing Time (full) per Functional Complexity**, for each Functional Complexity value, type the estimated time required to fully test a requirement with the Functional Complexity value. The Calculated Testing Time grid is updated to reflect these changes.

5 Under **Testing level**, in the **Partial** and **Basic** boxes, type the default Testing Time required for partial testing and basic testing of a requirement. This should be expressed as a percentage of the time required for full testing. The Calculated Testing Time grid is updated to reflect these changes.

6 In the **Default Testing Policy** grid, you can define the default Testing Level for testing a requirement.

To define the default Testing Levels, click the arrow next to the cell in the grid corresponding to a particular Risk and Functional Complexity value. Select a Testing Level from the available Testing Levels. The available Testing Levels are **Full**, **Partial**, **Basic**, and **None**. Next to each Testing Level, you can see the estimated time needed to test a requirement at that level, based on the default Testing Times and Testing Levels you defined.

7 Click **Save** to save your changes to the Risk-Based Quality Management page.

15

Activating Alert Rules

As a Quality Center project administrator, you can activate alert rules for your project. This instructs Quality Center to create alerts and send email to notify those responsible when changes occur in your project that may impact the application management process.

This chapter includes:

About Activating Alert Rules

You can keep track of your requirements, tests and defects as you perform your application management process. When an entity changes, you can instruct Quality Center to notify those responsible for any associated entities.

The alert rules you can activate are based on the following associations you can create in Quality Center:

➤ You can associate a test in the test plan tree with a requirement. This is performed by creating **requirements coverage** in the Test Plan module, or by creating **tests coverage** in the Requirements module.

➤ You can link a test with a defect. This is performed by adding a defect during a manual test run.

➤ You can create **traceability links** between requirements in the Requirements module.

After you have established associations in your project, you can then track changes using these associations. When an entity in your project changes, Quality Center alerts you of any associated entities that may be impacted by the change.

Version Control: Quality Center alerts associated entities only when a new version is checked in. The alert indicates that the version status has changed to **Checked In**. You can then compare the new version with the previous version. For more information on comparing versions, refer to the *HP Quality Center User Guide*.

Notification involves two steps. Quality Center flags the associated entity, which can be seen by all users, and then sends an email to the user responsible for the entity.

There are four alert rules you can activate:

Rule	Change Made	Entities Flagged	User Notified
1	Requirement has any change, excluding changes in the **Direct Cover Status** field and the risk-based quality management fields.	Tests covering the requirement.	Test designer. Note that only the test designer can delete the alert.
2	Defect status changes to "Fixed".	Test instances associated with the defect.	Responsible tester for the test instance.
3	Test run status changes to "Passed".	Defects linked to the test instance.	User assigned to the defect.
4	Requirement is deleted or has any change, excluding changes in the **Direct Cover Status** field and the risk-based quality management fields.	The requirement's child requirements and traced to requirements.	Author of the requirement.

For more information on alerts, refer to the *HP Quality Center User Guide*.

Setting Alert Rules

You can activate four alert rules. For each rule, you can choose to alert the associated entity. The alert can be seen by all users. You can also choose to send an email notification to the user responsible for the entity.

To set alert rules:

1 In the Project Customization window, click the **Alert Rules** link. The Alert Rules page opens.

Alert Rules

Select the alert rules that you want to activate. For each rule, you can choose to alert the associated entity. The alert can be seen by all users. You can also choose to send an e-mail notification to the user responsible for the entity.

Rule Description	Alert Associated Entity	Send E-mail To
When a **requirement** is modified, alert the associated **tests**.	☐	☐ Test Designer
When a **defect** status changes to "Fixed", alert the associated **test instances**.	☐	☐ Responsible Tester
When a **test** runs successfully (status changes to "Passed"), alert the linked **defects**.	☐	☐ Assigned To
When a **requirement** is modified or deleted, alert **traced to requirements** and **child requirements**.	☐	☐ Author

Save   Help

2 Select **Alert Associated Entity** to activate a rule. This instructs Quality Center to flag the entity when the associated entity changes.

3 Select **Send E-mail To** to instruct Quality Center to send notification email to the specified user when the associated entity changes.

4 Click **Save** to save your changes.

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Cross Project Customization

As a Quality Center template administrator, you use **cross project customization** to apply customization from a template project to one or more Quality Center projects. Cross project customization enables you to standardize policies and procedures across projects in your organization.

Quality Center Premier Edition: Cross project customization is only available with the Quality Center Premier Edition.

This chapter includes:

About Cross Project Customization

Cross project customization enables you to use a **template project** to define and maintain a common set of project customizations for multiple projects.

A **template administrator** is any user that is assigned project administrator permissions for a template project. As template administrator, you can customize a template project to meet the needs of your organization.

You link a template project to one or more Quality Center projects. This enables you to apply template customization to the **linked projects**. As the needs of your organization change over time, you can update the customization in your template project, and then reapply the template customization to the linked projects.

A template project can be used to create additional projects or templates. When the Site Administrator creates a project or template based on a template project, the template customization is copied to the newly created project or template.

Cross Project Customization Overview

Implementing cross project customization involves the following steps:
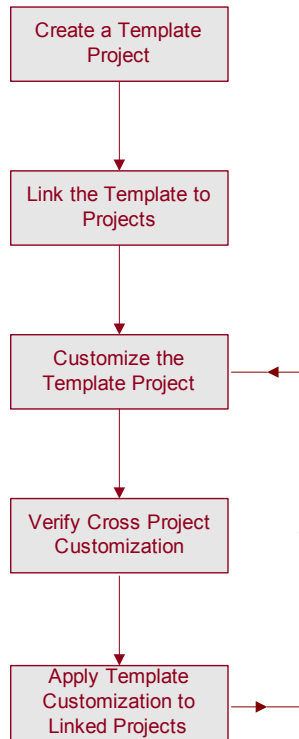
> ➤ **Creating a Template Project**. The site administrator creates template projects and assigns template administrators in Site Administration. For more information, see "Creating Template Projects" on page 47.

> ➤ **Linking the Template to Projects**. The site administrator selects projects to link to a template in Site Administration. For more information, see "Linking a Template to Projects" on page 60.

> ➤ **Customizing the Template Project**. As template administrator, you customize a template project to meet the policy needs of your organization. The following template customizations are applied to linked projects: user groups and permissions, project entities, project requirement types, project lists, and workflow.

> ➤ **Verifying Cross Project Customization**. Before applying template customization to linked projects, you must verify that Quality Center can successfully apply customization from the template to the projects. For more information, see "Verifying Cross Project Customization" on page 295.

> ➤ **Applying Customization to Linked Projects**. After defining or updating customization in the template, you apply the customization to the linked projects. For more information, see "Applying Template Customization to Linked Projects" on page 297.

Cross Project Customization Examples

The following examples demonstrate how you can use cross project customization:

> ➤ **Set a standard for working with defects**.

> The QA manager wants to limit how testers can modify defects. For example, you want to allow testers to modify the status of defects to Fixed, but not to Closed, to allow the QA manager to review the defect before closing it. You can create a customized user group for testers in your template and set transition rules for the group. After applying the template customization to the linked projects, all testers can be assigned to this group.

➤ **Enable consistent reporting by managers**.

Managers in all divisions of your organization are required to report on a standard set of measures, such as defect status or priority, or coverage status of requirements. As template administrator, you can customize project lists and fields, and set required fields in a template. Applying the template customization to the linked projects provides users with a common set of fields and values for consistent reporting.

➤ **Create unique policies for separate sectors of an organization**.

Your organization has acquired a new company. The new company has a standard policy for working with defects, which is different from how your organization currently operates. Both sectors want to maintain their current policies. You can customize a template for each sector of your organization, and link each to the relevant projects for its sector.

Updating Linked Projects

You manage template customization updates to linked projects in Project Customization.

This section includes:

➤ Updating Linked Project Details

➤ Verifying Cross Project Customization

➤ Applying Template Customization to Linked Projects

Updating Linked Project Details

You update linked project details in Project Customization.

To update linked project details:

1 In the Project Customization window, click the **Cross Project Customization** link. The Cross Project Customization - Linked Projects page opens.

2 In the Linked Projects grid, view the projects linked to the template project. The Linked Projects grid contains the following information for each project:

Column	Description
🔼⊘	Indicates a request by the project administrator not to apply template customization changes to the project.
Domain	The domain of the linked project.

Column	Description
Project	The name of the linked project.
Updated	Indicates if the linked project is updated with current template customization. The current status can be one of the following: ➤ **Not Updated**. (default) ➤ **Updated**.
Verified	Indicates if template customization has been verified and can be successfully applied to the linked project. By default, the status is **Not Verified**. The current status can be one of the following: ➤ ✗ **Not Verified**. (default) ➤ ✓ **Verified with Warnings**. ➤ ✓ **Verified**.

Click on a column heading to change the sort order of the projects in the grid.

3 To search for a project, type a search string the **Find** box and click the **Find** button.

4 To refresh the data in the Linked Projects grid, click the **Refresh** button.

5 View additional details about a selected project on the right side of the Linked Projects page. Under **Project Status**, view the status of the project. If the project administrator has selected the **Request Suspension of Apply Customization** option in the linked project, **Requested suspension of Apply Customization** is displayed. The template administrator can choose to exclude the project from template customization updates.

6 In the **Comments** box, view comments added by the project administrator. Click **Add Comment** to add a comment to the project. The project administrator can view and add comments when viewing the project details.

7 Under **Project Details**, the names of project administrators are displayed. Click the **Send E-mail** button to send mail to project administrators of the selected project.

8 Under **Last Applied Customization**, view the date that template customization was last applied to the linked project. Click the **Applied Customization Report** link to view details. For more information, see "The Cross Project Customization Report" on page 300.

9 Under **Last Verification**, view the date of the last verification. Click the **Verification Report** link to view details of the last verification. For more information, see "The Cross Project Customization Report" on page 300.

Verifying Cross Project Customization

Before you can apply template customization to linked projects, you must verify the customization. The verification process checks that Quality Center can successfully apply template customization to the linked projects. Verification must complete successfully before Quality Center can apply template customization to a linked project.

Note: For verification to complete successfully, the appropriate extensions must be enabled in linked projects. If an extension is enabled for a template project, the extension must also be enabled for the template's linked projects. Linked projects can have additional extensions enabled. For more information on enabling extensions, see "Enabling Extensions for a Project" on page 71.

To verify cross project customization:

1 In the Project Customization window, click the **Cross Project Customization** link. The Cross Project Customization - Linked Projects page opens.
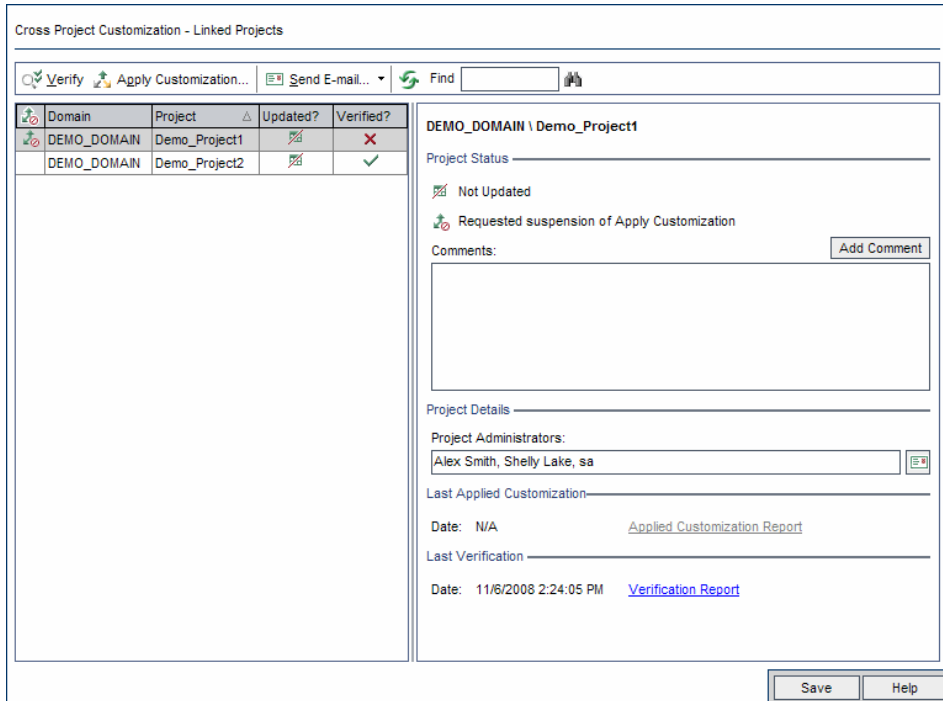
2 Select a project from the grid, or press the CTRL key and select multiple projects. Click **Verify**. The Verification dialog box opens and displays progress.

3 To stop verification before it completes, click **Stop**. Quality Center completes the project that it is currently verifying and then stops. The remaining projects are not verified.

4 Click **Details** to view additional information during or after verification. When verification completes, click the **Report** link to view detailed results for a project.

5 When verification completes, click **Close** to close the Template Verification dialog box. The verification status for the projects is updated in the Linked Projects grid.

6 Under **Last Verification**, click the **Verification Report** link to view details of the verification. For more information, see "The Cross Project Customization Report" on page 300.

Applying Template Customization to Linked Projects

You can apply template customization to projects linked to the template. This applies the following customization: user groups and permissions, project entities, project requirement types, project lists, and workflow. When you apply template customization, the applied customization is set to read-only in the linked projects and cannot be edited.

Important: Module access customization is not applied to linked projects. When a new user group is created in a linked project by applying template customization, the new group does not, by default, have access to any Quality Center modules. The project administrator must then define module access for the new user group in the linked project. For more information about customizing module access for user groups, see "Customizing Module Access for User Groups" on page 238.

Before you can apply template customization, you must verify the customization. For more information, see "Verifying Cross Project Customization" on page 295. Verification must complete successfully before Quality Center can apply template customization to a linked project.

To apply template customization to linked projects:

1 In the Project Customization window, click the **Cross Project Customization** link. The Cross Project Customization - Linked Projects page opens.
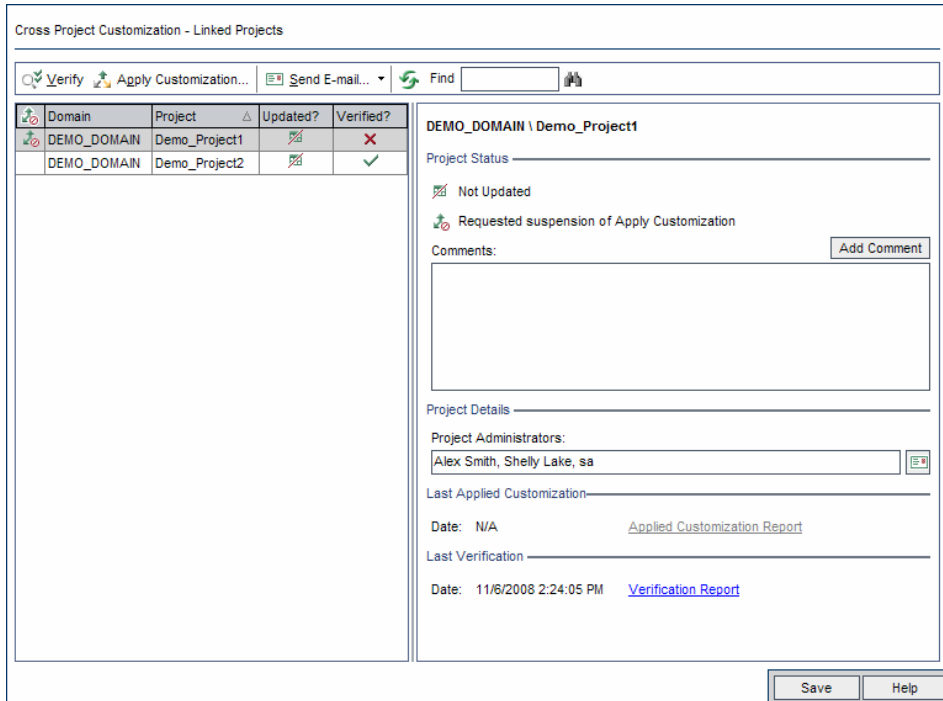
2 Select a project from the grid, or press the CTRL key and select multiple projects. Click **Apply Customization**. If the project administrator of any of the selected projects has requested not to apply template customization changes, a warning is displayed. Click **OK** to apply template customization to all selected projects.

The Apply Customization Initialization dialog box opens.
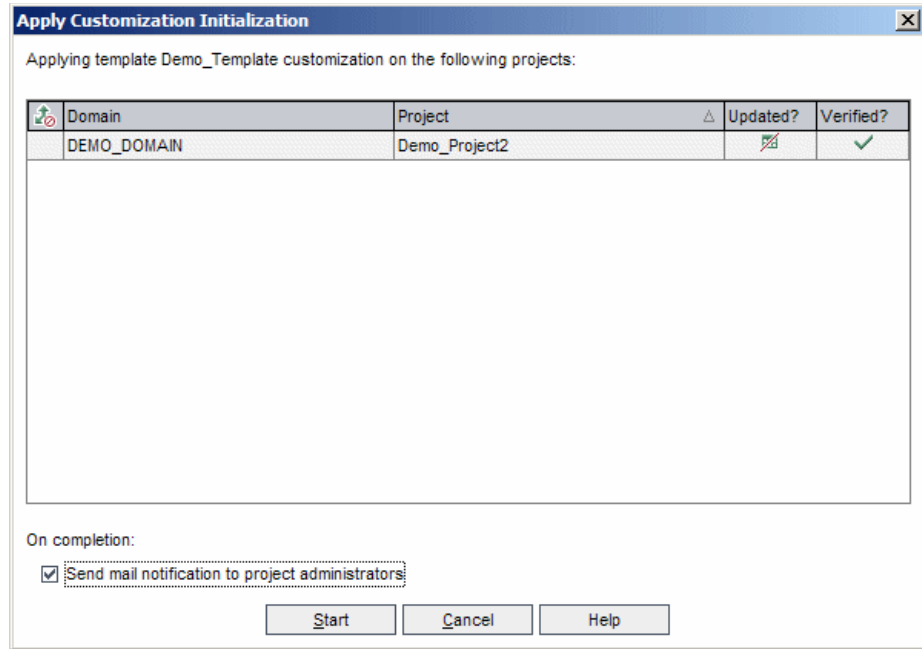
3 Select **Send mail notification to project administrators** to instruct Quality Center to notify project administrators after the process completes.

4 Click **Start**. The Apply Customization dialog box opens and displays progress.

5 To cancel the process for projects that Quality Center did not yet update, click **Stop**. Quality Center completes the update to the current project and cancels the update to the remaining projects.

6 When the process completes, click **Close** to close the Apply Customization dialog box.

7 Under **Last Applied Customization**, click the **Applied Customization Report** link to view details of applied template customization. For more information, see "The Cross Project Customization Report" on page 300.

The Cross Project Customization Report

The Cross Project Customization Report provides detailed results of the verification process, or of template customization applied to linked projects. For more information on verification, see "Verifying Cross Project Customization" on page 295. For more information on applying template customization, see "Applying Template Customization to Linked Projects" on page 297.

There are two types of Cross Project Customization Reports:

➤ **Verification Report**. Provides results of verification for the linked project.

➤ **Applied Customization Report**. Provides results of template customization applied to the linked project.

The Cross Project Customization Report includes the following sections:

➤ **Report Details**. Contains details about the type of report, the template, the linked project, the number of changes verified or applied to the linked project, and results.

➤ **Report by Customization Category**. A listing of all changes verified or applied to the linked project. This section lists changes by customization category including user groups, project entities, project lists, requirement types, and workflow scripts.

Report results are classified into several categories as follows:

Result category	Verification Report	Applied Customization Report
Successful	The change can be successfully applied to the linked project.	The change was successfully applied to the linked project.
Warning	The change can be applied to the linked project, but may result in data loss. For example: ➤ reducing the length of a string type field ➤ deleting a user-defined field ➤ defining a field to be searchable and the **Text Search** option is not available in the linked project ➤ disabling test coverage for a requirement type while there are tests covering requirements of the type	The change was applied to the linked project but may have caused data loss.
Failure	The change cannot be applied to the linked project. For example: ➤ changing a field type from **Memo** type to **Number**, **String**, or **Date** type or the reverse ➤ naming a new field, or renaming an existing field, with a field name that already exists in the linked project	An error occurred during the Apply Customization process. The change was not successfully applied to the linked project.

Tips:

➤ To easily locate warnings or errors in the Cross Project Customization Report, save the report, open it in a browser, and search for the word warning or error using the browser's search tool.

➤ To preserve formatting when mailing a report to another user, save the file as an HTML archived web page by saving it with the **.mht** file extension.

➤ If transition rules are set for user groups in the linked or template projects, each rule is listed in the **Transition Rule** column in the format <from state>,<to state>. For example, New,Open New,Rejected Open,Fixed Open,Rejected indicates that the user group can change the field value from **New** to **Open** or **Rejected**, and from **Open** to **Fixed** or **Rejected**.

Updating Linked Template Details

If you are working with a project that is linked to a template project, you can view details about the project and about the template project from the Linked Template page. You can view details about template customization applied to the project, send email to the template administrator, check for conflicts between customization in the project and customization in the template project, or make a request to block template customization updates.

To update linked template details:

1 In the Project Customization window, click the **Cross Project Customization** link. The Cross Project Customization - Linked Template page opens.

2 Under **Project Status**, view the following status information:

➤ **Updated**. Customization in the template project is applied to the project.

➤ **Not Updated**. Changes made to customization in the template project have not been applied to the project.

3 Select **Request suspension of Apply Customization** to make a request to block template customization updates. The request is displayed in the template project, and the template administrator can choose to exclude the project from template customization updates.

4 Click **Add Comment** to add a comment to the project. The comment is displayed in the Comments box. The Comments box also displays comments made by the template administrator. The template administrator can add and view comments when reviewing linked project details in the template project.

5 Under **Template Details**, view the name of the template project linked to the project, and the names of the template administrators. To send email to the template administrators, click the **Send E-mail** button.

6 Under **Last Applied Customization**, view the date of the last time template customization was applied to the project. Click the **Applied Customization Report** link to view details. For more information, see "The Cross Project Customization Report" on page 300.

7 Under **Last Verification**, view the date of the last time customization was verified for the project. Click the **Verification Report** link to view details. For more information, see "The Cross Project Customization Report" on page 300.

8 Click the **Verify** button to verify cross project customization for the project. For example, if you make changes to project customization, you can run template verification to check for conflicts between customization in the project and customization in the template project.

9 Click **Details** to view additional information during or after verification. When verification completes, you can click the **Report** link to view detailed results for the project.

10 When verification completes, click **Close** to close the Verification dialog box.

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Generating Workflow Scripts

Quality Center provides script generators to enable you to perform commonly needed customizations on the Defects module dialog boxes.

For information on writing workflow scripts to customize the user interface and to control user actions in any Quality Center module, see Part III, "Workflow Customization."

This chapter includes:

About Generating Workflow Scripts

The Workflow page provides links to script generators and a script editor. You can use the script generators to perform customizations on the input fields of the Defects module dialog boxes. You can use the script editor to create scripts to control the workflow in any Quality Center module.

Workflow scripts run with the privileges of the logged-in user, not the privileges of the user who created the script. Scripts that use protected objects, like the Command object, may fail, depending on the project security settings and the group to which the user belongs.

To open the Workflow page, click the **Workflow** link in the Project Customization window.

The Workflow page contains the following links:

➤ **Script Generator - List Customization for Defects Module**. Enables you to customize the field lists displayed for fields on the dialog boxes and in the Defects Grid of the Defects module. For more information, see "Customizing Defects Module Field Lists" on page 307.

➤ **Script Generator - Add Defect Field Customization**. Enables you to modify the appearance of the New Defect dialog box. For more information, see "Customizing Defects Module Dialog Boxes" on page 310.

➤ **Script Generator - Defect Details Field Customization**. Enables you to modify the appearance of the Defect Details dialog box. For more information, see "Customizing Defects Module Dialog Boxes" on page 310.

➤ **Script Editor**. Enables you to write VBScript code to customize the Quality Center workflow in any module. You place your code in the appropriate Quality Center event so that the script is triggered when the relevant user action takes place. You can also use the script editor to modify scripts created by the script generators. For more information, see Chapter 18, "Workflow Customization at a Glance."

Cross Project Customization

Quality Center Premier Edition: If you are working with a template project, in Project Customization, you use the **Workflow (Shared)** link to customize workflow. Workflow customization created in a template project is applied to the linked projects when you apply the template customization. For more information on customizing workflow scripts as a part of cross process customization, see "The Script Editor" on page 322.

Customizing Defects Module Field Lists

A field list is a list of values displayed in a drop-down list, from which the user can choose a value for the field.

You can specify that a different field list be used for a Defects module field, depending on the value of another field. For example, you can set the **Detected in Versions** list to change depending on the value in the **Project** field.

Note: This script generator can be used to customize field lists in the Defects module only.

To customize a field list, you must define the following rules:

➤ **Primary/Secondary Rule.** Select the primary and secondary fields. When a primary field value is changed, the list of values in the secondary field changes automatically. For example, you could select **Project** as the primary field and **Detected in Versions** as the secondary field.

➤ **List Match Rule.** Select the list that you want to display in the secondary field for each value of the primary field.

Note: When workflow customization has been used to change a list of values for a field that has transition rules defined, the field may only be modified in a way that satisfies both the workflow script and the transition rules. For more information, see "Setting Transition Rules" on page 212.

To customize a field list:

1 In the Project Customization window, click the **Workflow** link. The Workflow page opens.

2 Click the **Script Generator - List Customization for Defects Module** link. The Script Generator - List Customization dialog box opens.
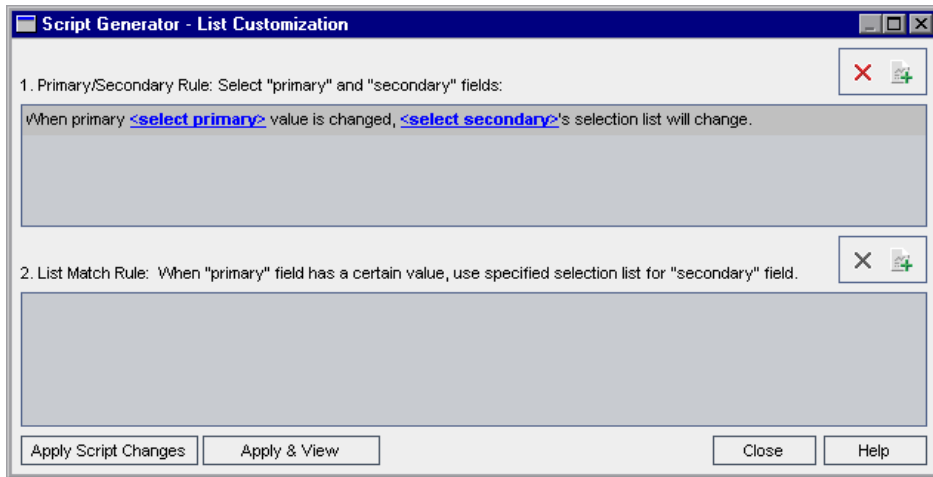
3 Under **Primary/Secondary Rule**, select the primary field and the secondary field:

➤ To set a rule, click **<select primary>** and select a field name. Click **<select secondary>** and select a field name.

➤ To add a new rule, click the **Add Primary/Secondary Rule** button. Select field names for **<select primary>** and **<select secondary>**.

➤ To delete a rule, select the rule and click the **Delete Primary/Secondary Rule** button. Click **Yes** to confirm.

4 Under **Primary/Secondary Rule**, select the primary/secondary rule for which you want to set list match rules.
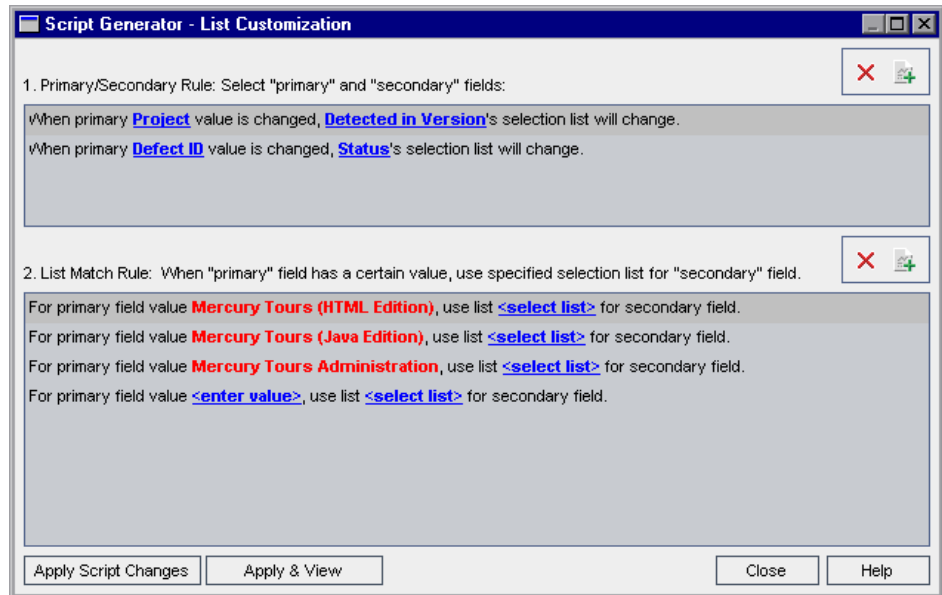
5 Under **List Match Rule**, select the field list to be used in the secondary field for specific values entered into the primary field:

➤ To set a rule for a defined primary field value, click **<select list>** and select a list name.

➤ To set a rule for an undefined primary field value, click **<enter value>** and type a primary field value. Press **Enter**. Click **<select list>** and select a list name.

➤ To add a new list match rule, click the **Add List Match Rule** button. Click **<enter value>** and type a primary field value. Click **<select list>** and select a list name.

➤ To delete a list match rule, select the rule and click the **Delete List Match Rule** button. Click **Yes** to confirm.

6 To save your changes, do one of the following:

➤ Click the **Apply Script Changes** button to save your changes and close the script generator.

➤ Click the **Apply & View** button to save your changes and view the generated script in the Script Editor.

If you use the Script Editor to modify a script that was created by a script generator, your modifications are overwritten the next time you run that script generator. It is recommended that your name the generated script before you modify it. For more information on the Script Editor, see Chapter 19, "Working with the Workflow Script Editor."

Customizing Defects Module Dialog Boxes

You can modify the appearance of the New Defect and Defect Details dialog boxes by setting different fields to be visible for each user group. You can also sort the order in which the fields are displayed on the dialog box for each user group.

For example, you may want the **Assigned To** and **Priority** fields to appear only for a user that has developer privileges. Also, you can customize the **Assigned To** field so that it is displayed before the **Priority** field for this user group.

To perform a customization for all user groups, you can use the script editor to write a script. For more information, see "Example: Customizing a Defects Module Dialog Box" on page 390.

Note: These script generators can be used to customize dialog boxes in the Defects module only.

To customize Defects module dialog boxes by user group:

1 In the Project Customization window, click the **Workflow** link. The Workflow page opens.

2 To modify the appearance of the New Defect dialog box, click the **Script Generator - Add Defect Field Customization** link. The Script Generator - Add Defect Field Customization dialog box opens.
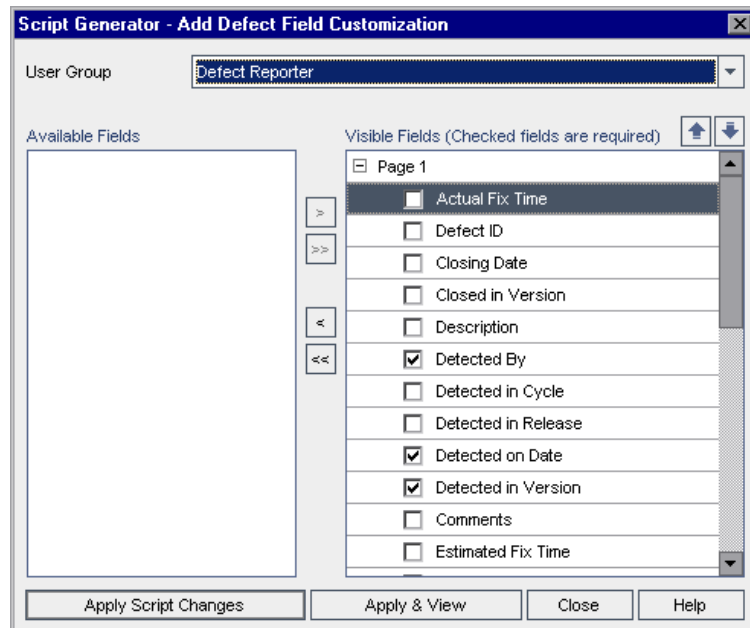
To modify the appearance of the Defect Details dialog box, click the **Script Generator - Defect Details Field Customization** link. The Script Generator - Defect Details Field Customization dialog box opens.
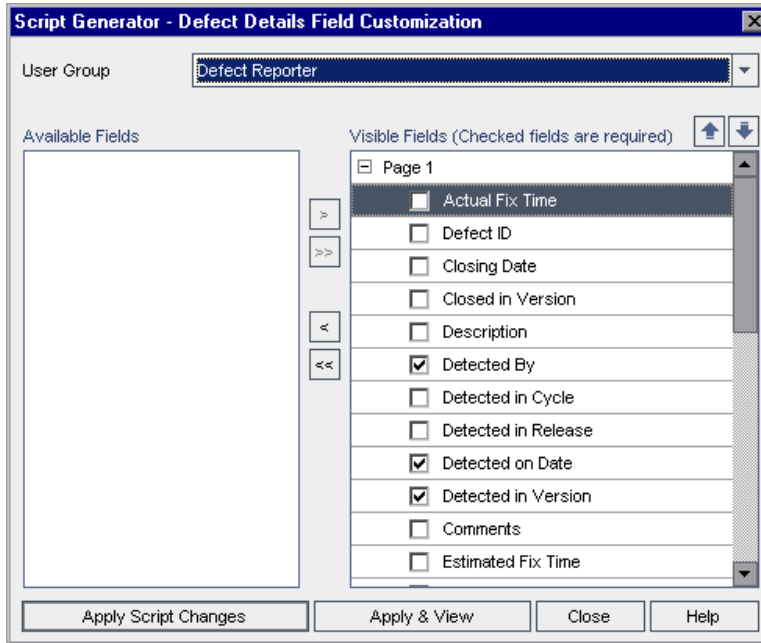
Available Fields contains the names of all the fields you can display. **Visible Fields** contains the names of the fields that can currently be seen by the selected user group, and their sorting priority.

3 From the **User Group** list, select the user group to which the customizations are to apply.

4 Choose field names and click the arrow buttons (> and <) to move a name between **Available Fields** and **Visible Fields**. Click the double arrow buttons (>> and <<) to move all the names from one list to the other. You can also drag the field names between lists.

5 In **Visible Fields**, to set a field as a required field, select the check box next to it. For a required field, a value is mandatory. Its title is displayed in red in the Add Defect or Defect Details dialog box.

6 You can set the order in which fields are displayed for the selected user group by using the up and down arrows. You can also drag the field names up or down.

7 You can set the Add Defect and Defect Details dialog boxes to include one or more input pages. By default, all fields are displayed on one page. Use the up and down arrows to move fields to the appropriate page.

8 To save your changes, do one of the following:

➤ Click the **Apply Script Changes** button to save your changes and close the script generator.

➤ Click the **Apply & View** button to save your changes and view the generated script in the Script Editor.

If you use the Script Editor to modify a script that was created by a script generator, your modifications are overwritten the next time you run that script generator. It is recommended that you rename the generated script before you modify it. For more information on the Script Editor, see Chapter 19, "Working with the Workflow Script Editor."

Part III

Workflow Customization

18

Workflow Customization at a Glance

You can write workflow scripts to customize the Quality Center user interface, and to control the actions that users can perform.

To customize workflow:

1 In the Project Customization window, click the **Workflow** link. The Workflow page opens.

2 To customize a Defects module dialog box, click the appropriate **Script Generator** link on the Workflow page. You need not be familiar with VBScript, or with Quality Center events and objects to use this feature. For more information, see Chapter 17, "Generating Workflow Scripts."

3 To write or modify scripts by entering code into the appropriate event procedures, open the Script Editor. To create workflow scripts, you must be familiar with VBScript. You can open the Script Editor either from a script generator or directly:

➤ To write a script that is similar to a script created by a script generator, click the relevant **Script Generator** link and set the customization you want to perform. Click the **Apply & View** button on the script generator dialog box. The Script Editor opens to display the scripts that were generated.

➤ To create your own scripts, click the **Script Editor** link. The Script Editor opens to display a Scripts Tree that lists the existing event procedures.

For more information on the Script Editor, see Chapter 19, "Working with the Workflow Script Editor."

4 Decide which Quality Center event should trigger your script. You must place your code in the procedure of the appropriate module and event so that it is invoked for the relevant user action. For more information, see Chapter 20, "Workflow Event Reference."

5 Decide which Quality Center objects your script must access. Your script performs customizations based on information obtained from the relevant objects. You customize the workflow by using the methods and properties of the objects. For more information, see Chapter 21, "Workflow Object and Property Reference."

6 Examine the sample scripts to find one that can be adapted for your use. Sample scripts are provided in this guide and in the HP Self-solve knowledge base. Scripts generated by the workflow script generators can also be used as a basis for your scripts.

➤ For examples of common customizations that can be performed by using workflow scripts, see Chapter 22, "Workflow Examples and Best Practices."

➤ For an index to knowledge base articles that provide examples of workflow scripts, see HP Software Self-solve knowledge base article KM183671 (http://h20230.www2.hp.com/selfsolve/document/KM183671).

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Working with the Workflow Script Editor

You can use the Script Editor to create workflow scripts to customize the user interface, and to control user actions.

This chapter includes:

➤ About Working with the Workflow Script Editor on page 321
➤ The Script Editor on page 322
➤ Creating a Workflow Script on page 327
➤ Adding a Button to a Toolbar on page 330
➤ Setting the Properties of the Script Editor on page 333

About Working with the Workflow Script Editor

You can use the Script Editor to create workflow scripts and to add a toolbar button to the window of a Quality Center module.

The Script Editor dialog box contains two tabs:

➤ **Script Editor tab.** You use the Script Editor tab to create and edit workflow scripts. The Script Editor assists you in placing your code in the appropriate Quality Center event procedure. For more information on using the Script Editor, see "Creating a Workflow Script" on page 327.

➤ **Toolbar Button Editor tab.** You use the Toolbar Button Editor tab to add a toolbar button to the window of a Quality Center module. For more information, see "Adding a Button to a Toolbar" on page 330.

The Script Editor

You can use the Script Editor to modify scripts that have been generated by a script generator, or to create a user-defined workflow script. For information on opening the Script Editor, see Chapter 18, "Workflow Customization at a Glance."
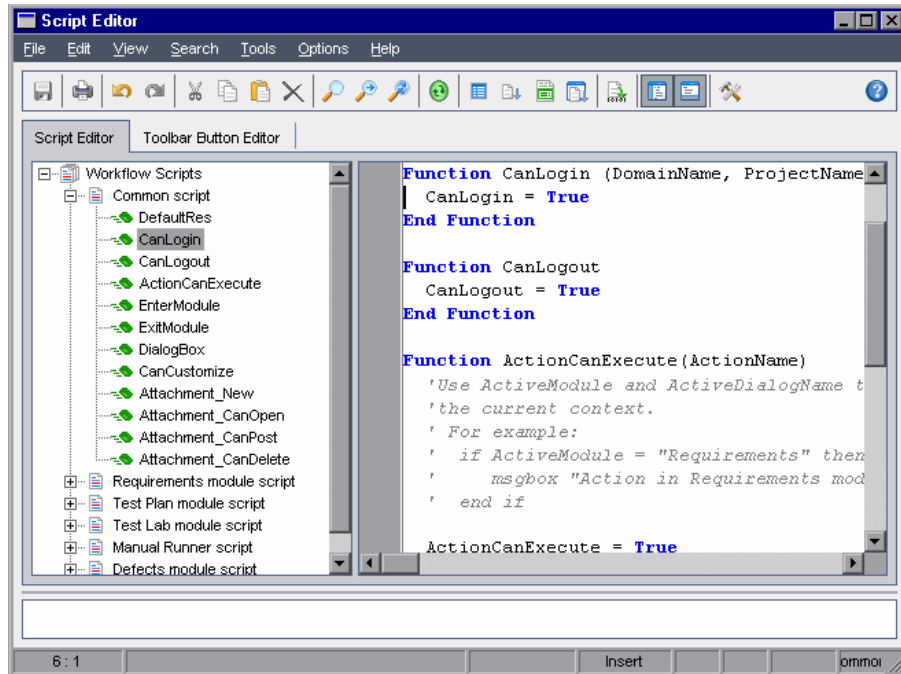
The Script Editor tab contains the following elements:

➤ **Script Editor toolbar.** Contains buttons used when creating scripts. For more information, see "Understanding the Script Editor Commands" on page 324.

➤ **Scripts Tree.** Lists the event procedures to which you can add code. The event procedures are grouped by the module in which they are triggered. For more information, see Chapter 20, "Workflow Event Reference."

➤ **Scripts pane.** Displays the code of the selected event procedure. To create or modify a script, you add VBScript code to the event procedure. For more information, see "Creating a Workflow Script" on page 327.

➤ **Messages pane.** Displays any syntax errors encountered when you save or validate a script.

Cross Project Customization

Quality Center Premier Edition: If you are working in a template or linked project, the Scripts Tree displays two sections under Workflow Scripts:

➤ **Template Scripts (Shared).** Workflow scripts listed in this section are the scripts applied from the template to the linked project. For more information on applying template customization, see "Applying Template Customization to Linked Projects" on page 297.

If you are working with a linked project, this section is displayed only when there are template scripts defined in the template. The template scripts cannot be edited in the linked project. If you remove a project from a template, the template scripts remain in the project and are editable.

➤ **Project Scripts.** Workflow scripts listed in this section apply only to the template or linked project in which you are working. Scripts in this section of a template are not applied to linked projects.

When running workflow scripts for a linked project, Quality Center combines template scripts and project scripts into one script. Duplicate variables or functions in the template scripts and projects scripts can cause conflicts.

Additional considerations when working in a template project:

➤ Scripts generated by one of the script generators are created under **Template Scripts (Shared)**.

➤ Quality Center adds the prefix **Template_** to events in template scripts. By default, Quality Center triggers template event procedures. The project event procedure is triggered if the template event procedure does not exist, or if you instruct the template event procedure to call the project event procedure.

Each template event includes a commented call to the parallel project event. For example, the Template_Bug_New event in the template script is displayed as follows:

```
Sub Template_Bug_New
 On Error Resume Next

 'call Bug_New
 On Error Go To 0
End Sub
```

To instruct the template script to call the project event, remove the comment marker to activate the call to the project event, as follows:

```
Sub Template_Bug_New
 On Error Resume Next

 call Bug_New
 On Error Go To 0
End Sub
```

Understanding the Script Editor Commands

The Script Editor toolbar, menu bar, and right-click menu contain the following buttons and menu commands:

Save. Saves the changes made to scripts in the selected module.

Print. Prints the displayed script.

Undo. Reverses the last command or deletes the last entry you typed.

Redo. Reverses the action of your last **Undo** command.

Cut. Removes the selected text and places it on the Clipboard.

Copy. Copies the selected text to the Clipboard.

Paste. Inserts the contents of the Clipboard at the insertion point.

Delete. Deletes the selected text.

Find. Searches for specified text in the scripts of the selected module.

Find Next. Finds the next occurrence of the text specified in the Find Text dialog box.

Replace. Replaces the specified text with replacement text.

Synchronize Tree with Script. Refreshes the Scripts Tree to reflect procedures you have added, deleted or renamed.

Field Names. Displays a list of field names in the project that you can insert into your script.

Code Complete. Displays a list of objects, properties, methods, or field names that you can insert into your script.

Code Template. Displays a list of templates for commonly used VBScript statements that you can insert into your script.

List Value. Opens the Select Value From List dialog box, to enable you to choose an item from a project list.

Syntax Check. Validates the syntax of your script and displays any messages in the Messages pane.

Show/Hide Scripts Tree. Displays or hides the Scripts Tree. If you have opened the Script Editor from a script generator, this is not available.

Show/Hide Messages Pane. Displays or hides the Messages pane.

Properties. Opens the Properties dialog box, enabling you to change the properties of the Script Editor. For more information, see "Setting the Properties of the Script Editor" on page 333.

Save All. To save script changes in all modules, choose **File** > **Save All**.

Revert to Saved. To return to a saved version of a module, select a changed module and choose **File** > **Revert to Saved**.

Select All. To select all text in the scripts pane, choose **Edit** > **Select All**.

Expand All. To expand all nodes in the Scripts Tree, choose **View** > **Expand All**.

Collapse All. To collapse all nodes in the Scripts Tree, choose **View** > **Collapse All**.

Go to Line Number. To jump to a specific line in the Script Editor, choose **Search** > **Go to Line Number**.

Clear Messages. To clear syntax messages displayed in the messages pane, choose **Tools** > **Clear Messages**.

Sort Field Names by Field Labels. When you choose the **Field Names** option, the Script Editor sorts the list by the field name used in the Quality Center database table (for example, **BG_BUG_ID**). To sort the fields by the field label (for example, Defect ID) right-click the script pane and choose **Sort Field Names by Field Labels**.

VBScript Home Page. To get help for the VBScript language, choose **Help** > **VBScript Home Page**.

Creating a Workflow Script

You use the Script Editor to add VBScript code to a Quality Center event procedure, or to create user-defined procedures that can be called from a Quality Center event procedure.

To create a workflow script:

1 Click the **Script Editor** link on the Workflow window. The Script Editor opens.
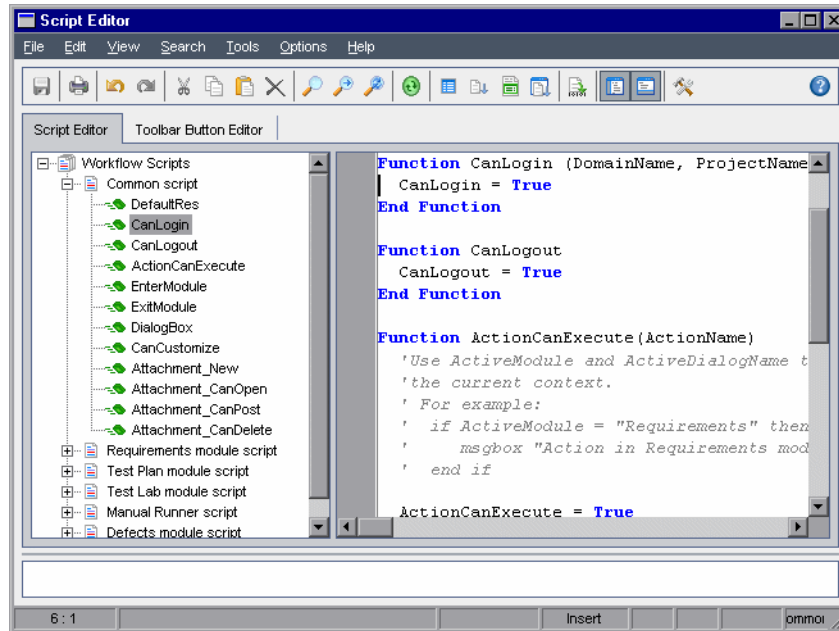
For more information on the Script Editor window, see "The Script Editor" on page 322.

2 In the Scripts Tree, select the node of the module for which you need to customize the workflow.

The Scripts Tree contains the **Common script** node in addition to the nodes for specific modules. When you create user-defined procedures that must be accessible from several modules, place them under the **Common script** node. To declare a global variable that can be used across all modules, declare the variable under the **Common script** node, outside of any function.

3 Expand the node and select the event procedure to which you need to add code, depending on when you want your code to be triggered. The existing script for this event procedure is displayed in the Scripts pane.

For a description of Quality Center event procedures, see Chapter 20, "Workflow Event Reference."

4 Add your VBScript code to the script.

Note: A red indicator 🔴 next to a module name in the Scripts Tree indicates that there are unsaved script changes in that module.

---

5 To use the code complete feature instead of typing in the names of Quality Center objects, properties, methods, and fields, place the insertion point at the location where you want to insert an object name and click the **Code Complete** button. For information about Quality Center objects, see Chapter 21, "Workflow Object and Property Reference."

6 To use the code template feature instead of typing in commonly used VBScript statements, place the insertion point where you want to insert the code and click the **Code Template** button. Choose one of the following items from the code template list:

Template	Code Added to Script
FVal: Fields value access	Fields.Field("").Value
List: Quality Center list access	Lists.List()
IfAct: Action "switch" If Block	If ActionName = "" Then End IF
Act: Actions access	Actions.Action("")

Template	Code Added to Script

Func: Function template	Function
	   On Error Resume Next
	
	   On Error GoTo 0
	End Function

Sub: Sub Template	Sub
	   On Error Resume Next
	
	   On Error GoTo 0
	End Sub

Err: Error Handler	On Error Resume Next

7 To insert an item from a field list defined in the project, place the insertion point at the location where you want to add the item. Click the **List Value** button. In the **Lists** box of the Select Value From List dialog box, choose the name of the list. In the **List Items** box, select the list value.

8 To insert a Quality Center field name, place the insertion point at the location where you want to add the field name. Click the **Field Names** button. Select a name from the list of system and user-defined fields in the Quality Center project.

9 To validate the syntax of the script, click **Syntax Check**. Any messages are displayed in the Messages pane.

10 Click the **Save** button to save the script.

11 Close the Script Editor.

Adding a Button to a Toolbar

You can use the Toolbar Button Editor to define a toolbar button to be displayed on the window of a Quality Center module, or on the Manual Runner dialog box.

To add a button to a toolbar:

1 In the Script Editor, click the **Toolbar Button Editor** tab.
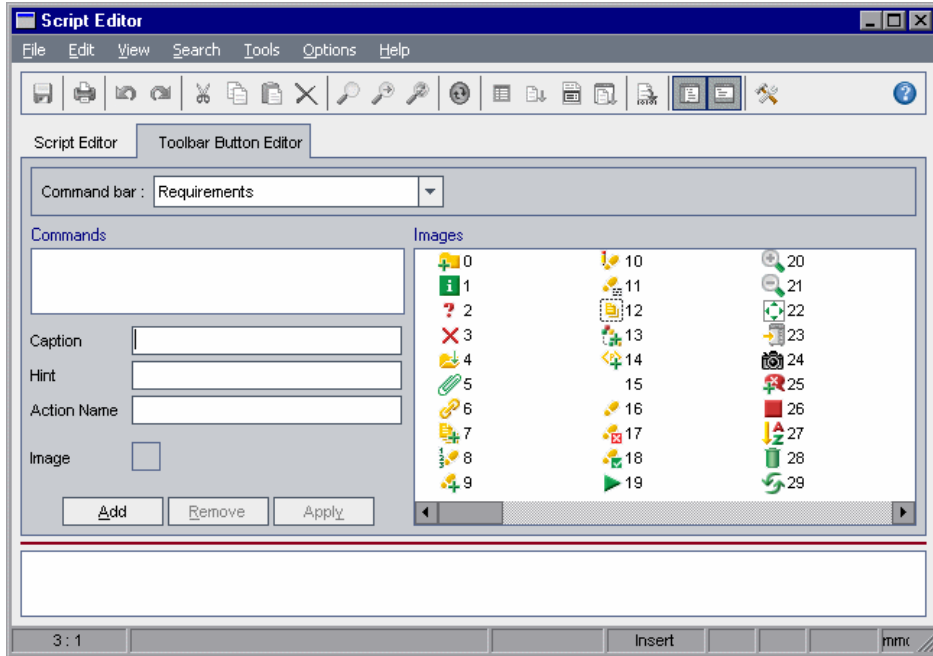
2 From the **Command bar** list, select the toolbar to which you want to add a button:

Option	Toolbar Location
Requirements	Requirements module window.
TestPlan	Test Plan module window.
TestLab	Test Lab module window.
ManualRun	Manual Runner dialog box.
Component	Business Components module window. This option depends on your Quality Center license.
Defects	Defects module window.
Management	Management module window. This module includes Releases and Libraries.
Resources	Test Resources module window.
Dashboard	Dashboard module window.

3 Click **Add**. A default command name for the button is added to the **Commands** list.

4 In the **Caption** box, type a new command name for the button, or use the default name.

5 In the **Hint** box, type a tooltip for the button.

6 In the **Action Name** box, type a new action name for the button, or use the default name.

7 Under **Images**, select an icon for the button.

8 Click **Apply** to apply your changes.

9 To delete a button that you have created, select its command name in the Commands list, and click **Remove**.

10 Click the **Save** button to save the new button definition.

11 Click the **Script Editor** tab.

12 In the Scripts Tree of the Script Editor, select the **ActionCanExecute** event procedure located in the common script section.

13 In the procedure displayed in the scripts pane of the Script Editor, add statements to be performed if the user initiates an action with the action name you defined for the button. Set the return value to True or False.

For example, the following code opens a message box when the user clicks the Requirements_Action1 button on the tool bar of the Requirements module:

```
Function ActionCanExecute(ActionName)
 On Error Resume Next
 ActionCanExecute = True
     If ActionName = "Requirements_Action1" Then
         MsgBox "You clicked the Action1 button."
     End If
 On Error GoTo 0
End Function
```

For more information, see "Example: Adding Button Functionality" on page 404.

14 Click the **Save** button to save the script.

Setting the Properties of the Script Editor

You can customize the behavior of the Script Editor.

To set the properties of the Script Editor:

1 In the Script Editor, click the **Properties** button or choose **Options** > **Editor Properties**. The Properties dialog box opens.
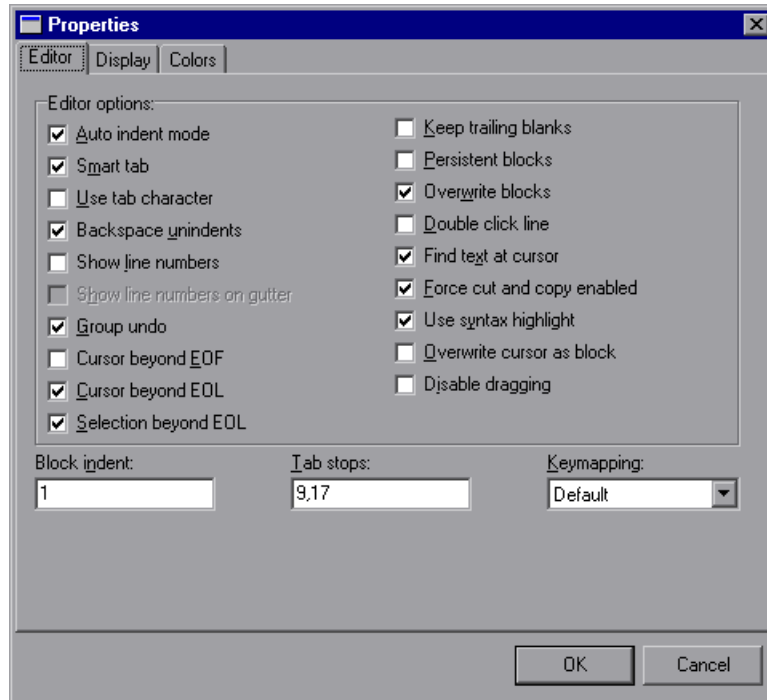
2 In the **Editor** tab, you can set the following options:

Option	Description
Auto indent mode	Places the cursor under the first non-blank character of the preceding non-blank line when you press **Enter**.
Smart tab	Tabs to the first non-blank character in the preceding non-blank line. If **Use tab character** is selected, this option is cleared.

Option	Description
Use tab character	Inserts a tab character. If cleared, inserts space characters. If **Smart tab** is selected, this option is cleared.
Backspace unindents	Aligns the insertion point to the previous indentation level when you press **Backspace**, if the cursor is on the first non-blank character of a line.
Show line numbers	Displays line numbers. If this option is selected, **Show line numbers on gutter** is enabled.
Show line numbers on gutter	Displays line numbers in the gutter instead of in the left margin. If **Show line numbers** is selected, this option is enabled.
Group undo	Reverses your last editing command and any subsequent editing commands of the same type, if you press **Alt+Backspace** or choose **Edit > Undo**.
Cursor beyond EOF	Enables you to place the insertion point after the last line of code.
Cursor beyond EOL	Enables you to position the cursor after the end of the line.
Selection beyond EOL	Enables you to select characters beyond the end of the line.
Keep trailing blanks	Keeps any blank spaces you have at the end of a line.
Persistent blocks	Keeps marked blocks selected, even when the cursor is moved using the arrow keys, until a new block is selected.
Overwrite blocks	Replaces a marked block of text with new text. If **Persistent Blocks** is also selected, text you enter is appended following the currently selected block.
Double click line	Highlights the line when you double-click any character in the line. If disabled, only the selected word is highlighted.
Find text at cursor	Places the text at the cursor into the **Text To Find** list box in the Find Text dialog box when you choose **Search > Find**.

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Option	Description
Force cut and copy enabled	Enables the **Cut** and **Copy** commands, even when there is no text selected.
Use syntax highlight	Displays script elements according to colors and attributes defined in the **Display** tab and **Colors** tab.
Overwrite cursor as block	Controls the appearance of the caret when using the Overwrite mode.
Disable dragging	Disables dragging and dropping text.
Block indent	Specifies the number of spaces to indent a marked block.
Tab stops	Specifies the locations to which the cursor moves when you press **Tab**.
Keymapping	Sets the keyboard mappings in the Script Editor. Supports the following keyboard mappings: Default, Classic, Brief, Epsilon, and Visual Studio.

3 In the **Display** tab, you can set the following options:

Option	Description
Editor gutter	Enables you to set the visibility, width, color, and style of the gutter.
Editor margin	Enables you to set the visibility, width, color, style, and position of the right margin.
Use mono font	Displays only monospaced screen fonts, such as Courier, in the Editor font box.
Editor font	Lists the available text fonts.
Editor color	Lists the available background colors.
Size	Lists font sizes.
Use Read-Only Color	Enables you to select a color for displaying read-only text from the Read-Only Color box.
Draw Special Symbols	Sets special characters for displaying end-of-file, end-of-line, space, and tab characters.

4 In the **Colors** tab, you can set the following options:

Option	Description
Color SpeedSetting	Enables you to configure the Script Editor display using predefined color combinations.
Element	Specifies syntax highlighting for a particular code element.
Foreground color	Sets the foreground color for the selected code element.
Background color	Sets the background color for the selected code element.
Use defaults for	Displays the code element using default system colors for the foreground, background, or both.
Text attributes	Specifies format attributes for the code element.
Open	Loads a color scheme from your computer.
Save	Saves a color scheme to your computer.

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Workflow Event Reference

You can write workflow scripts to customize the actions that Quality Center users can perform, and the fields that are available to users in dialog boxes. To write a workflow script, you add VBScript code to event procedures that are triggered by user actions.

This chapter includes:

➤ About Quality Center Events on page 337

➤ Naming Conventions for Quality Center Event Procedures on page 339

➤ Reference for Quality Center Events on page 341

About Quality Center Events

During a Quality Center user session, as the user initiates various actions, Quality Center triggers event procedures. You can place code in these procedures to customize the execution of the associated user actions.

The Script Editor lists the event procedures for each Quality Center module, and allows you to add your code to the appropriate procedure. For more information, see Chapter 19, "Working with the Workflow Script Editor."

The code you add to the event procedures can access Quality Center objects. For more information, see Chapter 21, "Workflow Object and Property Reference."

Event procedures can be functions or subroutines:

➤ **Event functions.** These procedures are triggered by Quality Center to check whether the user's action should be performed. You can place code in these functions to determine whether Quality Center may execute the user's request. If your code returns a value of False, Quality Center does not proceed with the action.

For example, when a user clicks the **Submit** button on the Add Defect dialog box, Quality Center invokes the function Bug_CanPost before posting the defect to the database on the server. You can add code to the Bug_CanPost function to control whether Quality Center posts the defect. For example, you can ensure that a user cannot reject a defect without adding a comment. For example, see "Example: Object Validation" on page 398.

➤ **Event subroutines.** These procedures are triggered to perform actions when an event takes place.

For example, when a user opens the Add Defect dialog box, Quality Center invokes the subroutine Bug_New. You can add code to the Bug_New subroutine to perform actions that should be performed when a user opens the dialog box. For example, you can change the value of the **Detection Mode** field to BTW if the user is not in the QA Tester user group. For example, see "Example: Changing a Field Based on the User Group" on page 397.

Version Control: After enabling version control for a project, you should review all its workflow scripts and make adjustments for each checked in entity. This includes the following entities: **Req**, **Test**, **Resource**, and **Component**. For each checked in entity that includes a **Post** function in its script, you must modify the script. To modify, add a **Checkout** function before every **Post** function. Making this modification prevents the Check Out dialog box from opening each time a call to a **Post** function is made. For more information on version control, refer to the *HP Quality Center User Guide*.

Naming Conventions for Quality Center Event Procedures

The naming convention for an event procedure is as follows:

<entity>_<event>

Note that some event procedure names do not include an entity name. For example, the MovetoSubject and GetNewBugPageName event names do not include an entity name.

Notes:

➤ For backwards compatibility, the previous naming convention including the module name is still supported.

➤ You cannot access global variables from the Manual Runner event procedures. A workaround for passing a value to or from Manual Runner is to use the **Settings** object. For example, see "Example: Storing the Last Values Entered" on page 409.

Entity

Entity can be one of the following:

Entity	Description
Release	Release data
Release Folder	Release folder data
Cycle	Release cycle data
Library	Library data
Library Folder	Library folder data
Baseline	Baseline data
Req	Requirement data
Test	Test data

Entity	Description
DesignStep	Design step data
Resource	Test resource data
Resource Folder	Test resource folder data
TestSet	Test set data
TestSetTests	Test instance data
Run	Test run data
Bug	Defect data
Step	Test run step data
AnalysisItem	Reports and graphs data
AnalysisItemFolder	Reports and graphs folder data
DashboardFolder	Dashboard folder data
DashboardPage	Dashboard page data
Component	Component data
ComponentStep	Component step data

Event

The **Event** can be either a function name or a subroutine name. The event names are listed in "Reference for Quality Center Events" on page 341.

Reference for Quality Center Events

This section contains an alphabetical reference of the Quality Center event functions and subroutines. It includes the event name, description, syntax, type (Function or Sub), the value returned by a function, and the entities for which the event procedure is available.

For information on the naming conventions for event procedures, see "Naming Conventions for Quality Center Event Procedures" on page 339.

The following event functions are available:

Function Name	When the Function is Triggered
"ActionCanExecute" on page 343	before performing a user action
"Attachment_CanDelete" on page 345	before deleting an attachment
"Attachment_CanOpen" on page 345	before opening an attachment
"Attachment_CanPost" on page 346	before posting an attachment
"CanAddTests" on page 346	before adding tests to a test set
"CanCustomize" on page 347	before opening Customization window
"CanDelete" on page 347	before deleting an object from the server
"CanLogin" on page 349	before a user logs in to the project
"CanLogout" on page 349	before a user logs out of the project
"CanPost" on page 350	before posting an object to the server
"CanRemoveTests" on page 351	before removing tests from a test set
"DefaultRes" on page 351	before resetting project defaults
"FieldCanChange" on page 353	before changing a field value
"GetDetailsPageName" on page 356	before displaying Defect Details dialog box
"GetNewBugPageName" on page 356	before displaying Add Defect dialog box

Function Name	When the Function is Triggered
"GetNewReqPageName" on page 357	before displaying New Requirement dialog box
"GetReqDetailsPageName" on page 358	before displaying Requirement Details dialog box

The following event subroutines are available:

Subroutine Name	When the Subroutine is Triggered
"AddComponentToTest" on page 343	a component has been added to a test of type Flow or Business-Process
"AfterPost" on page 344	an object has been posted to the server
"Attachment_New" on page 346	an attachment is added
"DialogBox" on page 351	a dialog box is opened or closed
"EnterModule" on page 352	user switches modules
"ExitModule" on page 352	user exits a module
"FieldChange" on page 354	a field value changes
"MoveTo" on page 359	user changes focus
"MoveToComponentFolder" on page 360	user moves to the specified component folder in the business component tree
"MoveToFolder" on page 360	user clicks a folder in the test sets tree
"MoveToSubject" on page 360	user clicks a subject in the test plan tree
"New" on page 361	an object is added
"RemoveComponentFromTest" on page 362	user removes a component from a test of type Flow or Business-Process
"RunTests" on page 362	user clicks **Run** in the Test Lab module
"RunTestSet" on page 362	user clicks **Run Test Set** in the Test Lab module
"RunTestsManually" on page 363	user clicks **Run** > **Run Manually** in the Test Lab module

ActionCanExecute

This event is triggered before Quality Center performs an action that has been initiated by the user, to check whether the action can be executed.

You can add code to this event procedure to perform actions when the user has initiated a particular action, or to prevent the action from being executed in specific cases. For example, see "Example: Controlling User Permissions" on page 403.

Syntax	**ActionCanExecute(ActionName)**
	where **ActionName** is the action that the user has initiated
Type	Function
Returns	True or False
Availability	ActionCanExecute

AddComponentToTest

This event is triggered when the user adds a component to a test of type Flow or Business-Process in the Test Script tab.

Version Control: Changing components checked in or checked out by another user, using the AddComponentToTest event, is not supported.

Syntax	**AddComponentToTest**
Type	Sub
Availability	AddComponentToTest

AfterPost

This event is triggered after an object has been posted to the server.

Project fields should not be changed after they have been posted, because then the new value is not stored in the database.

Syntax	<entity>_**AfterPost**
Type	Sub
Availability	➤ AnalysisItem_AfterPost
	➤ AnalysisItemFolder_AfterPost
	➤ Baseline_AfterPost
	➤ Bug_AfterPost
	➤ Component_AfterPost
	➤ Cycle_AfterPost
	➤ DashboardFolder_AfterPost
	➤ DashboardFolderPage_AfterPost
	➤ Library_AfterPost
	➤ LibraryFolder_AfterPost
	➤ Release_AfterPost
	➤ Req_AfterPost
	➤ Resource_AfterPost
	➤ ResourceFolder_AfterPost
	➤ Run_AfterPost
	➤ Step_AfterPost
	➤ Test_AfterPost
	➤ TestSet_AfterPos

Attachment_CanDelete

This event is triggered before Quality Center deletes an attachment from the server, to check whether that attachment can be deleted.

Syntax	Attachment_CanDelete(Attachment)
	where **Attachment** is the **IAttachment** interface. For more information, refer to the *HP Quality Center Open Test Architecture API Reference*.
Type	Function
Returns	True or False
Availability	Attachment_CanDelete

Attachment_CanOpen

This event is triggered before Quality Center opens an attachment from the server, to check whether the attachment can be opened.

Syntax	Attachment_CanOpen(Attachment)
	where **Attachment** is the **IAttachment** interface. For more information, refer to the *HP Quality Center Open Test Architecture API Reference*.
Type	Function
Returns	True or False
Availability	Attachment_CanOpen

Attachment_CanPost

This event is triggered before Quality Center posts an attachment to the server, to check whether the attachment can be posted.

Syntax	**Attachment_CanPost(Attachment)**
	where **Attachment** is the **lAttachment** interface. For more information, refer to the *HP Quality Center Open Test Architecture API Reference*.
Type	Function
Returns	True or False
Availability	Attachment_CanPost

Attachment_New

This event is triggered when an attachment is added to Quality Center.

Syntax	**Attachment_New(Attachment)**
	where **Attachment** is the **lAttachment** interface. For more information, refer to the *HP Quality Center Open Test Architecture API Reference*.
Type	Sub
Availability	Attachment_New

CanAddTests

This event is triggered before Quality Center adds tests to a test set, to check whether the specified tests can be added.

Syntax	<entity>_**CanAddTests(Tests)**
	where **Tests** is an array of Test IDs.
Type	Function
Returns	True or False
Availability	TestSet_CanAddTests

CanCustomize

This event is triggered when a user attempts to open the Customization window, to check whether the specified user can customize the specified project.

Syntax	**CanCustomize(DomainName, ProjectName, UserName)**
	where **DomainName** is the domain name, **ProjectName** is the project name, and **UserName** is the user name.
Type	Function
Returns	True or False
Availability	CanCustomize

CanDelete

This event is triggered before Quality Center deletes an object from the server, to check if the object can be deleted.

The syntax is different for different objects.

➤ The syntax for tests or test subject folders:

Syntax	<entity>_**CanDelete(Entity, IsTest)**
	where:
	➤ **Entity** is the test or subject folder.
	➤ If **IsTest** is True, **Entity** refers to an ITest object. If **IsTest** is False, **Entity** refers to an ISubjectNode object. For more information on ITest and ISubjectNode, refer to the *HP Quality Center Open Test Architecture API Reference*.
Type	Function
Returns	True or False
Availability	Test_CanDelete

➤ The syntax for test sets or test set folders:

Syntax	<entity>_**CanDelete(Entity, IsTestSet)**
	where:
	➤ **Entity** is the test set or test set folder.
	➤ If **IsTestSet** is True, **Entity** refers to an ITestSet object. If **IsTestSet** is False, **Entity** refers to an ITestSetFolder object. For more information on ITestSet and ITestSetFolder, refer to the *HP Quality Center Open Test Architecture API Reference*.
Type	Function
Returns	True or False
Availability	TestSet_CanDelete

➤ The syntax for additional objects:

Syntax	<entity>_**CanDelete**
Type	Function
Returns	True or False
Availability	➤ AnalysisItem_CanDelete
	➤ AnalysisItemFolder_CanDelete
	➤ Baseline_CanDelete
	➤ Bug_CanDelete
	➤ Component_CanDelete
	➤ Cycle_CanDelete
	➤ DashboardFolder_CanDelete
	➤ DashboardPage_CanDelete
	➤ Library_CanDelete
	➤ LibraryFolder_CanDelete
	➤ Release_CanDelete
	➤ ReleaseFolder_CanDelete
	➤ Req_CanDelete
	➤ Resource_CanDelete
	➤ ResourceFolder_CanDelete

CanLogin

This event is triggered to check whether the specified user can log in to the specified project.

Syntax	**CanLogin(DomainName, ProjectName, UserName)**
	where **DomainName** is the domain name, **ProjectName** is the project name, and **UserName** is the user name.
Type	Function
Returns	True or False
Availability	CanLogin

CanLogout

This event is triggered to check whether the current user can log out of the current project.

Syntax	**CanLogout**
Type	Function
Returns	True or False
Availability	CanLogout

CanPost

This event is triggered before Quality Center posts an object to the server, to check whether the object can be posted.

You can add code to this event procedure to prevent an object from being posted in specific cases. For example, see "Example: Object Validation" on page 398.

Syntax	<entity>_**CanPost**
Type	Function
Returns	True or False
Availability	➤ AnalysisItem_CanPost
	➤ AnalysisItemFolder_CanPost
	➤ Baseline_CanPost
	➤ Bug_CanPost
	➤ Component_CanPost
	➤ Cycle_CanPost
	➤ DashboardFolder_CanPost
	➤ DashboardPage_CanPost
	➤ Library_CanPost
	➤ LibraryFolder_CanPost
	➤ Release_CanPost
	➤ ReleaseFolder_CanPost
	➤ Req_CanPost
	➤ Resource_CanPost
	➤ ResourceFolder_CanPost
	➤ Run_CanPost
	➤ Step_CanPost
	➤ Test_CanPost
	➤ TestSet_CanPost
	➤ TestSetTests_CanPost (does not appear in the Scripts Tree)

CanRemoveTests

This event is triggered to check whether the specified tests can be removed from a test set.

Syntax	<entity>_**CanRemoveTests (Tests)**
	where **Tests** is an array of Test IDs.
Type	Function
Returns	True or False
Availability	TestSet_CanRemoveTests

DefaultRes

This event is triggered when a user attempts to reset the defaults for Quality Center events. If the function returns False, the defaults are not reset.

Syntax	**DefaultRes**
Type	Function
Returns	True or False
Availability	DefaultRes

DialogBox

This event is triggered when a dialog box is opened or closed.

Syntax	**DialogBox(DialogBoxName, IsOpen)**
	where **DialogBoxName** is the name of the dialog box, and **IsOpen** indicates whether the dialog box is open.
Type	Sub
Availability	DialogBox

EnterModule

This event is triggered when the user switches to this Quality Center module.

You can add code to this event procedure to perform an action whenever the user switches to the specified module.

Syntax	EnterModule
Type	Sub
Availability	EnterModule

ExitModule

This event is triggered when the user exits the specified module.

Syntax	ExitModule
Type	Sub
Availability	ExitModule

FieldCanChange

This event is triggered before Quality Center changes a field value, to determine whether the field can be changed.

You can add code to this event procedure to prevent a field from being changed in specific cases. For example, see "Example: Field Validation" on page 399.

Syntax	<entity>_**FieldCanChange(FieldName, NewValue)** where **FieldName** is the name of the field and **NewValue** is the field value.
Type	Function
Returns:	True or False
Availability	➤ AnalysisItem_FieldCanChange ➤ AnalysisItemFolder_FieldCanChange ➤ Baseline_FieldCanChange ➤ Bug_FieldCanChange ➤ Component_FieldCanChange ➤ ComponentStep_FieldCanChange ➤ Cycle_FieldCanChange ➤ DashboardFolder_FieldCanChange ➤ DashboardPage_FieldCanChange ➤ DesignStep_FieldCanChange ➤ Library_FieldCanChange ➤ LibraryFolder_FieldCanChange ➤ Release_FieldCanChange ➤ ReleaseFolder_FieldCanChange ➤ Req_FieldCanChange ➤ Resource_FieldCanChange ➤ ResourceFolder_FieldCanChange ➤ Run_FieldCanChange ➤ Step_FieldCanChange ➤ Test_FieldCanChange ➤ TestSet_FieldCanChange ➤ TestSetTests_FieldCanChange

The code for hiding a field that depends on another field should be placed in the FieldChange event procedure (not in the FieldCanChange event procedure).

FieldChange

This event is triggered when the value of the specified field changes.

Every change of value triggers the field change event when the field loses focus.

You can add code to this event procedure to perform an action when the value of a particular field is changed. For example, you can hide or display one field depending on the value the user enters into another field. For example, see "Example: Changing One Field Based on Another Field" on page 396.

Syntax	<entity>_**FieldChange(FieldName)**
	where **FieldName** is the name of the field.
Type	Sub
Availability	➤ AnalysisItem_FieldChange
	➤ AnalysisItemFolder_FieldChange
	➤ Baseline_FieldChange
	➤ Bug_FieldChange
	➤ Component_FieldChange
	➤ ComponentStep_FieldChange
	➤ Cycle_FieldChange
	➤ DashboardFolder_FieldChange
	➤ DashboardPage_FieldChange
	➤ DesignStep_FieldChange
	➤ Library_FieldChange
	➤ LibraryFolder_FieldChange
	➤ Release_FieldChange
	➤ ReleaseFolder_FieldChange
	➤ Req_FieldChange
	➤ Resource_FieldChange
	➤ ResourceFolder_FieldChange
	➤ Run_FieldChange
	➤ Step_FieldChange
	➤ Test_FieldChange
	➤ TestSet_FieldChange
	➤ TestSetTests_FieldChange

When a user changes a field value using the **Find/Replace** command, workflow events are not triggered. If restrictions implemented in workflow scripts are critical, consider disabling the **Replace** command for specific user groups, to ensure that your restrictions cannot be bypassed.

GetDetailsPageName

This event is triggered by Quality Center to retrieve the name of the Defect Details dialog box page (tab) that has the index number specified in PageNum.

You can add code to this event procedure to customize the tab names on the Defect Details dialog box. For example, see "Example: Changing Tab Names" on page 394.

Syntax	**GetDetailsPageName(PageName, PageNum)**
	where **PageName** is the default page name (for example, Page 1) and **PageNum** is the page number.
Type	Function
Returns	String containing the page name
Availability	GetDetailsPageName

GetNewBugPageName

This event is triggered by Quality Center to retrieve the name of the Add Defect dialog box page (tab) that has the index number specified in PageNum.

You can add code to this event procedure to customize the tab names on the Add Defect dialog box. For example, see "Example: Changing Tab Names" on page 394.

Syntax	**GetNewBugPageName(**PageName, PageNum**)**
	where **PageName** is the default page name (for example, Page 1) and **PageNum** is the page number.
Type	Function
Returns	String containing the page name
Availability	GetNewBugPageName

GetNewReqPageName

This event is triggered by Quality Center to retrieve the name of the New Requirement dialog box page (tab) that has the index number specified in PageNum.

You can add code to this event procedure to customize the tab names on the New Requirement dialog box. For example, see "Example: Changing Tab Names" on page 394.

Syntax	**GetNewReqPageName(**PageName, PageNum**)**
	where **PageName** is the default page name (for example, Page 1) and **PageNum** is the page number.
Type	Function
Returns	String containing the page name
Availability	GetNewReqPageName

Note: The GetNewReqPageName event is not listed in the Scripts Tree of the Script Editor.

GetReqDetailsPageName

This event is triggered by Quality Center to retrieve the name of the Requirement Details dialog box page (tab) that has the index number specified in PageNum.

You can add code to this event procedure to customize the tab names on the Requirement Details dialog box. For example, see "Example: Changing Tab Names" on page 394.

Syntax	**GetReqDetailsPageName(PageName, PageNum)** where **PageName** is the default page name (for example, Page 1) and **PageNum** is the page number.
Type	Function
Returns	String containing the page name
Availability	GetReqDetailsPageName

Note: The GetReqDetailsPageName event is not listed in the Scripts Tree of the Script Editor.

MoveTo

This event is triggered when the user changes focus from one object to another.

You can add code to this event procedure to perform actions when the user changes the focus. For example, see "Example: Presenting a Dynamic Field List" on page 400.

Syntax	<entity>_**MoveTo**
Type	Sub
Availability	➤ AnalysisItem_MoveTo
	➤ AnalysisItemFolder_MoveTo
	➤ Baseline_MoveTo
	➤ Bug_MoveTo
	➤ Component_MoveTo
	➤ ComponentStep_MoveTo
	➤ Cycle_MoveTo
	➤ DashboardFolder_MoveTo
	➤ DashboardPage_MoveTo
	➤ DesignStep_MoveTo
	➤ Library_MoveTo
	➤ LibraryFolder_MoveTo
	➤ Release_MoveTo
	➤ ReleaseFolder_MoveTo
	➤ Req_MoveTo
	➤ Resource_MoveTo
	➤ ResourceFolder_MoveTo
	➤ Run_MoveTo
	➤ Step_MoveTo
	➤ Test_MoveTo
	➤ TestSet_MoveTo
	➤ TestSetTests_MoveTo
	➤ Run_MoveTo

MoveToComponentFolder

This event is triggered when the user moves to the specified component folder in the business component tree.

Syntax	**MoveToComponentFolder(Folder)**
	where **Folder** is the **IComponentFolder** interface. For more information, refer to the *HP Quality Center Open Test Architecture API Reference*.
Type	Sub
Availability	MoveToComponentFolder

MoveToFolder

This event is triggered when the user moves to the specified test set folder in the test sets tree.

Syntax	**MoveToFolder(Folder)**
	where **Folder** is the **ISysTreeNode** interface. For more information, refer to the *HP Quality Center Open Test Architecture API Reference*.
Type	Sub
Availability	MoveToFolder

MoveToSubject

This event is triggered when the user moves to the specified subject in the test plan tree.

Syntax	**MoveToSubject(Subject)**
	where **Subject** is the **ISysTreeNode** interface. For more information, refer to the *HP Quality Center Open Test Architecture API Reference*.
Type	Sub
Availability	MoveToSubject

New

This event is triggered when an object is added to Quality Center.

You can add code to this event procedure to perform an action when a new object is added. For example, see "Example: Customizing a Defects Module Dialog Box" on page 390.

Syntax	<entity>_**New**
Type	Sub
Availability	➤ AnalysisItem_New
	➤ AnalysisItemFolder_New
	➤ Baseline_New
	➤ Bug_New
	➤ Component_New
	➤ ComponentStep_New
	➤ Cycle_New
	➤ DashboardFolder_New
	➤ DashboardPage_New
	➤ DesignStep_New
	➤ Library_New
	➤ LibraryFolder_New
	➤ Release_New
	➤ ReleaseFolder_New
	➤ Req_New
	➤ Resource_New
	➤ ResourceFolder_New
	➤ Step_New
	➤ Test_New
	➤ TestSet_New

RemoveComponentFromTest

This event is triggered when the user removes a component from a test of type Flow or Business-Process in the Test Script tab.

Version Control: Changing components checked in or checked out by another user, using the RemoveComponentFromTest event, is not supported.

Syntax	RemoveComponentFromTest
Type	Sub
Availability	RemoveComponentFromTest

RunTests

This event is triggered when the user clicks the **Run** button to run tests in the Test Lab module.

Syntax	RunTests(Tests) where **Tests** is an array of Test IDs.
Type	Sub
Availability	RunTests

RunTestSet

This event is triggered when the user clicks the **Run Test Set** button to run a test set in the Test Lab module.

Syntax	RunTestSet(Tests) where **Tests** is an array of Test IDs.
Type	Sub
Availability	RunTestSet

RunTestsManually

This event is triggered when the user clicks the **Run** arrow and chooses **Run Manually** to run tests in the Test Lab module.

Syntax	**RunTestsManually(**Tests**)**
	where **Tests** is an array of Test IDs.
Type	Sub
Availability	RunTestsManually

21

Workflow Object and Property Reference

Workflow scripts can reference Quality Center objects to obtain information and to change project values. They can also use properties that return information about the current module and dialog box. This chapter lists the Quality Center objects and properties that are available to workflow scripts.

This chapter includes:

About Quality Center Objects and Properties

Workflow scripts can obtain information, make decisions based on that information, and change values in the project based on those decisions.

You can obtain information such as the user group to which the current user belongs, and the value of a field, by accessing objects such as the **User** object or the **Field** object.

You can also obtain information about the active module and active dialog box using workflow properties. For more information on these properties, see "Quality Center Properties" on page 376.

Your script can change the value of a field or field list. To do so, the script modifies the **Value** property or the **List** property of the appropriate **Field** object.

For information on the event procedures in which you place VBScript code to create workflow scripts, see Chapter 20, "Workflow Event Reference."

The following table lists the Quality Center objects that are available when you write a script.

Object	Description
Actions	The list of actions that are available. See "Actions Object" on page 368.
Action	The **Action** object is handled by the **Actions** object. See "Action Object" on page 368.
Fields	Includes the objects that provide access to specific fields. See "Fields Objects" on page 370.
Field	The **Field** object is handled by the **Fields** objects. See "Field Object" on page 372.
Lists	Includes the lists that are available in a Quality Center project. See "Lists Object" on page 374.
TDConnection	Provides access to open test architecture (OTA) objects. See "TDConnection Object" on page 375.
User	Includes the properties of the current user. This object is available in all modules. See "TDConnection Object" on page 375.

Note: In some cases, a function returns the object itself instead of the ID property of the object. For example, after the following statement has been executed, testsetf is a reference to a **TestSetFolder** object:
Set testsetf = **TestSet_Fields**("CY_FOLDER_ID")**.Value**.

For information on the Script Editor used to write workflow scripts, see Chapter 19, "Working with the Workflow Script Editor."

For each Quality Center object, this chapter lists the properties of the object. The list includes the property name, a description, and the data type of the property. It indicates whether the property is read-only (R) or whether your script can modify it (R/W).

Version Control: After enabling version control for a project, you should review all its workflow scripts and make adjustments for each checked in entity. This includes the following entities: **Req**, **Test**, **Resource**, and **Component**. For each checked in entity that includes a **Post** function in its script, you must modify the script. To modify, add a **Checkout** function before every **Post** function. Making this modification prevents the Check Out dialog box from opening each time a call to a **Post** function is made. For more information on version control, refer to the *HP Quality Center User Guide*.

Actions Object

You can use the **Actions** object to manipulate toolbar buttons, menu commands, and dialog boxes.

The **Actions** object has the following property:

Property	R/W	Type	Description
Action	R	Object	Allows access to every action in a list. The index for this property is the action name.

Action Object

You can use the **Action** object to verify whether a button or command is enabled, checked, or visible. You can also use it to execute actions.

For example, to set the Defect Details dialog box to open automatically when the user moves from one defect to another in the Defects Grid, place the following code in the Bug_MoveTo event procedure:

```
NewDefectAction=Actions.Action("DefectDetailsAction1")
NewDefectAction.Execute
```

To obtain the name of an action, add the following lines to the ActionCanExecute event procedure, perform the action, and note the action name that is printed in the message:

```
Sub ActionCanExecute(ActionName)
    On Error Resume Next
    MsgBox "You have performed an action named: " & ActionName
    On Error GoTo 0
End Sub
```

This object has the following properties:

Property	R/W	Type	Description
Checked	R/W	Boolean	Indicates whether an action is checked in Quality Center.
Enabled	R/W	Boolean	Indicates whether an action is enabled. A disabled action cannot be invoked by the user, but can be invoked from the workflow script.
Visible	R/W	Boolean	Indicates whether an action is visible in Quality Center.

The **Action** object includes the following method:

Method	Description
Execute	Executes the action.

When a workflow script invokes an action using the **Execute** method of the **Action** object, the workflow events that would be triggered if a user initiated the action from a dialog box are by default not triggered. Therefore, when using **Action.Execute**, you must ensure that you do not bypass the site policies you are enforcing with workflow events.

To enable workflow events to be triggered from within a dialog box, set the value of the **AllowReentrancy** flag to **true**. To restore the default settings, so that these events are not triggered, set the value of the **AllowReentrancy** flag to **false**. For example, to set the Add Defect dialog box to open automatically when a user enters the Defects module, place the following code in the **EnterModule** event procedure:

```
AllowReentrancy=true
NewDefectAction=Actions.Action("DefectDetailsAction1")
NewDefectAction.Execute
AllowReentrancy=false
```

If the value of the **AllowReentrancy** flag is set to **false**, the dialog box opens as usual, but you cannot submit the defect as the workflow event to submit the defect, is not triggered.

Important: Consider carefully the implications of setting the value of this flag to **true**. If you set the value of the flag to **true**, you enable a function to call another function which may call the original function. This can cause an endless loop. This can also occur when functions call internal functions which call the original function.

Fields Objects

You can use the following objects in workflow scripts to access the fields of Quality Center modules:

Object	Description
AnalysisItem_Fields	Provides access to the fields of the reports and graphs in the Dashboard module.
AnalysisItemFolder_Fields	Provides access to the fields of the report and graph folders in the Dashboard module.
Baseline_Fields	Provides access to the fields of the baselines in the Libraries module.
Bug_Fields	Provides access to the fields of the defects in the Defects module and the Manual Runner dialog box.
Component_Fields	Provides access to the fields of components in the Business Components module.
ComponentStep_Fields	Provides access to the fields of component steps in the Business Components module.
Cycle_Field	Provides access to the fields of cycles in the Releases module.

Object	Description
DashboardFolder_Fields	Provides access to the fields of dashboard page folders in the Dashboard module.
DashboardPage_Fields	Provides access to the fields of dashboard pages in the Dashboard module.
DesignStep_Fields	Provides access to the fields of the design steps in the Test Plan module.
Library_Fields	Provides access to the fields of the libraries in the Libraries module.
LibraryFolder_Fields	Provides access to the fields of the library folders in the Libraries module.
Release_Fields	Provides access to the fields of the releases in the Releases module.
ReleaseFolder_Fields	Provides access to the fields of the release folders in the Releases module.
Req_Fields	Provides access to the fields of the Requirements module.
Resource_Fields	Provides access to the fields of the resources in the Test Resources module.
ResourceFolder_Fields	Provides access to the fields of the resource folders in the Test Resources module.
Run_Fields	Provides access to the fields of the test runs in the Manual Runner dialog box.
Step_Fields	Provides access to the fields of the steps in the Manual Runner dialog box.
Test_Fields	Provides access to the fields of tests in the Test Plan module.
TestSet_Fields	Provides access to the fields of the test sets in the Test Lab module.
TestSetTest_Fields	Provides access to the fields of the tests in the Test Lab module.

For example, to set a certain property for all fields in the **Req_Fields** object, you can refer to each field by its ID number (**Req_Fields.FieldById**). To set all fields to be visible (**IsVisible**) in a dialog box, you can use the following code:

```
For i = 1 to Req_Fields.Count
     Req_Fields.FieldById(i).IsVisible = True
Next
```

These objects have the following properties:

Property	R/W	Type	Description
Count	R	Long	Returns the number of fields in the current object.
Field (FieldName)	R	Object	Accesses the fields by field name or field label.
FieldById (FieldID)	R	Object	Accesses the fields by the field ID number.

Field Object

You can use the **Field** object to access the properties of an entity field.

For example, to display a message box when a user does not have permission to change a value in the **Status** field, you can use the following code:

```
Msgbox "You do not have permission to change
<" & _Bug_Fields.Field("BG_STATUS").FieldLabel & "> field."
```

The **Field** object has the following properties:

Property	R/W	Type	Description
FieldLabel	R	String	The displayed label of the field.
FieldName	R	String	The logical name of the field.
IsModified	R	Boolean	Specifies whether the value was modified.
IsMultiValue	R	Boolean	Specifies whether the field can contain multiple values from a lookup list.
IsNull	R	Boolean	Specifies whether the field value is absent.
IsReadOnly	R/W	Boolean	Specifies whether the field is read-only.
IsRequired	R/W	Boolean	Specifies whether a field value is required. This enables you to override field customization information. To modify the **IsRequired** property of a field, the **IsVisible** property must be True. Changes to **IsRequired** are ignored if the field is not visible. Users must always enter a value for a field that is set as required by the workflow. This applies whether they are modifying an existing record or adding a new record, and even if the field is already empty.
IsVisible	R/W	Boolean	Specifies whether the field is displayed.
List	R/W	List	Sets or retrieves the field list attached to a field of type lookup list.
PageNo	R/W	Integer	Sets or retrieves the page (tab) on which the field is displayed in the Add Defect and Defect Details dialog boxes.
Value	R/W	Variant	Sets or retrieves the value of the field.
ViewOrder	R/W	Integer	Sets or retrieves the order in which the fields are displayed in the Add Defect and Defect Details dialog boxes. You must set the value for every field in the dialog box.

Lists Object

You can use the **Lists** object to limit field input to a specific list of values.

For example, to set the list in the **Planned Closing Version** field, depending on the **Project** field value, you can use the following code:

```
If Bug_Fields.Field("BG_PROJECT").Value = "Project 1" Then
     Bug_Fields.Field("BG_PLANNED_CLOSING_VER").List _
     = Lists("All Projects")
     ...
End If
```

For more information, see "Example: Presenting a Dynamic Field List" on page 400.

The **Lists** object has the following properties:

Property	R/W	Type	Description
List	R	ISysTreeNode	Accesses the Quality Center lists.

Note: When workflow customization has been used to change a list of values for a field that has transition rules defined, the field may only be modified in a way that satisfies both the workflow script and the transition rules. For more information, see "Setting Transition Rules" on page 212.

TDConnection Object

In workflow scripts, the only objects that are available are the objects of the module in which the code is written and a limited number of global objects. One of the global objects is the **TDConnection** object. **TDConnection** provides access to the open test architecture (OTA) objects.

You can use the **TDConnection** object to access objects from other modules, and to access general session parameters. You can access **TDConnection** properties in any procedure, from any module.

For more information about the **TDConnection** object, and a list of **TDConnection** properties, refer to the *HP Quality Center Open Test Architecture API Reference*.

For examples of using the **TDConnection** object in workflow scripts, see Chapter 22, "Workflow Examples and Best Practices."

User Object

You can access the **User** object to retrieve the user name of the current user and to check whether the user belongs to a particular user group. You can retrieve or modify the first and last name of the user.

For example, to have a message box open when the user has project administrator permissions, use the following code:

```
If User.IsInGroup("TDAdmin") Then
    MsgBox "The user " & User.FullName & _
    " has administrative permissions for this project."
End If
```

For more information, see "Example: Changing a Field Based on the User Group" on page 397, and "Example: Controlling User Permissions" on page 403.

To access user properties that cannot be accessed by the **User** object, you can use the **TDConnection** object of the Quality Center open test architecture (OTA).

The **User** object has the following properties:

Property	R/W	Type	Description
FullName	R/W	String	Sets or retrieves the first and last name of the current user.
IsInGroup (GroupName)	R	Boolean	Checks whether or not the current user is a member of a predefined/user-defined group.
UserName	R	String	Returns the user name used when logging in to Quality Center.

Quality Center Properties

You can use the **ActiveModule** and **ActiveDialogName** properties to obtain information about the active module and dialog box.

ActiveModule Property

The **ActiveModule** property returns the name of the active Quality Center module. For example, to open a message box displaying the module name when you move to a new module, use the following code:

```
Sub EnterModule
    On Error Resume Next
    msgbox "You have just entered the " & ActiveModule & " module."
    On Error GoTo 0
End Sub
```

ActiveDialogName Property

The **ActiveDialogName** property returns the name of the active dialog box. For example, to open a message box displaying the dialog box name when you open a new dialog box, use the following code:

```
Sub DialogBox(DialogBoxName, IsOpen)
    On Error Resume Next
    msgbox "You have just opened the " & ActiveDialogName " dialog box."
     On Error GoTo 0
End Sub
```

22

Workflow Examples and Best Practices

This chapter provides considerations and examples for workflow scripts.

This chapter includes:

About the Workflow Examples

The workflow examples presented in this chapter perform several types of tasks. The following table lists the examples that illustrate each type of task.

Workflow Task	See Examples
dialog box customization	Example: Customizing a Defects Module Dialog Box Example: Changing Tab Names
field value automation	Example: Adding a Template to a Memo Field Example: Changing One Field Based on Another Field Example: Changing a Field Based on the User Group
data validation	Example: Object Validation Example: Field Validation
dynamic field customization	Example: Presenting a Dynamic Field List Example: Changing Field Properties when a Field Changes
user permission control	Example: Controlling User Permissions
functionality	Example: Adding Button Functionality
error handling	Example: Error Handling
using OTA to obtain session parameters	Example: Obtaining Session Properties
sending mail	Example: Sending Mail
the **Settings** object	Example: Storing the Last Values Entered
copying values between modules	Example: Copying Field Values to Another Object

Best Practices for Writing Workflow Scripts

This section describes best practices for writing workflow scripts and making sure the scripts run as expected. In addition to the best practices provided in this section, you can refer to the Microsoft Developer Network VBScript Language Reference at http://msdn2.microsoft.com/.

The following best practices are described in this section:

General VBScript Tips and Best Practices

➤ Checking Value Types Before Use

➤ Anticipating Full Evaluation of Logical Expressions

➤ Defining Default Behavior for Select Case and If-Then-Else Statements

➤ Setting Return Values in Functions

Quality Center Workflow Tips and Best Practices

➤ Making Sure that Entity Properties Are Set Before an Entity Comes into Focus

➤ Check if a Dialog Box is Open

Checking Value Types Before Use

VBScript is a "weakly-typed" programming language. This means that you can create, use, and access data values without initially declaring their types. However, certain operations can be performed only on values of a specific type. Therefore, it is important to check the type of the data before performing any operations on them.

Values of different types behave differently in different statements. Object value behavior is even more unpredictable because the behavior depends on the object's implementation. For example, the object in the call **<entity>_CanDelete** can either be text or a subject node.

Recommendations

To avoid unpredictable results:

➤ Check value types before use, especially for object types. When checking an object type, also check that the object has the properties you access.

Note: In the examples provided in this chapter, only object types are checked before use.

➤ Assume as little as possible—do not assume that a value is of a certain type. Write scripts that can handle all possibilities by using Else statements and Select Case statements.

➤ Always check parameter types before use with various VBScript functions, such as IsArray, IsDate, IsNull, IsEmpty, IsNumeric, and IsObject.

➤ Do not assume an object's default property is of a specific type; the type can vary from object to object.

➤ Use VBScript built-in conversion functions to achieve a degree of type safety.

➤ When working with objects, check that the value you receive is neither Null or Empty by calling the IsNull and IsEmpty functions.

Examples

For the purposes of the following examples, assume the field values are declared as in the table below.

Field Values	Type
Bug_Fields["BG_BUG_ID"].Value	Integer
Bug_Fields["BG_SUMMARY"].Value	String
Bug_Fields["BG_SUBJECT"].Value	Object implementing the ISysTreeNode interface

In the following example, statement usage is correct. The integer is converted to a string.

```
If Bug_Fields["BG_BUG_ID"].Value = "10" Then...
```

In the following example, statement usage is correct. The strings are comparable.

```
If Bug_Fields["BG_SUMMARY"].Value = "some text" Then...
```

In the following example, statement usage is incorrect. This code can work only when the value of BG_SUBJECT field is neither Empty or Null. VBScript also assumes that this objects's default value (meaning, the default property) is either of string type or is comparable with the string type, which is not always the case.

```
If Bug_Fields["BG_SUBJECT"].Value = "My Tests" Then...
```

Anticipating Full Evaluation of Logical Expressions

The VBScript programming language does not short-circuit evaluation of Boolean conditions. VBScript evaluates all the terms in a Boolean logical expression, even if the expression can be established as True or False without evaluating all its terms. For example, in the following example, both <statement1> and <statement2> are evaluated, even if **<statement1>** resolves to False:

<statement 1> AND <statement 2>

Recommendations

To avoid errors:

➤ Check that all values and objects are not Null before attempting to use them.

Examples

The following examples:

➤ demonstrate incorrect and correct usage of logical expressions

➤ take into consideration how logical expressions are evaluated

Incorrect Usage

value.Name is evaluated even when its value is Null. This causes an error.

```
Sub namecheck(value)
    If Not IsNull(value) And value.Name = "aName" Then
      ' ...
      End If
End Sub
```

Correct Usage

The code is correct on the condition that value is an object that contains the Name property. The code runs without errors.

```
Sub namecheck(value)
 If Not IsNull(value) And Not IsEmpty(value) Then
      If value.Name = "aName" Then
           ' ...
      End If
  End If
End Sub
```

Defining Default Behavior for Select Case and If-Then-Else Statements

Unpredictable results can occur when no default action is defined for Select Case statements or If-Then-Else statements.

Recommendations

To avoid unpredictable results:

➤ Always define default behavior when using Select Case of If-Then-Else statements.

Example

The following are examples of incorrect and correct ways to define default behavior for situations not covered by the existing Select Case and If-Then-Else statements.

Incorrect Usage

The author of this subroutine intends for the BG_USER_01 field to be visible only if the defect's status is Open, New, or Reopen. However, if the IsVisible property of a Closed or Fixed defect was set to True prior to the instance of this subroutine, that Closed or Fixed defect will also be visible. This is because there is no case statement defined specifically for Closed and Fixed defects.

```
Sub Bug_FieldChange(FieldName)
 If FieldName="BG_STATUS" Then
     Select Case Bug_Fields(FieldName).Value
         Case "Open", "New", "Reopen" Bug_Fields("BG_USER_01").IsVisible = True
     End Select
 End If
End Sub
```

Correct Usage

This subroutine effectively handles all possible cases.

```
Sub Bug_FieldChange(FieldName)
 If FieldName="BG_STATUS" Then
     Select Case Bug_Fields(FieldName).Value
         Case "Open", "New", "Reopen"
             Bug_Fields("BG_USER_01").IsVisible = True
         Case Else
             Bug_Fields("BG_USER_01").IsVisible = False
     End Select
 End If
End Sub
```

Setting Return Values in Functions

If a function ends without a return value, unpredictable and inconsistent results may occur. Also, it is difficult to debug behavior if a return code is not set.

Recommendations

To avoid unpredictable results:

➤ Set a default return value at the beginning of each function.

Making Sure that Entity Properties Are Set Before an Entity Comes into Focus

It is common practice to set entity properties (such as IsVisible, IsRequired, and List) when creating or modifying a new entity (New or FieldChanged). When writing Quality Center workflow scripts, it is also important to set entity properties when the entity comes into focus (meaning, when the user navigates to that entity in the Quality Center graphical user interface). When an entity comes into focus, the MoveTo event is called.

If entity values are not set in the MoveTo event, the end user experience is unpredictable—for example, incorrect values might be displayed in drop-down lists.

Recommendations

To avoid unpredictable results, such as a drop-down list not containing the most up-to-date set of values:

➤ Make sure that all entities' properties are set in the MoveTo event—not just in the New or FieldChanged events.

➤ Isolate entity properties customization code into a separate routine and call that routine from all relevant events.

Example

The following table provides an example of how to make sure that a defect's properties are set appropriately when the defect is in focus—and not just when it is modified or added.

```
Sub SetupBugFields(Context1, Context2)
 ' Code for customizing the defect's properties is entered here,
 ' such as set IsVisible, IsRequired, IsReadonly, Label, List...
 If Context1="Focus" Then
     ' Code for handling the focus event is entered here
 ElseIf Context1="FieldChange" Then
         If Context2="RQ_USER_01" Then
             ' Code for handling the FieldChange event is entered here
         ElseIf Context2="RQ_REQ_STATUS" Then
             ' ... Enter your code here
         Else
             ' ... Enter your code here
       End If
  End If
End Sub


Sub Req_FieldChange(FieldName)
 If FieldName = "RQ_REQ_STATUS" Then
     SetupBugFields("FieldChange", FieldName)
 Else
     ' ...Enter your code here
 End If
End Sub


Sub Req_MoveTo
     SetupBugFields("Focus")
End Sub
```

Check if a Dialog Box is Open

It is helpful to track whether a dialog box is open before performing certain actions. For example:

➤ Dialog boxes do not need to be refreshed but grid displays do.

➤ Certain workflow events are not allowed when a dialog box is open.

The DialogBox event can be used to track the visibility of dialog boxes.

Recommendations

To avoid unpredictable results:

➤ Determine if a dialog box is open before any events occur.

Example

The following example checks whether the dialog box for creating a new defect is open. This is relevant because the BG_USER_01 field can only be modified for a new defect. If a different dialog box is open, such as the dialog box for editing a defect, the BG_USER_01 field cannot be modified.

```
' Declare a global variable for each dialog box of interest
Dim NewDefectDialogIsOpen

' Initialize the global variable
NewDefectDialogIsOpen = False


Sub DialogBox(DialogBoxName, IsOpen)
 If DialogBoxName="New Defect" Then
      NewDefectDialogIsOpen = IsOpen
 Else
      NewDefectDialogIsOpen = False
 End If
End Sub


Function Bug_FieldCanChange(FieldName, NewValue)
' Initialize the function's return value to avoid unpredictable behavior.
Bug_FieldCanChange = False
' The BG_USER_01 field can only be modified for a new defect.
If FieldName="BG_USER_01" Then
 If NewDefectDialogIsOpen Then
      Bug_FieldCanChange = True
 Else
      Bug_FieldCanChange = False
 End If
End If
End Function
```

Example: Customizing a Defects Module Dialog Box

This example shows how you can customize the field layout and other field properties in the Add Defect dialog box. You can create similar code to arrange the layout of the Defect Details dialog box.

This example illustrates a solution that customizes field properties for all user groups. You can also use the script generators to customize the layout of the Defects module dialog boxes. If you use the script generators, you must perform customization separately for each user group. For information on these script generators, see "Customizing Defects Module Dialog Boxes" on page 310.

This example involves the following procedures:

➤ SetFieldApp is a general purpose procedure that receives a field name and its properties as parameters, and assigns the properties to the field. See "SetFieldApp" on page 391.

➤ FieldCust_AddDefect calls SetFieldApp for each field in the Add Defects dialog box, to set the properties of the field. For some of the fields, FieldCust_AddDefect checks the user group to which the current user belongs, and customizes the field properties accordingly. A call to FieldCust_AddDefect is placed in the Bug_New event procedure. See "FieldCust_AddDefect" on page 391.

Note: To implement this example, you can run the **Add Defect Field Customization** script generator and then modify the resulting scripts.

➤ Rename the generated function WizardFieldCust_Add to FieldCust_AddDefect and modify it as necessary. (Before you modify a generated script, you must rename it so that it is not overwritten the next time you run the script generator.)

➤ The script generator places a call to WizardFieldCust_Add in the event procedure Bug_New. Change this to FieldCust_AddDefect.

➤ The function SetFieldApp is generated when you run the script generator. You do not need to rename or modify this function.

SetFieldApp

The subroutine SetFieldApp receives a field name and its properties as parameters, and assigns the properties to the field.

The subroutine assigns the following field properties: field visibility, whether the field is required, the number of the page (tab) on which the field should be displayed, and the view order (from left to right and from top to bottom).

Add a call to the subroutine SetFieldApp in the user-defined function FieldCust_AddDefect. For more information on this function, see "FieldCust_AddDefect" on page 391.

```
Sub SetFieldApp(FieldName, Vis, Req, PNo, VOrder)
 On Error Resume Next
 With Bug_Fields(FieldName)
     .IsVisible = Vis
     .IsRequired = Req
     .PageNo = PNo
     .ViewOrder = VOrder
 End With
 PrintError "SetFieldApp"
 On Error GoTo 0
End Sub
```

FieldCust_AddDefect

The user-defined function FieldCust_AddDefect calls the function SetFieldApp.

The function first sets all fields to be invisible, not required, and to appear on page 100 at location 0. This ensures that if you add a new field using the **Project Entities** link on the Project Customization window, the layout will not be changed.

Add a call to FieldCust_AddDefect in the Bug_New event procedure so that it will be triggered when a user adds a new defect:

```
Sub Bug_New
    FieldCust_AddDefect
End Sub
```

First, the code handles the fields that are common to all user groups. It uses conditional statements for the fields that will appear in the dialog box only for specific user groups, or that will have different properties for different users.

```
Sub FieldCust_AddDefect
     On Error Resume Next
' Initialize the fields of the defect

     For i= 0 To Bug_Fields.Count
          SetFieldApp Bug_Fields.FieldByID(i), False, False, 100, 0
     Next

     ViewNum = 0
     PageNum = 0

 ' Set fields that are in common for all user groups

     SetFieldApp "BG_BUG_ID", True, True, PageNum, ViewNum
     ViewNum = ViewNum + 1
     SetFieldApp "BG_DESCRIPTION", True, False, PageNum, ViewNum
     ViewNum = ViewNum + 1
     SetFieldApp "BG_SUMMARY", True, True, PageNum, ViewNum
     ViewNum = ViewNum + 1
     SetFieldApp "BG_DETECTED_BY", True, True, PageNum, ViewNum
     ViewNum = ViewNum + 1
     SetFieldApp "BG_DETECTION_DATE", True, True, PageNum, ViewNum
     ViewNum = ViewNum + 1
     SetFieldApp "BG_DETECTION_VERSION", True, True, PageNum, _
     ViewNum
     ViewNum = ViewNum + 1
     SetFieldApp "BG_SEVERITY", True, True, PageNum, ViewNum
     ViewNum = ViewNum + 1
     SetFieldApp "BG_PRIORITY", True, True, PageNum, ViewNum
     ViewNum = ViewNum + 1
     SetFieldApp "BG_PROJECT", True, False, PageNum, ViewNum
     ViewNum = ViewNum + 1
     SetFieldApp "BG_REPRODUCIBLE", True, False, PageNum, ViewNum
     ViewNum = ViewNum + 1
     SetFieldApp "BG_STATUS", True, False, PageNum, ViewNum
     ViewNum = ViewNum + 1
```

```
' Set fields that are different for different user groups. Since one user can
' belong to multiple user groups, or none of these groups, there is no need for an
' Else statement.

    If User.IsInGroup("Developer") Then
        SetFieldApp "BG_PLANNED_CLOSING_VERSION", True, False, _
        PageNum, ViewNum
        ViewNum = ViewNum + 1
        SetFieldApp "BG_PLANNED_FIX_TIME", True, False, PageNum, _
        ViewNum
        ViewNum = ViewNum + 1
    End If

    If User.IsInGroup("QATester") Then
        PageNum = PageNum + 1
        SetFieldApp "BG_USER_01", True, False, PageNum, ViewNum
        ViewNum = ViewNum + 1
        SetFieldApp "BG_USER_02", True, False, PageNum, ViewNum
        ViewNum = ViewNum + 1
    End If

    SetFieldApp "BG_ACTUAL_FIX_TIME", True, False, PageNum, _
    ViewNum
    ViewNum = ViewNum + 1
 :
    PrintError "FieldCust_AddDefect"
    On Error GoTo 0
End Sub
```

Example: Changing Tab Names

You can change the names of the tabs on the Add Defect dialog box. This example sets the tabs to General, Environments, and Business Case.

Add the following code to the GetNewBugPageName event procedure, which is triggered before Quality Center opens the Add Defect dialog box. To change the tab names on the Defect Details dialog box, add similar code to the GetDetailsPageName event procedure.

```
Function GetNewBugPageName(PageName, PageNum)

    ' Initialize the return value to a default value to avoid unpredictable behavior.

    GetNewBugPageName="Business Case"
    On Error Resume Next
    Select case PageNum
        case "1"
            GetNewBugPageName="General"
        case "2"
            GetNewBugPageName="Environments"
        case else
            GetNewBugPageName="Business Case"
    End Select
    PrintError "GetNewBugPageName"
    On Error GoTo 0
End Function
```

Example: Adding a Template to a Memo Field

You can use workflow scripts to add a default template to a memo field. This example adds text to a memo field called **Business Case** to display the following template:
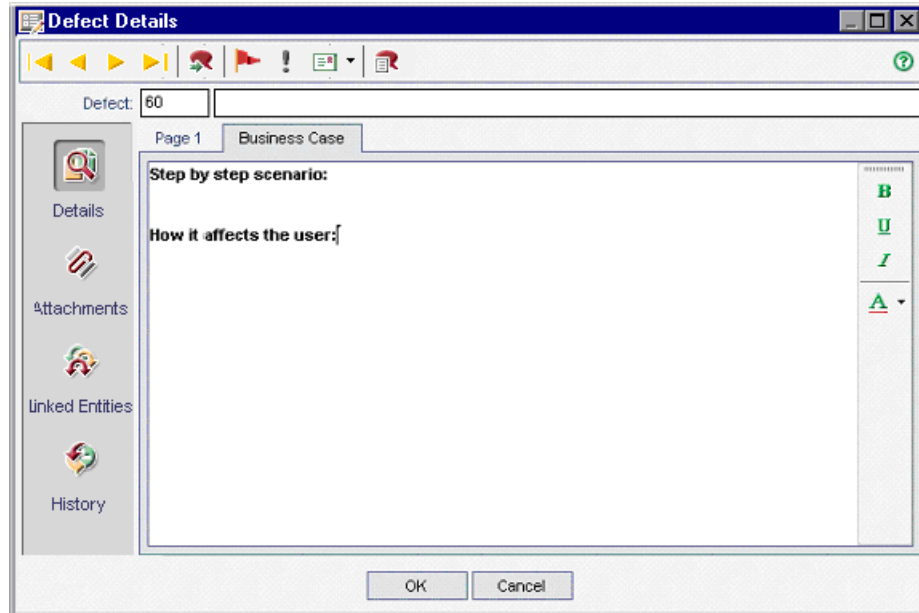
Perform this customization by placing the HTML code for the text into the **BG_USER_25** field when a defect is added. This example assumes that the user-defined field **BG_USER_25** stores a business case string.

Add the code to the Bug_New event procedure, which is triggered when a user adds a new defect.

```
Sub Bug_New
    On Error Resume Next
    Bug_Fields("BG_USER_25").value = _
    "<html><body><b>Step by step scenario:</b>" & _
    "<br><br><br><b>How it affects the user:</b></body></html>"
    PrintError "Bug_New"
    On Error GoTo 0
End Sub
```

Example: Changing One Field Based on Another Field

This example demonstrates how you can change a field value based on the value entered into another field.

For example, you can cause defects to be assigned to user **alex_qc** when UI Suggestion is typed into the **Category** field, and to user **alice_qc** when Security Issues is typed.

The example assumes that the user-defined field **BG_USER_05** is used to store the category. When the **Category** field is changed in the Defects module, the **BG_RESPONSIBLE** field is assigned the appropriate value.

Add the code to the Bug_FieldChange event procedure so that it is triggered when a user changes a field value for a defect.

```
Sub Bug_FieldChange(FieldName)
    On Error Resume Next
    If FieldName = "BG_USER_05" then
        Select case Bug_Fields("BG_USER_05").Value
        case "UI Suggestion"
            Bug_Fields("BG_RESPONSIBLE").value="alex_qc"
        case "Security Issue"
            Bug_Fields("BG_RESPONSIBLE").value="alice_qc"
        Case Else
            Bug_Fields("BG_RESPONSIBLE").value="non-assigned"
        End Select
    End If
    PrintError "Bug_FieldChange"
    On Error GoTo 0
End Sub
```

Example: Changing a Field Based on the User Group

This example demonstrates how you can change a field value according to the user group of the user entering the defect.

In this example, the user-defined field **BG_USER_01** is a detection mode field in which the user who detected the defect can enter the way in which it was discovered. Possible values are Formal testing, Informal testing, and BTW.

The example sets the value of the detection mode field to BTW when a defect is opened by a user who is not in the QA Tester group. If the defect is opened by a user who is in the QA Tester group, the default value Formal testing is set.

Add the code to event procedure Bug_New, so that it is triggered when a defect is added.

```
Sub Bug_New
    On Error Resume Next
    If not User.IsInGroup("QATester") then
        Bug_Fields("BG_USER_01").Value = "BTW"
    Else
        Bug_Fields("BG_USER_01").Value = "Formal testing"
    End If
    PrintError "Bug_New"
    On Error GoTo 0
End Sub
```

Example: Object Validation

This example demonstrates how you can perform validations of all fields by using the CanPost event procedure. For example, this code segment ensures that a user cannot reject a defect without adding a comment.

In this example, a user may not post a defect where the defect status (**BG_STATUS**) has been changed to Rejected unless some explanatory text has been typed in the **R&D Comment** field (**BG_DEV_COMMENTS**).

Add the code to the Bug_CanPost event procedure so that the check is performed when the user attempts to submit the defect.

```
Function Bug_CanPost
    ' Initialize the function's return value to avoid unpredictable behavior.
    Bug_CanPost =  False
    On Error Resume Next
    If Bug_Fields("BG_STATUS").IsModified and _
    Bug_Fields("BG_STATUS").Value = "Rejected" and _
    not Bug_Fields("BG_DEV_COMMENTS").IsModified then
        Bug_CanPost = False
        msgbox "You must enter a comment when rejecting a defect."
    Else
        Bug_CanPost = True
    End If
    PrintError "Bug_CanPost"
    On Error GoTo 0
End Function
```

Example: Field Validation

This example demonstrates how to validate a single field value. For example, the following code segment shows how you can ensure that a user in a specific group cannot lower the priority of a defect.

In this example, if the user is in the QATester group and the **BG_PRIORITY** field is being modified, the new value of the **BG_PRIORITY** field cannot be lower than the current value.

This example assumes that in the **Priority** field list for the project, lower priorities come first when the values are sorted in ascending order. For example, the list meets this requirement if the elements are as follows: 1-Low, 2-Medium, 3-High.

Add the code to the Bug_FieldCanChange event procedure so that it is triggered when the user attempts to change a defect field value.

```
Function Bug_FieldCanChange(FieldName, NewValue)
    ' Initialize the function's return value to avoid unpredictable behavior.
    Bug_FieldCanChange = True
    On Error Resume Next
    If User.IsInGroup("QATester") and FieldName ="BG_PRIORITY" Then
        If NewValue < Bug_Fields("BG_PRIORITY").Value then
            Bug_FieldCanChange = False
            msgbox "You do not have permission to lower defect priority."
        Else
            Bug_FieldCanChange = True
        End If
    Else
        ' Enter your code here.
    End If
    PrintError "Bug_FieldCanChange"
    On Error GoTo 0
End Function
```

Example: Presenting a Dynamic Field List

This example demonstrates how you can present a different field list in a field, depending on the value of another field.

The user-defined function SW_SetLists_Environment checks the value of the **Environment Specification** field and assigns the appropriate field list to the **Environment Type** field.

This example assumes that the field lists have been defined in the project. For more information, see "Customizing Project Lists" on page 259.

Note: To use workflow scripts to change or create lists that can be assigned to fields, you must use the Open Test Architecture (OTA) interface.

Add code to the Bug_MoveTo event procedure so that the user-defined function SW_SetLists_Environment is called when the user changes focus in the defects module.

```
Sub Bug_MoveTo()
    On Error Resume Next
    SW_SetLists_Environment
    PrintError "Bug_MoveTo"
    On Error GoTo 0
End Sub
```

Add code to the Bug_FieldChange event procedure so that the user-defined function SW_SetLists_Environment is called when a user changes the value of the **Environment Type** field in the Defects module.

```
Sub Bug_FieldChange(FieldName)
    On Error Resume Next
    If FieldName = "BG_USER_01" then
        SW_SetLists_Environment
    Else
        ' Enter your code here.
    End If
    PrintError "Bug_FieldChange"
    On Error GoTo 0
End Sub
```

The user-defined function SW_SetLists_Environment checks the value of the **Environment Specification** field (**BG_USER_02**) and assigns the appropriate field list to the **Environment Type** field (**BG_USER_01**).

```
Sub SW_SetLists_Environment()
    Dim listName
    On Error Resume Next
    Select Case Bug_Fields("BG_USER_01").Value
    Case "Browser"
        listName = "Browsers"
    Case "Database Type"
        listName = "Database Type"
    Case "Operating System"
        listName = "Platform"
    Case "Web Server"
        listName = "Web Server"
    Case Else
        listName = "Environment Specification"
    End Select
    Bug_Fields("BG_USER_02").List = Lists(listName)
    PrintError ("Set Environment List")
    On Error GoTo 0
End Sub
```

Example: Changing Field Properties when a Field Changes

This example demonstrates how you can change the properties of a field when a different field is changed.

In this example, if the status of the defect (**BG_STATUS**) is changed to Closed, the user must provide a value in the field **Closed in Build** (**BG_CLOSING_VERSION**).

Add the code to the Bug_FieldChange event procedure, to make the **Closed in Build** field a required field if the status is changed to Closed.

```
Sub Bug_FieldChange(FieldName)
    On Error Resume Next
    If FieldName= "BG_STATUS" then
        If Bug_Fields("BG_STATUS").value="Closed" then
            Bug_Fields("BG_CLOSING_VERSION").IsRequired=True
        Else
            Bug_Fields("BG_CLOSING_VERSION").IsRequired=False
        End If
    Else
        ' Enter your code here.
    End If
    PrintError "Bug_FieldChange"
    On Error GoTo 0
End Sub
```

Example: Controlling User Permissions

This example demonstrates how you can prevent members of specific user groups from performing an action.

The code allows a user to replace a defect field value only if the user belongs to the Admin user group.

Add the code to the ActionCanExecute event procedure so that the check is performed when a user attempts to execute an action.

```
Function ActionCanExecute(ActionName)
    ' Initialize the function's return value to avoid unpredictable behavior.
    ActionCanExecute = False
    On Error Resume Next
    If ActionName = "BugReplaceAction1" _
        And Not User.IsInGroup("Admin") then
        ActionCanExecute = False
        msgbox "You do not have permission to perform this action"
    Else
        ActionCanExecute = True
    End If
    PrintError "ActionCanExecute"
    On Error GoTo 0
End Function
```

Example: Adding Button Functionality

This example opens a calculator when a user clicks a button defined with action name Calculator. For more information about adding user-defined buttons, see "Adding a Button to a Toolbar" on page 330.

Add the code to the ActionCanExecute event procedure, so that it is triggered when a user initiates an action.

For information about the **Wscript.Shell** object, refer to the Microsoft documentation. To access help for the VBScript language, choose **Help > VBScript Home Page** in the Script Editor.

```
Function ActionCanExecute(ActionName)
    ' Initialize the function's return value to avoid unpredictable behavior.
    ActionCanExecute = DefaultRes
    On Error Resume Next
    If ActionName = "Calculator" Then
        Set shell = CreateObject("Wscript.Shell")
        shell.Run "Calc"
        Set shell = Nothing
    End If
    ActionCanExecute = DefaultRes
    PrintError "ActionCanExecute"
    On Error GoTo 0
End Function
```

Example: Error Handling

This example demonstrates how you can display a standard error message. Error handling should be added to each workflow script that you write, because errors that are not detected by the workflow code can cause the user's browser to crash.

The user-defined function PrintError receives the name of the calling procedure as a parameter. If an error has occurred, PrintError prints out the error number, description and severity, and the name of the procedure in which the error occurred.

You do not need to create an **Err** object, because it is intrinsic to VBScript. For more information about the **Err** object, refer to the Microsoft documentation.

```
Sub PrintError(strFunctionName)
    If Err.Number <> 0 Then
        MsgBox "Error #" & Err.Number & ": " & Err.Description, _
        vbOKOnly+vbCritical, _
        "Workflow Error in Function " & strFunctionName
    End If
End Sub
```

The following code segment illustrates how you can add error handling to your subroutines.

```
Sub <sub_name>()
    On Error Resume Next
    :
    [Your code here]
    :
    PrintError "<sub_name>"
End Sub
```

The following code segment illustrates how you can add error handling to your functions.

```
Function <function_name>()
    On Error Resume Next
    :
    [Your code here]
    :
    PrintError "<function_name>"
End Function
```

Example: Obtaining Session Properties

This example demonstrates how to use the **TDConnection** object to obtain the properties of the current session. Add the code to the procedure where these properties are needed. The properties do not depend on each other, so each of the properties can be retrieved separately.

The following are examples of session properties:

```
TDConnection.ServerName
TDConnection.ServerTime
TDConnection.DomainName
TDConnection.ProjectName
User.UserName
```

Note that there is no need to use **TDConnection** to retrieve the user name because the workflow has a predefined **User** object. For more information, see "TDConnection Object" on page 375.

The example below tests the first five characters of the server URL to determine whether the user is connected to the server using HTTP or HTTPS:

```
If Left(UCase(TDConnection.ServerName), 5) = "HTTPS" Then
      MsgBox "You are currently connected to the server using SSL."
Else
      MsgBox "You are not using SSL."
End If
```

Example: Sending Mail

These examples demonstrate how to use the **TDConnection** object to send mail when a defect is submitted, and to send mail when a field value changes in the Test Plan module.

Sending Mail when a Defect is Submitted

This example sends mail when a defect is submitted.

Add a call to the SendDefect procedure in the Bug_AfterPost event procedure.

Note: If the SendDefect procedure is called before the defect is submitted, the values that were changed in the current modification will not be included. The database is updated with the new values only after the defect is posted.

```
Sub SendDefect (iObjectId, strTo, strCc, strSubject, strComment)
    On Error Resume Next
    Dim objBugFactory, objBug
    Set objBugFactory = TDConnection.BugFactory
    Set objBug = objBugFactory.Item(iObjectId)
    objBug.Mail strTo, strCc, 2, strSubject, strComment
    Set objBug = Nothing
    Set objBugFactory = Nothing
    PrintError "SendDefect"
    On Error GoTo 0
End Sub
```

The constant 2 in the call to objBug.Mail indicates that the history should be included with the mail. For a list of the constants that can be used to customize email, refer to the tagTDMAIL_FLAGS enumeration in the *HP Quality Center Open Test Architecture API Reference*. In workflow scripts, use numeric constants and not the enumeration values.

Sending Mail when a Test Plan Module Field Value Changes

The example below demonstrates mail notification when the value of the status field is changed in the Test Plan module.

The code is added to the Test_FieldChange event procedure. It constructs a subject and comment for the email, and calls a user-defined function, SendTest. SendTest sends mail from the Test Plan module. You can code SendTest similarly to the SendDefect subroutine shown in "Sending Mail when a Defect is Submitted" on page 407.

```
Sub Test_FieldChange(FieldName)
    On Error Resume Next
    Dim strSubject, strComment
    If FieldName = "TS_STATUS" Then
        strSubject = "Test Change Notification" & _
            " for project " & TDConnection.ProjectName & _
            " in domain " & TDConnection.DomainName
        strComment = "The user " & User.FullName & _
            " changed the status of the test " & _
            Test_Fields("TS_NAME").Value & _
            " to " & Test_Fields("TS_ STATUS").Value
        SendTest Test_Fields("TS_TEST_ID").Value, _
            Test_Fields("TS_RESPONSIBLE").Value, "[QA Testers]", _
            strSubject, StrComment
    End If
End Sub
```

Example: Storing the Last Values Entered

This example shows how to use the **TDConnection** object to implement persistent data between actions. The lifetime of a variable in a routine is only for the routine run. Therefore, persistent data must be stored if it must be available later. It is recommended that you use the Quality Center API to store persistent data whenever possible instead of using external objects, files, or the registry.

In this example, a user-defined function SW_KeepLastValue uses the **Settings** object to save the values typed into the fields **BG_DETECTION_VERSION**, **BG_USER_01**, and **BG_USER_03** when a user posts a defect. These values are retrieved and assigned as default values when this user adds a new defect.

The user-defined function is called with the SET action from Bug_CanPost, before a new defect is posted by the user. The values in the fields are stored.

```
Function Bug_CanPost()
     ' Initialize the function's return value to avoid unpredictable behavior.
     Bug_CanPost() = True
     If Bug_Fields("BG_BUG_ID").Value = "" Then
          SW_KeepLastValue ("SET")
     End If
End Function
```

The function is called with the GET action from the Bug_New event procedure. When a user adds a new defect, the values stored in the fields for this user are entered into these fields.

```
Sub Bug_New()
     SW_KeepLastValue ("GET")
End Sub
```

Depending on the action passed as a parameter, the user-defined function SW_KeepLastValue stores the values of the fields in the common settings table for the current user, or reads the values from the **Settings** object and assigns the values to the appropriate fields.

```
Sub SW_KeepLastValue(action)
Dim tdc, vals, flds
Dim uset, pairs, pair
Dim bld
On Error Resume Next
    bld = ""
    Set tdc = TDConnection
    Set uset = tdc.UserSettings

    If action = "SET" Then
        flds = Array("BG_DETECTION_VERSION", _
        "BG_USER_01", "BG_USER_03")
        vals = ""
        For i = 0 To UBound(flds)
            If vals <> "" Then vals = vals & ";"
            vals = vals & flds(i) & "=" & Bug_Fields(flds(i)).Value
        Next
        'Open category KeepLValueSetting
        uset.Open ("KeepLValueSetting")
        'Setting KeepValueFields in category KeepLValueSetting
        uset.Value("KeepValueFields") = vals
        uset.Close
    End If 'SET
```

```
    If action = "GET" Then
        uset.Open ("KeepLValueSetting")
        vals = uset.Value("KeepValueFields")
        If vals <> "" Then
            pairs = Split(vals, ";")
            For i = 0 To UBound(pairs)
                pair = Split(pairs(i), "=")
                If UBound(pair) = 1 Then
                    Select Case pair(0)
                        Case "BG_USER_03"
                            bld = pair(1)
                        Case Else
                            If Bug_Fields(pair(0)).Value = "" Then
                                Bug_Fields(pair(0)).Value = pair(1)
                            End If
                    End Select
                    If Bug_Fields("BG_DETECTION_VERSION").Value <> "" _
                    And bld <> "" Then
                        SW_SetLists_VersionsBuilds _
                        "BG_DETECTION_VERSION", _
                        "BG_USER_03"
                        Bug_Fields("BG_USER_03").Value = bld
                        If Err.Number <> 0 Then Err.Clear
                    End If 'Bug_Fields
                End If 'UBound(pair)
            Next
        End If 'vals <> ""
    End If 'GET

    uset.Close
    PrintError ("Keep Last Value (" & action & ")")
    On Error GoTo 0
End Sub
```

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Example: Copying Field Values to Another Object

This example shows how to use the **TDConnection** object to copy the value from the **Build Number** field of a Run (**RN_USER_02**) to the **Last Ran On Build** field of a Test in a Test Set (**TC_USER_03**).

Add the code to the Run_AfterPost event procedure.

```
Sub Run_AfterPost
    On Error Resume Next
    Set TSFactory = TDConnection.TestSetFactory
    Set TS = TSFactory.Item(Run_Fields("RN_CYCLE_ID").value)
    Set TSTestFactory =TS.TSTestFactory
    Set TSTest = TSTestFactory.Item(Run_Fields("RN_TESTCYCL_ID").Value)
    TSTest.Field("TC_USER_03") = Run_Fields("RN_USER_02").Value
    TSTest.Post
    Set TSFactory = Nothing
    Set TS = Nothing
    Set TSTestFactory =Nothing
    Set TSTest = Nothing
    PrintError ("Run_AfterPost")
    On Error GoTo 0
End Sub
```

Part IV

Appendix

A

Guidelines for Upgrading Quality Center

This appendix provides guidelines for upgrading from an earlier
Quality Center version to Quality Center 10.00. It covers considerations and
recommendations involved in the upgrading process from planning,
testing, and upgrading, to final verification.

This chapter includes:

➤ About Upgrading Quality Center on page 415

➤ Upgrade Scope and Strategy on page 417

➤ Setting Up the Testing Environment on page 418

➤ Validating the Results on page 419

➤ The Upgrade Process on page 419

➤ Verifying the Upgrade Process on page 421

About Upgrading Quality Center

To work with a project from a previous version, you must upgrade it to the
current version of Quality Center. Projects from Quality Center 9.0 or 9.2
can be upgraded directly to Quality Center 10.00. Projects from Quality
Center 8.x, TestDirector 8.0, or TestDirector 7.6 must first be upgraded to
Quality Center 9.0 or 9.2.

Before performing the upgrade, consider the following guidelines:

1 Review the *HP Quality Center Installation Guide* and validate system requirements.

2 Check the HP Software Self-solve knowledge base for known limitations that have been reported since the release.

3 Define the upgrade scope and strategy, and assess the most efficient and effective way to perform the upgrade. For more information, see "Upgrade Scope and Strategy" on page 417.

4 Work out a detailed upgrade procedure. Use the following steps:

a Define which key areas will be affected during the upgrade process.

b Consider upgrade criteria such as the version of Quality Center currently installed, operating system version, database version compatibility, software compatibility, and integrations with other HP products or third-party tools. For more information, see the *HP Quality Center Installation Guide*.

c Set up a testing system identical in configuration to the production system. Verify, repair and upgrade the projects in the testing environment. For more information, see "Setting Up the Testing Environment" on page 418.

d Validate the test results by comparing the functionality and performance in the latest version of Quality Center with those in the previous version of Quality Center. For more information, see "Validating the Results" on page 419.

e Determine a timeline for the upgrade and schedule accordingly.

f Plan how to achieve minimum downtime during the upgrade process. During the upgrade process, the project is in **Inactive** status.

5 Verify the projects on your production environment. For more information, see "The Upgrade Process" on page 419.

6 Back up the project database schema on the database server and also back up the project data in the file system. For more information on the upgrade process and procedures, see "The Upgrade Process" on page 419.

7 Repair the projects on your production environment. For more information, see "The Upgrade Process" on page 419.

8 Upgrade the projects on your production environment to Quality Center 10.00. For more information, see "The Upgrade Process" on page 419.

9 Assign roles and responsibilities for testing, performing, and verifying the upgrade. For more information on upgrade verification, see "Verifying the Upgrade Process" on page 421.

10 When the upgrade to Quality Center has been verified, uninstall the previous version of Quality Center from the original production server. For information on how to uninstall Quality Center, see the *HP Quality Center Installation Guide*.

Upgrade Scope and Strategy

Determine which components you want to upgrade, including database server and software. The process involves upgrading projects. This can be performed by either a mass upgrade or a gradual upgrade. Verify the upgrade in your testing environment before performing the actual upgrade.

Type of Upgrade	Points to Consider
Mass	➤ During a mass upgrade, the production environment, including Quality Center servers, will not be available to the end users. ➤ Based on the testing results, you can estimate system downtime and decide whether this strategy is suitable in your environment. ➤ A mass upgrade can be an appropriate strategy if you do not have many projects to upgrade and system downtime is permissible.
Gradual	➤ During a gradual upgrade, users are not able to access the upgraded group of projects during the upgrade. ➤ Once the upgrade of a group of projects is complete, these projects will be accessible to all end users in the Quality Center production environment. ➤ This strategy provides flexibility in managing the upgrade process by dividing the upgrade into smaller pieces and minimizing downtime during which end users cannot access their projects.

Setting Up the Testing Environment

The upgrade process impacts functionality, performance, and compatibility with other HP products and third-party integrations. Before installing Quality Center on your production environment, test Quality Center in a testing environment that reflects your specific configuration. You can do this by building a Quality Center testing server that simulates the new Quality Center production server.

The testing environment is separate from, and precisely reflects, the production environment. It simulates the configurations and applications installed on the production system, including the database server, software, and production projects. By testing the upgrade in your testing environment, you can get a better picture of the results you will achieve, while identifying and preventing any potential negative impact to your production environment.

To set up the testing environment:

1 Install the operating system on the machine.

2 Install the application server and the Web server.

3 Install Quality Center 10.00.

4 Import project data.

5 Verify the projects.

6 Back up the projects.

7 Repair the projects.

8 Upgrade the projects.

Validating the Results

Validate test results by comparing the functionality and performance in the latest version of Quality Center with those in the current version. If you are using HP integration or a third-party tool with Quality Center, validate backward compatibility of these integrations as well. For example, if you use TDAPI functions in an HP WinRunner script, you must run the script after the upgrade to verify whether the new TDAPI components installed during the upgrade procedure are compatible with the HP WinRunner application.

The Upgrade Process

This section describes how to upgrade your projects to Quality Center 10.00.

This section includes:

➤ The Upgrade Flowchart

➤ Upgrade Recommendations

➤ Upgrade Procedure

The Upgrade Flowchart

The upgrade procedure is illustrated in the following flowchart:

```
┌────────────────────┐                                    ╭─────────────────╮
│ Define the goal of │                                    │  Finish upgrade │
│    your upgrade    │                                    ╰─────────────────╯
└────────────────────┘                                             ▲
         │                                                   Success│
         ▼                                                          │
┌────────────────────┐        ┌─────────────────┐   Fail  ┌──────────────────┐
│  Receive Quality   │        │    Rollback     │◄────────│    Upgrade on    │
│ Center 10.00 DVD   │        │    procedure    │         │    production    │
└────────────────────┘        └─────────────────┘         └──────────────────┘
         │                            ▲▼                            ▲
         ▼                                                   Success│
┌────────────────────┐        ┌─────────────────┐   Fail  ┌──────────────────┐
│ Upgrade assessment │        │ Contact Customer│◄────────│   Validate test  │
└────────────────────┘        │     Support     │         │     results      │
         │                    └─────────────────┘         └──────────────────┘
         ▼                            ▲                            ▲
┌────────────────────┐                 ╲                  ┌──────────────────┐
│ Define upgrade     │                  ╲                 │   Upgrade on     │
│ scope and strategy │                   ╲                │    testing       │
└────────────────────┘                                    │  environment     │
         │                                                └──────────────────┘
         ▼                                                    ▲        
┌────────────────────┐                                   Yes  │        
│ Complete detailed  │                                  ◆─────┘        
│ upgrade procedure  │────────────────────────────►  Resources for   No
└────────────────────┘                               full testing?  ──┐
```
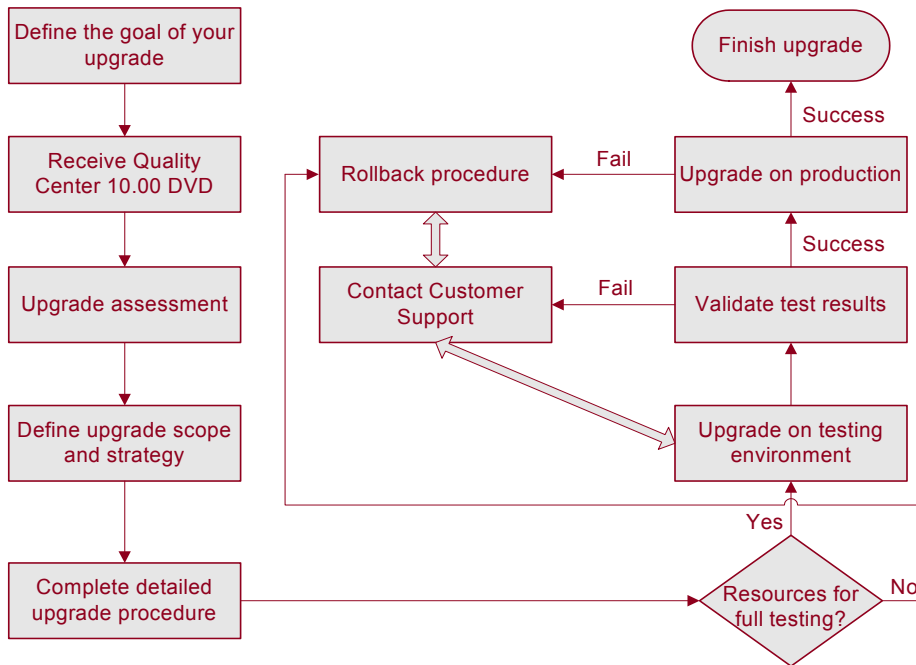
Upgrade Recommendations

Before you start the upgrade process, make sure that you consider the following issues:

➤ Validate system requirements for Quality Center 10.00. For more information, refer to the *HP Quality Center Installation Guide*.

➤ For maximum convenience in maintaining and managing your test management data, ensure that the domain repository is located on the local Quality Center server machine. However, if a remote repository has to be used under certain circumstances, on the **File System** > **Security** > **Property** setting of the remote repository, add the Quality Center application server service user account with **Read/Write/Execute/Delete** network access permissions to the remote repository.

Upgrade Procedure

Before you upgrade your Quality Center projects, you run the verification process for all projects to check the correctness of your database user schema and data. You must then repair all projects that failed verification by running the repair process. Before you repair your projects, you should back up the project database schema on the database server and also back up the project data in the file system. After you have successfully repaired your projects, you run the upgrade process for your projects.

For more information on how to verify, repair, and upgrade projects, see "Upgrading Projects" on page 89.

Verifying the Upgrade Process

After you perform the upgrade, check the following:

➤ Verify that you can connect to the projects in Site Administration.

➤ Ask users to check that they can log in to all Quality Center projects using their accounts.

➤ Ask users to perform their routine operations and report feedback such as response time or the occurrence of any error.

➤ Ask users to check new features and functionalities within Quality Center and report feedback.

➤ Check the user group permissions that may be set by default for new features, and modify them if necessary.

➤ Perform a load test on the testing environment to verify that it can handle the intended number of users.

➤ If you are using an HP integration or a third-party tool with Quality Center, validate backward compatibility of the integration and report feedback.

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