HP Quality Center

Software Version: 9.20

User's Guide

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- Software version number, which indicates the software version
- Document release date, which changes each time the document is updated
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http://ovweb.external.hp.com/lpe/doc_serv/

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- If you have an active HP Software support contract, visit the HP Software Support Web site and use the Self-Solve Knowledge Search to find answers to technical questions.

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- If you have additional questions, contact your HP Sales Representative.

HP Software Support

You can visit the HP Software Support Web site at:

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HP Software online support provides an efficient way to access interactive technical support tools. As a valued support customer, you can benefit by using the support 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

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

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Table of Contents

Welcome to This Guide

Welcome to HP Quality Center, a Web-based test management tool. Quality Center helps you organize and manage all phases of the application testing process, including specifying testing requirements, planning tests, executing tests, and tracking defects.

How This Guide is Organized

The Quality Center User's Guide describes how to use Quality Center to manage the application testing process for your application.

It contains the following parts:

Part I   Quality Center Basics

Provides an overview of the Quality Center features and methodology.

Part II   Release Management

Describes how to define releases and cycles for managing the development and testing process.

Part III   Requirements Specification

Describes how to define testing requirements by building a requirements tree.

Part IV   Test Planning

Describes how to plan the testing process, from building a test plan tree to creating tests.

Part V   Test Execution

Describes how to create test sets, execute manual and automated tests, and review test results.

Part VI   Defect Tracking

Describes how to report application defects to a Quality Center project and keep track of the repair process until the defects are resolved.

Part VII   Quality Center Analysis

Describes how you can monitor the testing and defect tracking process by creating reports, Excel reports, graphs, and project documentation.

Part VIII   Appendixes

Describes how to work with the VAPI-XP testing tool, and provides a list of Quality Center keyboard shortcuts.

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 versions 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 choose **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's Guide explains how to use Quality Center to organize and execute all phases of the testing process. It describes how to define requirements, plan tests, run tests, and track defects. (Available online and in PDF format.)

HP Quality Center Administrator's 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 software testing 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 stand-alone application. (Available in PDF format.)

Business Process Testing Guides:

HP Business Process Testing User's 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 the Quality Center application. (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 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:

Knowledge Base uses your default Web browser to open the Mercury Customer Support Web Site directly to the Knowledge Base landing page.

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

HP Software Web site uses your default Web browser to access 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. The URL for this Web site is http://www.hp.com/managementsoftware.

Add-ins Page opens the HP Quality Center Add-ins Page, which offers integrations with HP testing tools, as well as third-party, synchronization, and version control tools. For more information, refer to the *HP Quality Center Installation Guide*.

Typographical Conventions

This guide uses the following typographical conventions:

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

Part I

Quality Center Basics

1

Introduction

Welcome to HP Quality Center, the HP Web-based test management tool. You access Quality Center over the Internet or a corporate intranet, via a Web browser.

Application testing is a complex process involving the development and execution of thousands of tests. Often, tests are required for multiple hardware platforms, multiple configurations (computers, operating systems, and browsers) and multiple application versions. Managing all aspects of the testing process can be time-consuming and difficult.

Quality Center simplifies and organizes test management by giving you systematic control over the testing process. It helps you create a framework and foundation for your testing workflow.

Quality Center helps you maintain a project database of tests that cover all aspects of your application's functionality. Every test in your project is designed to fulfill a specified requirement of your application. To meet the various goals of a project, you organize the tests in your project into unique groups. Quality Center provides an intuitive and efficient method for scheduling and executing test sets, collecting test results, and analyzing the data.

Quality Center also features a sophisticated system for tracking application defects, enabling you to monitor defects closely from initial detection until resolution. By linking Quality Center to your e-mail system, defect tracking information can be shared by all application development, quality assurance, customer support, and information systems personnel.

Quality Center offers integration with HP testing tools (WinRunner, QuickTest Professional, LoadRunner, and Visual API-XP) as well as third-party and custom testing tools, and requirement and configuration management tools. Quality Center communicates seamlessly with the testing tool of your choice, providing you with a complete solution to fully automated application testing.

Quality Center guides you through the releases specification, requirements specification, test planning, test execution, and defect tracking phases of the testing process. By integrating all the tasks involved in application testing, it helps ensure that your customers receive the highest quality applications.

The Test Management Process

Test management with Quality Center involves five phases:

```
┌─────────────┐
│   Specify   │
│  Releases   │
└─────────────┘
       │
       ▼
┌─────────────┐
│   Specify   │
│ Requirements│
└─────────────┘
       │
       ▼
┌─────────────┐
│    Plan     │
│    Tests    │
└─────────────┘
       │
       ▼
┌─────────────┐
│   Execute   │
│    Tests    │
└─────────────┘
       │
       ▼
┌─────────────┐
│    Track    │
│   Defects   │
└─────────────┘
```
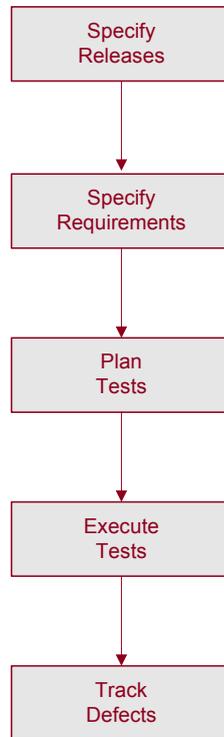
Specify Releases. Develop a release-cycle management plan.

Specify Requirements. Analyze your application and determine your requirements.

Plan Tests. Create a test plan, based on your requirements.

Execute Tests. Create test sets and perform test runs.

Track Defects. Report defects detected in your application and track how repairs are progressing.

Throughout each phase, you can analyze data by generating detailed reports and graphs.

Specifying Releases

Develop a release-cycle management plan.

```
┌─────────────────────┐
│ Define Releases and │
│       Cycles        │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│       Assign        │
│    Requirements     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│    Assign and Run   │
│      Test Sets      │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│    Assign Defects   │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│       Analyze       │
│ Releases and Cycles │
└─────────────────────┘
```
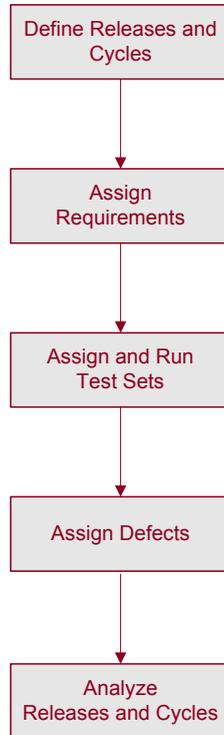
Define Releases and Cycles. Build a *releases tree* to define your releases and cycles and the project timeline. A *release* represents a group of changes in one or more applications that will be available for distribution at the same time. A *cycle* represents a development and QA cycle based on the project timeline.

Assign Requirements. Define requirements in the Requirements module and assign them to releases and cycles in the releases tree.

Assign and Run Test Sets. Create *test set* folders in the Test Lab module and assign to cycles in the releases tree. A test set is a group of tests in a Quality Center project designed to achieve specific test goals. After assigning test set folders to a cycle, run the test sets under these test set folders.

Assign Defects. Submit new defects detected in your application to a Quality Center project. Assign defects to the relevant releases and cycles in the releases tree.

Analyze Releases and Cycles. Generate reports and graphs to assist in analyzing the progress of the release. Review your releases tree to ensure that it meets your release goals.

Specifying Requirements

Analyze your application and determine your requirements.
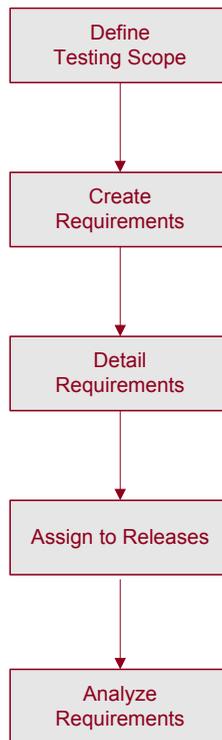
Define Testing Scope. Examine application documentation in order to determine your testing scope—test goals, objectives, and strategies.

Create Requirements. Build a *requirements tree* to define your overall requirements.

Detail Requirements. For each requirement topic in the requirements tree, create a list of detailed requirements. Describe each requirement, assign it a priority level, and add attachments if necessary.

Assign to Releases. Assign each requirement to releases and cycles in the *releases tree* in the Releases module. The releases tree shows your product releases within a hierarchical tree structure.

Analyze Requirements. Generate reports and graphs to assist in analyzing your requirements. Review your requirements to ensure they meet your testing scope.

Planning Tests

Create a test plan, based on your requirements.

```
┌─────────────────────┐
│       Define        │
│  Testing Strategy   │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│       Define        │
│   Test Subjects     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│       Design        │
│       Tests         │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Create Requirements │
│      Coverage       │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│       Design        │
│    Test Steps       │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│      Automate       │
│       Tests         │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│      Analyze        │
│     Test Plan       │
└─────────────────────┘
```
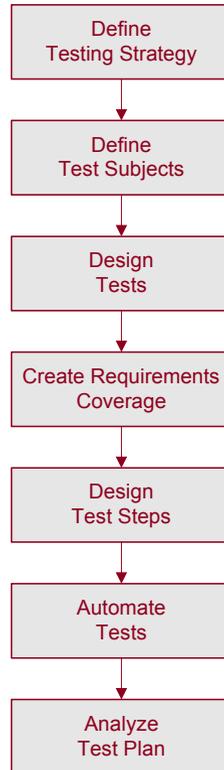
Define Testing Strategy. Examine your application, system environment, and testing resources in order to determine your testing goals.

Define Test Subjects. Divide your application into functions to be tested. Build a *test plan tree* to hierarchically divide your application into testing units, or *subjects*.

Define Tests. Determine the types of tests you need for each subject. Add a basic definition of each test to the test plan tree.

Create Requirements Coverage. Link each test with one or more requirements.

Design Test Steps. Develop manual tests by adding steps to the tests in your test plan tree. *Test steps* describe the test operations and the expected outcome of each test. Decide which tests to automate.

Automate Tests. For tests that you decide to automate, create test scripts with HP testing tools, or custom or third-party testing tools.

Analyze Test Plan. Generate reports and graphs to assist in analyzing test planning data. Review your tests to determine their suitability to your testing goals.

Running Tests

Create test sets and perform test runs.
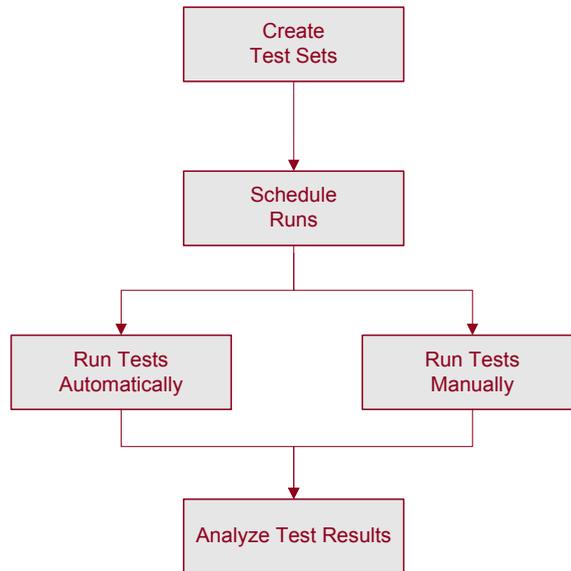
Create Test Sets. Define groups of tests to meet the various testing goals in your project. These might include, for example, testing a new application version or a specific function in an application. Determine which tests to include in each test set. Assign test set folders to cycles defined in the releases tree in the Releases module.

Schedule Runs. Schedule test execution and assign tasks to application testers.

Run Tests. Execute the tests in your test set automatically or manually.

Analyze Test Results. View the results of your test runs in order to determine whether a defect has been detected in your application. Generate reports and graphs to help analyze these results.

Tracking Defects

Submit defects detected in your application and track how repairs are progressing.
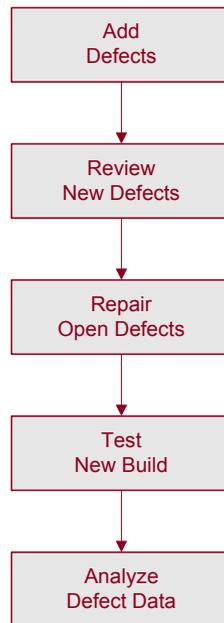
Add Defects. Report new defects detected in your application. Quality assurance testers, developers, project managers, and end users can add defects during any phase in the testing process.

Review New Defects. Review new defects and determine which ones should be fixed.

Repair Open Defects. Correct the defects that you decided to fix.

Test New Build. Test a new build of your application. Continue this process until defects are repaired.

Analyze Defect Data. Generate reports and graphs to assist in analyzing the progress of defect repairs, and to help determine when to release the application.

Working with Project Databases

When you create a Quality Center project, you need to store and manage the data generated and collected by Quality Center. Each project is supported by a database that stores project information.

Quality Center projects are repositories that contain releases, cycles, requirements, tests, test sets, test runs, defects, project documentation, and customization information. A Quality Center user needs constant access to this data in order to be able to work on an application testing project.

For more information on supported database servers, refer to the *HP Quality Center Installation Guide*.

For more information on creating and managing Quality Center projects, refer to the *HP Quality Center Administrator's Guide*.

User Privileges

Quality Center enables you to manage user access to a project. By creating a list of authorized users and assigning each user a password and user group, you control the kinds of additions and modifications each user makes to the project. The user group determines the privileges that the user has within a project. Quality Center includes a privileges and permissions mechanism that enables you to create rules for specific fields in a project.

For detailed information on the user groups available in Quality Center, and on assigning passwords and privileges, refer to the *HP Quality Center Administrator's Guide*.

Importing from Microsoft Word and Microsoft Excel

You can import data from Word or Excel to a Quality Center project.

Importing from Word

You can import requirement or test plan data from a Word document to a Quality Center project. To import from Word, you must install the Microsoft Word Add-in and the HP Quality Center Connectivity Add-in on your client machine. To install an add-in, choose **Help** > **Add-ins Page** to open the HP Quality Center Add-ins page, and click the appropriate add-in link.

For more information, refer to the *HP Quality Center Microsoft Word Add-in Guide* available on the Microsoft Word Add-in page.

Importing from Excel

You can import requirement, test plan, or defect data from an Excel worksheet to a Quality Center project. To import from Excel, you must install the Microsoft Excel Add-in and the HP Quality Center Connectivity Add-in on your client machine. To install an add-in, choose **Help** > **Add-ins Page** to open the HP Quality Center Add-ins page, and click the appropriate add-in link.

For more information, refer to the *HP Quality Center Microsoft Excel Add-in Guide* available on the Microsoft Excel Add-in page.

2

Getting Started

This chapter explains how to start Quality Center and introduces the Quality Center window.

This chapter describes:	On page:
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Starting Quality Center

You launch Quality Center on your machine from your Web browser.

To start Quality Center:

 1 Open your Web browser and type your Quality Center URL http://<Quality Center server name>[<:port number>]/qcbin. Contact your system administrator if you do not have the correct path.

The HP Quality Center Options window opens.

2 Click the **Quality Center** link.

The first time you run Quality Center, files are downloaded to your machine, and if it is not already installed, the Microsoft .NET Framework 2.0 Setup program runs. Subsequently, Quality Center carries out a version check. If there is a newer version on the server, updated files are downloaded to your machine. For more information on the downloaded files, refer to the *HP Quality Center Installation Guide*.

Note:

➤ To download files to your machine, 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.

➤ If file downloads are prohibited through your browser, you can install these files from the HP Quality Center Client Side Setup Add-in on the HP Quality Center Add-in page. For more information on installing add-ins, refer to the *HP Quality Center Installation Guide*.

➤ Quality Center prompts you to install Microsoft .NET Framework 2.0 if it is not already installed on your machine. To perform the installation, follow the instructions in the Software Update Installation Wizard (if Windows Installer 3.1 is not installed) and the Microsoft .NET Framework 2.0 Setup.

After the Quality Center version has been checked and files have been updated if necessary, the HP Quality Center Login window opens.

3 In the **Login Name** box, type your user name.

4 In the **Password** box, type the password assigned to you by your site administrator.

To change your assigned password, see "Changing User Properties and Password" on page 44.

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 the **Authenticate** button. Quality Center verifies your user name and password and determines which domains and projects you can access. If you specified automatic login, Quality Center opens.

If authentication fails, check that your user name and password are correct and try again.

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.

If the demonstration project was installed on the Quality Center server, you can select the **QualityCenter_Demo** project (make sure that you select **DEFAULT** in the **Domain** list). The project helps introduce you to Quality Center and includes sample requirements, tests, test sets, test runs, and defects. For more information, refer to the *HP Quality Center Tutorial*.

9 Click the **Login** button. Quality Center opens and displays the module (Releases, Requirements, Test Plan, Test Lab, or Defects) in which you last worked during your previous session.

The first time you run Quality Center, the Welcome page opens. From the Welcome page, you can directly access this User's Guide and other Quality Center documentation. If you do not want to display the Welcome page each time you log in to Quality Center, select **Don't show this again**. To open the Welcome page at any time, choose **Help** > **Welcome Page**.

10 To exit and return to the HP Quality Center Login window, click the **Logout** button located on the upper-right side of the window.

Alternatively, choose **Tools** > **Change Project** to log in to a different project.

The Quality Center Window

When you connect to a project, the Quality Center main window opens and displays the module in which you were last working. On the upper-right side of the window, the domain, project, and your user name are displayed.

Common toolbar

Module menu bar

Module toolbar

Quality Center sidebar
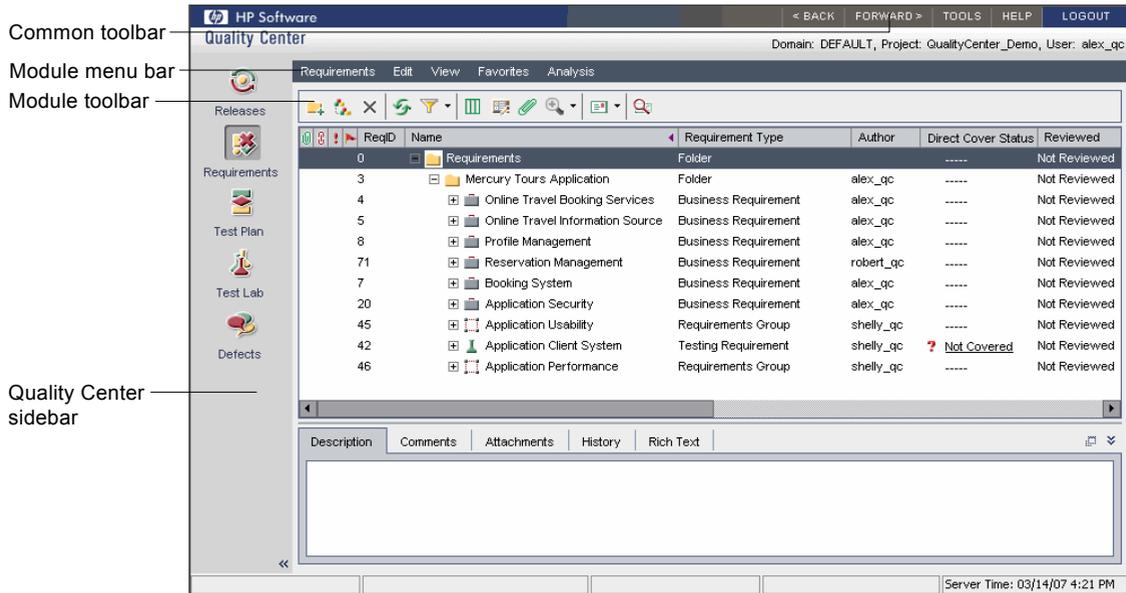
The Quality Center window contains the following key elements:

➤ **Quality Center sidebar.** Provides access to the Quality Center modules. For more information, see "Quality Center Modules" on page 41.

➤ **Quality Center common toolbar.** Provides navigation buttons, access to common tools, documentation and additional resources. This toolbar is located on the upper-right part of the window. For more information, see "Quality Center Common Toolbar" on page 42.

➤ **Module menu bar.** Displays the names of menus from which you select commands in the current Quality Center module.

➤ **Module toolbar.** Contains buttons for frequently-used commands in the current Quality Center module.

Quality Center Modules

Quality Center has the following modules, which are accessible from the sidebar:

➤ **Releases.** Enables you to define releases and cycles for managing the testing process.

➤ **Requirements.** Enables you to specify testing requirements. This includes defining what you are testing, defining requirement topics and items, linking requirements with tests and defects, and analyzing the requirements.

➤ **Test Plan.** Enables you to develop a test plan based on your testing requirements. This includes dividing your plan into categories, developing tests, automating tests where beneficial, linking tests with requirements and defects, and analyzing the plan.

➤ **Test Lab.** Enables you to run tests on your application and analyze the results.

➤ **Defects.** Enables you to add defects, determine repair priorities, repair open defects, and analyze the data.

Depending on your Quality Center license, you may also have access to the **Business Components** module. This module enables subject matter experts to drive the quality optimization process using Business Process Testing, the HP test automation solution. For more information, refer to the *HP Business Process Testing User's Guide*.

To customize the module names, refer to the *HP Quality Center Installation Guide*.

Tip: You can navigate between the modules using shortcut keys. Use CTRL+SHIFT+1 to access the Requirements module, CTRL+SHIFT+2 to access the Test Plan module, etc. Additionally, you can perform many other Quality Center operations using shortcut keys. For a list of shortcut keys, see Appendix B, "Quality Center Keyboard Shortcuts."

Quality Center Common Toolbar

The Quality Center common toolbar, located on the upper-right side of the Quality Center window, is accessible from all modules and contains the following buttons:

Navigation Buttons

`< BACK`   **Back.** Navigates back to your previous location in Quality Center.

`FORWARD >`   **Forward.** Navigates forward to your next location in Quality Center.

Tools Button

`TOOLS`   **Change Project.** Enables you to log out of your current project and select one of the five most recently opened projects on that machine (if appropriate), or select a different project from the Login window.

Customize. Opens the Project Customization window, enabling you to customize your project. For more information, refer to the *HP Quality Center Administrator's Guide*.

New Defect. Opens the New Defect dialog box, enabling you to add a new defect. For more information, see Chapter 31, "Adding and Tracking Defects."

Spelling and Grammar:

➤ **Check Spelling.** Checks the spelling for the selected word or text box. If there are no errors, a confirmation message opens. If errors are found, the Spelling dialog box opens and displays the word together with replacement suggestions.

➤ **Spelling Options.** Opens the Spelling Options dialog box, enabling you to configure the way Quality Center checks spelling.

➤ **Thesaurus.** Opens the Thesaurus dialog box and displays a synonym, antonym, or related word for the selected word. You can replace the selected word or look up new words.

Clear History. Opens the Clear History dialog box, enabling you to delete history data from your project. This is only available for users with project administrator permissions. For more information, see "Clearing History" on page 45.

Document Generator. Opens the Document Generator. For more information, see Chapter 36, "Generating Project Documents."

Excel Report Generator. Opens the Excel Report Generator. For more information, see Chapter 37, "Generating Excel Reports."

Dashboard. Opens HP Quality Center Dashboard, the HP platform that enables IT teams to track application readiness in real-time and manage project risk. For more information, refer to the *HP Quality Center Dashboard* documentation set.

To customize the **Tools** menu, refer to the *HP Quality Center Installation Guide*.

Help Button

HELP

The **Help** button enables you to open the Quality Center Documentation Library and other additional online resources. It also enables you to display version information for each Quality Center client component. For more information, see "Documentation Library" on page 16 and "Additional Online Resources" on page 18.

To customize the **Help** menu, refer to the *HP Quality Center Installation Guide*.

Logout Button

LOGOUT

The **Logout** button logs you out of your current project to the HP Quality Center Login window.

Changing User Properties and Password

You can change your user properties, including full name, e-mail address, phone number, and description. E-mail information is important because it enables you to receive defects, requirements, tests and test set notifications directly to your mailbox. You can also change your password for accessing Quality Center projects.

The site administrator can change and override a user's properties or password. For more information, refer to the *HP Quality Center Administrator's Guide*.

To change user properties and password:

TOOLS

1 On the upper-right side of the window, click the **Tools** button and choose **Customize**. The Project Customization window opens.

2 Click the **User Properties** link. The User Properties window opens.

3 Edit the following user properties: **Full Name**, **E-mail**, **Phone Number**, **Description**.

4 Click **Save** to save your changes.

5 Click the **Change Password** button. The Change Password dialog box opens.

6 In the **Old Password** box, type your old password.

7 In the **New Password** box, type the new password.

8 In the **Retype New Password** box, retype the new password.

9 Click **OK** to save your changes. The Change Password dialog box closes.

10 On the upper-right side of the window, click the **Return** button to exit the Project Customization window and return to your project.

Clearing History

When you customize your project, you can instruct Quality Center to preserve a log of values for the system and user fields in your Requirement, Test, Test Set, Test Instance, and Defect entities. The history data that is generated is displayed in the History tabs of the Requirements, Test Plan, Test Lab, and Defects modules. For more information on enabling history for a field, refer to the *HP Quality Center Administrator's Guide*.

When the history data is no longer needed, you can choose to delete this data from your Quality Center project. For example, if you have successfully run the test sets you created, you may want to clear the test history from your project.

You can choose to clear all history data, or you can select a specific entity or field whose history you want to clear. In addition, you can choose to delete history data up to and including a specific date. Quality Center clears the data displayed in the History tab of the corresponding modules.

Note: You must have project administrator permissions to clear history.

To clear history:

1 On the upper-right side of the window, click the **Tools** button and choose **Clear History**. The Clear History dialog box opens.
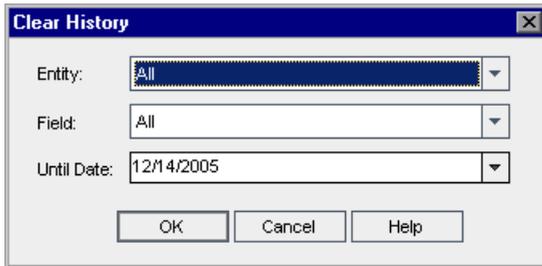
2 In the **Entity** box, select the entity whose history you want to delete. To delete history data from all entities, select **All**.

3 In the **Field** box, select the field whose history you want to delete. To delete history data from all fields, select **All**.

4 In the **Until Date** box, select a date. All data up to and including the selected date is deleted.

5 Click **OK**.

Viewing Administrator Messages

The site administrator can send messages to users connected to Quality Center projects informing them about important maintenance or other issues. For example, the site administrator may send a message warning that a project you are connected to will be disconnected, or that a Quality Center server will be restarted.

For more information on sending messages from Site Administration, refer to the *HP Quality Center Administrator's Guide*.

To view administrator messages:

1 When the site administrator sends you a message, a pop-up window automatically opens on your machine displaying the message text.
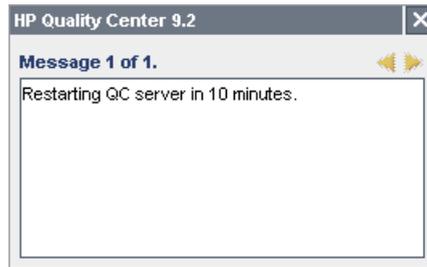
2 If there is more than one message, use the **Previous Message** and **Next Message** buttons to view other messages.

3 To close the message box, click the **Close** button.

3

Working with Quality Center Data

You can view and modify the data in your project using Quality Center grids and trees.

About Working with Quality Center Data

Quality Center organizes and displays data in grids or trees:

Tree/Grid	Description
Releases Tree	Available in the Releases module. Displays the releases and cycles for a Quality Center project. For more information, see Chapter 9, "Developing the Releases Tree".
Requirements Tree/Grid	Available in the Requirements module. Displays the testing requirements for a Quality Center project. For more information, see Chapter 12, "Developing the Requirements Tree".
Test Plan Tree	Available in the Test Plan module. Displays the tests in a Quality Center project, grouped by subjects. For more information, see Chapter 17, "Developing the Test Plan Tree".
Test Grid	Available in the Test Plan module. Displays all the tests in a Quality Center project. For more information, see Chapter 16, "The Test Plan Module at a Glance".
Design Steps Grid	Available in the Test Plan module. Displays the steps of a test. For more information, see Chapter 19, "Building Tests".
Test Sets Tree/Grid	Available in the Test Lab module. Displays the test sets—a group of tests that you run in order to achieve a specific testing goal—in a Quality Center project. For more information, see Chapter 24, "Creating Test Sets".
Execution Grid	Available in the Test Lab module. Displays all the tests in a test set. For more information, see Chapter 23, "The Test Lab Module at a Glance".
Defects Grid	Available in the Defects module. Displays the defects in a Quality Center project. For more information, see Chapter 31, "Adding and Tracking Defects".

Note that as Quality Center grids and trees vary in the type of content they display, the activities described in this chapter do not always apply to all grids and trees.

Tip: You can save your tree and grid settings, such as sorting and filters, as a favorite view. For more information, see Chapter 6, "Working with Favorite Views".

Arranging Columns

You can customize data by specifying the order in which columns appear, and by changing column size. Quality Center displays your customized column settings the next time you open the project.

Tip: You can also rearrange columns by dragging the column headers.

Setting Column Order

You determine which columns are displayed in Quality Center and the order in which they appear using the Select Columns dialog box. For example, you can set Subject as the first column in the Test Grid.

To determine column appearance and order:

1 Click the **Select Columns** button. The Select Columns dialog box opens.
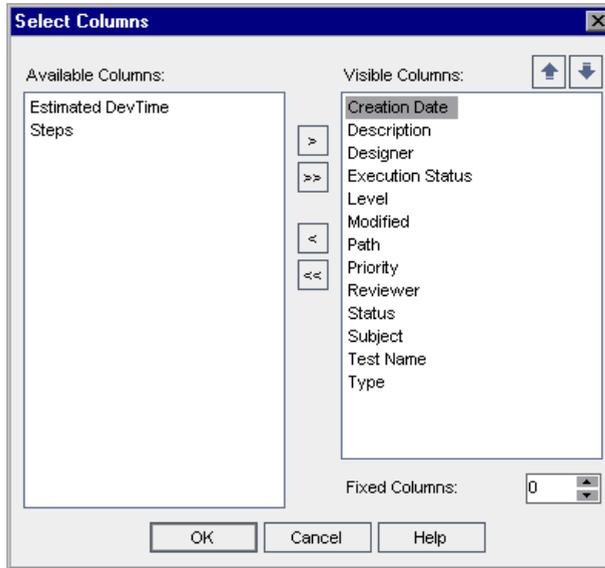
Available Columns lists columns that are not currently displayed. **Visible Columns** lists columns that are currently displayed.

Note: If you are opening the Select Columns dialog box from the Requirements module, this dialog box also displays the **Requirement Type** box and the **Hide Risk-Based Quality Management Columns** check box.

---

2 If you are working in the Requirements module, select a requirement type from the **Requirement Type** list. The columns available for the requirement type are displayed.

3 If you are working in the Requirements module, you can select the **Hide Risk-Based Quality Management Columns** check box to hide the requirement fields related to risk-based quality management from the **Available Columns** list. Clear the check box to make the fields visible.

4 Select column names and click the arrow buttons (> and <) to move them between **Available Columns** and **Visible Columns**. Click the double arrow buttons (>> and <<) to move all the columns from one list to the other. Note that you can also drag the column names between lists or double-click a column name to move a column between lists.

Note: Columns displayed with the ● icon cannot be removed from the **Visible Columns** list.

---

5 In **Visible Columns**, set the order in which columns appear by using the Up and Down arrows. You can also drag the column names up or down.

6 To set non-scrolling columns, specify the number of non-scrolling columns you want to set in **Fixed Columns**. Starting from the leftmost column, the number of columns you specify will be set as non-scrolling. Non-scrolling columns remain stationary when you scroll horizontally. These columns are shaded.

7 Click **OK** to close the dialog box and apply the new column order.

Resizing Columns

You can resize columns using the mouse. Click on the right edge of a column heading and drag to adjust the width. Note that you can only resize columns that are not fixed (non-scrolling).

Selecting Users

When you select a column in a Quality Center grid or tree with a user name value, Quality Center displays a users list with the name and full name of each user. You can sort the users list, search for users, group users by user groups, and select users from the list or from a group tree.

To select users:

1 Select a user field and click the drop-down arrow. The Users List dialog box opens.
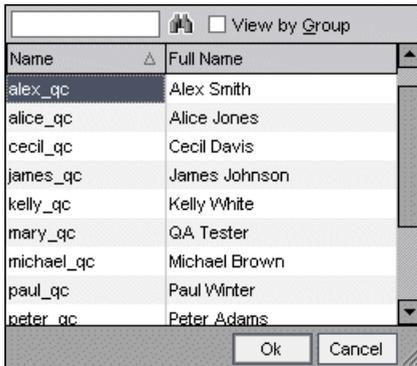
To sort the Users List in ascending or descending order by user name or full name, click the **Name** or **Full Name** column heading. Click the column heading again to reverse the sort order.

2 To search users, you can:

➤ Search incrementally by typing the first character in the user name. You can type additional characters to narrow down the search.
Quality Center begins searching as soon as you type the first character of the search string, and highlights the record with the first occurrence of all the characters in the search string.

➤ Search users by user name or full name. Type the name of a user (or part of the name) in the **Find** box. Click the **Find** button. Quality Center highlights the record with the first occurrence of the search string.

3 To display users by user group, select **View by Group**. The users are grouped by user group.

To expand a branch in the tree, click the Expand ⊞ sign to the left of the user group name. To collapse a branch in the tree, click the Collapse ⊟ sign to the left of the user group name.

4 Select a user and click **OK**. The Users List dialog box closes and the user value is displayed in the data field.

Filtering Records

You can filter Quality Center data to display only those records that meet the criteria that you define. You can assign a single item (such as "Failed") or a logical expression (such as "Passed Or Failed") to a filter. Only records meeting all the criteria of the filter appear in the grid or tree.

In addition, you can define multiple filters. For example, you can define the Status filter as "Failed" and the Tester filter as "David Or Mark". Only failed test runs performed by David or Mark are displayed.

Tip: You can save filter and sort information as a favorite view and then load it as needed. To save as a favorite view, choose **Favorites** > **Add to Favorites**. For more information, see Chapter 6, "Working with Favorite Views".

To define a filter:

1 Click the appropriate **Set Filter/Sort** button. The Filter dialog box opens and displays the Filter Condition tab.
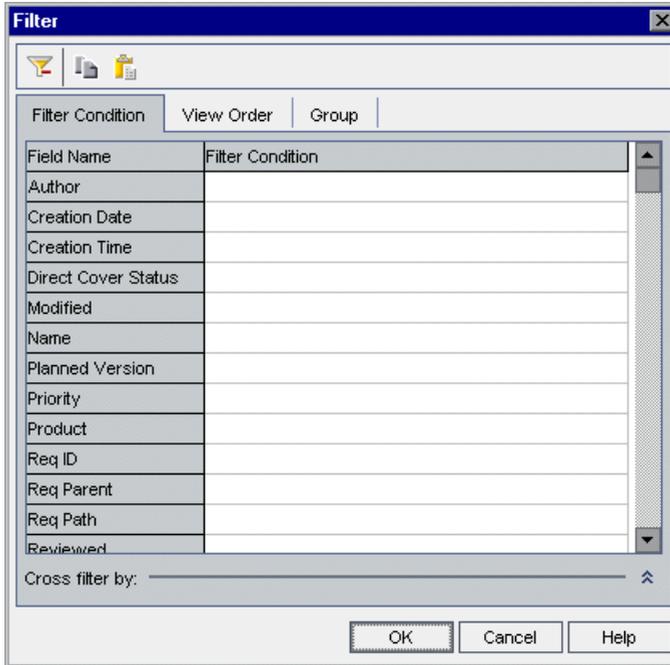
Field Name	Filter Condition
Author	
Creation Date	
Creation Time	
Direct Cover Status	
Modified	
Name	
Planned Version	
Priority	
Product	
Req ID	
Req Parent	
Req Path	
Reviewed	

Filter — Filter Condition | View Order | Group

Cross filter by:

OK   Cancel   Help

Note: If you are opening the Filter dialog box from the Requirements module, this dialog box also displays the **Requirement Type** box and the **Hide Risk-Based Quality Management Columns** check box.

---

2 To define a filter by a requirement type, in the **Requirement Type** box, click the browse button. The Select Filter Condition dialog box opens. Select a requirement type. Click **OK** to close the Select Filter Condition dialog box. The Filter Condition tab displays the relevant field names.

3 If you are working in the Requirements module, you can select the **Hide Risk-Based Quality Management Columns** check box to hide the requirement fields related to risk-based quality management. Only fields for which no filter condition is set are hidden. Clear the check box to make the fields visible.

4 To go to a field in the Filter Condition tab, click a box in the **Field Name** column and type the first character of the field name. Quality Center highlights the first occurrence.

5 To set a filter condition for a field, click the corresponding **Filter Condition** box. Click the browse button. The Select Filter Condition dialog box opens.
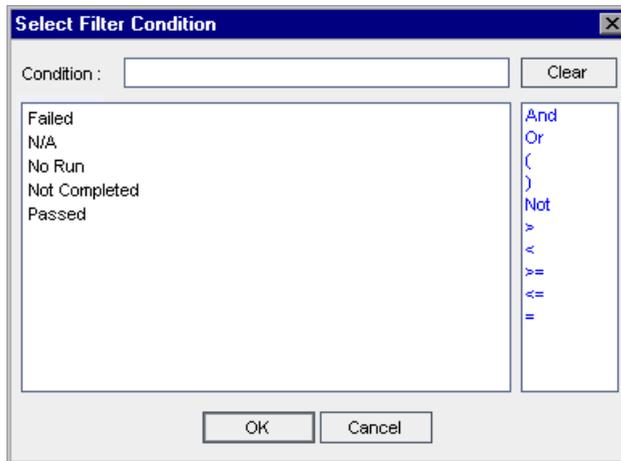
Notes:

➤ If you select a field with a user name value, the Select Filter Condition dialog box displays a user list that enables you to sort users, search for users, group users by user groups, and select users from the list or from a group tree. For more information, see "Selecting Users" on page 54.

➤ In the Requirements module, if you select the **Req Parent** field, the Select Filter Condition dialog box displays the requirements tree, sorted by requirement name. If you select a requirement from the requirements tree, its full path is displayed in the **Condition** box. Only requirements which are descendents of this requirement are displayed when you apply the filter.

6 Define the filter condition. If applicable, select items from the list. You can add operators to create a logical expression.

Note: The following should be considered when defining a filter condition:

➤ Some items that appear in hierarchical lists contain sublists. These items are preceded by a folder icon. To choose an item from a sublist, double-click the folder and click the item.

➤ When defining a condition for a user, you can specify the current user (select [CurrentUser]), or an entire user group (for example, [Developer]).

➤ If you type an item with more than one word, it must be enclosed in quotes. For example, to search for the test Login Boundary, in the Condition box, type the following: "login boundary"

➤ If you only want to type part of the item, use an asterisk (*). For example, to search for all tests with the word Login, in the Condition box, type the following: *login*. To search for all tests that begin with the words Insert New in the Condition box, type the following: "insert new*"

➤ To specify an empty field, type the following: ""

➤ To specify a non-empty field, type the following: not ""

---

7 Click **OK** to close the Select Filter Condition dialog box.

8 To add cross filters, click the **Show Advanced Filter** arrow. For more information, see "Advanced/Cross Filtering Records" on page 61.

9 To copy the settings, click the **Copy Filter Settings** button. For more information, see "Copying Settings" on page 70.

10 To clear the settings, click the **Clear Filter** button.

11 Click **OK** to close the Filter dialog box.

Any filters are applied and the filter description is displayed. For a grid, Quality Center also displays the condition in the grid filter box, which appears under each column name.

Common toolbar ⎯⎯

Grid filter box for
column **Designer**

Tip: For a grid, you can also define a filter by using the grid filter box. To display grid filter boxes, choose **View** > **Grid Filters**. If the filter box is empty, no filter is currently applied to the column. Type directly into the box, or click the box to display the **Browse** button, which opens the Select Filter Condition dialog box.

Note: If you are filtering in the requirements tree, parents of filter entities that do not correspond to the filter are displayed with the icon.

Advanced/Cross Filtering Records

When defining a filter, you can also include a *cross filter*. This is an advanced second filter on an associated item such as requirements, tests, test sets, or defects. For example, in the test plan tree, you can define the cross filter for associated test sets as "Open". This ensures that only tests that belong to an open test set are displayed. Alternatively, you can define the associated test set filter to find tests that are not in any test set.

The following table summarizes the cross filters available in each Quality Center module:

Module	Cross Filter
Requirements	➤ **Tests.** Filters the requirements by covered tests. ➤ **Defects.** Filters the requirements by defects that have been directly or indirectly-linked to the requirements. ➤ **Requirements: Trace from.** Filters the requirements by traced from requirements. ➤ **Requirements: Trace to.** Filters the requirements by traced to requirements. ➤ **Show requirements with alerts.** Filters the requirements by alerts that have been triggered.
Test Plan	➤ **Requirements.** Filters the tests by covered requirements. ➤ **Test Sets.** Filters the tests by test sets that contain the tests. ➤ **Defects.** Filters the tests by defects that have been directly or indirectly-linked to the tests. ➤ **Show tests with alerts.** Filters the tests by alerts that have been triggered.
Test Lab - Test Sets list	➤ **Tests.** Filters the test sets by contained tests. ➤ **Defects.** Filters the test sets by defects that have been directly or indirectly-linked to the tests.

Module	Cross Filter
Test Lab - Execution Grid	➤ **Requirements.** Filters the test instances by tests that cover selected requirements. ➤ **Defects.** Filters the tests by defects that have been directly or indirectly-linked to the tests. ➤ **Show test instances with alerts.** Filters the test instances by alerts that have been triggered.
Defects	➤ **Requirements.** Filters the defects by linked requirements. ➤ **Test Sets.** Filters the defects by linked test sets. ➤ **Tests.** Filters the defects by linked tests. ➤ **Show defects with alerts.** Filters the defects by alerts that have been triggered.

To define a cross filter:

1 Click the appropriate **Set Filter/Sort** button. The Filter dialog box opens and displays the Filter tab.

For more information on defining a filter, see "Filtering Records" on page 55.

2 Click the **Show Advanced Filter** arrow to display the cross filter options.

3 Under **Cross filter by**, select a filter check box. For example, select "Test Sets". The Cross Filter dialog box opens.
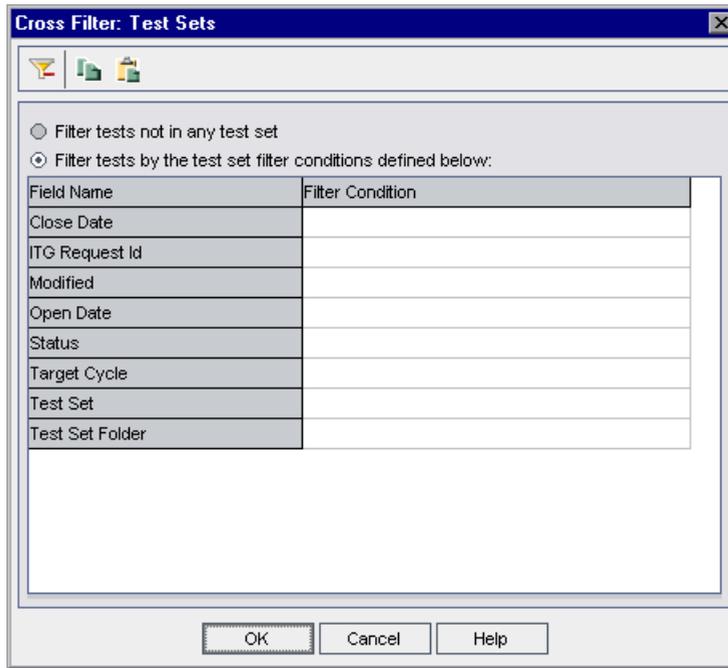
In the Test Plan module, the following options are available:

➤ **Filter tests not in any test set.** Filters tests that are not part of any test set. For example, this can help you identify tests that have not been run. This option is only available in the Cross Filter: Test Sets dialog box.

➤ **Filter tests with no requirement coverage.** Filters tests that do not cover any requirements. For example, this can help you identify redundant tests or tests with missing requirement coverage links. This option is only available in the Cross Filter: Requirements dialog box.

4 Define the cross filter, using the same rules you would to define a filter. For more information, see "Filtering Records" on page 55.

5 To copy the settings, click the **Copy Filter Settings** button. For more information, see "Copying Settings" on page 70.

6 To clear the settings, click the **Clear Filter** button.

7 Click **OK** to save your changes and close the Cross Filter dialog box. In the Filter dialog box, under **Cross filter by**, the cross filters you defined are displayed.

8 Click **OK** to save your changes and close the Filter dialog box.

Sorting Records

By default, records appear in Quality Center according to the order in which they were added. When you set sorting priorities, records are displayed according to the ASCII sort order. The ASCII sort order considers records beginning with a space or character before considering those beginning with numbers. It then considers uppercase letters and, finally, lowercase letters.

For example, if the **Designer** column in the Test Grid is assigned the highest sort priority, records are sorted in the ASCII sort order according to the names appearing in the Designer column. If **Test Name** is assigned the next highest priority, test records assigned the same name in the **Designer** column are then sorted in the ASCII sort order according to their test name.

Note: You can save filter and sort information as a favorite view and then load it as needed. To save as a favorite view, choose **Favorites** > **Add to Favorites**. For more information, see Chapter 6, "Working with Favorite Views".

To sort records:

1 Click the appropriate **Set Filter/Sort** button. The Filter dialog box opens.

Note: If you are opening the Filter dialog box from the Requirements module, this dialog box also displays the **Requirement Type** box and the **Hide Risk-Based Quality Management Columns** check box.

---

2 Click the **View Order** tab.
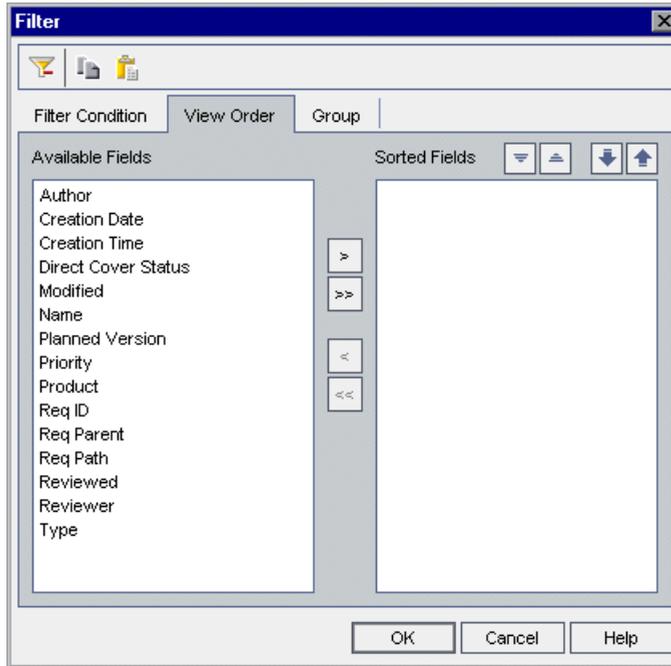
Available Fields contains the names of all the fields you can display.
Sorted Fields contains the names of the fields currently assigned a sorting
priority.

3 If you are working in the Requirements module, select a requirement type
from the **Requirement Type** list. The View Order tab displays the relevant
field names.

4 If you are working in the Requirements module, you can select the **Hide
Risk-Based Quality Management Columns** check box to hide the
requirement fields related to risk-based quality management from the
Available Fields list. Clear the check box to make the fields visible.

5 Select field names and click the arrow buttons (> and <) to move a name
between **Available Fields** and **Sorted 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 or double-click a column name to move a
column between lists.

6 In **Sorted Fields**, select a field and use the **Sort Ascending** and **Sort Descending** buttons to sort the field in an ascending or descending order.

7 In **Sorted Fields**, select a field and use the **Move Field Up** and **Move Field Down** buttons to set the sort priority. You can also drag the field names up or down.

8 To copy the settings, click the **Copy Filter Settings** button. For more information, see "Copying Settings" on page 70.

9 To clear the settings, click the **Clear Filter** button.

10 Click **OK** to apply the sort order.

Grouping Grid Records

When working with Quality Center grids, you can separate data into groups according to specified criteria. You can determine the information by which Quality Center groups records, and set the hierarchical order in which they are displayed (up to three levels). This enables you to navigate more easily through large sets of data.

For example, if you select the **Assigned To** column in the Defects Grid as the highest group by priority, records are grouped according to the names appearing in the **Assigned To** column. If you select **Status** and **Severity** as the next highest priorities respectively, test defects assigned the same name in the **Assigned To** column are next grouped according to their status, and then their severity.

Notes:

➤ You cannot select a group header and perform Quality Center actions on an entire group. To perform actions on multiple records, use **Ctrl** or **Shift** to select records.

➤ If you group records 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 will be grouped once as English;French, and not as part of separate English and French categories. For more information on allowing multiple values, refer to the *HP Quality Center Administrator's Guide*.

➤ The group by list displays only system and user-defined fields associated with a User List or Lookup List type field. For more information on field types, refer to the *HP Quality Center Administrator's Guide*.


To group grid records:

1 Click the appropriate **Set Filter/Sort** button. The Filter dialog box opens.

Note: If you are opening the Filter dialog box from the Requirements module, this dialog box also displays the **Requirement Type** box and the **Hide Risk-Based Quality Management Columns** check box.

---

2 Click the **Group** tab.
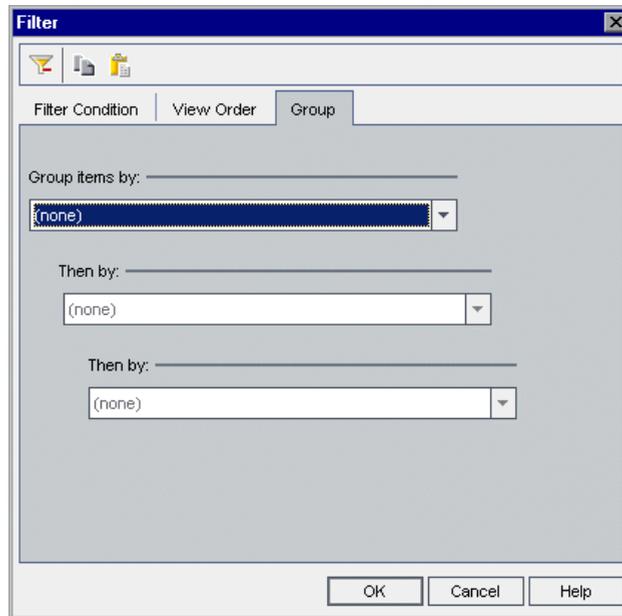
3 If you are working in the Requirements module, select a requirement type from the **Requirement Type** list. The Group tab displays the relevant field names.

4 If you are working in the Requirements module, you can select the **Hide Risk-Based Quality Management Columns** check box to hide the requirement fields related to risk-based quality management. Clear the check box to make the fields visible.

5 Click the **Group items by** arrow. Choose the field by which you want to group records.

6 To group records by additional fields, click the **Then by** arrow and choose the field by which you want to group records. If you group records by more than one field, select fields in the hierarchical order that you want them to be displayed. Note that you cannot select a field that has already been selected.

7 To remove a group level, change the level to **(none)**. If you change a parent group level to **(none)**, its child group levels automatically change to **(none)**.

8 To copy the settings, click the **Copy Filter Settings** button. For more information, see "Copying Settings" on page 70.

9 To clear the settings, click the **Clear Filter** button.

10 Click **OK** to close the Filter dialog box.

The grid records are grouped by the group by settings.

Copying Settings

You can copy and paste the filter, sort, and group by settings to and from the Clipboard. You can copy the settings and paste them to another project. You can also share the settings with another user by pasting them to an e-mail or a text file.

To copy settings:

1 Click the appropriate **Set Filter/Sort** button. The Filter dialog box opens.

2 Click the **Copy Filter Settings** button. The settings are copied to the Clipboard.

3 To paste to another project, log in to the project to which you want to paste the settings, display the appropriate module, and open the Filter dialog box. Click the **Paste Filter Settings** button. Click **OK**.

To paste to an e-mail or a text file, click the paste button.

Refreshing and Clearing Settings

You can refresh and clear the filter, sort, and group by settings applied to Quality Center data.

➤ To refresh the data in a grid or tree, click the **Refresh All** button.

➤ To clear all the filters and sorting priorities in a grid or tree, click the **Set Filter/Sort** arrow and choose **Clear Filter/Sort**.

Searching Records

You can use text search to search for records in predefined fields of the Requirements, Test Plan, and Defects modules. The searchable text fields are predefined by the project administrator in Project Customization. For more information on defining searchable fields, refer to the *HP Quality Center Administrator's Guide*.

When you enter a keyword, Quality Center searches the predefined fields for the keyword or variations of the keyword. For example, if you type log, the search will find fields containing log, logs, logging, and logged. The search will not find login or logical because these are not variations of the word. For more information on search details, see "Search Considerations" on page 72.

If you have defined filter conditions for a module, you can restrict the search to the filtered records, or you can search all records in the module (this saves you having to clear the current filter and redefine it again). If you have a folder selected in the module, the search is still performed on all the records in the module, subject to the filtering option that you selected.

Quality Center displays the search results in a list, sorted in order of relevance. You can view search results, and display record details. You can customize the data by determining which columns are displayed and the order in which they appear.

Note: Text search is only available if it has been enabled for the project. Contact your Quality Center site administrator if the search option is unavailable.

Search Considerations

When you use text search, you should consider the following:

➤ The search ignores the following: articles (a, an, the); coordinate conjunctions (and, but, for, nor, or); boolean operators (and, or, not, if, or, then).

➤ If you type more than one search word, the results will include all records that contain at least one of the search words.

➤ The letter case does not affect the results.

➤ The search ranks the results and displays them in order of relevance.

To search records:

1 Click the **Text Search** button or choose **Edit > Text Search**. The text search pane opens in the lower part of the window.

2 In the **Search for** box, type the words you want to find. In the Test Plan module, specify whether you want to search **Tests** or **Design Steps**.

3 To search all records in the module, clear the **Restrict to current filter** check box.

4 Click **Search**. Quality Center performs the text search on the predefined fields and displays the search results in order of relevance. For more information on search details, see "Search Considerations" on page 72.

5 To change the column appearance and order, click the **Select Columns** button. The Select Columns dialog box opens. For more information, see "Arranging Columns" on page 51.

6 To view the list of predefined search fields set in Project Customization, click the **Searchable Fields Information** button. The list of predefined search fields is displayed. Click **OK** to close the searchable fields list.

7 To display record details, select a record and click the record **ID** or **Name** link. Alternatively, select the record and click the **Go to Entity** button.

Note: In Quality Center tree views, the record details only display if the record matches the current filter. To display details for records that do not match this filter, change or clear the filter.

Exporting Data to a File

You can export the data in a grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML document.

To export data to a file:

1 You can export all grid data or selected records:

➤ To export all grid data, right-click the grid and choose **Export > All**. The Export All Grid Data dialog box opens.

➤ To export selected records in the grid, select the records using the **Ctrl** or **Shift** key. Right-click the grid and choose **Export > Selected**. The Export Selected Grid Data dialog box opens.

2 In the **Save in** box, choose a location for the file.

3 In the **File name** box, type a name for the file.

4 In the **Save as type** box, select a file type.

5 Click **Save**.

4

Alerting on Changes

You can instruct Quality Center to create alerts automatically and send e-mail to notify those responsible when changes occur in your project that may impact the testing process. You can also add your own follow up alerts.

This chapter describes:	On page:
About Alerting Changes	75
Understanding Alerts	76
Viewing Alerts	80
Clearing Alerts	81
Flagging for Follow Up	82

About Alerting Changes

You can keep track of changes to your requirements, tests, and defects as you perform project testing. There are two alerting functions available in Quality Center:

➤ **Automatic notification alerts.** Your Quality Center project administrator can activate alert rules. The rules are based on associations you make in Quality Center between requirements, tests, and defects. When an entity in your project changes, Quality Center alerts ❗ any associated entities that may be impacted by the change. The alerts can be seen by all users. Quality Center also notifies the person responsible for the entity at the time of the change of any associated entities that may be impacted by the change. For more information, see "Understanding Alerts" on page 76 and "Viewing Alerts" on page 80.

➤ **Follow up alerts.** You can add a follow up flag ⚑ to a specific requirement, test, test instance, or defect to remind yourself to follow up on an issue. When the follow up date arrives, Quality Center sends you e-mail. For more information, see "Flagging for Follow Up" on page 82.

Understanding Alerts

When a requirement, test, or defect changes, Quality Center alerts the associated entities and can notify those responsible for any associated entities. The alert rules in Quality Center are based on the following associations you can create:

➤ You can associate a test in the test plan tree with a requirement. This is accomplished by creating **requirements coverage** in the Test Plan module, or by creating **tests coverage** in the Requirements module. For more information, see Chapter 18, "Linking Tests to Requirements."

➤ You can associate a test instance with a defect. This is performed by creating **Linked Defects** in the Test Plan module, or by adding a defect during a manual test run. For more information, see Chapter 32, "Linking Defects."

➤ You can create **traceability links** between requirements in the Requirements module. For more information, see Chapter 13, "Tracing Requirements."

After you establish associations in your project, you can track changes using these associations. When an entity in your project changes, Quality Center alerts any associated entities that may be impacted by the change. The alerts can be seen by all users. Quality Center also notifies the person responsible for the entity at the time of the change of any associated entities that may be impacted by the change.

Your Quality Center project administrator can activate four alert rules:

Rule	Description	Entities Flagged	User Notified by E-mail
1	When a requirement is modified, alert the associated tests. **Note:** A change to the requirement can be any modification, excluding changes to the **Direct Cover Status** field and the risk-based quality management fields.	Tests covering the requirement	Test designer.
2	When a defect status changes to "Fixed", alert the associated test instances.	Test instances associated with the defect	Responsible tester for the test instance.
3	When a test run successfully (status changes to "Passed"), alert the linked defects.	Defects linked to the test run	User assigned the defect.
4	When a requirement is modified or deleted, alert traced to requirements and child requirements.	The requirement's child requirements and traced to requirements	Author of the requirement.

For more information on activating alert rules in Project Customization, refer to the *HP Quality Center Administrator's Guide*.

Alert Example

Suppose you are using the **QualityCenter_Demo** project based on the Mercury Tours application. In Project Customization, your project administrator activates the first rule: *When a requirement is modified, alert the associated tests*. The project administrator also specifies that notifications be sent by e-mail.

In the Requirements module, your QA manager defines the requirement **Page Download Time** (under **Application Performance**).

In the Test Plan module, the QA manager then defines a new test **Connect_Site_Stress** for this requirement (under **Mercury Tours Site** > **Welcome Page**). In the **Details** tab, the project administrator assigns the new test to designer Cecil.
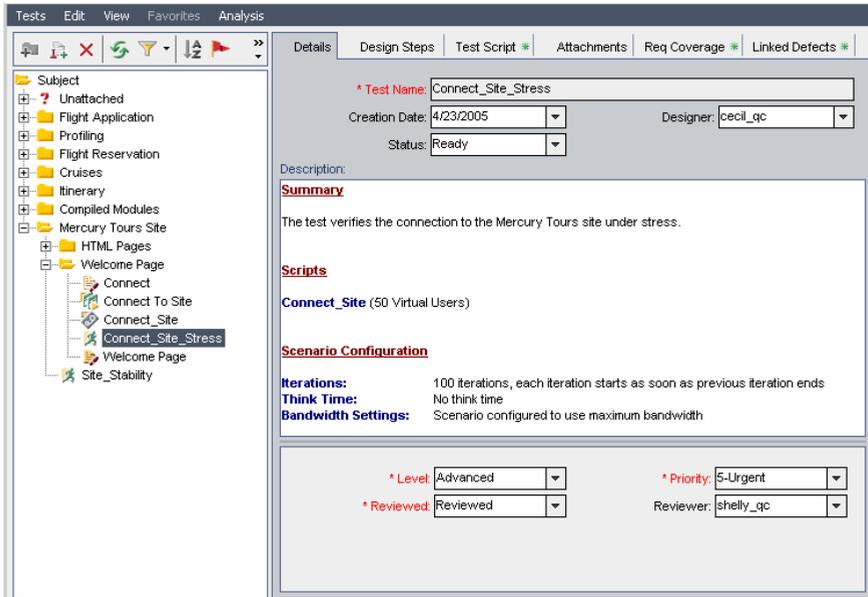
In the **Req Coverage** tab, the QA Manager links the **Connect_Site_Stress** test to the **Page Download Time** requirement.
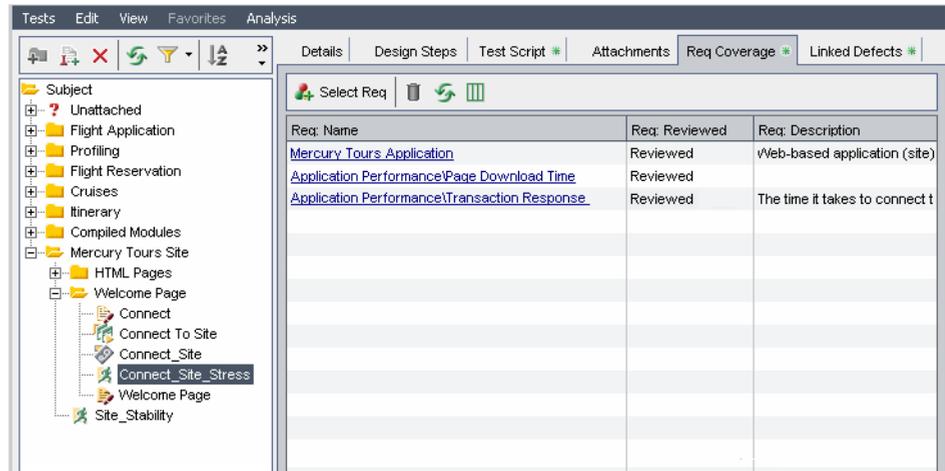
A QA tester, Mike, reviews the requirement **Page Download Time** and decides that 10 seconds to download the page is too long. He changes the requirement description to 7 seconds. As a result, Cecil now needs to adjust his test **Connect_Site_Stress** so that it meets the changed requirements.

With the rule activated, Mike's change to the requirement causes Quality Center to flag the associated test. This alert can be seen by Cecil, the designer responsible for the test, and all other project users.
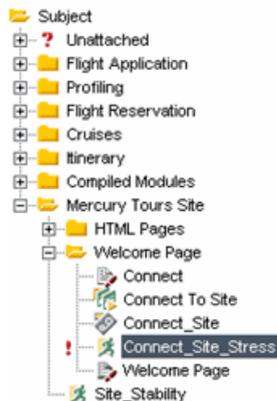
When clicking the Alerts flag, the Alerts dialog box opens and displays the details of the change. For more information, see "Viewing Alerts" on page 80.

In addition, Cecil (being the test's designer) receives an automatic Quality Center notification e-mail message that describes the change Mike made to the **Page Download Time** requirement and recommends that Cecil check the associated test, **Connect_Site_Stress**. Cecil clicks a link to open Quality Center and display the specified requirement or test.

Viewing Alerts

You can view a list of alerts for a selected entity. The entity can be one of the following:

➤ a requirement in a Requirements module view

➤ a test in the test plan tree or Test Grid

➤ a test instance in the Execution Grid

➤ a defect in the Defects Grid or Defect Details dialog box

Note: You can also view a list of all alerts for a selected module by selecting the **Show <entity> with alerts** option in the Filter dialog box. For more information, see "Advanced/Cross Filtering Records" on page 61.

For more information on how Quality Center creates alerts, see "Understanding Alerts" on page 76.

To view alerts:

1 Select an entity with an alert as follows:

➤ In the main module, click the **Alerts** flag ❗ in the Alerts column of the tree or grid. If this column is not visible, choose **View** > **Indicator Columns**. Alternatively, choose **Edit** > **Alerts**.

➤ In the Defect Details dialog boxes , click the **Alerts** button.

A red flag indicates that the alert is new. A gray flag indicates that the alert has already been read.

The Alerts dialog box opens.
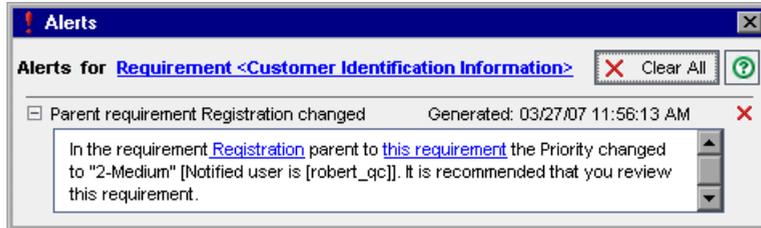
Quality Center displays the selected entity and lists the alerts. You can click a link in the dialog box to highlight the item in Quality Center.

2 You can click the **Delete Alert** button to delete a specific alert, or click **Clear All** to delete all alerts for the entity. Click **Yes** to confirm. Note that you can only clear alerts that are assigned to you, or that are not assigned to any user. The user to which an alert is assigned is the user that is sent e-mail notification when the alert is triggered. For a list of alerts, and the users that are sent e-mail notification, see "Understanding Alerts" on page 76.

3 Close the Alerts dialog box.

Clearing Alerts

You can clear an individual alert or all alerts for a selected entity from the Alerts dialog box. For more information on the Alerts dialog box, see "Viewing Alerts" on page 80.

In addition, you can clear all the alerts associated with all the entities in a Quality Center module. If you choose this option, only alerts associated with entities that match the current filter are cleared. In addition, you can only clear alerts that are assigned to you, or that are not assigned to any user. The user to which an alert is assigned is the user that is sent e-mail notification when the alert is triggered. This user is listed in the Alerts dialog box for the alert. For a list of alerts, and the users that are sent e-mail notification, see "Understanding Alerts" on page 76.

To clear all the alerts for a module:

1 If you are working in the Requirement, Test Plan, or Defects module, choose **Edit** > **Clear Alerts**. If you are working in the Test Lab module, choose **Tests** > **Clear Alerts**.

2 Click **Yes** to confirm. The alerts are cleared.

Flagging for Follow Up

Quality Center enables you to add your own alerts, in addition to automatic traceability notifications. You can use *follow up flags* to remind yourself to follow up on something. For example, you can set a follow up flag on a defect to remind yourself to check the status in a week.

You can set follow up flags for:

➤ a requirement in a Requirements module view

➤ a test in the test plan tree or Test Grid

➤ a test instance in the Execution Grid

➤ a defect in the Defects Grid or Defect Details dialog box

When you add a flag, Quality Center adds a gray flag icon ▶ to the record. You can open the follow up alert at any time to view the details. When the follow up date arrives, Quality Center sends you e-mail and changes the flag icon to red.

Quality Center also displays an information bar for a follow up alert. This appears in the right pane of the test plan tree for a test follow up, in the Test Instance Properties dialog box for a test instance follow up, and in the Defect Details dialog box for a defect follow up.

Note: A follow up flag is specific to your user login name. Anyone else viewing the record does not see your follow up alert.

You can create new follow up alerts, or view and modify existing alerts.

Creating Follow Up Alerts

You can create a follow up alert for a requirement, test, test instance, or defect.

To create a follow up alert:

1 Select the record you want to flag for follow up. Click the **Flag for Follow Up** button, or right-click the record and choose **Flag for Follow Up**. The Flag For Follow Up dialog box opens.

**2** In **Follow up by**, select the date you want Quality Center to send the follow up e-mail.

3 In **Description**, type the reminder you want to display.

4 Click **OK**. Quality Center saves the follow up alert and adds the flag icon to the record.

Modifying Follow Up Flags

You can open a follow up alert you created for a record. You can view and modify the details, or delete the follow up.

To modify a follow up alert:

1 Click the flag icon ▶ in the Follow Up Flag column for the flagged record in the tree or grid. If this column is not visible, choose **View** > **Indicator Columns**. The Flag For Follow Up dialog box opens.
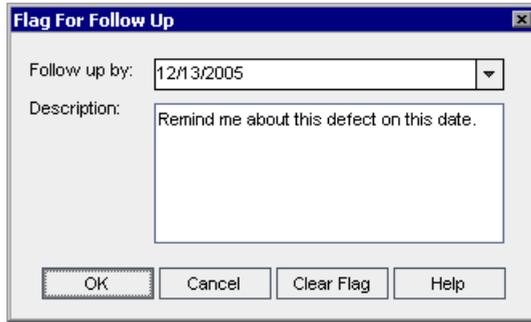
2 To modify the alert, change the **Follow up by** date or **Description**. Click **OK** to close the dialog box.

3 To remove the follow up flag, click the **Clear Flag** button. Click **Yes** to confirm and close the dialog box.

5

Adding Attachments

You can add an attachment to a Quality Center record.

About Adding Attachments

Throughout the testing process, you can add attachments to help illustrate your work. You can attach a file, URL, snapshot of your application, items from the Clipboard, or system information. When you add an attachment to a record, Quality Center adds the 📎 icon to the record.

You manage attachments using the Attachments dialog box.
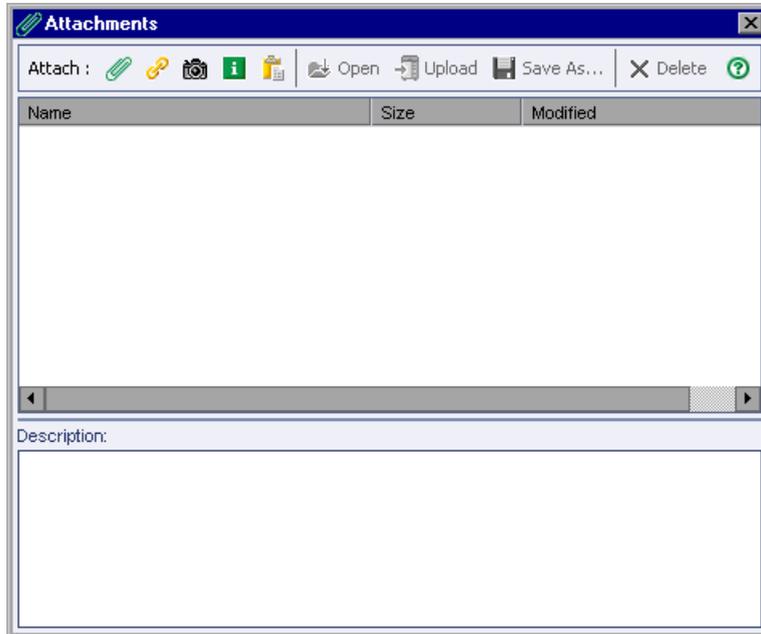
You can also manage attachments from the Attachments tab, the Test Instance Properties dialog box, the New Defect or Defect Details dialog box, and the Requirement Details dialog box.

Attaching a File

You can attach a file to a Quality Center record.

To attach a file:

1 In the Attachments dialog box, click the **File** button. The Open dialog box opens.

2 Choose a file name and click **Open**. Alternatively, double-click a file name.

The file name appears in the Attachments list, together with the size and date modified. An icon for the application associated with the file appears next to the file name.

3 In the **Description** box, add any comments related to the attached file.

Attaching a URL

You can attach a Uniform Resource Locator (URL) to a Quality Center record. This can be any valid URL scheme such as HTTP, FTP, Gopher, News, Mailto, and File.

To attach a URL:

1 In the Attachments dialog box, click the **URL** button. The Attach Uniform Resource Locator (URL) dialog box opens.

2 In the **URL** box, type a valid URL and click **OK**.

The URL appears in the Attachments list. An icon for your default Web browser appears next to the URL.

3 In the **Description** box, add any comments related to the attached URL.
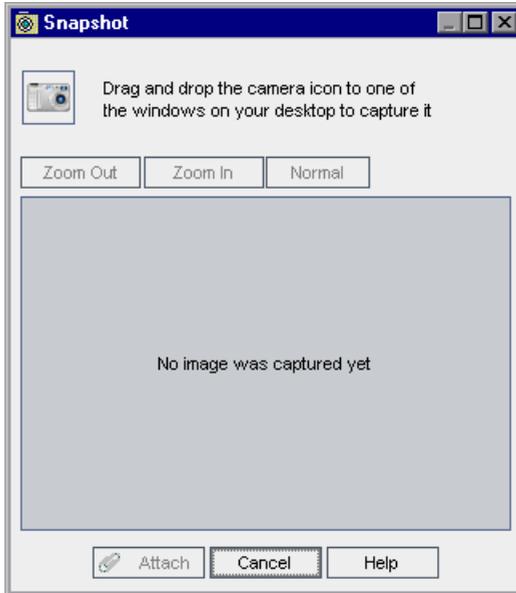
Attaching a Snapshot

You can attach images of your application to a Quality Center record.

To attach a snapshot:

1 In the Attachments dialog box, click the **Snapshot** button. The Snapshot dialog box opens.

2 Drag the **camera** icon onto an object that you want to capture. The captured image is displayed in the Snapshot dialog box.

3 You can change the magnification level of the captured image.

➤ Click **Zoom Out** or **Zoom In** to reach the desired magnification level.

➤ Click **Normal** to return to the standard level.

4 Click **Attach**.

Quality Center assigns the image a unique file name with a **.jpg** extension. The file name appears in the Attachments list, with an image icon next to it. The size of the file and the date on which it was modified are also displayed.

5 In the **Description** box, add any comments related to the attached snapshot.

Attaching System Information

You can attach information about your machine to a Quality Center record.

To attach system information:

1 In the Attachments dialog box, click the **System Info** button. The System Information dialog box opens.

2 To attach information from a single tab, click a tab and click the **Current Topic** button.

3 To attach information from all tabs, click **All Topics**.

The information is assigned a unique file name with a **.tsi** extension. The file name appears in the Attachments list, with an icon next to it. The size of the file and the date on which it was modified are also displayed.

4 In the **Description** box, add any comments related to the attached text file.

Attaching Items from the Clipboard

You can attach text and images that you copied to the Clipboard to a Quality Center record.

To attach an item from the Clipboard:

1 Copy a text string or an image to the Clipboard.

2 In the Attachments dialog box, click the **Clipboard** button.

A text string is assigned a unique file name with a **.txt** extension. An image is assigned a unique file name with a **.jpg** extension. The attached file appears in the Attachments list, with an icon next to it. The size of the file and the date on which it was modified are also displayed.

Managing Attachments

You can view, modify, save, and delete an attachment in the Attachments dialog box or tab.

Viewing Attachments

You can view an attachment in the Attachments list.

To view an attachment:

1 In the **Attachments** list, select an attachment. The corresponding description is displayed underneath in the Description box.

2 Double-click the attachment, or click the **Download and Open** button. The attachment opens in the application associated with it. For example, a URL opens in your default Web browser.

Modifying Attachments

You can modify an attachment in the Attachments list. When you open an attachment in the associated application, Quality Center downloads the attachment to a local directory on your client machine. After making changes, you must save the attachment twice. First, you save it locally in the application in which you opened it. Then, in Quality Center, you click the **Upload Selected** button to save the local copy of the attachment to your Quality Center project.

To modify an attachment:

1 Double-click an attachment in the **Attachments** list. A local copy of the attachment opens in the application associated with it.

2 Modify the attachment.

3 Save the attachment in the application. This saves the local copy of your attachment.

4 Close the attachment.

5 In Quality Center, click the **Upload Selected** button in the Attachments dialog box. This saves the local copy to the Quality Center project.

Saving Attachments

You can save an attachment to the local directory of your client machine.

To save an attachment:

1 In the **Attachments** list, select an attachment and click the **Save As** button. The Save Attachment dialog box opens.

2 In the **Save in** box, choose a location for the file.

3 In the **File name** box, type a name for the file.

4 Click **Save**. The attachment is downloaded and saved to a local directory on your client machine.

Deleting Attachments

You can delete an attachment from the Attachments list.

To delete an attachment:

1 In the **Attachments** list, select the attachment to delete. To select more than one attachment, use the CTRL key.

2 Click the **Delete Selected** button and click **Yes** to confirm.

6

Working with Favorite Views

A *favorite view* is a view of a Quality Center window with the settings you apply to it. You can save your favorite views and reload them in the future.

This chapter describes:	On page:
About Working with Favorite Views	93
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Loading Favorite Views	95
Updating Views	96
Organizing Favorite Views	96

About Working with Favorite Views

You determine the way a Quality Center window looks by selecting certain settings for it. For example, these settings may include applying a filter to grid columns, sorting fields in a report, or setting the appearance of a graph. You can save a favorite view for future use and then load it as necessary.

You save favorite views in either a *public* folder or a *private* folder. Views in a public folder are accessible to all users. Views in a private folder are accessible only to the user who created them.

Some favorite view commands are accessible only to certain user groups. For more information on user group privileges, refer to the *HP Quality Center Administrator's Guide*.

Note: Working with favorite views is different from the description in this chapter for the Test Lab module, Quality Center reports and graphs, and Document Generator.

➤ In the Test Lab module, choose **Tests** > **Favorites** to display the favorite view commands. Choose **View** to load an existing view, **Add** to add a new view, and **Organize** to organize your views.

➤ In Quality Center reports and graphs, click the **Add to Favorites** button to add a new view and the **Edit Favorites** button to organize your views.

➤ In the Document Generator, click the **Add to Favorites** button to add a new view and the **Favorites** button to organize your views.
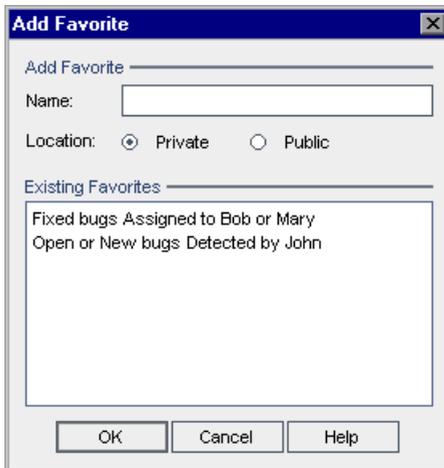
Adding Favorite Views

You can add a view to your private folder or to the public folder.

To add a favorite view:

1 Choose **Favorites** > **Add to Favorites**. The Add Favorite dialog box opens.

2 In the **Name** box, type a name for the view.

3 In **Location**:

➤ Select **Private** to add the view to your private folder. Favorite views in this folder can only be accessed by you.

➤ Select **Public** to add the view to the common folder. Favorite views in this folder can be accessed by all users of the project.

The favorite views that already exist in the folder you selected are displayed under **Existing Favorites**.

4 Click **OK**. The new view is added to your private folder or to the public folder.

Loading Favorite Views

You can load an existing favorite view in a Quality Center window.

To load a favorite view:

➤ To load a recently used favorite view, open the **Favorites** menu and choose a view.

Note: By default, Quality Center displays the four most recently used views on the **Favorites** menu. You can define the number of views displayed on the menu by setting the **FAVORITES_DEPTH** parameter in the Site Configuration tab in Site Administration. For more information, refer to the *HP Quality Center Administrator's Guide*.

➤ To load a favorite view, choose **Favorites** > **Private** or **Favorites** > **Public** and choose a view.

Alternatively, on the module toolbar, select a view from the **Favorite** bar. By default, the Favorite bar is not displayed. To display it, choose **View** > **Favorite Bar**. The Favorite bar is available from Quality Center grid views only.

Updating Views

You can update the settings of an existing view.

To update a view:

1 Load a favorite view from the **Favorites** menu. For more information, see "Loading Favorite Views" on page 95.

2 Make changes to the view.

3 Choose **Favorites** > **Add to Favorites**. The Add Favorite dialog box opens.

4 Under **Existing Favorites**, select the view name and click **OK**.

5 Click **Yes** to overwrite the previous settings.

Organizing Favorite Views

You can organize the list of favorite views in the private and public folders by changing the properties of a view and by deleting views.

To organize favorite views:

1 Choose **Favorites** > **Organize Favorites.** The Organize Favorites dialog box opens.

2 To change properties, select a view from the list and click **Properties**. The Properties dialog box opens.
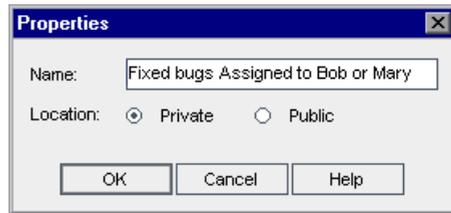
3 In the **Name** box, type a new name for the view.

4 Under **Location:**

➤ Select **Private** to add the view name to your private folder. It can only be accessed by you.

➤ Select **Public** to add the view name to a common folder. It can be accessed by all users.

5 Click **OK** to save the properties. Click **Yes** to confirm.

6 To delete a favorite view, select it from the list and click **Delete**. Click **OK** to confirm.

7 Click **Close** to close the Organize Favorites dialog box.
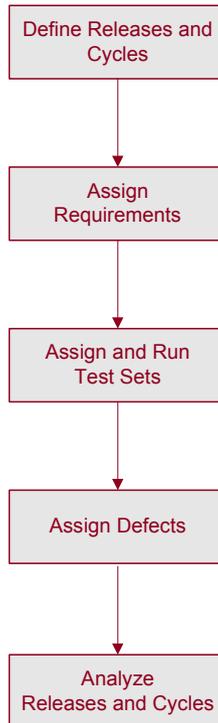
Part II

Release Management

7

The Release Management Workflow

You begin the application testing process by defining a releases tree in the Releases module.

This chapter describes how you use Quality Center to manage the release life cycle. The release management workflow consists of the following stages.

Before you begin using Quality Center, make sure you have a project in which to place your data. For information on creating projects, refer to the *HP Quality Center Administrator's Guide*.

Defining Releases and Cycles

The foundation of the Releases module is the releases tree. This tree enables the modeling of upcoming releases within a hierarchical tree structure.

A project manager starts by defining a release folder along with its *releases*. A release represents a group of changes in one or more applications that will be available for distribution at the same time. After defining the release, a QA manager defines *cycles*. A cycle is a set of development and quality assurance efforts performed to achieve a common goal based on the release timeline.

For example, suppose you are defining upcoming releases for the sample Mercury Tours application. The **Mercury Tours Application** folder contains **Release 10.5**. This release includes four cycles. You might define the releases and cycles in the releases tree as follows:


For more information on defining releases, see Chapter 9, "Creating a Releases Tree."

Assigning Requirements

After defining the releases tree, the QA manager defines and reviews the *requirements* in the Requirements module and assigns them to releases and cycles. Requirements describe in detail what needs to be tested in your application.

For example, in the requirements tree, under the **Mercury Tours Application** folder, you might assign **Booking System** and **Application Security** to the **Cycle 1 - New Features** cycle in the **Release 10.5** release.
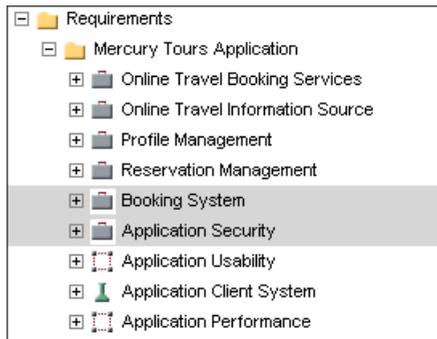
Requirements are used as a basis for the test plan in the Test Plan module. The tests you create during the test plan phase should cover these requirements.

For more information on requirements, see Chapter 12, "Developing the Requirements Tree."

For more information on test plan, see Chapter 17, "Developing the Test Plan Tree." For more information on coverage, see Chapter 18, "Linking Tests to Requirements."

Assigning and Running Test Sets

After the QA manager assigns requirements, the QA team leader assigns each *test set* folder in the Test Lab module to a cycle. A test set is a group of test instances in a Quality Center project designed to achieve specific test goals.

For example in the test set tree, you might define the following test set folders for **Release 10.5**.

Each test set folder is assigned to a cycle. For example, the **Cycle 1** test set folder is assigned to the **Cycle 1 - New Features** cycle.

After the QA team leader assigns test set folders to a cycle, the QA engineer runs the test sets under these test set folders.

For more information on test sets, see Chapter 24, "Creating Test Sets." For more information on running tests, see Chapter 26, "Running Tests Manually" and Chapter 27, "Running Tests Automatically."

Assigning Defects

If an application flaw is detected while running a test set, the QA engineer can submit a defect. Quality Center automatically creates a link between the test run, associated release and cycle, and the new defect.

Suppose a defect is detected while running a test instance from a test set in the **Cycle 1** test set folder. When the defect is initially submitted to the project, the **Detected in Release** field is assigned to the **Release 10.5** release, and the **Detected in Cycle** field is assigned to the **Cycle 1 - New Features** cycle.

While reviewing and deciding which new defects need to be fixed, the QA manager assigns them to the appropriate release and cycle.

Continuing with this example, suppose this defect is planned to be fixed in the next cycle. The **Target Release** field would be assigned to **Release 10.5**, and the **Target Cycle** field would be assigned to **Cycle 2 - New Features + Regression.**

A defect can be submitted to a Quality Center project from any module at any stage of the testing process.

For more information on submitting defects, see Chapter 31, "Adding and Tracking Defects."

Analyzing Releases and Cycles

Following test runs, the QA manager reviews the test progress to determine how well it meets the release goals. The QA manager can also determine how many defects were resolved, and how many still remain open. The results can be analyzed at a release or at a cycle level.

The QA manager can track the progress of the testing process in real time by analyzing the releases tree and ensuring that it matches the release goals. For more information on analyzing results at a release or at a cycle level, see Chapter 9, "Creating a Releases Tree."

8

The Releases Module at a Glance

This chapter introduces the key elements in the Releases module.

This chapter describes:	On page:
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The Releases Toolbar	109
The Release and Cycle Fields	110

The Releases Module

You define releases and cycles in Quality Center using the Releases module, which is opened by clicking the **Releases** button on the sidebar.
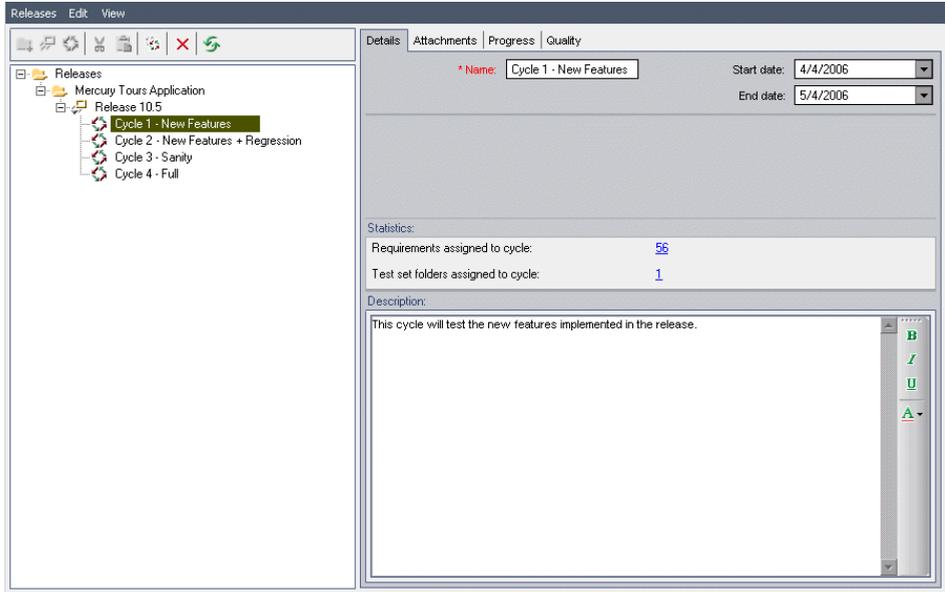
The Releases module contains the following key elements:

➤ **Releases menu bar.** Displays drop-down menus of Releases module commands.

➤ **Releases toolbar.** Contains buttons of Releases module commands.

➤ **Details tab.** Describes the release folder, release, or cycle currently selected in the releases tree. It also indicates range of release and cycle dates. The **Statistics** pane displays the requirements and test set folders associated with the release or cycle.

➤ **Attachments tab.** Lists attachments that provide additional information on the currently selected release folder, release, or cycle. For more information, see Chapter 5, "Adding Attachments".

➤ **Progress tab.** Shows a high-level overview of the progress of your release or cycle. For more information, see "Viewing Coverage Progress of Releases and Cycles" on page 121.

➤ **Quality tab.** Shows the number of defects opened over the course of your release or cycle. It also shows the number of outstanding defects. For more information, see "Viewing Defects of Releases and Cycles" on page 125.

The Releases Menu Bar

The Releases menu bar contains the following menus.

➤ The **Releases** menu contains commands that enable you to add release folders, releases, and cycles.

➤ The **Edit** menu contains commands that enable you to cut, paste, delete, and rename release folders, releases, and cycles. It also contains a command to create a duplicate of a cycle.

➤ The **View** menu contains commands that enable you to expand and collapse the releases tree. It also contains a command to refresh the releases tree.

The Releases Toolbar

The Releases toolbar contains the following buttons.

New Release Folder. Adds a new release folder to the releases tree.

New Release. Adds a new release to the releases tree.

New Cycle. Adds a new cycle to the releases tree.

Cut. Cuts a release folder or a release from the releases tree to move it to a different location in the tree.

Paste. Pastes a cut release folder or a release to the specified location in the tree.

Duplicate Cycle. Creates a duplicate of a cycle within the same release.

× **Delete.** Deletes the selected item. Deleting a release folder also deletes its releases and cycles. Deleting a release also deletes its cycles.

  Refresh All. Refreshes the releases tree and tabs so that it displays the most up-to-date data.

The Release and Cycle Fields

The Details tab of the Releases module displays the following fields:

Field	Description
Name	The release folder, release, or cycle name.
Start Date	The date on which the release or cycle starts. Click the down arrow to display a calendar and select a start date.
End Date	The date on which the release or cycle ends. Click the down arrow to display a calendar and select an end date.
Statistics	Statistics on the requirements and test set folders assigned to your releases and cycles.
Description	The release folder, release, or cycle description.

Notes:

➤ The dates for the cycles must be contained within the dates for the releases.

➤ You can add user-defined fields and change the label of any of the fields in the Releases module. For more information, refer to the *HP Quality Center Administrator's Guide*.

9

Developing the Releases Tree

The issuing of application releases is often challenging. It requires aligning your business priorities and quality expectations with your project requirements, tests, and defects. Most applications require testing on multiple hardware platforms, multiple configurations (computers, operating systems, and browsers), and multiple application versions. Managing all aspects of an application release can be time-consuming and difficult. In the Releases module, you can organize and track your upcoming releases by defining a releases tree.

About Developing the Releases Tree

In the Releases module, you can organize and track your upcoming releases by defining a hierarchical releases tree containing releases and cycles. A *release* represents a group of changes in one or more applications that will be available for distribution at the same time. Each release can contain a number of cycles. A *cycle* represents a development and QA cycle based on the project timeline. Both releases and cycles have defined start and end dates.

After defining the releases tree, you define requirements in the Requirements module and assign them to releases and cycles (see Chapter 12, "Developing the Requirements Tree"). Requirements describe in detail what needs to be tested in your application.

To cover your requirements (making sure that all of the features developed in a particular cycle are fully tested), you create tests in the Test Plan module (see Chapter 17, "Developing the Test Plan Tree" and Chapter 18, "Linking Tests to Requirements").

Then in the Test Lab module, you create a test set folder to store your test sets. Next, you assign the test set folder to a cycle. You then add test sets to your test set folder. Finally, you complete the test coverage planning by adding tests to each test set (see Chapter 24, "Creating Test Sets").

You then run your test sets (see Chapter 26, "Running Tests Manually," and Chapter 27, "Running Tests Automatically"). If application flaws are detected , you can submit defects, which you assign to a particular release and cycle in the releases tree (see Chapter 31, "Adding and Tracking Defects"). This enables all relevant developers and testers to determine what needs to be fixed and the target date for each fix.

After running the specified test sets, you can review the release progress in the Releases module to determine how well it meets your release goals. You can also determine how many defects were detected and how many defects are outstanding. You can analyze results at the level of a release or a cycle.

Release Management Example

Suppose you are developing a flight reservation application. In four months, you plan on releasing version 10.5. Your release includes four cycles. The first cycle is for testing new features. The second cycle is for regression testing. The third cycle is for sanity testing. The fourth cycle verifies the full functionality of the application. Your releases tree may be defined as follows:


In the Requirements module, you would decide which requirements need to be covered in each cycle and assign them to the relevant cycles accordingly. In the Test Plan module, you would then create tests and associate them with the assigned requirements to create coverage.

In the Test Lab module, you would create test set folders and assign them to specific cycles. For this example, you might define the Cycle 1, Cycle 2, Cycle 3, and Cycle 4 test set subfolders:
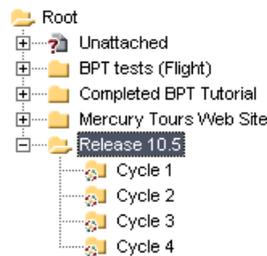
Note that after assigning a test set folder to a cycle, the test set folder icon 📁 is replaced by the assigned test set folder icon 🗂 .

For each assigned test set folder, you would then create test sets and add tests to them, for example:
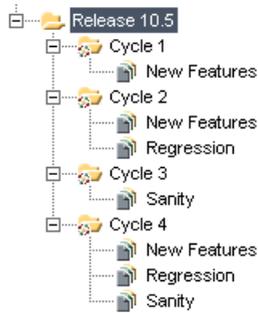
After running the test sets from the assigned test set folders, you can review the progress in the Progress tab to determine how well it meets your release goals. This provides you with a high-level overview of the progress of your release. The following shows the progress in the Release 10.5 example.
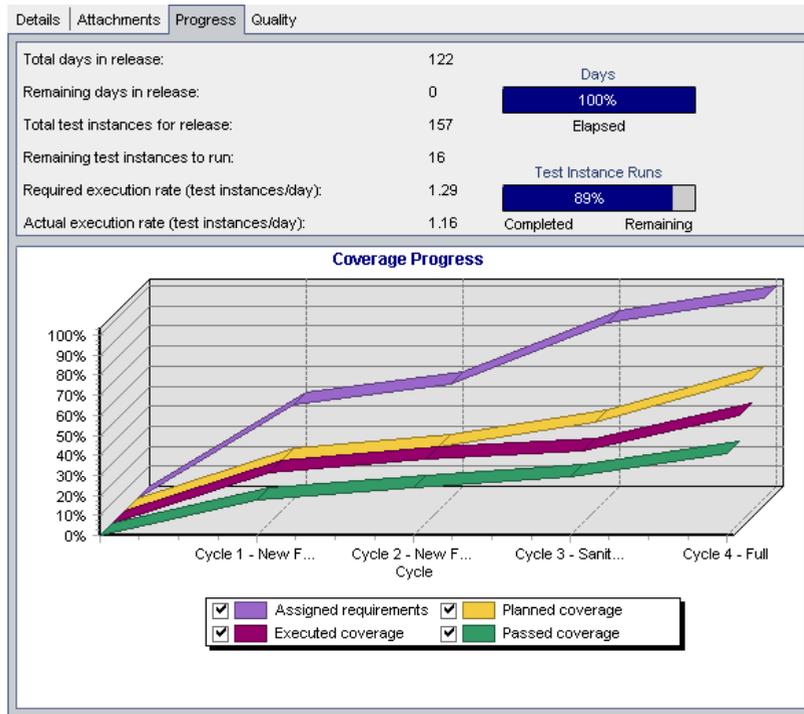
The top pane shows the total and remaining days in the release, total test instances for the release, actual and remaining test instances to run, and more.

The bottom pane displays the Coverage Progress graph. The curves displayed in this graph are accumulative, that is, each curve is calculated by accumulating of all the release information from the beginning of the release.

The **Assigned requirements** curve indicates the distribution of the assigned requirements within the release's cycles. In this example, the curve indicates a 100% value in the **Cycle 4 - Full** cycle.

The **Planned coverage** curve below the Assigned requirements curve indicates the percentage of requirements that are covered throughout the release. In this example only 60% of the requirements are covered in the **Cycle 4 - Full** cycle.

The **Executed coverage** curve below the Planned coverage curve indicates the percentage of tests that were run as the release progressed. In this example, the curve indicates that at **Cycle 4 - Full** only 40% of the assigned tests were run.

The **Passed Coverage** curve is below the Executed coverage curve. It indicates the test runs in which the most recent status is passed. In this example, the curve indicates a 20% value in the **Cycle 4 - Full** cycle.

For each cycle, you can view the number of defects submitted and their severity in the Quality tab. Suppose that while running the **Cycle 1** test set under the **Release 10.5** test set folder, four application flaws are detected. In the Releases tree, you would select **Cycle 1 - New Features** cycle and click the Quality tab to view the number of defects opened over the course of the cycle. The defects are categorized by severity level, ranging from **1-Low** to **5-Urgent**.
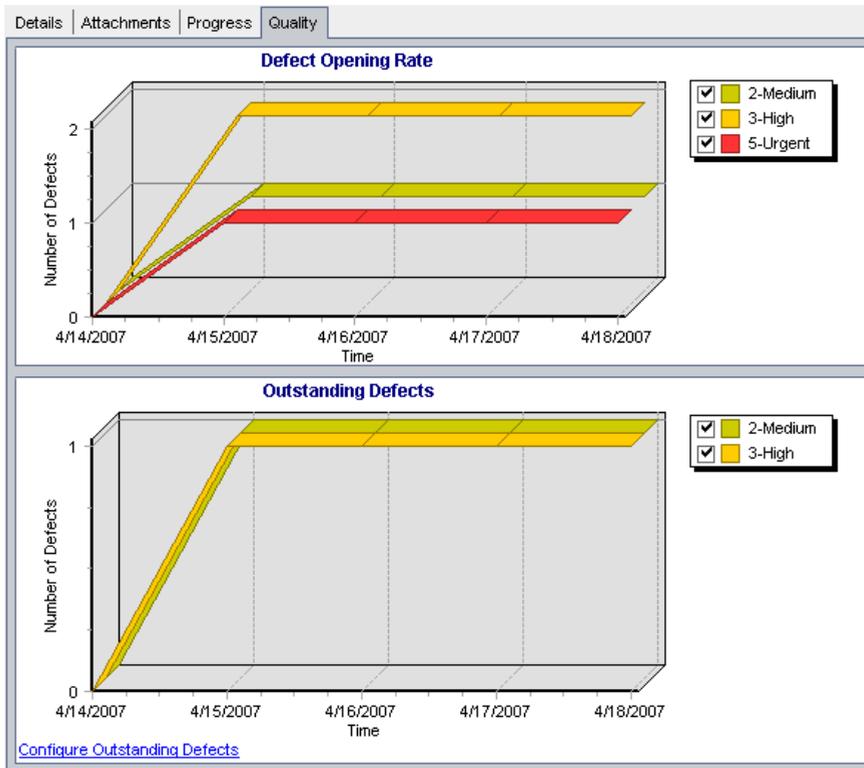
In the Defect Opening Rate graph, you can see that out of the four defects detected while testing the first cycle, two defects are assigned a severity value of **3-High**, one defect is assigned **5-Urgent**, and one defect is assigned **2-Medium**.

In the Outstanding Defects graph, you can see that two out of the four defects are still outstanding. One defect is assigned **2-Medium** the other defect is assigned **3-High**.

Creating a Releases Tree

You define a hierarchical framework for your releases by creating a releases tree. For each release folder in the tree, you define releases and add cycles to them. You start a releases tree by adding a folder under the **Releases** root folder.

To create a releases tree:

1 In the releases tree, select the **Releases** folder.

2 Click the **New Release Folder** button or choose **Releases** > **New Release Folder**. The New Release Folder dialog box opens.

3 Type the **Release Folder Name** and click **OK**. The new folder is added under **Releases** in the releases tree.

4 In the **Details** tab, type a description for the release folder.

5 Click the **Attachments** tab to add an attachment to the folder if necessary. An attachment can be a file, URL, snapshot of your application, an item from the Clipboard, or system information. For more information, see Chapter 5, "Adding Attachments."

6 To create additional folders, select a folder and repeat steps 2 to 5.

Adding Releases to Release Folders

After creating the releases tree, you add releases to your release folders. For each defined release, you add cycles.

To add a release to a release folder:

1 Select a release folder in the releases tree.

2 Click the **New Release** button or choose **Releases** > **New Release**. The New Release dialog box opens.

3 Type the **Release Name** and click **OK**. The new release appears under the selected release folder.

4 Enter the following release details in the Details tab:

Field	Description
Start Date	The date on which the release starts. Click the down arrow to display a calendar and select a start date.
End Date	The date on which the release ends. Click the down arrow to display a calendar and select an end date.
Description	Type a description of the release.

5 Click the **Attachments** tab to add an attachment to the release if necessary. An attachment can be a file, URL, snapshot of your application, an item from the Clipboard, or system information. For more information, see Chapter 5, "Adding Attachments."

**6** To create additional releases, select a release folder and repeat steps 2 to 5.

Adding Cycles to Releases

After adding releases to your release folders, you add cycles to each release.

To add a cycle to a release:

1 Select a release in the releases tree.

2 Click the **New Cycle** button or choose **Releases** > **New Cycle**. The New Cycle dialog box opens.

3 Type the **Cycle Name** and click **OK**. The new cycle appears under the selected release.

4 Enter the following cycle details in the Details tab:

Field	Description
Start Date	The date on which the cycle starts. Click the down arrow to display a calendar and select a start date.
End Date	The date on which the cycle ends. Click the down arrow to display a calendar and select an end date.
Description	Type a description of the cycle.

Note that the dates for the cycles must be contained within the dates of the releases.

5 Click the **Attachments** tab to add an attachment to the cycle if necessary. An attachment can be a file, URL, snapshot of your application, an item from the Clipboard, or system information. For more information, see Chapter 5, "Adding Attachments."

6 To create additional cycles, select a release and repeat steps 2 to 5.

Viewing Assigned Requirements and Test Set Folders

You can view statistics on the requirements and test set folders assigned to your releases and cycles.

To view assigned requirements for a release or a cycle:

1 In the releases tree, select a release or a cycle.

2 Click the **Details** tab. The details for the release or cycle are displayed.
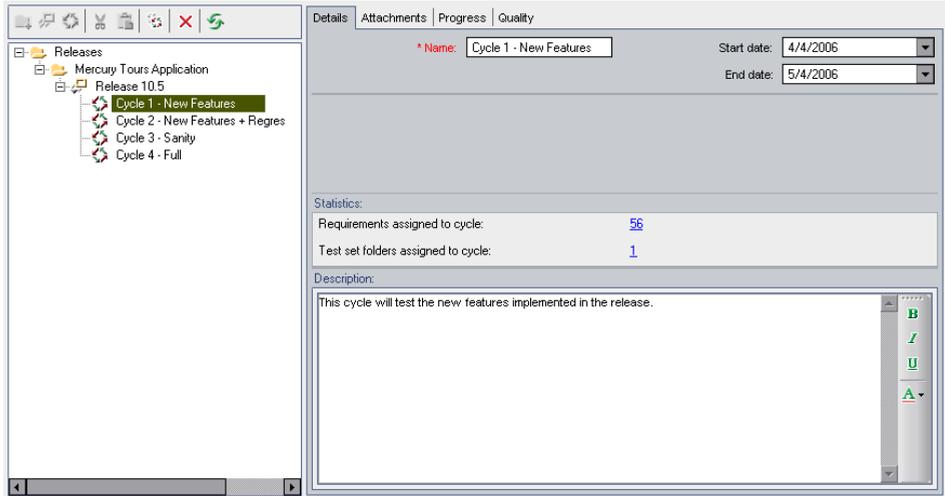
3 If you select a release, under the **Statistics** area, you can view the following statistics:

Option	Description
Requirements assigned to release	Displays the number of requirements associated with the selected release. To view the requirements assigned to the release in the Requirements module, click the link displaying the number of requirements. Alternatively, in the releases tree, right-click the release and choose **Show Requirements**.

If you select a cycle, under the **Statistics** area, you can view the following statistics:

Option	Description
Requirements assigned to cycle	Displays the number of requirements associated with the selected cycle. To view the requirements assigned to the cycle in the Requirements module, click the link displaying the number of requirements. Alternatively, in the releases tree, right-click the cycle and choose **Show Requirements**.
Test set folders assigned to cycle	Displays the number of test set folders associated with the selected cycle.To view the test set folders assigned to the cycle in the Test Lab module, click the link displaying the number of test set folders. Alternatively, in the releases tree, right-click the cycle and choose **Show Test Set Folders**.

Viewing Coverage Progress of Releases and Cycles

The Progress tab displays statistics and graphs to provide visual indications of the current progress of your release or cycle. This tab shows information such as elapsed and remaining days, completed and remaining test instances to run, and actual and required execution rate.

To view coverage progress of a release or a cycle:

1 Select a release or a cycle in the releases tree.

2 Click the **Progress** tab.
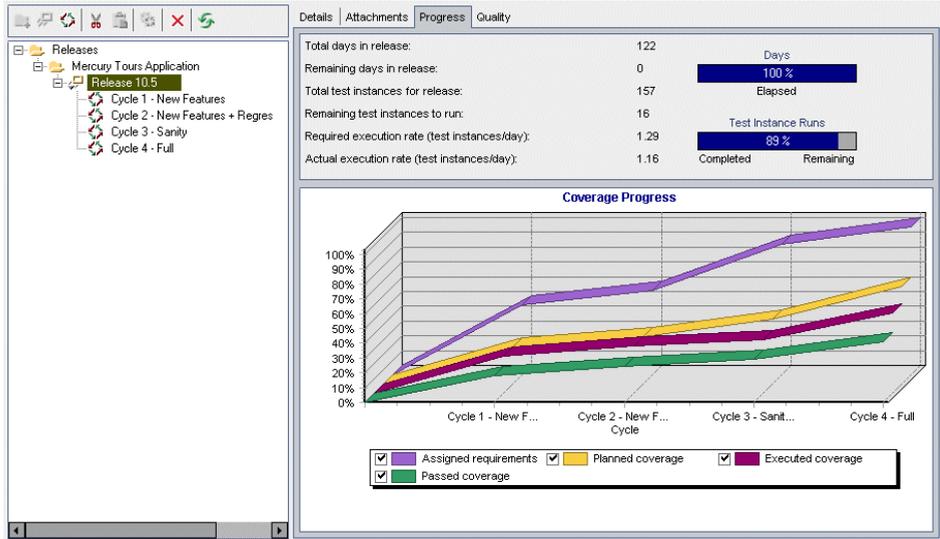
For each release, you can view the following information in the top pane of the Progress tab:

Option	Description
Total days in release	The total number of days in a selected release (end date - start date).
Remaining days in release	The total number of days remaining in a selected release.
Total test instances for release	The total number of test instances included in the test set folders assigned to a selected release.
Remaining test instances to run	The total number of test instances included in the assigned test set folders of a selected release that have not yet run.
Required execution rate (test instances/day)	The average number of test instance runs required per day for the remaining days in a selected release.
Actual execution rate (test instances/day)	The average number of test instance runs per day in the selected release up to the current date.

Option	Description
Days (progress bar)	The percentage of days elapsed in a selected release.
Test Instance Runs (progress bar)	The percentage of test instance runs completed in a selected release.

For each cycle, you can view the following information in the top pane of the Progress tab:

Option	Description
Total days in cycle	The total number of days in a selected cycle (end date - start date).
Remaining days in cycle	The total number of days remaining in a selected cycle.
Total test instances for cycle	The total number of test instances included in the test set folders assigned to a selected cycle.
Remaining test instances to run	The total number of test instances included in the assigned test set folders of a selected cycle that have not yet run.
Required execution rate (test instances/day)	The average number of test instance runs required per day for the remaining days in a selected cycle.
Actual execution rate (test instances/day)	The average number of test instance runs per day in the selected cycle up to the current date.
Days (progress bar)	The percentage of days elapsed in a selected cycle.
Test Instance Runs (progress bar)	The percentage of test instance runs completed in a selected cycle.

3 To customize the Coverage Progress graph for a selected release, select or clear the check boxes for the following options:

Option	Description
Assigned requirements	The accumulated percentage of requirements assigned to all cycles within a release.
Planned coverage	The accumulated percentage of tests planned for all cycles within a release.
Executed coverage	The accumulated percentage of tests that ran in all cycles within a release.
Passed coverage	The accumulated percentage of tests that ran successfully in all cycles within a release.

4 To customize the Coverage Progress graph for a selected cycle, select or clear the check boxes for the following options:

Option	Description
Planned coverage	The percentage of tests planned to be run each day within a cycle.
Executed coverage	The percentage of tests that ran each day within a cycle.
Passed coverage	The percentage of tests that ran successfully each day within a cycle.

5 To refresh the data in the Progress tab, click the **Refresh All** button.

Viewing Defects of Releases and Cycles

The Quality tab helps you draw conclusions quickly and see the number of defects submitted over the course of a release or cycle. The defects are categorized by severity in terms of how they impact system operation. The severity level ranges from **Low-1** to **Urgent-5**. You can view the graphs at any stage of the testing process to check the progress of your release.

For each release, you can view the following graphs in the Quality tab:

Graph	Description
Defect Opening Rate	Displays the number of defects opened over the course of a release. The graph displays defects whose **Detected in Release** value matches the selected release. The defects are grouped according to their level of **Severity**. The x-axis displays the number of defects according to their severity on the last day of each cycle.
Outstanding Defects	Displays the number of outstanding defects for the selected release. The graph displays defects whose **Target Release** value matches the selected release or is empty. The defects are grouped according to their level of **Severity**. The x-axis displays the outstanding defects according to their severity on the last day of each cycle. By default, **New**, **Open**, and **Reopened** defects are considered outstanding.

For each cycle, you can view the following graphs in the Quality tab:

Graph	Description
Defect Opening Rate	Displays the number of defects opened over the course of a cycle. The graph displays defects whose **Detected in Cycle** value matches the selected cycle. The defects are grouped according to their level of **Severity**. The x-axis displays the number of existing defects for each date.
Outstanding Defects	Displays the number of outstanding defects for a cycle. The graph displays defects whose **Detected in Cycle** value matches the selected cycle. The defects are grouped according to their level of **Severity**. The x-axis displays the number of existing defects that are outstanding on each date. By default, **New**, **Open**, and **Reopened** defects are considered outstanding.

To view the defects for a release or a cycle:

1 Select a release or a cycle in the releases tree.

2 Click the **Quality** tab.

The tab displays the Defect Opening Rate and Outstanding Defects graphs for the selected release or cycle.

3 In the **Defect Opening Rate** graph, you can select or clear the check boxes of the defect severity levels displayed in this graph.

4 In the **Outstanding Defects** graph, you can:

➤ Select or clear the check boxes of the defect severity levels displayed in this graph.

➤ Determine which defects are displayed in the graph by filtering them by their status. Click **Configure Outstanding Defects**. In the Configure Outstanding Defects dialog box, select a defect status and click the arrow buttons (> and <) to move it between **Available Defect Status** and **Visible Defect Status**. To move all of the types from one list to the other, click the double arrow buttons (>> and <<). Click **OK**.

5 To refresh the data in the Quality tab, click the **Refresh All** button.

Modifying the Releases Tree

This section on modifying the releases tree includes the following topics:

➤ Renaming Release Folders, Releases, and Cycles

➤ Moving Release Folders and Releases

➤ Duplicating Cycles

➤ Deleting Release Folders, Releases, and Cycles

Renaming Release Folders, Releases, and Cycles

You can rename a release folder, release, or cycle.

To rename a release folder, release, or cycle:

1 Select an item from the releases tree.

2 Choose **Edit** > **Rename**.

3 Edit the item name and press ENTER.

Moving Release Folders and Releases

You can move a release folder or a release to a different location in the releases tree. Moving a release folder also moves its releases and cycles. Moving a release also moves its cycles. The **Releases** root folder cannot be moved.

Tip: You can also move a release folder or a release to a new location in the releases tree by dragging it.

To move a release folder or a release:

1 Select a release folder or a release from the releases tree. To move more than one item, press the CTRL key and select the items you want to move.

2 Click the **Cut** button. Alternatively, choose **Edit** > **Cut**.

3 Select a folder in the releases tree.

4 Click the **Paste** button. Alternatively, choose **Edit** > **Paste**.

Duplicating Cycles

You can create a duplicate of a cycle within the same release.

To duplicate a cycle:

1 Select a cycle from the releases tree.

To duplicate more than one cycle, press the CTRL key and select the cycles you want to duplicate. You can select only multiple cycles that belong to the same release.

2 Click the **Duplicate Cycle** button. Alternatively, choose **Edit** > **Duplicate Cycle**. A duplicate copy is added to the release.

Deleting Release Folders, Releases, and Cycles

You can delete a release folder, release, or cycle. When you delete a folder, the releases and cycles under the folder are also deleted. When you delete a release, the cycles under it are also deleted.

Note: Deleting a release folder, release, or cycle, also unassigns the associated requirements, test set folders, and defects.

To delete a release folder, release, or cycle:

1 Select an item from the releases tree. To delete more than one item, press the **Ctrl** key and select the items you want to delete.

2 Click the **Delete** button. Alternatively, choose **Edit > Delete**. A confirmation message displays.

3 Click **Yes** to confirm. The items are deleted.

Part III

Requirements Specification

10

The Requirements Specification Workflow

After you define a releases tree in the Releases module, you continue the application testing process by specifying requirements. Requirements describe in detail what needs to be tested in your application, and provide the test team with the foundation on which the entire testing process is based. After specifying requirements, you assign them to the releases and cycles defined in the Releases module.

This chapter describes how you use the Requirements module to specify requirements. The requirements specification workflow consists of the following:

```
┌─────────────────┐
│     Define      │
│  Testing Scope  │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│     Create      │
│  Requirements   │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│     Detail      │
│  Requirements   │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Assign to Releases │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│     Analyze     │
│  Requirements   │
└─────────────────┘
```
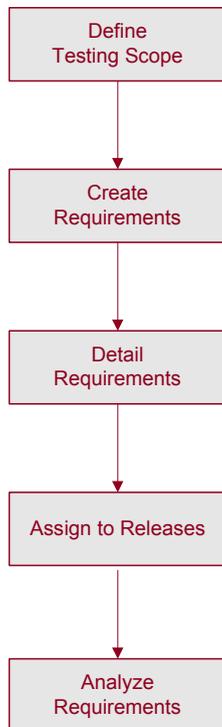
Defining the Testing Scope

The test team begins the testing process by gathering all available documentation on the application under test, such as marketing and business requirements documents, system requirements specifications, and design documents.

Use these documents to obtain a thorough understanding of the application under test and determine your testing scope—test goals, objectives, and strategies.

Ask the following questions when determining your testing scope:

➤ What is the main purpose and direction of the application?

➤ What are the major features of the application?

➤ What is the relative importance of each element in the application functionality?

➤ What are the critical or high-risk functions of the application?

➤ What are your testing priorities?

➤ Do your customers/end-users agree with your testing priorities?

➤ What are your overall quality goals?

You can use risk-based testing to help you decide how to allocate the testing resources you have available. For more information, see Chapter 14, "Calculating Requirement Risks."

Creating the Requirements Outline

Quality Assurance managers use the testing scope to determine the overall requirements for the application under test. They define requirement topics and assign them to the QA testers in the test team. Each QA tester uses Quality Center to record the requirement topics for which they are responsible.

Requirement topics are recorded in the Requirements module by creating a *requirements tree.* The requirements tree is a graphical representation of your requirements specification, displaying the hierarchical relationship between different requirements.
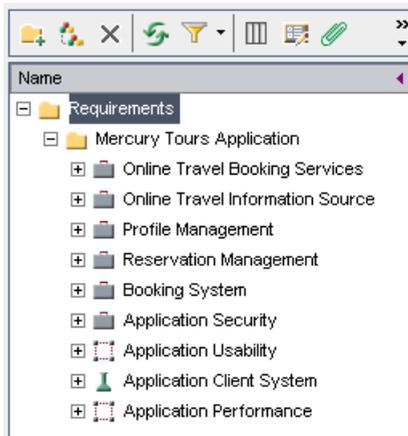
For example, consider a flight reservation application that lets you manage flight scheduling, passenger bookings, and ticket sales. The QA manager may define your major requirements as: Online Travel Booking Services, Online Travel Information Source, Profile Management, Reservation Management, Booking System, Application Security, Application Usability, Application Client System, and Application Performance. For the complete example, refer to the **QualityCenter_Demo** project.

For more information, see Chapter 12, "Developing the Requirements Tree."

Defining Requirements

For each requirement topic, a QA tester creates a list of detailed requirements in the requirements tree. For example, the requirement topic **Profile Management** may be broken down into the following requirements:
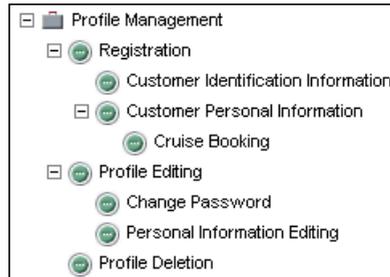
Each requirement in the tree is described in detail and can include any relevant attachments. The QA tester assigns the requirement a priority level which is taken into consideration when the test team creates the test plan.

After defining your requirements, you can add traceability between the requirements. When analyzing the impact of a change proposed in a specific requirement, traceability shows the other requirements that the change might affect. For more information, see Chapter 13, "Tracing Requirements."

Assigning Requirements to Releases

QA managers assign the requirements to *releases* and *cycles* in the releases tree in the Releases module. The releases tree specifies past, current, and upcoming product releases within a hierarchical tree structure. A release represents a group of changes in one or more applications that will be available for distribution at the same time. A cycle is a set of development and quality assurance efforts performed to achieve a common goal based on the release timeline. For more information on assigning requirements, see "Assigning Requirements to Releases or Cycles" on page 164.

The assigned requirements are then used as a basis for the test plan in the Test Plan module. The tests you create during the test plan phase are then linked to these requirements to create coverage. For more information on requirements and tests coverage, see Chapter 18, "Linking Tests to Requirements."

Analyzing your Requirements Specification

QA managers review the requirements, ensuring that they meet the testing scope defined earlier. They change a requirement from a **Not Reviewed** status to a **Reviewed** status once it is approved.

To help review the requirements, you can generate reports and graphs. For more information, see Chapter 33, "Generating Reports," and Chapter 34, "Generating Graphs."

11

The Requirements Module at a Glance

This chapter introduces the key elements in the Requirements module.

This chapter describes:	On page:
The Requirements Module	139
The Requirements Menu Bar	151
The Requirements Toolbar	152
The Requirement Fields	153

The Requirements Module

You specify requirements in Quality Center using the Requirements module, which is opened by clicking the **Requirements** button on the sidebar. You can display requirements in the following views: **Requirements Tree**, **Requirement Details, Requirements Grid**, or **Coverage Analysis**.

Note: You can also import requirements to your Quality Center project from Microsoft Word, Excel, or other third-party requirement management tools. To import requirements, you must first install the appropriate HP Quality Center add-in. For more information, refer to the *HP Quality Center Installation Guide*.

Requirements Tree

The Requirements Tree view enables you to display requirements in a tree.

The Requirements Tree view contains the following key elements:

➤ **Requirements menu bar.** Displays drop-down menus of Requirements module commands. For more information, see "The Requirements Menu Bar" on page 151.

➤ **Requirements toolbar.** Contains buttons for commands commonly used when creating and modifying requirements. For more information, see "The Requirements Toolbar" on page 152.

➤ **Indicator columns.** Indicates that the specified requirement has attachments, linked defects, alerts, and follow up flags. Choose **View > Indicator Columns** to display these columns.

Column	Description
Attachments	Click the 📎 icon to view attachments for the requirement. For more information, see Chapter 5, "Adding Attachments."
Linked Defects	Click the 🔗 icon to view linked defects for the requirement. For more information, see Chapter 32, "Linking Defects."
Alerts	Click the ❗ icon to view alerts for the requirement. For more information, see "Viewing Alerts" on page 80.
Follow Up Flags	Click the ⚑ icon to view follow up alerts for the requirement. For more information, see "Flagging for Follow Up" on page 82.

➤ **Requirements tree.** Displays requirements in a tree.

➤ **Information Panel.** Displays the following tabs: Description, Comments, Attachments, History, and Rich Text. Choose **View > Information Panel** or click the **Show** arrow ⌃ to display these tabs.

Tab	Description
Description	Displays a description of the currently selected requirement.
Comments	Displays comments about the currently selected requirement.
Attachments	Lists attachments that provide additional information about the currently selected requirement. For more information, see Chapter 5, "Adding Attachments".

Tab	Description
History	Displays a list of changes made to the currently selected requirement. For more information, see "Viewing Requirement History" on page 175.
Rich Text	Enables you to add, view, and edit Microsoft Word rich text directly from Quality Center. For more information, see "Adding Rich Text to Requirements" on page 165.

Tip: To find a specific requirement by **ReqID** in the Requirements Tree view, choose **Requirements** > **Go to Requirement**, and enter the requirement ID. To display the requirement ID, select the **ReqID** column using the Select Columns dialog box. You can only go to requirements that are in the current filter.

Requirement Details

The Requirement Details view enables you to display for requirements the tests with which they are associated, requirements with which they are traced, and defects with which they are linked. It also enables you to calculate and analyze requirement risks.
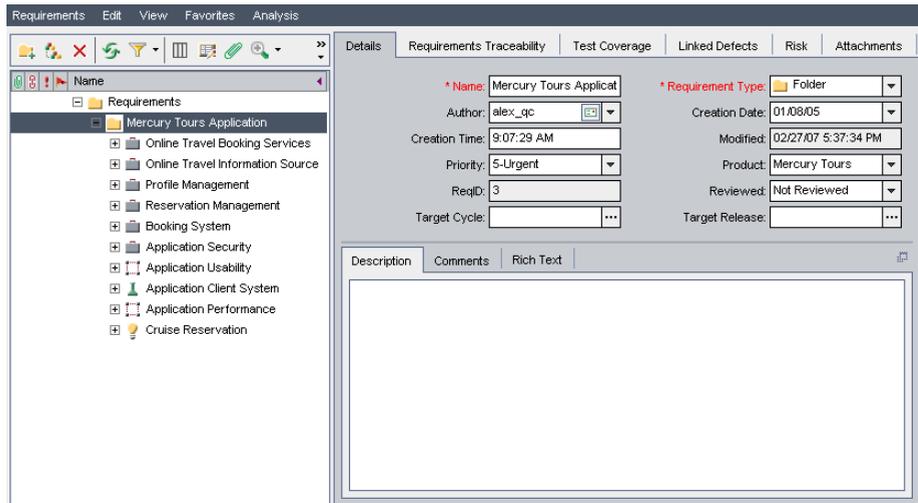
The Requirement Details view contains the following key elements:

➤ **Requirements menu bar.** Displays drop-down menus of Requirements module commands. For more information, see "The Requirements Menu Bar" on page 151.

➤ **Requirements toolbar.** Contains buttons for commands commonly used when creating and modifying requirements. For more information, see "The Requirements Toolbar" on page 152.

➤ **Indicator columns.** Indicates that the specified requirement has attachments, linked defects, alerts, and follow up flags. Choose **View > Indicator Columns** to display these columns.

Column	Description
Attachments	Click the 📎 icon to view attachments for the requirement. For more information, see Chapter 5, "Adding Attachments."
Linked Defects	Click the 🔗 icon to view linked defects for the requirement. For more information, see Chapter 32, "Linking Defects."
Alerts	Click the ❗ icon to view alerts for the requirement. For more information, see "Viewing Alerts" on page 80.
Follow Up Flags	Click the 🚩 icon to view follow up alerts for the requirement. For more information, see "Flagging for Follow Up" on page 82.

➤ **Requirements tree.** Displays requirements in a tree.

➤ **Details tab.** Displays details about the currently selected requirement. It also includes the following tabs:

Tab	Description
Description	Displays a description of the currently selected requirement.
Comments	Displays comments about the currently selected requirement.
Rich Text	Enables you to add, view, and edit Microsoft Word rich text directly from Quality Center. For more information, see "Adding Rich Text to Requirements" on page 165.

For more information on the fields displayed in the Details tab, see "The Requirement Fields" on page 153.

➤ **Requirements Traceability tab.** Lists the requirements linked to the currently selected requirement. For more information, see Chapter 13, "Tracing Requirements."

➤ **Test Coverage tab.** Lists the tests associated with the currently selected requirement. For more information, see Chapter 18, "Linking Tests to Requirements".

➤ **Linked Defects tab.** Lists the defects linked to the currently selected requirement. For more information, see Chapter 32, "Linking Defects."

➤ **Risk tab.** Calculates and analyzes requirement risks. For more information, see Chapter 14, "Calculating Requirement Risks."

➤ **Attachments tab.** Lists the attachments that provide additional information about the currently selected requirement. For more information, see Chapter 5, "Adding Attachments".

Tip: To find a specific requirement by **ReqID** in the Requirement Details view, choose **Requirements > Go to Requirement**, and enter the requirement ID. To display the requirement ID, select the **ReqID** column using the Select Columns dialog box. You can only go to requirements that are in the current filter.

Requirements Grid

The Requirements Grid view enables you to display requirements in a flat non-hierarchical view. Each line in the grid displays a separate requirement.

The Requirements Grid view contains the following key elements:

➤ **Requirements menu bar.** Displays drop-down menus of Requirements module commands. For more information, see "The Requirements Menu Bar" on page 151.

➤ **Requirements toolbar.** Contains buttons for commands commonly used when creating and modifying requirements. For more information, see "The Requirements Toolbar" on page 152.

➤ **Indicator columns.** Indicates that the specified requirement has attachments, linked defects, alerts, and follow up flags. Choose **View** > **Indicator Columns** to display these columns.

Column	Description
Attachments	Click the 📎 icon to view attachments for the requirement. For more information, see Chapter 5, "Adding Attachments."
Linked Defects	Click the 🔗 icon to view linked defects for the requirement. For more information, see Chapter 32, "Linking Defects."
Alerts	Click the ! icon to view alerts for the requirement. For more information, see "Viewing Alerts" on page 80.
Follow Up Flags	Click the ⚑ icon to view follow up alerts for the requirement. For more information, see "Flagging for Follow Up" on page 82.

➤ **Information Panel.** Displays the following tabs: Description, Comments, Attachments, History, and Rich Text. Choose **View** > **Information Panel** or click the **Show** arrow ⌃ to display these tabs.

Tab	Description
Description	Displays a description for the currently selected requirement.
Comments	Displays comments about the currently selected requirement.
Attachments	Lists attachments that provide additional information about the currently selected requirement. For more information, see Chapter 5, "Adding Attachments".

Tab	Description
History	Displays a list of changes made to the currently selected requirement. For more information, see "Viewing Requirement History" on page 175.
Rich Text	Enables you to add, view, and edit Microsoft Word rich text directly from Quality Center. For more information, see "Adding Rich Text to Requirements" on page 165.

Tip: To find a specific requirement by **ReqID** in the Requirements Grid view, choose **Requirements** > **Go to Requirement**, and enter the requirement ID. To display the requirement ID, select the **ReqID** column using the Select Columns dialog box.

Coverage Analysis

The Coverage Analysis view enables you to analyze the breakdown of child requirements according to test coverage status.
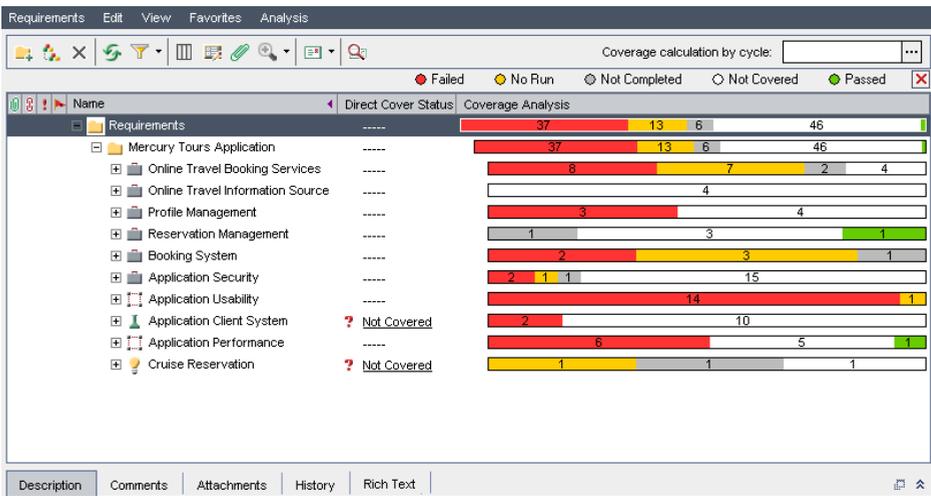
The Coverage Analysis view contains the following key elements:

➤ **Requirements menu bar.** Displays drop-down menus of Requirements module commands. For more information, see "The Requirements Menu Bar" on page 151.

➤ **Requirements toolbar.** Contains buttons for commands commonly used when creating and modifying requirements. For more information, see "The Requirements Toolbar" on page 152.

➤ **Indicator columns.** Indicates that the specified requirement has attachments, linked defects, alerts, and follow up flags. Choose **View > Indicator Columns** to display these columns.

Column	Description
Attachments	Click the 📎 icon to view attachments for the requirement. For more information, see Chapter 5, "Adding Attachments."
Linked Defects	Click the 🔗 icon to view linked defects for the requirement. For more information, see Chapter 32, "Linking Defects."
Alerts	Click the ! icon to view alerts for the requirement. For more information, see "Viewing Alerts" on page 80.
Follow Up Flags	Click the ⚑ icon to view follow up alerts for the requirement. For more information, see "Flagging for Follow Up" on page 82.

➤ **Requirements tree.** Displays requirements in a tree.

➤ **Information Panel.** Displays the following tabs: Description, Comments, Attachments, History, and Rich Text. Choose **View** > **Information Panel** or click the **Show** arrow ⮝ to display these tabs.

Tab	Description
Description	Displays a description for the currently selected requirement.
Comments	Displays comments about the currently selected requirement.
Attachments	Lists attachments that provide additional information about the currently selected requirement. For more information, see Chapter 5, "Adding Attachments".
History	Displays a list of changes made to the currently selected requirement. For more information, see "Viewing Requirement History" on page 175.
Rich Text	Enables you to add, view, and edit Microsoft Word rich text directly from Quality Center. For more information, see "Adding Rich Text to Requirements" on page 165.

Tip: To find a specific requirement by **ReqID** in the Requirement Details view, choose **Requirements** > **Go to Requirement**, and enter the requirement ID. To display the requirement ID, select the **ReqID** column using the Select Columns dialog box. You can only go to requirements that are in the current filter.

The Requirements Menu Bar

The Requirements menu bar has the following menus. The menus and commands available in the menu bar may change depending on the requirements view.

➤ The **Requirements** menu contains commands that enable you to add and locate requirements in the tree, generate a test from a requirement, display requirement details, and mail a requirement.

➤ The **Edit** menu contains commands that enable you to cut, copy, paste, rename, or delete a requirement, or to find, replace, or search requirements. You can also view and clear alerts for requirements and flag requirements for follow-ups. For more information on alerts and follow-ups, see Chapter 4, "Alerting on Changes."

➤ The **View** menu contains commands that enable you to set the display of the requirements tree or grid, filter and sort the requirements, set the displayed columns, and select a requirement view.

➤ The **Favorites** menu contains commands that enable you to add, organize, and load favorite views. For more information, see "Working with Favorite Views" on page 93.

➤ The **Analysis** menu contains commands that enable you to generate requirements reports and graphs. For more information on requirements reports, see Chapter 33, "Generating Reports." For more information on requirements graphs, see Chapter 34, "Generating Graphs."

Tip: You can access the Requirements menu bar from the Requirements module by pressing the shortcut key F9. Additionally, you can perform many other Quality Center operations using shortcut keys. For a list of shortcut keys, see Appendix B, "Quality Center Keyboard Shortcuts."

The Requirements Toolbar

The Requirements toolbar has the following buttons. The buttons available in the toolbar may change depending on the requirements view.

New Folder. Adds a new folder to the requirements tree.

New Requirement. Adds a new requirement to the requirements tree.

Delete. Deletes the selected requirement. Deleting a requirement also deletes its child requirements, tests coverage, defects linkage, and attachments.

Refresh All. Refreshes the requirements tree or grid so that it displays the most up-to-date requirements.

Set Filter/Sort. Includes the following options:

➤ **Set Filter/Sort.** Opens the Filter dialog box, enabling you to filter and sort the requirements in the requirements tree or grid.

➤ **Clear Filter/Sort.** Clears any filters or sorting that you have applied to the requirements tree or grid.

Select Columns. Opens the Select Columns dialog box, enabling you to determine which fields to display in the requirements tree or grid and their order. For more information, see "Arranging Columns" on page 51.

Requirement Details. Opens the Requirement Details dialog box, enabling you to display the details of the selected requirement. For more information, see "Updating Requirements" on page 167.

Attachments. Opens the Requirement Details dialog box in the Attachments view, enabling you to add an attachment to the selected requirement. For more information, see Chapter 5, "Adding Attachments."

Go To Requirement in Requirements Tree. Goes to the Requirements Tree view and highlights the selected requirement.

Zoom In. Changes the level of detail in the requirements tree. For more information, see "Zooming the Tree" on page 173.

Send by E-mail. Opens the Send E-mail dialog box, enabling you to send requirement e-mail to recipients selected from a list or to the author of the requirement. For more information, see "Mailing Requirements" on page 176.

Text Search. Opens the text search pane in the lower part of the window, enabling you to enter keywords and search predefined fields. For more information, see "Searching Records" on page 71.

Favorite. Click the **Favorite** arrow to display a list of favorite views. Favorite views enable you to reload a Quality Center window with the settings you apply to it. (Available only in the Requirements Grid view. To display the Favorite bar, choose **View > Favorite Bar**.) For more information on favorite views, see Chapter 6, "Working with Favorite Views."

The Requirement Fields

The Requirement module displays the following fields:

Field	Description
Author	The user name of the person who created the requirement. By default, this is the login user name.
Comments	Displays comments about the requirement.
Creation Date	The date on which the requirement was created. By default, the creation date is set to the current database server date. Click the down arrow to display a calendar and select a different creation date.
Creation Time	The time at which the requirement was created. By default, the creation time is set to the current database server time.
Description	A description of the requirement.

Field	Description
Direct Cover Status	The current status of the requirement. By default, the status is **Not Covered**.
	A requirement status can be one of the following:
	➤ **Not Covered.** The requirement has not been linked to a test.
	➤ **Failed.** One or more tests covered by the requirement have an execution status of "Failed".
	➤ **Not Completed.** One or more tests covered by the requirement have an execution status of "Not Completed".
	➤ **Passed.** All the tests covered by the requirement have an execution status of "Passed".
	➤ **No Run.** All the tests covered by the requirement have an execution status of "No Run".
	➤ **N/A.** The current status of the requirement is not applicable.
	➤ -----. The requirement does not have a direct cover status as it belongs to a requirement type that does not support coverage.
	You can click a status to open the Tests Coverage dialog box for the selected requirement. Available only in the Requirements Tree and Coverage Analysis. For more information on coverage, see Chapter 18, "Linking Tests to Requirements."
Modified	Indicates the date the requirement was last changed.
Name	The requirement name.
Old Type (obsolete) (formerly **Type**)	The type of requirement (obsolete). In previous versions of Quality Center, the type could be any value configured in the project, with typical values **Change**, **Functional**, **Guideline**, **Quality**, **Standard**, and **System**.
	Note that this field can only be in use for requirements of undefined type.
Priority	The priority of the requirement, ranging from low priority (level 1) to urgent priority (level 5).
Product	The component of the application on which the requirement is based.

Field	Description
RBQM Business Impact	The calculated Business Criticality for the requirement. Possible values are **A** (**Critical**), **B** (**Important**), and **C** (**Nice to have**). This field is only in use for assessment requirements.
RBQM Custom Business Impact	The user-defined custom Business Criticality for the requirement. Possible values are **A** (**Critical**), **B** (**Important**), and **C** (**Nice to have**). This field is only in use for assessment requirements.
RBQM Custom Failure Probability	The user-defined custom Failure Probability for the requirement. Possible values are **1** (**High**), **2** (**Medium**), and **3** (**Low**). This field is only in use for assessment requirements.
RBQM Custom Testing Hours	The user-defined effort required to test the requirement., measured in units defined in Project Customization. This field is only in use for assessment requirements.
RBQM Custom Testing Level	The user defined level at which to test the requirement. Possible values are **1-Full**, **2-Partial**, **3-Sanity**, and **4-None**. This field is only in use for assessment requirements.
RBQM Date of Last Analysis	The date a risk-based testing analysis was last performed on the requirement. This field is only in use for analysis requirements.
RBQM Effective Business Impact	The effective Business Criticality for the requirement. Possible values are **A** (**Critical**), **B** (**Important**), and **C** (**Nice to have**). This field is only in use for assessment requirements.
RBQM Effective Failure Probability	The effective Failure Probability for the requirement. Possible values are **1** (**High**), **2** (**Medium**), and **3** (**Low**). This field is only in use for assessment requirements.
RBQM Estimated RnD Effort	The user-defined estimate of the effort required to develop the requirement. This field is only in use for assessment requirements.
RBQM Exclude from Analysis	Indicates whether to exclude the requirement from risk analysis. A requirement may be excluded from risk analysis if it belongs to a type for which risk assessments are not available, or if you specifically exclude it from analysis.
RBQM Failure Probability	The calculated Failure Probability for the requirement. Possible values are **1** (**High**), **2** (**Medium**), and **3** (**Low**). This field is only in use for assessment requirements.

Field	Description
RBQM Testing Hours	The calculated effort required to test the requirement, measured in units defined in Project Customization. This field is only in use for assessment requirements.
RBQM Testing Level	The calculated level at which to test the requirement. Possible values are **1-Full**, **2-Partial**, **3-Sanity**, and **4-None**. This field is only in use for assessment requirements.
RBQM Use Custom Business Impact	Indicates whether to use the user-defined Business Criticality, instead of the Business Criticality calculated by Quality Center. This field is only in use for assessment requirements.
RBQM Use Custom Failure Probability	Indicates whether to use the user-defined Failure Probability, instead of the Failure Probability calculated by Quality Center. This field is only in use for assessment requirements.
RBQM Use Custom Results	Indicates whether to use the user-defined testing effort and testing level, instead of the values calculated by Quality Center. This field is only in use for assessment requirements.
Req ID	A unique alphanumeric ID for the requirement that is assigned automatically. Note that the Req ID cannot be modified.
Req Parent	The name of the parent requirement.

Field	Description
Reviewed	Indicates whether the requirement has been reviewed and approved by the person responsible.
Requirement Type	Indicates the type of requirement. Default values are: ➤ 🗄 **Business**. A business process requirement. By default, you cannot add coverage to this requirement. ➤ 📁 **Folder.** A folder for organizing requirements. By default, you cannot add coverage to this requirement. ➤ 💡 **Functional.** A system behavioral requirement. ➤ ⬚ **Group.** A collection of related requirements. ➤ 🧪 **Testing.** A system performance requirement. ➤ ● **Undefined**. An undefined requirement. You can customize the default types and create your own requirement types. For more information on customizing requirement types, refer to the *HP Quality Center Administrator's Guide*.
Target Cycle	Indicates the cycle in which the requirement was assigned. Click the down arrow to select a different cycle.
Target Release	Indicates the release in which the requirement was assigned. Click the down arrow to select a different release.

Notes:

➤ You can add user-defined fields and change the label of any of the fields in the Requirements module. You can also customize project lists. For more information, refer to the *HP Quality Center Administrator's Guide*.

➤ You can use the Script Editor to restrict and dynamically change the fields and values in the Requirements module. For more information, refer to the *HP Quality Center Administrator's Guide*.

➤ When you select a requirement column with a user name value (including user-defined fields), Quality Center displays a list with the name and full name of each user. You can search for users, sort users, group users by user group, and select users from the users list or a group tree. For more information, see "Selecting Users" on page 54.

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Developing the Requirements Tree

The requirements tree organizes and displays your requirements hierarchically.

About Developing the Requirements Tree

The process of specifying testing requirements can be tedious and time-consuming. In many cases, the test team records requirements in a word-processed document or in a spreadsheet. This requirements document is complicated to maintain, difficult to organize and sort, and cannot be associated with tests and defects you create based on the requirements, or with other requirements.

The Requirements module enables you to define and manage your requirements. The test team records requirements in Quality Center by creating a requirements tree. This is a graphical representation of your requirements specification, displaying your requirements hierarchically.

After defining your requirements, you can establish traceability between two or more requirements. Requirements traceability defines a relationship between the requirements. When analyzing the impact of a change proposed in a specific requirement, the traceability links indicate the other requirements that the change might affect. When a requirement changes, Quality Center alerts the directly influenced traced requirements. For more information on establishing traceability between requirements, see Chapter 13, "Tracing Requirements."

During the requirements specification phase, you assign your requirements to a release or a cycle in the releases tree. Requirements can be assigned to one or more releases or cycles. For more information, see "Assigning Requirements to Releases or Cycles" on page 164.

After you have created tests, you associate assigned requirements with tests and defects. In this way, you can keep track of your testing needs at all stages of the testing process. If a requirement changes, you can immediately identify which tests and defects are affected, and who is responsible. For more information on associating requirements with tests, see Chapter 18, "Linking Tests to Requirements." For more information on associating requirements with defects, see Chapter 32, "Linking Defects."

Note: This chapter assumes you are using the Requirements module's **Requirements Tree** to create a requirements tree. For information on the **Requirements Grid** view, see "Requirements Grid" on page 146. For information on the **Requirement Details** view and **Coverage Analysis** view, see Chapter 18, "Linking Tests to Requirements."

Creating a Requirements Tree

You start a requirements tree by adding requirements to the **Requirements** root folder. You can organize your requirement topics into folders. The root folder cannot be renamed or deleted.

Note: In addition to creating requirements directly in Quality Center, you can also import requirement data from Microsoft Word or Microsoft Excel to your Quality Center project. To import from Word, you must install the **Microsoft Word Add-in** and the **HP Quality Center Connectivity Add-in**. To import from Excel, you must install the **Microsoft Excel Add-in** and the **HP Quality Center Connectivity Add-in**. You can install the add-ins from the HP Quality Center Add-ins page. For more information, refer to the *HP Quality Center Installation Guide*.

To create a requirements tree:

1 In the Requirements module, choose **View** > **Requirements Tree** to display the Requirements Tree view.

2 To add a requirement at the main level, select the **Requirements** root folder. To create a child requirement, select a requirement.

3 To add a folder, click the **New Folder** button or choose **Requirements** > **New Folder**. In the Create New Requirement Folder dialog box, type the **Folder Name** and click **OK**. Note that a folder name cannot include the following characters: \ ^ *

4 To add a requirement, click the **New Requirement** button. Alternatively, choose **Requirements** > **New Requirement**. The Create New Requirement dialog box opens.

5 In the **Requirement Type** list, select a requirement type. For more information on requirement types, see "The Requirement Fields" on page 153.

6 In the **Requirement Name** box, type a name for the new requirement. A requirement name cannot include the following characters: \ ^ *

7 Click **OK**. The New Requirement dialog box opens.

8 Add details for the requirement. Note that a required field is displayed in red. For more information on the available fields in the Requirements module, see "The Requirement Fields" on page 153.

9 To clear the data in the New Requirement dialog box, click the **Clear** button.

10 You can add an attachment to your requirement:

> ➤ Click the **Attach File** button to attach a text file.

> ➤ Click the **Attach URL** button to attach a URL.

> ➤ Click the **Attach Snapshot** button to capture and attach an image.

> ➤ Click the **Attach Sysinfo** button to attach information about your machine.

> ➤ Click the **Attach Clipboard** button to attach text or an image from the Clipboard.

For more information about adding attachments, see Chapter 5, "Adding Attachments."

11 You can check the spelling in the New Requirement dialog box:

> ➤ Click the **Check Spelling** button to check the spelling for the selected word or text box.

> ➤ Click the **Spelling Options** button to open the Spelling Options dialog box, enabling you to configure the way Quality Center checks spelling.

> ➤ Click the **Thesaurus** button to open the Thesaurus dialog box and display a synonym, antonym, or related word for the selected word.

12 Click **Submit** to add the new requirement to the tree.

13 Click **Close** to close the New Requirement dialog box.

14 To add test coverage for the requirement, choose **View** > **Requirement Details**. You can also choose **View** > **Coverage Analysis** to display the breakdown of child requirements according to test coverage status. For more information, see Chapter 18, "Linking Tests to Requirements."

15 To add requirement traceability links for the requirement, choose **View** > **Requirement Details** and click the **Requirements Traceability** tab. For more information, see Chapter 13, "Tracing Requirements."

16 To add defect links for the requirement, choose **View** > **Requirement Details** and click the **Linked Defects** tab. For more information, see Chapter 32, "Linking Defects."

Assigning Requirements to Releases or Cycles

After you have defined your requirements in the requirements tree, you assign the requirements to a release or a cycle in the Releases module. You can assign requirements to one or more releases or cycles in the releases tree. For more information, see Chapter 9, "Developing the Releases Tree."

During the test planning stage, you associate the tests in the Test Plan module to your assigned requirements to create coverage. By defining coverage, you can keep track of the relationship between the tests in your test plan and your requirements. For more information on coverage, see Chapter 18, "Linking Tests to Requirements."

During the test running stage, you add the tests that cover the assigned requirements to test sets in the Test Lab module, and then you assign the test set folders to cycles. For more information, see "Assigning Test Set Folders to Cycles" on page 327.

To assign a requirement to a release or a cycle:

1 In the requirements tree, select the requirement that you want to assign to a release or a cycle. To select more than one requirement, use the **Ctrl** key.

2 To assign to a release, choose **Requirements** > **Assign To Release**. Alternatively, right-click and choose **Assign To Release**. The Assign To Release dialog box opens. Expand the tree and select a release. Click **OK** to close the dialog box.

To assign to a cycle, choose **Requirements** > **Assign To Cycle**. Alternatively, right-click and choose **Assign To Cycle**. The Assign To Cycle dialog box opens. Expand the tree and select a cycle. Click **OK** to close the dialog box.

3 If the selected requirement contains child requirements, a confirmation box opens. Click **Yes** to assign the requirement and its child requirements. Click **No** to assign the requirement without its child requirements.

Adding Rich Text to Requirements

You can add, view, and edit Microsoft Word rich text from within Quality Center, without the need to edit the text in Word. Changes you make to the rich text for a requirement are saved automatically when you move to a different requirement or a different module.

Notes:

➤ To verify supported versions of Microsoft Word, refer to the *HP Quality Center Installation Guide*.

➤ Microsoft Word must be closed when adding or editing rich text.

To add rich text to a requirement:

1 In the requirements tree, select a requirement and click the **Details** tab.

2 In the Details tab, click the **Rich Text** tab. A Microsoft Word editor is displayed.
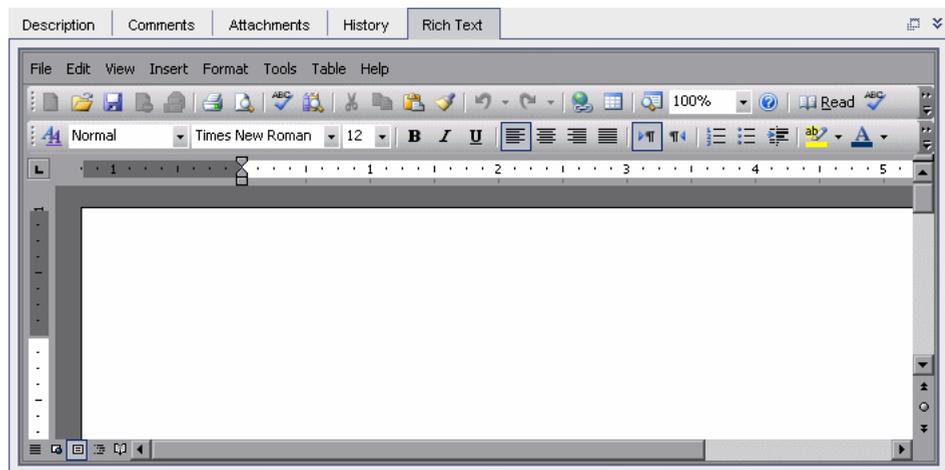
3 Edit the rich text as you would in Word. For more information on using Word to edit rich text, refer to the Microsoft Word documentation.

4 To edit rich text in a separate window, click the **Maximize Content** button.

5 To replace the existing rich text with content from a saved Word file, in the Rich Text tab, choose **File** > **Import**.

6 To replace the existing rich text with a blank page, in the Rich Text tab, choose **File** > **New**.

7 To save the rich text as a Word document, choose **File** > **Save**.

Updating Requirements

You can update your requirements directly in the requirements tree or grid, or in the Requirement Details dialog box. Using the Requirement Details dialog box, you can update the details, attachments, tests coverage, requirement traceability links, risk-based quality management settings, and defect links for any requirement. You can also view a list of changes made to any requirement.

To update a requirement:

1 Double-click the requirement you want to update. Alternatively, select the requirement and click the **Requirement Details** button. The Requirement Details dialog box opens.

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2 You can click the **First** button to display the first requirement in the tree or grid, or the **Previous** button to display the preceding requirement.

3 You can click the **Next** button to display the next requirement in the tree or grid, or the **Last** button to display the final requirement in the tree or grid.

4 Click the **Send by E-mail** button to send an e-mail with the requirement details. For more information on mailing requirements, see "Mailing Requirements" on page 176.

5 In the **Details** view, you can add or modify information for the selected requirement. For more information on available fields in the **Details** view, see "The Requirement Fields" on page 153.

6 Click **Requirements Traceability** on the sidebar to add requirement traceability links for the requirement. For more information on traceability, see Chapter 13, "Tracing Requirements."

7 Click **Test Coverage** on the sidebar to add test coverage for the requirement. For more information on test coverage, see Chapter 18, "Linking Tests to Requirements."

8 Click **Linked Defects** on the sidebar to add defect links for the requirement. A clickable icon 🔗 is placed next to the requirement in the Requirements Grid. For more information on linked defects, see "Linking Defects" on page 435.

9 Click **Risk** on the sidebar to use risk-based quality management to help you determine a strategy for testing the requirement. For more information on risk-based testing, see Chapter 14, "Calculating Requirement Risks."

10 Click **Attachments** on the sidebar to add an attachment to the requirement. An attachment can be a file, URL, snapshot of your application, system information, or an item from the Clipboard. A clickable attachment icon 📎 is placed next to the requirement in the Requirements Grid. For more information on attachments, see Chapter 5, "Adding Attachments."

11 Click **History** on the sidebar to view the history of changes made to the requirement. For more information, see "Viewing Requirement History" on page 175.

12 Click **OK** to save your changes and close the Requirement Details dialog box.

Finding Requirements

You can search for a particular requirement in the requirements tree or in the requirements grid using the **Find** command.

Tip: If **Text Search** is available, it is recommended that you use it to search for requirements. Text search provides a more powerful search by enabling you to search for keywords and variations of keywords. For information on using the text search, see "Searching Records" on page 71.

Finding Requirements in the Requirements Tree

You can search for a requirement in the requirements tree. If you have applied filters to the tree, the search is restricted to the requirements currently displayed.

To find a requirement in the requirements tree:

1 Choose **Edit > Find**. The Find Requirement dialog box opens.
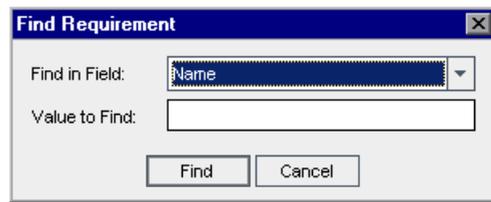
2 In the **Find in Field** box, select the criterion to search for.

3 In the **Value to Find** box, type or select the value of the field you chose. The search is not case sensitive.

4 Click **Find**. The Requirements module attempts to locate the requirement with the specified value. If the search is successful, the Search Results dialog box opens and displays a list of possible matches. Select a result from the list and click the **Go To** button to highlight the requirement in the requirements tree. If the search is unsuccessful, an information box opens.

Finding Requirements in the Requirements Grid

You can search for requirements in the requirements grid, based on the value of a particular field. If you have applied filters to the grid, the search is restricted to the requirements currently displayed.

To find a requirement in the requirements grid:

1 Choose **Edit > Find**. The Find dialog box opens.
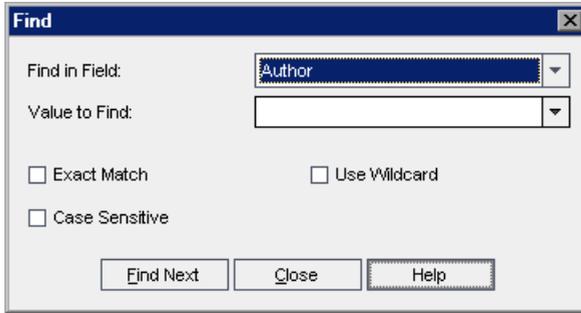
2 In the **Find in Field** box, select a field in the grid.

3 In the **Value to Find** box, type or select the value of the field, for which you want to search.

4 Select **Exact Match** if you want to find requirements with field values that exactly match the Value to Find string.

5 Select **Case Sensitive** if you want the search to distinguish between uppercase and lowercase characters.

6 Select **Use Wildcards** if you want to use asterisk (*) characters in your search string in order to type only part of the item.

7 Click **Find Next**. If the search is successful, the matching requirement is chosen in the grid. If the search is unsuccessful, an information box opens.

8 Click **Find Next** again to find the next requirement that matches the criteria.

Replacing Field Values

You can replace field values in the requirements tree or in the requirements grid using the **Replace** command.

Replace Field Values in the Requirements Tree

You can replace field values for a selected requirement and all of its child requirements, or for all requirements in the requirements tree.

To replace a field value in the requirements tree:

1 To replace a field value for the selected requirement and of its child requirements, select a requirement in the tree and choose **Edit** > **Replace** > **Replace Selected**.

To replace all values, choose **Edit** > **Replace** > **Replace All**.

The Replace dialog box opens.
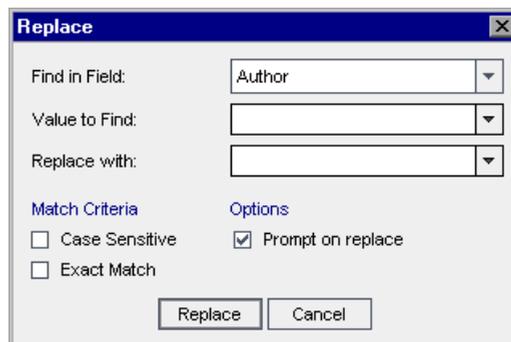
2 In the **Find in Field** box, select the field in which you want to replace values.

3 In the **Value to Find** box, type or select the value for which you want to search.

4 In the **Replace with** box, type or select a replacement value.

5 To distinguish between uppercase and lowercase characters, select the **Case Sensitive** check box.

6 To search for an exact value, select the **Exact Match** check box.

7 To receive a prompt before each value is replaced, select the **Prompt on replace** check box.

8 Click **Replace**. If you selected **Prompt on replace** in step 7, the Confirm dialog box opens.

➤ Select **Yes** to replace the current occurrence of the value.

➤ Select **Replace All** to replace the value, either in the selected requirement and its child requirements, or in all the requirements, according to your selection in step 1.

9 An Information dialog box opens, showing the number of values that were replaced, and the number of instances where the values were not replaced. Click **OK**.

Replace Field Values in the Requirements Grid

You can replace field values in the requirements grid using the Replace command.

To replace a field value in the requirements grid:

1 Choose **Edit** > **Replace**. The Find/Replace dialog box opens.

2 In the **Find in Field** box, select the column in which you want to search for a specific value.

3 In the **Value to Find** box, type or select the value to find.

4 In the **Replace with** box, type or select a replacement field value.

5 To distinguish between uppercase and lowercase characters, select the **Case Sensitive** check box.

6 To search for an exact value, select the **Exact Match** check box.

7 To start the search from the top of the grid, select the **From Beginning** check box.

8 To use asterisk (*****) characters in your search string in order to type only part of the item, select the **Use Wildcard** check box.

9 To replace the found item and find the next occurrence, click **Replace.**

10 To replace all occurrences of the value in the grid, click **Replace All**.

Viewing the Requirements Tree

You can change the way the Requirements module displays the requirements tree. This includes zooming in and out of the tree, refreshing the tree, filtering the tree, and expanding and collapsing the branches of the tree.

Zooming the Tree

You can zoom in and zoom out of the requirement topics in the requirements tree. This enables you to change the level of detail that the tree displays.

To zoom in:

1 Select a requirement topic in the requirements tree.

2 Click the **Zoom In** button on the toolbar. Alternatively, right-click the requirement and choose **Zoom In**.

The requirements tree only displays the selected requirement topic and includes a heading with the hierarchical path of the requirement topic.

To zoom out:

To reverse a zoom in action, you can either zoom out one level or zoom out to the highest hierarchical level.

➤ Click the **Zoom In** arrow and choose **Zoom Out One Level** to undo the previous zoom in command.

➤ Click the **Zoom In** arrow and choose **Zoom Out To Root** to zoom out to the highest hierarchical level and display the entire requirements tree.

Refreshing the Tree

You can refresh the data in the tree so that it displays the most up-to-date requirements. To refresh the tree, click the **Refresh All** button.

Filtering Requirement

You can filter and sort requirements in the Requirement module. Click the **Set Filter/Sort** arrow and choose from the following options:

➤ **Set Filter/Sort.** Opens the Filter dialog box, enabling you to filter and sort the requirements in the Requirement module.

➤ **Clear Filter/Sort.** Clears any filters or sorting that you have applied to the requirements tree or grid.

For more information, see Chapter 3, "Working with Quality Center Data."

Expanding and Collapsing the Tree

You can expand and collapse the branches in the requirements tree. This enables you to change the level of detail that the tree displays.

To expand and collapse the tree:

➤ To expand a branch in the tree, click the Expand ⊞ sign to the left of the branch name. To expand all the levels in a branch, right-click the branch name and choose **Expand All**.

➤ To collapse a branch in the tree, click the Collapse ⊟ sign to the left of the branch name. To collapse all the levels in a branch, right-click the branch name and choose **Collapse**.

Viewing Requirement History

You can view a list of changes made to any requirement in the requirements tree.

To view the history of changes to a requirement:

1 In the requirements tree, select a requirement and choose **View > Information Panel**.

2 Click the **History** tab. The history of changes made to the requirement is displayed in a grid.

Description	Comments	Attachments	History	Content

| Field: | <All> | ▼ | Expand All |

Field Name	Old Value	New Value
⊟ **Change #3 : Date: 01/16/07 11:25:53 AM Changer: alex_qc**		
Direct Cover Status	No Run	Passed
⊞ **Change #2 : Date: 01/16/07 11:24:42 AM Changer: alex_qc**		
⊞ **Change #1 : Date: 01/16/07 11:22:40 AM Changer: alex_qc**		

For each change to the requirement, the grid displays the date and time of the change and the name of the user who made the change.

3 Expand a change to view a list of fields modified during the change. For each field, the grid displays the old value and the new value. To expand all changes, click the **Expand All** button.

4 You can specify which changes are displayed in the grid. In the **Field** list, select a field name to view only changes made to that field. Select **<All>** to view changes made to all fields.

For information on preserving the history of changes made to a field, refer to the *HP Quality Center Administrator's Guide*.

Mailing Requirements

You can send e-mail about a requirement to other users in your Quality Center project. This enables you to routinely inform development and quality assurance personnel about the status of your requirements. A link is included in the e-mail message that enables the recipient to go directly to the requirement.

Note: By default, Quality Center sends e-mail in HTML format. To send e-mail as plain text instead, edit the **MAIL_FORMAT** parameter in the **Site Configuration** tab in Site Administration. For more information, refer to the *HP Quality Center Administrator's Guide*.

To mail a requirement:

 1 Select one or more requirements and click the **Send by E-mail** button. The
 Send E-mail dialog box opens.

Tip: You can automatically send the e-mail to a specific user type. This can
be any requirement column with a user name value, including user-defined
fields. Click the **Send by E-mail** arrow and choose an option. For example,
choose **Send by E-mail to Author** to send the e-mail to the user who wrote
the requirement.

2 Type a valid e-mail address or user name. Alternatively, click the **To** button or **CC** button to select users. The Select Recipients dialog box opens.
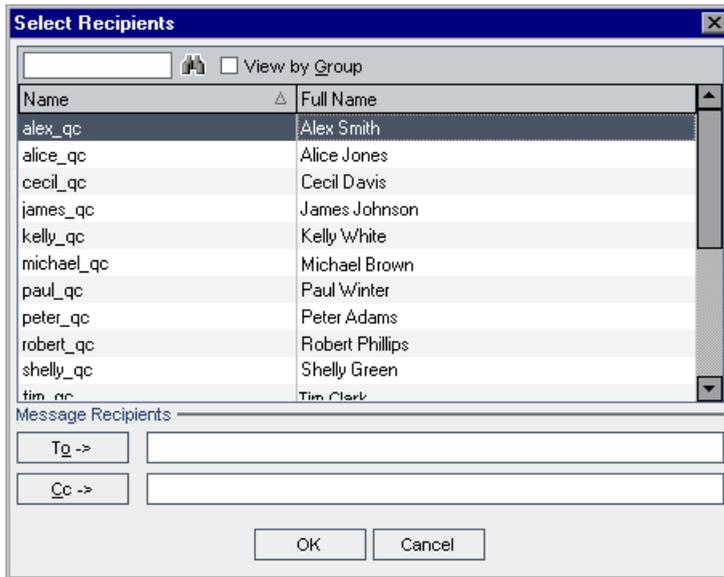
You can sort the users list, search for users, group users by user groups, and select users from the list or from a group tree. For more information, see "Selecting Users" on page 54.

Select the users or user groups to which you want to send the e-mail, and click **OK**.

3 In the **Subject** box, type a subject for the e-mail.

4 Choose whether you want to include the **Attachments**, **History**, **Tests Coverage** and/or **Traced Requirements** of the requirement. If you include the requirement's **Attachments**, any rich text for the requirement is included as a separate attachment.

5 In the **Additional comments** box, add any comments you may have.

6 To check the spelling in the dialog box:

> ➤ Click the **Check Spelling** button to check the spelling for the selected word or text box. If there are no errors, a confirmation message opens. If errors are found, the Spelling dialog box opens and displays the word together with replacement suggestions.

> ➤ Click the **Spelling Options** button to open the Spelling Options dialog box, enabling you to configure the way spelling is checked.

> ➤ Click the **Thesaurus** button to open the Thesaurus dialog box and display a synonym, antonym, or related word for the selected word. You can replace the selected word or look up new words.

7 Click **Custom** to customize the e-mail. In the Select Fields dialog box, you can specify fields to include in the e-mail.

8 Click **Send** to send the e-mail.

Modifying Requirements

This section on modifying requirements includes the following topics:

➤ Renaming Requirements

➤ Copying Requirements

➤ Copying URLs of Requirements

➤ Moving Requirements

➤ Deleting Requirements

Renaming Requirements

You can rename a requirement in the Requirements module. A name cannot include the following characters: \ ^ *****

Note: You cannot rename the root folder.

To rename a requirement:

➤ To rename a requirement in the tree, select a requirement and choose **Edit >
Rename**. Alternatively, right-click the requirement and choose **Rename**. Edit
the requirement name and press ENTER.

➤ To rename a requirement in the grid, click the requirement's name and type
a new name.

Copying Requirements

You can copy a requirement within the same project or between projects.
When you copy a requirement topic, any children of the requirement topic
are also copied.

Note:

➤ Test coverage, defect linkage, and risk-based quality management data for
the requirement are not copied.

➤ To copy a requirement with traceability, you must also copy its associated
traced requirements.

➤ The root folder cannot be copied within the same project.

To copy a requirement:

1 Select a requirement from the requirements tree or grid. To copy more than
one requirement, press the **Ctrl** key and select the requirements you want to
copy.

2 Choose **Edit > Copy**. Alternatively, right-click and choose **Copy**.

3 If you are copying a requirement from the grid to the requirements tree,
choose **View > Requirements Tree**. The Requirements Tree view is displayed.

4 Select a requirement in the requirements tree.

5 Choose **Edit > Paste**. Alternatively, right-click and choose **Paste**.

Note that if you paste a requirement that has the same name as an existing
requirement, the suffix _Copy is added automatically to the end of the
requirement's name.

Copying URLs of Requirements

You can copy a requirement and paste its URL as a link. The requirement itself is not copied. Instead, you can paste the address into another location, such as an e-mail or a document. Clicking the link opens Quality Center and takes you to the requirement.

To copy a URL of a requirement:

1 Select a requirement from the requirements tree or grid.

2 Choose **Edit > Copy URL**. Alternatively, right-click and choose **Copy URL**.

3 Paste the URL.

Moving Requirements

You can move a requirement to a different location in the requirements tree. Moving a requirement topic also moves its child requirements, tests coverage, requirement traceability links, and defects linkage. The root folder cannot be moved.

Tip: You can also move a requirement to a new location in the requirements tree by dragging it.

To move a requirement:

1 Select a requirement from the requirements tree. To move more than one requirement, press the **Ctrl** key and select the requirements you want to move.

2 Choose **Edit > Cut** or right-click the requirements and choose **Cut**.

3 Select a requirement in the requirements tree.

4 Choose **Edit > Paste**. Alternatively, right-click and choose **Paste**.

Deleting Requirements

You can delete a requirement from the Requirements module. Deleting a requirement also deletes its child requirements, tests coverage, requirement traceability links, and defects linkage. Note that you cannot delete the root folder.

To delete a requirement:

1 Select a requirement. To delete more than one requirement, press the **Ctrl** key and select the requirements you want to delete.

2 Click the **Delete** button or right-click and choose **Delete**.

3 Click **Yes** to confirm.

Creating Tests from Requirements

After you have created the requirements tree, you use the requirements as a basis for defining the tests in your test plan tree and running tests in a test set. Note that you must have the necessary permissions in order to create tests.

There are two methods you can use to create tests from requirements:

➤ **Convert Requirements to Tests.** Convert requirements to tests in a specified subject in the test plan tree. You can convert selected requirements or all requirements in the requirements tree. This method, using the Convert to Tests wizard, assists you when designing your test plan tree. See "Converting Requirements to Tests" on page 183.

➤ **Generate a Test from Requirements.** Convert requirements to a test in a specified subject in the test plan tree and a specified test set in the Test Lab module. This method, using the Generate Test dialog box, enables you to quickly run a test when analyzing your requirements. See "Generating a Test from Requirements" on page 187.

Converting Requirements to Tests

Use the Convert to Tests wizard to convert requirements to tests in a specified subject in the test plan tree. Coverage is automatically created between the requirements and their corresponding tests.

To convert requirements to tests:

1 To convert a specific requirement, select the requirement in the requirements tree. To convert all requirements, select the root requirement folder in the requirements tree.

2 Choose **Requirements** > **Convert to Tests**.

The Step 1 dialog box opens.
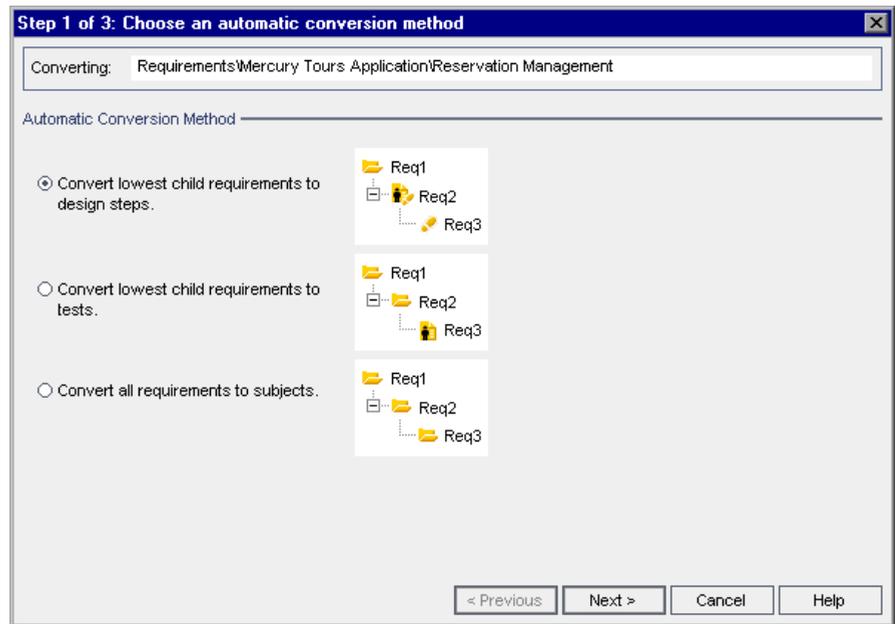
3 Choose an automatic conversion method:

➤ Select **Convert lowest child requirements to design steps** to convert all lowest level child requirements to design steps, the next level up to tests, and all levels above to subjects.

➤ Select **Convert lowest child requirements to tests** to convert all lowest level child requirements to tests and all levels above to subjects.

➤ Select **Convert all requirements to subjects** to convert all selected requirements to subjects.

4 Click **Next** to begin converting the requirements. To cancel the conversion process and return to the Step 1 dialog box, click the **Stop** button in the progress bar. When the conversion process is complete, the results are displayed in the Step 2 dialog box.
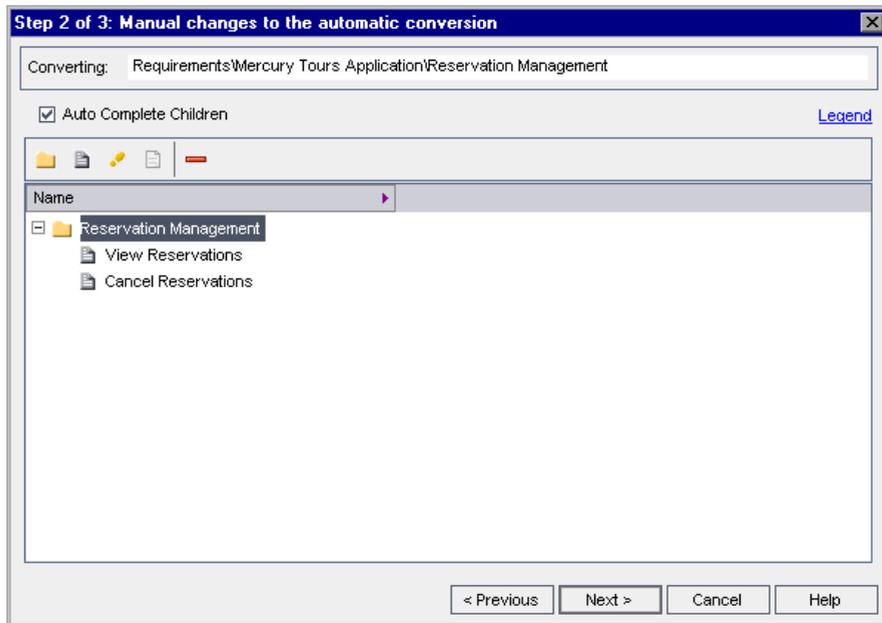
Note: If you are converting a single requirement, the wizard skips this dialog box.

5 To view the wizard legend, click the **Legend** link.

6 For each converted item, you can do the following:

➤ Select the item and click the **Convert to Subject** button or right-click the item and choose **Subject**, to change the item to a subject in the test plan tree. Children can then be either subjects or tests. Note that subject names must be unique.

➤ Select the item and click the **Convert to Test** button or right-click the item and choose **Test**, to change the item to a test in the test plan tree. Children are then converted to steps. Note that test names must be unique.

➤ Select the item and click the **Convert to Step** button or right-click the item and choose **Step**, to change the item to a step in the test plan tree. Children are then converted to step descriptions.

➤ Select the item and click the **Convert to Description** button or right-click the item and choose **Description**, to change the item to a step description in the test plan tree. Children are then converted to indented description text.

➤ Select the item and click the **Exclude from Conversion** button or right-click the item and choose **Exclude** to exclude the item from the test plan tree.

7 Clear the **Auto Complete Children** check box if you do not want the wizard to assist you when you make changes. If this option is selected and you change the level of a parent, for example, from a subject to a test, the wizard changes the level of all the children, for example, from tests to test steps.

8 Click **Next**. The Step 3 dialog box opens.
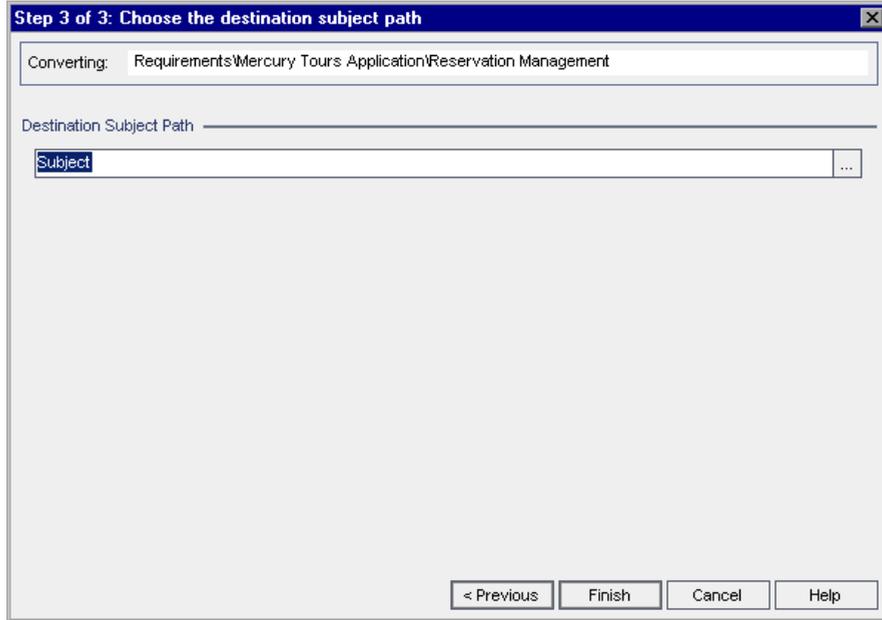
9 Under **Destination Subject Path**, click the **Select Subject** button to select a subject from your test plan tree in the Select Destination Subject dialog box. Alternatively, type a new subject name. By default, the subject folder and tests are placed in the **Subject** folder of the Test Plan module.

10 Click **Finish**.

11 To stop the conversion process and return to the Step 3 dialog box, click the **Stop** button in the progress bar.

Note: If you stop the conversion process, any requirements already converted are not deleted from the test plan tree. You must delete them manually.

---

12 Click **Close** to close the Convert to Tests wizard or view the error messages that have been generated.

Generating a Test from Requirements

Use the Generate Test dialog box to convert requirements to a test in a specified subject in the test plan tree and a specified test set in the Test Lab module. Coverage is automatically created between the requirements and their corresponding tests. Note that by default you cannot generate a test for the following requirement types, which do not enable coverage: Business, Folder, and Group.

To generate a test from requirements:

1 Select a requirement and choose **Requirements** > **Generate Test**. Alternatively, right-click a requirement in the requirements tree and choose **Generate Test**. The Generate Test dialog box opens.

2 In the **Subject** box, select a subject from your test plan tree or type a new subject name. By default, the test is placed in the **Temporary Tests** folder in the Test Plan module.

3 In the **Test Name** box, type a name for the new test. By default, the new test is assigned the same name as the requirement.

4 If you do not want to create design steps, clear the **Create Design Steps** check box. If this option is selected, a step is added to the test for each child requirement.

5 Select **Add Test to Test Set** to add the test to a test set in the Test Lab module. In the **Test Set** list, select a test set or type a new test set name.

6 Click **OK**.

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Tracing Requirements

Requirements traceability defines a relationship between requirements. As requirements or their linked requirements change, you can trace and monitor the impact of these changes.

This chapter describes:	On page:
About Tracing Requirements	189
Defining Traceability Relationships	192
Viewing Traceability Relationships	194
Viewing Traceability Impact	196
Removing Traceability Relationship Links	198

About Tracing Requirements

Requirements traceability defines a relationship between two or more requirements. When analyzing the impact of a change proposed in a specific requirement, the traceability links indicate the other requirements that the change might affect.

After defining your requirements in the requirements tree (see Chapter 12, "Developing the Requirements Tree"), you can establish traceability between the requirements. Using the Requirements Traceability tab in the Requirement Details view, you can add traceability links to and from a selected requirement. *Trace from* links indicate requirements that affect a selected requirement. *Trace to* links indicate requirements that are affected by a selected requirement.

When a requirement changes, Quality Center alerts the affected requirements. The alerts can be seen by all users. Quality Center also sends e-mail notifications to the authors of the affected requirements. For more information on alerts, see Chapter 4, "Alerting on Changes."

Requirements Traceability Example

To implement this relationship between the requirements, suppose Requirement_1B and Requirement_2B affect Requirement_1A. You select Requirement_1A in the requirements tree. In the Relationships tab, you add Requirement_1B and Requirement_2B to the Trace From grid.

If you select Requirement_1B in the requirements tree, the Trace To grid indicates that Requirement_1B is traced to Requirement_1A. If you select Requirement_2B in the requirements tree, the Trace To grid indicates that Requirement_2B is traced to Requirement_1A.
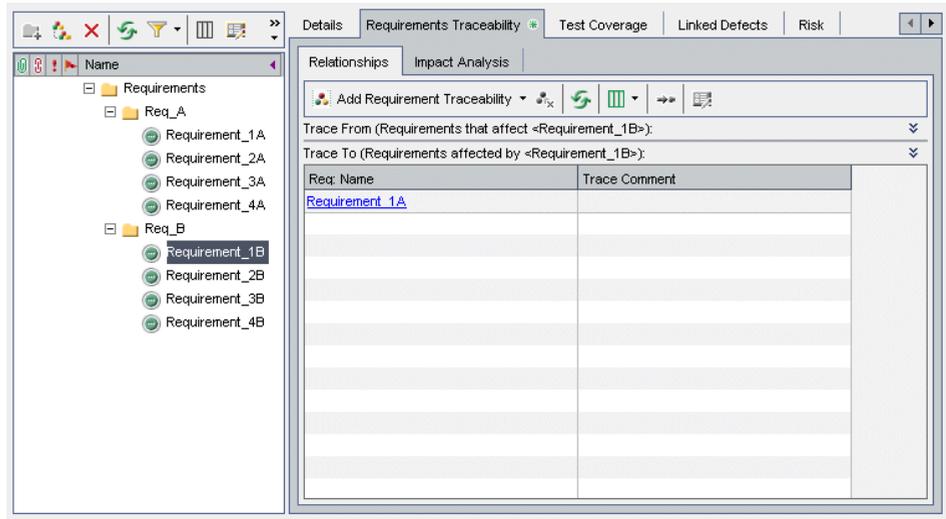
When a requirement changes, Quality Center flags the traced to requirements and sends e-mail to notify the authors to evaluate the impact on their requirements. For example, if you change Requirement_1B or Requirement_2B, Quality Center alerts Requirement_1A and alerts its author. Note that alerts are visible to all users.

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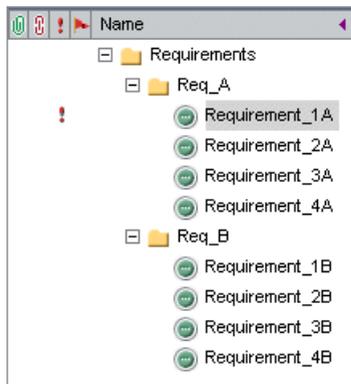
Defining Traceability Relationships

You can define traceability relationships between requirements in the Relationships tab. This tab contains the Trace From and Trace To grids. The Trace From grid displays requirements that affect a selected requirement. The Trace To grid displays the requirements that are affected by the selected requirement.

You define a relationship by selecting a requirement from the requirements tree or by typing a requirement ID.

To define a relationship using the requirements tree:

1 In the Requirement Details view, select a requirement from the requirements tree and click the **Requirements Traceability** tab. By default, the Relationships tab is displayed.

2 Click the **Show/Hide** arrow to display the Trace From or Trace To grid.

3 In the Relationships tab, click the **Add Requirement Traceability** button to open the requirements tree in the right pane.
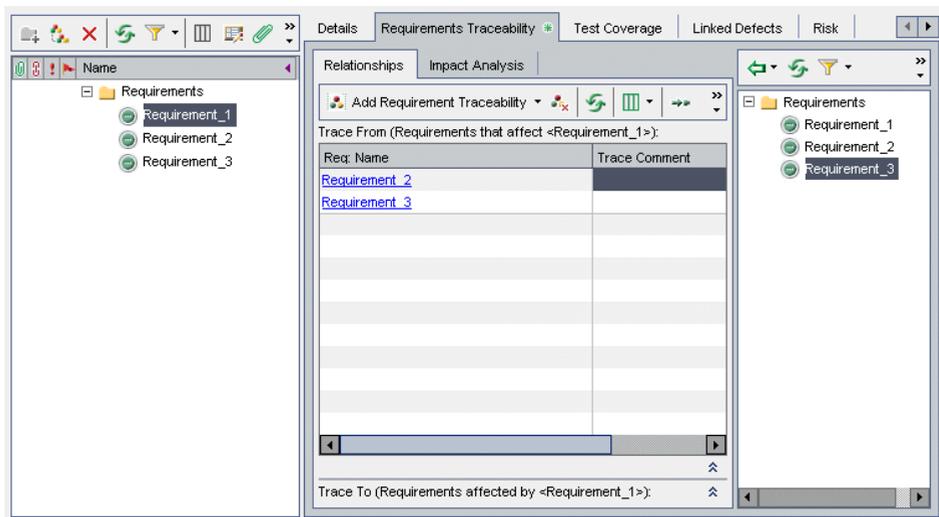
4 To search for a specific requirement in the tree, type the name (or part of the name) of the requirement in the **Find** box and click the **Find** button. If the search is successful, the requirement is highlighted in the tree.

5 To filter or sort requirements in the tree, click the **Set Filter/Sort** button. For more information on filtering and sorting records, see Chapter 3, "Working with Quality Center Data".

6 To refresh the tree, click the **Refresh All** button.

7 Select a requirement to add to the grid:

➤ Click the **Add to Traceability** arrow and choose **Add to Traceability (Trace To)** to add the requirement to the Trace To grid.

➤ Click the **Add to Traceability** arrow and choose **Add to Traceability (Trace From)** to add the requirement to the Trace From grid.

The requirement is added to the grid.

Tip: You can also add a requirement traceability link by dragging a requirement from the requirements tree to the appropriate grid.

---

8 Click the **Close** button to hide the requirements tree in the right pane.

To define a relationship by typing a requirement ID:

1 In the Requirement Details view, select a requirement from the requirements tree and click the **Requirements Traceability** tab. By default, the Relationships tab is displayed.

2 Click the **Show/Hide** arrow to display the Trace From or Trace To grid.

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

➤ **By ID (Trace From).** Add a traceability link to the Trace From grid by typing a requirement ID.

➤ **By ID (Trace To).** Add a traceability link to the Trace To grid by typing a requirement ID.

The Trace Existing Requirement dialog box opens.

4 Type the requirement ID for the requirement you want to add and click **Trace**. The requirement is added to the specified grid.

Viewing Traceability Relationships

You can display traceability relationships that exist between requirements in the Relationships tab. This tab contains the Trace From and Trace To grids. The Trace From grid displays requirements that affect a selected requirement. The Trace To grid displays the requirements that are affected by the selected requirement.
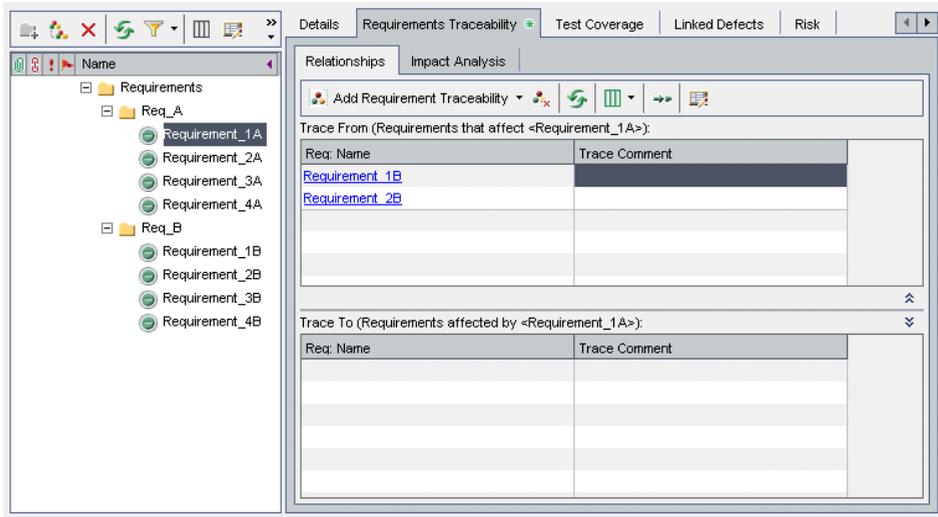
In addition to the columns described in "The Requirement Fields" on page 153, the Relationships tab can also display the following columns:

Column	Description
Created By	The user name of the person who created the requirement link. By default, this is the login user name.
Creation Date	The date on which the requirement link was created. By default, the creation date is set to the current database server date.
Modified	The date and time on which the requirement link was modified. By default, the date and time are set to the current database server date and time.

Column	Description
Requirement Trace ID	A unique alphanumeric ID for the requirement link that is assigned automatically.
Trace Comment	Displays comments about the requirement link.

To view traceability relationships:

1 In the Requirement Details view, select a requirement from the requirements tree and click the **Requirements Traceability** tab. By default, the Relationships tab is displayed.

2 To refresh the grids, click the **Refresh All** button.

3 To set column appearance and order, click the **Select Columns** arrow and choose **Select Column (Trace From)** or **Select Column (Trace To)**. The Select Columns dialog box opens. For more information, see "Arranging Columns" on page 51.

4 To display a traced requirement in the requirements tree, select a requirement and click the **Go To Requirement** button.

5 To view details of a traced requirement, select a traced requirement and click the **Requirement Details** button. The Requirement Details dialog box opens. For more information, see "Updating Requirements" on page 167.

Viewing Traceability Impact

After establishing traceability relationships, you can analyze the impact of
requirement changes by reviewing the relationships. The Impact Analysis
tab helps you understand the many associations and dependencies that
exist between the requirements by displaying them in a hierarchical tree
structure. Unlike the Relationships tab, the Impact Analysis tab shows the
affected requirements along with their parent and child requirements.

The Trace From tree displays requirements that affect a selected
requirement. For example, the following Trace From tree indicates that
Req_A is traced from Requirement_1B. Requirements is the parent
requirement of Req_A. Req_B is the parent requirement of Requirement_1B.
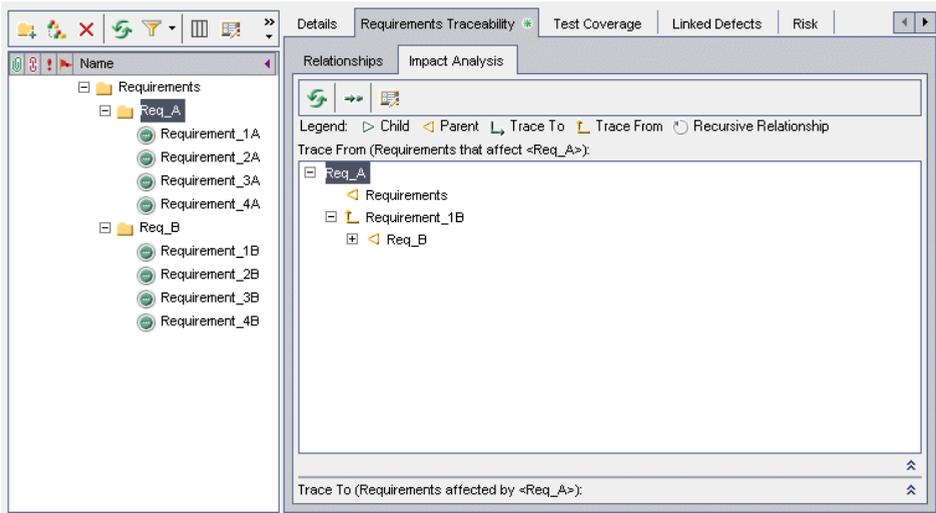
The Trace To tree displays requirements that are affected by a selected requirement. For example, the following Trace To tree indicates that Requirement_1B is traced to Req_A. Requirement_1A through Requirement_4A are child requirements of Req_A, which are affected by Req_A.
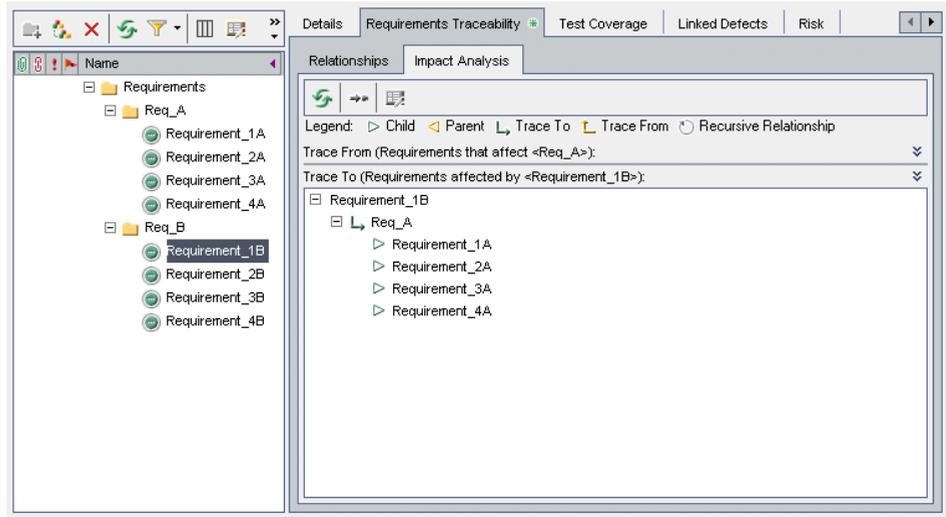
The Impact Analysis tab contains the following icons:

Icon	Description
▷	A child requirement affected by a change to a selected requirement.
◁	A parent requirement that affects a selected requirement.
∟	A traced-to requirement.
⌐	A traced-from requirement.
↻	A recursive relationship between the requirements.

To view traceability impact:

1 In the Requirement Details view, select a requirement from the requirements tree and click the **Requirements Traceability** tab. By default, the Relationships tab is displayed.

2 Click the **Impact Analysis** tab.

3 To refresh the tree, click the **Refresh All** button.

4 To display a traced requirement in the requirements tree, select a requirement and click the **Go To Requirement** button.

5 To view details of a traced requirement, select a traced requirement and click the **Requirement Details** button. The Requirement Details dialog box opens. For more information, see "Updating Requirements" on page 167.

Removing Traceability Relationship Links

You can remove a traceability relationship link from the Relationships tab.

To remove a traceability relationship link:

1 In the Requirement Details view, select a requirement from the requirements tree and click the **Requirements Traceability** tab. By default, the Relationships tab is displayed.

2 Click the **Show/Hide** arrow to display the Trace From or Trace To grid.

3 In the appropriate grid, select a traceability relationship link. To select more than one link, press the Ctrl key and select the links you want to remove.

4 Click the **Remove from Traceability** button, or right-click and choose **Remove from Traceabilit**y.

5 Click **Yes** to confirm.

14

Calculating Requirement Risks

You can use risk-based quality management to help you decide on a testing strategy for your requirements.

About Calculating Requirement Risks

When planning how to test your requirements, you generally do not have unlimited resources available, and are not able to fully test every requirement. You must make compromises and only partially test requirements that have low criticality to the business, or those that have only a minor risk associated with their implementation. The risk-based quality management feature enables you to calculate at which level to test each requirement, based on the nature of the requirement and the resources you have available. You can then plan your testing process based on these recommendations.

Each requirement type can be enabled for risk-based quality management. Each requirement type with risk-based quality management enabled supports either risk analysis or risk assessment:

➤ An **analysis requirement** is a requirement belonging to a type that represents higher levels in the requirements tree hierarchy, such as the **Folder** type. You perform risk analysis on an analysis requirement based on the assessment requirements under it in the requirements tree.

➤ An **assessment requirement** is a requirement belonging to a type that represents requirements that are children of analysis requirements and at a lower level in the requirements tree hierarchy. Assessment requirements under a particular analysis requirement form the basis for risk analysis on that analysis requirement.

You work with risk-based quality management in the Requirement Details view of the Requirements module. You can also work with risk-based quality management in the Risk view of the Requirement Details dialog box.

You can customize default settings for risk-based quality management. For more information on customizing default risk-based quality management settings, see the *HP Quality Center Administrator's Guide*.

Understanding The Risk-Based Quality Management Process

Performing a risk-based quality management analysis for an analysis requirement involves the following steps:
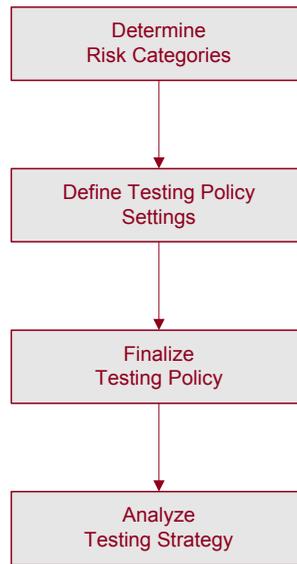
Determining Risk Categories

For each assessment requirement under the analysis requirement, you determine the Risk Category. The **Risk Category** is composed of two factors: Business Criticality and Failure Probability. **Business Criticality** measures how crucial a requirement is for the business. **Failure Probability** indicates how likely a test based on the requirement is to fail, based on the complexity of the requirement's implementation. Quality Center can calculate a value for each of these factors based on the values you assign to each of a series of criteria related to these factors. You can also assign a value for each factor directly. For more information, see "Determining the Risk Category" on page 203.

Defining Testing Policy Settings

After you determine the Risk Category of the assessment requirements under an analysis requirement, you define the initial settings for testing the analysis requirement and the assessment requirements under it. These settings include how much time to assign to a requirement of a specific Failure Probability were you to test it fully and how long it would take you to perform partial or basic testing on a requirement. You also decide which level of testing you want to perform on requirements for each Risk Category. For more information, see "Defining the Testing Policy Settings" on page 205.

Finalizing the Testing Policy

After you determine the testing policy settings, Quality Center calculates the total estimated testing time for the analysis requirement and the assessment requirements under it. You decide how many resources you have to assign to test these requirements, and can then make adjustments to the testing policy to ensure that you have enough time to perform all the testing, and that no resources are wasted. For more information, see "Finalizing the Testing Policy" on page 207.

Analyzing the Testing Strategy

After you finalize how many resources to allocate to each requirement, you can view a report to display and analyze the conclusions you reached. For more information, see "Analyzing the Testing Strategy" on page 211.

For an example of using risk-based quality management to help you decide on a testing strategy for a requirement, see "Risk-Based Quality Management Example" on page 215.

Determining the Risk Category

You can assign or calculate the Risk Category of an assessment requirement. The Risk Category is composed of its Business Criticality and Failure Probability. Quality Center then uses this category to calculate how many resources to assign to each requirement.

➤ The **Business Criticality** of a requirement is a measure of how important the requirement is to your business. It does not measure how complex the requirement is to implement. It has three possible values: **A - Critical**, **B - Important**, and **C - Nice to Have**. For example, a requirement affecting a minor feature that is likely to be used rarely might be assigned a Nice to Have Business Criticality, whereas a requirement that is essential to your application's functionality would probably be assigned a Critical Business Criticality.

➤ The **Failure Probability** of a requirement is a measure of how likely a test on the requirement is to fail, based on the technical complexity of the requirement's implementation, without consideration of the requirement's impact on the business. It has three possible values: **1 - High**, **2 - Medium**, and **3 - Low**. For example, a requirement whose implementation involves making significant changes across most areas of your application probably has a high complexity and would be assigned a High Failure Probability. In contrast, a requirement that involves changing an icon in your application would probably not have many associated risks, and so is likely to be assigned a Low Failure Probability.

You determine the Business Criticality and Failure Probability of a requirement by assigning them values directly or by assigning values to a set of criteria. If you do not determine both these factors for a requirement, Quality Center does not include the requirement in the risk analysis.

You can customize these criteria, their possible values, and how these values determine the Business Criticality and Failure Probability. For more information, see the *HP Quality Center Administrator's Guide*.

To determine the Risk Category for a requirement:

1 In the Requirement Details view of the Requirements module, select an assessment requirement and click the **Risk** tab. In the Risk tab, click the **Business Criticality** tab. The Business Criticality tab displays a list of criteria used to determine Business Criticality.

2 Assign a value to each criterion. To assign a value to a criterion, in the **Criterion** column, click a criterion name and select a value from the **Value** column. You can view a description of a criterion in the **Description of Criterion** box.

After you have assigned a value to each criterion, the **Calculated Business Criticality** is updated to according to the values you assigned to the criteria.

3 To ignore the Business Criticality value calculated on the basis of the values for the criteria, and use instead a custom value when performing risk analysis, select **Override calculated value**. In the **Custom Business Criticality** box, select the Business Criticality value which you want to use when performing risk analysis.

4 Click the **Failure Probability** tab and repeat steps 2 to 3 above to determine the Failure Probability value for the requirement.

5 To ignore an assessment requirement when performing risk analysis, select the **Exclude from Analysis** check box located at the top of the Risk tab.

6 In the **Estimated development time** box, you can type the estimated time needed to develop the requirement. Quality Center can then calculate the total estimated development time for an analysis requirement and its children as the sum of the estimated development times of the children. Assigning the estimated development effort is optional, and does not affect the risk analysis.

Defining the Testing Policy Settings

After you have defined the Risk Category for each requirement, you determine how much time each requirement needs to be tested. The time needed to test a requirement depends on the Failure Probability of the requirement. A requirement with a high Failure Probability generally requires more testing time as it is more likely that the requirement's implementation contains defects. For each Failure Probability, you define the **Testing Time** needed to test fully a requirement with that Failure Probability. The Testing Time is measured by a label that you define in Project Customization. You can measure the Testing Time in hours, days, weeks, or months.

Quality Center defines four **Testing Levels**: **Full**, **Partial**, **Basic**, and **None**. For partial and basic testing, you define how much Testing Time is required for a requirement as a percentage of full testing. For example, if 20 hours are required to perform full testing on a requirement and partial testing is defined as 75% of full testing, Quality Center calculates that 15 hours are required to perform partial testing on the requirement. A requirement whose Testing Level is set to **None** is not tested at all, and the Testing Effort is therefore zero.

After you define the Testing Time required for each Testing Level and Failure Probability, you can estimate at what Testing Level to test requirements. For each Risk Category, you assign a Testing Level. This determines at what level to test requirements of that Risk Category.

You can customize the testing policy used by default. For more information, see the *HP Quality Center Administrator's Guide*.

To define the testing policy settings for a requirement:

1 In the Requirement Details view of the Requirements module, select an analysis requirement and click the **Risk** tab. Click the **Show** button to display the Change Analysis Constants section.

2 Under **Testing Time (full) per failure probability**, for each Failure Probability value, type the estimated Testing Time required to fully test a requirement with the Failure Probability value.

3 Under **Testing level**, in the **Partial** and **Basic** boxes, type the default Testing Time required for partial testing and basic testing of a requirement. You express this as a percentage of the effort required for full testing.

4 In the **Testing Policy** grid, you can define the level to test a requirement of each Risk Category.

To define these levels, click the arrow next to the cell in the grid corresponding to a particular Risk Category 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 Testing Efforts and Testing Levels you defined.

5 To display the default constants used, as set in Project Customization, click the **Show Defaults** button. The Risk-Based Quality Management Constants Defaults dialog box opens.

In the Risk-Based Quality Management Constants Defaults dialog box, you can click the **Restore Defaults** button to assign these default values to the constants used for the current requirement.

Click **Close** to close the Risk-Based Quality Management Constants Defaults dialog box.

Finalizing the Testing Policy

Based on the testing policy you defined, Quality Center can calculate the total estimated testing time for the analysis requirement and the assessment requirements under it. You estimate how much time you have available to test these requirements and make adjustments to the testing policy to make sure that the testing time required does not exceed the testing resources available.

For example, suppose you have 100 hours available to test a requirement. Quality Center estimates that you need 120 hours to test the requirement using the current Testing Levels. You decide to lower the Testing Level for requirements with Nice to Have Business Criticality and Medium Failure Probability from Partial to Basic. After you adjust the Testing Level and recalculate the testing time, Quality Center estimates that you need only 98 hours to perform the testing, which is within the time you have available. You can therefore now plan testing your requirement based on Quality Center's recommendations.

To finalize the testing policy:

1 Make sure that you have determined the Risk Category of all assessment requirements that are located under the analysis requirement for which you want to finalize the testing policy, and that you want to include in the risk analysis. For more information on determining the Risk Category, see "Determining the Risk Category" on page 203.

2 You can filter the requirements tree to include only the assessment requirements you want to include in the risk analysis. For more information on filtering, see "Filtering Records" on page 55.

3 If you do not want to use the default Testing Effort and Testing Level values, make sure that you have defined custom values. For more information, see "Defining the Testing Policy Settings" on page 205.

4 In the Requirement Details view of the Requirements module, select an analysis requirement and click the **Risk** tab.

5 In the **Total allocated testing time** box, type the time available to test the analysis requirement and the assessment requirements under it.

6 Click the **Perform Risk Analysis** button. Quality Center calculates the Testing Level and Testing Time for each assessment requirement under the analysis requirement that matches the current filter. This calculation is based on the assessment requirements' Risk Category, and the Testing Level and Testing Time values you defined for the analysis requirement. The results of this calculation are displayed in the following ways:

- ➤ **Total required testing time.** Displays the total calculated time required to test all the assessment requirements under the analysis requirement matching the current filter and included in the risk analysis.

- ➤ **Total required development time.** Displays the total time required to develop all the assessment requirements under the analysis requirement, based on the required development time you optionally estimated for each assessment requirement.

- ➤ **No. of Requirements per Risk Category graph.** Displays the number of child requirements of the analysis requirement of each Risk Category.

- ➤ **Total Testing Time per Risk Category graph.** Displays the total calculated testing time required to test all the requirements of each Risk Category.

7 To display which requirements are included in each risk category, and which were not included in the analysis, click a segment in the Requirements per Risk graph, or the **missing assessment** or **excluded** links. The Drill Down Results dialog box opens and displays a grid with a list of requirements in the category. You can determine the order and appearance of the columns and view details for an individual requirement. You can also export the contents of the grid as a text file, Microsoft Excel spreadsheet, Microsoft Word document, or HTML document. For more information, see "Exporting Data to a File" on page 73.

Tip: The **missing assessment** link displays the requirements for which you did not determine a Risk Category or exclude explicitly from the analysis. It is recommended that you check these requirements to make sure that there are no requirements that should be assigned a Risk Category. If you really do not want to include a requirement in the analysis, it is recommended that you exclude it from the analysis explicitly.

---

8 Compare the total calculated testing time with the resources you have available. If the resources you have available are not sufficient to test the requirement according to the current settings, it is recommended that you reduce the Testing Level for a Risk Category, or reduce the Testing Time assigned to each Testing Level, and perform the calculation again. For more information on changing the Testing Levels and Testing Times, see "Defining the Testing Policy Settings" on page 205.

9 When you are satisfied with the testing policy, click the **Save and Apply to Children** button to apply it to all assessment requirements under the analysis requirement that match the current filter.

10 You can now analyze how the testing policy you decided upon for the analysis requirement affects the assessment requirements under it, and produce a report detailing your testing strategy. For more information, see "Analyzing the Testing Strategy" on page 211.

Analyzing the Testing Strategy

After you have finalized your testing policy for an analysis requirement, you can analyze the testing strategy for the analysis requirement and for the assessment requirements under it. Note that the analysis results are only valid for the requirements at the time the analysis was last performed. If you subsequently modify the Risk Categories of the requirements, or the testing policy, you should re-perform the analysis.

Analyzing the Testing Strategy for Analysis Requirements

After you have finalized your testing policy for an analysis requirement, you can generate a report detailing your testing strategy.

To analyze the testing strategy for an analysis requirement:

1 In the Requirement Details view of the Requirements module, select an analysis requirement and click the **Risk** tab.

2 Click the **Generate Report** button. The Generate Report dialog box opens.
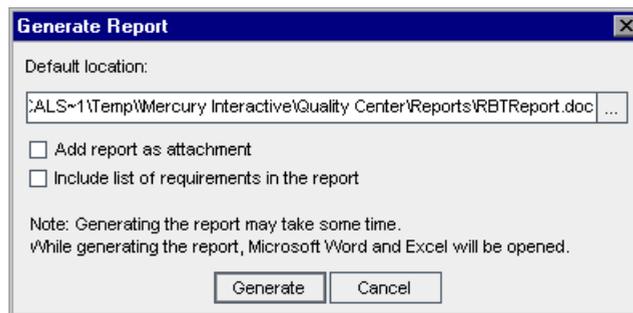
3 In the **Default Location** box, type the location and name of the Word file to which you want the data to be exported. You can click the browse button to select a location from the Save As dialog box.

4 To add the report as an attachment to the analysis requirement, in addition to saving the report in the location you specified, select **Add report as attachment**.

5 To include a list of the requirements included in the risk analysis, select **Include list of requirements in the report**.

6 Click **Generate**. A report is generated and saved in the location you specified.
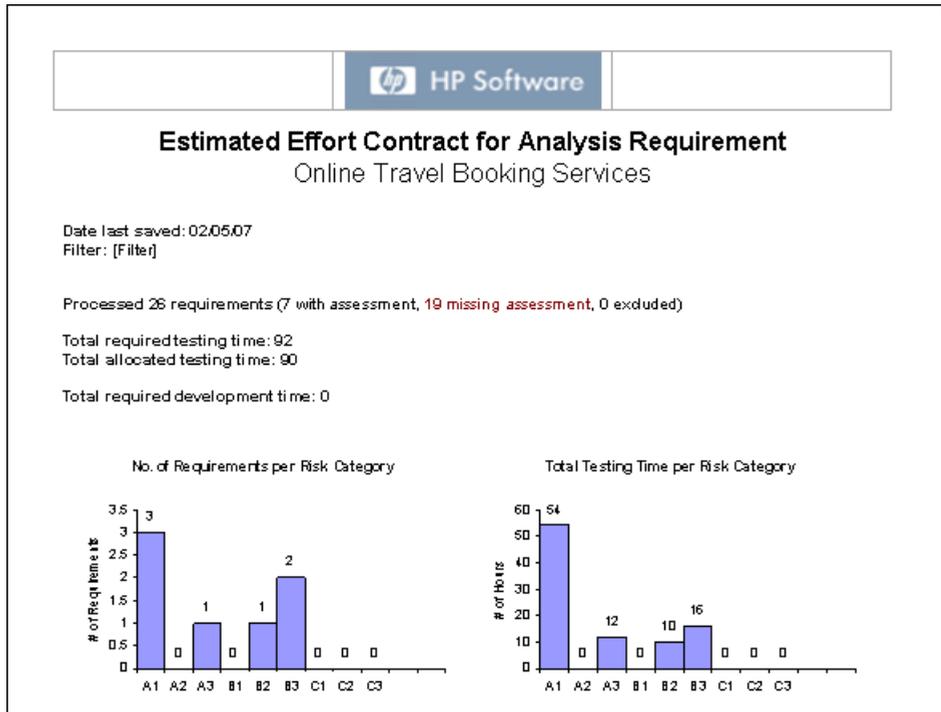
The report may contain the following headings, depending on the options you selected in the Generate Report dialog box:

Heading	Description
Date last saved	The date on which the risk analysis was last performed.
Filter	The filter used to determine which requirements were included in the risk analysis.
Processed	The number of requirements included in the risk analysis. Also provides a breakdown of which requirements had assessment, which were missing assessment, and which were excluded from assessment.

Heading	Description
Total required testing time	The total time required to test the requirements included in the risk analysis, according to the testing policy you determined.
Total allocated testing time	The total time allocated to test the requirements included in the risk analysis.
Total required development time	The total time required to develop the features defined by the requirements.
No. of Requirements per Risk Category	A graph displaying a breakdown of the number of requirements by their Risk Category.
Total Testing Time per Risk Category	A graph displaying the total time needed to test all the requirements of each Risk Category.
Implemented testing policy	The time necessary to test requirements belonging to each Risk Category, according to the testing policy used in the risk analysis.
Analyzed requirements	A list of the requirements included in the risk analysis which had assessments, together which their Risk Category, Testing Level, and Testing Time.
Requirements with missing assessments	A list of the requirements included in the risk analysis which did not have assessments.
Excluded requirements	A list of the requirements excluded from the risk analysis. These may be requirements explicitly excluded from the analysis, or requirements belonging to a type that does not support risk-based quality management.

Analyzing the Testing Strategy for Assessment Requirements

After you have finalized your testing policy for an analysis requirement, you can analyze its effect on the assessment requirements under the analysis requirement.

To analyze the testing strategy for an assessment requirement:

1 In the Requirement Details view of the Requirements module, select an assessment requirement and click the **Risk** tab. Click the **Analysis Results** tab.

Business Criticality	Failure Probability	Analysis Results	

Based on analysis requirement: [5] Online Travel Information Source

Last analysed on date: 02/05/07

Overall Risk Assessment: A3

Calculated Testing Level: 1-Full

Calculated Testing Time: 12 Hours

☐ Use these for the next calculation:

Testing Level [   ]

Testing Time [0   ] Hours

The Analysis Results tab displays the conclusions of the last analysis you performed on an analysis requirement that is a parent of the assessment requirement:

➤ **Based on analysis requirement.** Displays the analysis requirement on which the last analysis that included the current requirement was performed. You can click the analysis requirement's name to go to the analysis requirement in the requirements tree.

➤ **Last analysis on date.** The date on which the last analysis that included the current requirement was performed

➤ **Overall Risk Assessment.** Displays the Business Criticality and Failure Probability for the requirement.

➤ **Calculated Testing Level.** The level at which to test the requirement, as calculated in the last analysis that included the current requirement.

➤ **Calculated Testing Time.** The time allocated to test the requirement, as calculated in the last analysis that included the current requirement.

2 To override the calculated values in the next calculation, and instead use custom values, select the **Use these for the next calculation** check box. In the **Testing Level** box, select the Testing Level to use for the next calculation. In the **Testing Time** box, type the Testing Effort to use for the next calculation. When you next perform an analysis that includes the current requirement, these values will be used instead of the calculated values.

Note: You cannot override the calculated values if you have not determined the Risk Category for the requirement. For more information on determining the Risk Category for a requirement, see "Determining the Risk Category" on page 203.

Risk-Based Quality Management Example

Suppose you are using a project based on an application for reserving flights and vacations. You want to plan the testing of the analysis requirement **Online Travel Information Source**, located under **Mercury Tours Application**.
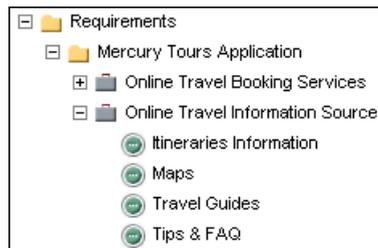
You begin by assigning values to the Business Criticality criteria for the child assessment requirement **Itineraries Information**. As information on travel itineraries is for display purposes and does not involve calculation or validation, you assign the value Display to the criterion **Type of Process**. As incorrect information on travel itineraries could result in legal action, you assign the value Legal to the criterion **Impact of failure**. You also assign the value Very often to the criterion **Frequency of use**, and the value Many/High to the criterion **Number/Significance of affected users**. Quality Center now calculates the Business Criticality of the requirement as **A**.

Similarly, you determine the Failure Probability by assigning values to its criteria. Quality Center calculates the Failure Probability as **2**, to give an overall Risk Category **A2**. You then proceed to determine the Risk Category for each of the assessment requirements **Maps**, **Travel Guides**, and **Tips & FAQ**.

You are now ready to perform a risk analysis on the requirement **Online Travel Information Source**. You decide to use Quality Center's default testing policy and perform a risk analysis based on this policy. Quality Center calculates that you need 63 hours to test the requirement. However, you only have 50 hours available, which is 79% of the required resources, so need to modify the testing policy.

You change the Testing Level for requirements with Risk Category **A2** from Full to Partial. Quality Center re-calculates the time needed to test the requirement as 58 hours, which is still greater than the time available. You therefore modify the definition of partial testing by defining it as 55% of full testing instead of 67%. The time needed to test the requirement is now estimated at 52 hours, which is the amount of time you have available, so you decide to accept this modified testing policy.

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You now have sufficient resources to test the requirement, so you create a risk analysis report to summarize the testing strategy recommended by Quality Center, and give it to the testing team for them to use as a basis for their test plan.
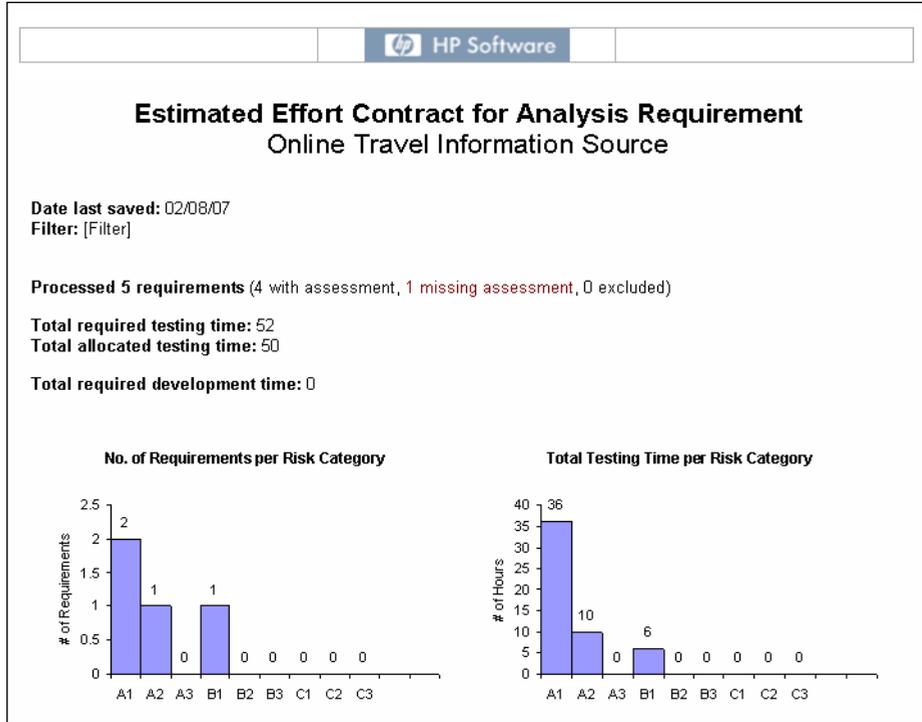
Part IV

Test Planning

15

The Test Plan Workflow

Developing a clear and concise test plan is an essential requirement for successful application testing. A good test plan enables you to assess the quality of your application at any point in the testing process.

This chapter describes how you develop a test plan using the Test Plan module. Developing a test plan consists of the following:

```
┌─────────────────────┐
│       Define        │
│  Testing Strategy   │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│       Define        │
│    Test Subjects    │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│       Design        │
│        Tests        │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ Create Requirements │
│      Coverage       │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│       Design        │
│     Test Steps      │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│      Automate       │
│        Tests        │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│       Analyze       │
│      Test Plan      │
└─────────────────────┘
```
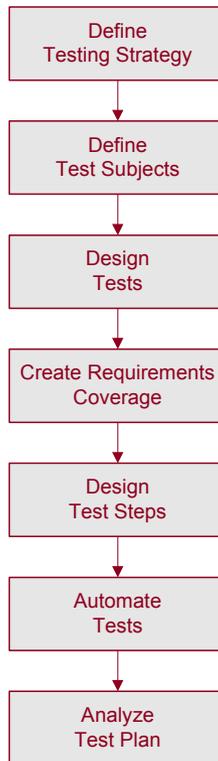
Defining Testing Strategy

Outline a strategy for achieving your testing requirements, as defined in the Requirements module. Ask yourself two basic questions:

How should you test your application?

➤ Which testing techniques will you use (stress tests, security tests, performance and load tests, etc.)?

➤ How will you handle defects (severity classification, authorization to open and close defects, etc.)?

What resources do you require?

➤ What resources do you require in order to test (personnel, hardware, etc.)?

➤ When will the various tasks be completed?

For example, consider a flight reservation application that lets you manage flight scheduling, passenger bookings, and ticket sales. Testing will require designing both manual and automated tests. You could assign testing personnel with programming experience the task of designing automated tests, while non-programmers could design manual tests.

Defining Test Subjects

Consider the hierarchical relationship of the functions in your application. Divide the functions into subjects and build a test plan tree representing your application's functionality.

The test plan tree is a graphical representation of your test plan. It is a hierarchical list of tests organized according to topic, which describes the set of tests you will implement in order to meet your quality requirements. For example, the flight reservation application could require that you include **Flight Finder**, **Book Flight**, **Flight Confirmation**, and **Flight Cost** as test subjects.

For a complete description and illustration of how to create a test plan tree, see Chapter 17, "Developing the Test Plan Tree".

Designing Tests

Plan tests for each subject in your test plan tree. Decide which types of tests to create for each subject, such as sanity level tests or regression tests. (For an explanation of these test types, see Chapter 24, "Creating Test Sets".) Then create the tests and assign them to a branch of the test plan tree. For example, in the flight reservation application, you could include the following tests under the subject **Flight Finder**: **Airline Preference**, **Departing and Arriving Locations**, **Departing Date**, **Find Flight**, **Flight Time Preference**, and **Number of Passengers**.

You can link a test to specific defects. This is useful, for example, when a new test is created specifically for a known defect. By creating a link, you can determine if the test should be run based on the status of the defect.

For information on planning tests, see Chapter 17, "Developing the Test Plan Tree".

Creating Requirements Coverage

Link each test in the test plan tree with a requirement or requirements in the requirements tree. By defining requirements coverage for a test, you can keep track of the relationship between the tests in your test plan and your original testing requirements. For example, in the flight reservation application, the tests in the subject **Registration** cover the requirement topic **Customer Personal Information**.

For information on requirements coverage, see Chapter 18, "Linking Tests to Requirements".

Designing Test Steps

Design the tests in your test plan tree. Create test steps describing the operations to perform and the expected results. After you define the test steps, decide whether to perform the test manually or to automate it.

For manual tests you define steps, execute them on your application, and record the results of each one. Use manual tests in cases where the test requires a response by the tester. Manual tests include usability tests, one-time tests, tests that need to be run immediately, tests requiring knowledge of the application, and tests without predictable results.

For example, in the flight reservation application, tests that check if a dialog box is user-friendly require user response. Therefore, you should make these tests manual.

For information on designing test steps, see Chapter 19, "Building Tests."

Automating Tests

Automating a test allows unattended execution of the test at high speed. It also makes the test reusable and repeatable. For example, you automate functional, benchmark, unit, stress and load tests, as well as tests requiring detailed information about applications.

After designing test steps, you can decide which tests to automate. Factors influencing test automation include frequency of execution, volume of data input, length of execution time, and complexity.

For automated tests, you can first design test steps and automate them by generating a test script. The test script can be for WinRunner, QuickTest Professional, LoadRunner, or Visual API-XP.

For example, in the flight reservation application, you can automate a test that checks whether the login mechanism works. After adding test steps, you create a test script. Then, using QuickTest Professional, you complete the automated test script.

For more information on creating automated tests, see Chapter 20, "Creating Automated Tests."

You can also create automated system tests that provide system information for a machine, capture a desktop image, or restart a machine. For more information, see Chapter 21, "Working with System Tests".

Analyzing Your Test Plan

Review your test plan to determine how well it meets the goals that you defined at the beginning of the testing process. Then, analyze your test plan by generating reports and graphs. For more information, see Part VII, "Quality Center Analysis."

For example, you can create a report that displays design step data for each test in a test plan tree. You can then use this report to help you determine your test design priorities.

In order to best ensure the success of the testing process, it is recommended that you analyze your test plan throughout the testing process. Review the plan, and determine whether or not it matches your testing goals. Make adjustments to your test plan accordingly.

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The Test Plan Module at a Glance

This chapter introduces the key elements in the Test Plan module.

This chapter describes:	On page:
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The Test Plan Menu Bar	230
The Test Plan Toolbar	231
The Test Grid	232

The Test Plan Tree

You design tests in Quality Center in the Test Plan module, which you open by clicking the **Test Plan** button on the sidebar. To view the test plan tree, choose **View** > **Test Plan Tree**.
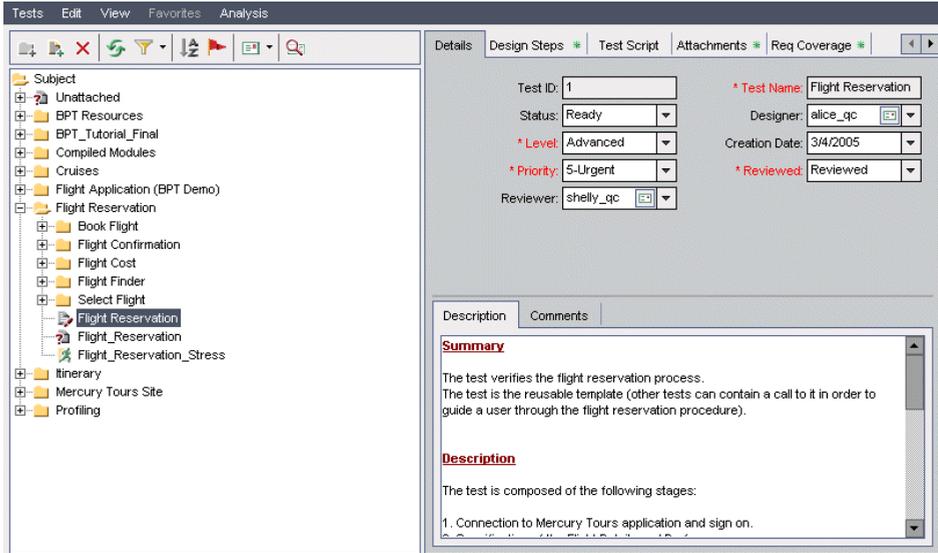
The test plan tree contains the following key elements:

➤ **Test Plan menu bar.** Displays drop-down menus of Test Plan module commands. For more information, see "The Test Plan Menu Bar" on page 230.

➤ **Test Plan toolbar.** Contains buttons of commands commonly used when creating and modifying the test plan tree. For more information, see "The Test Plan Toolbar" on page 231.

➤ **Test Plan Tree.** A graphical representation of your test plan. For more information, see Chapter 17, "Developing the Test Plan Tree."

➤ **Details tab.** A description of the subject folder or test currently selected on the test plan tree. For more information, see Chapter 17, "Developing the Test Plan Tree."

➤ **Design Steps tab.** A list of test steps explaining how to execute the test currently selected on the test plan tree. The tab includes an icon ✳ if the selected test has design steps. For more information, see Chapter 19, "Building Tests."

➤ **Test Script tab.** The test script for the test currently selected on the test plan tree. The tab includes an icon ✳ if the selected test has a test script. For more information, see Chapter 20, "Creating Automated Tests." For more information on using the Test Script tab in Business Process Testing, refer to the *HP Business Process Testing User's Guide.*

➤ **Attachments tab.** A list of attachments that provide additional information for the test currently selected on the test plan tree. The tab includes an icon ✳ if the selected test has any attachments. For more information, see Chapter 5, "Adding Attachments."

➤ **Req Coverage tab.** A list of the requirements that are met by the test currently selected on the test plan tree. The tab includes an icon ✳ if the selected test has requirements coverage. For more information, see Chapter 18, "Linking Tests to Requirements."

➤ **Linked Defects tab.** A list of the defects that are linked to the test currently selected on the test plan tree. For more information, see Chapter 32, "Linking Defects."

➤ **Live Analysis tab.** A graphical representation of test data related to the selected subject folder in the test plan tree. For more information, see Chapter 35, "Generating Live Analysis Graphs."

Tips:

➤ Right-click a test in the test plan tree and choose **Go to Test in Test Set**. The Select Test Set dialog box opens. Select the test set containing the current test and the test instance that you want to run, and click **OK**. The Test Lab module opens with the selected test highlighted.

➤ To find a specific test by **Test ID** in the test plan tree, choose **Tests** > **Go to Test**, and enter the test ID. To display the test ID, select the **Test ID** column using the Select Columns dialog box. You can only go to tests that are in the current filter.

The Test Plan Menu Bar

The Test Plan menu bar has the following menus:

➤ The **Tests** menu contains commands that enable you to manage the folders and tests in the tree, go to tests in test sets, and to mail tests. For more information, see Chapter 17, "Developing the Test Plan Tree."

➤ The **Edit** menu contains commands that enable you to cut, copy, paste, rename, delete, find, replace, or search tests. You can also view and clear alerts for tests and flag tests for follow-ups. For more information on alerts and follow-ups, see Chapter 4, "Alerting on Changes."

➤ The **View** menu contains commands that enable you to set the display of tests in the test plan tree or grid, filter and sort the tests, and set the displayed columns.

➤ The **Favorites** menu contains commands that enable you to add and organize favorite views. Available only in Test Grid. For more information on favorite views, see Chapter 6, "Working with Favorite Views."

➤ The **Analysis** menu contains commands that enable you to generate planning reports and graphs. For more information on planning reports, see Chapter 33, "Generating Reports." For more information on planning graphs, see Chapter 34, "Generating Graphs," and Chapter 35, "Generating Live Analysis Graphs."

Tip: You can access the Test Plan menu bar from the Test Plan module by pressing the shortcut key F9. Additionally, you can perform many other Quality Center operations using shortcut keys. For a list of shortcut keys, see Appendix B, "Quality Center Keyboard Shortcuts."

The Test Plan Toolbar

The Test Plan toolbar has the following buttons:

New Folder. Adds a new subject folder to the test plan tree. For more information, see "Creating a Test Plan Tree" on page 239.

New Test. Adds a new test to the test plan tree. For more information, see "Adding Tests to a Test Plan Tree" on page 240.

Delete. Deletes the selected folder or test from the tree. For more information, see "Deleting a Folder or Test" on page 258.

Refresh All. Refreshes the test plan tree so that it displays the most up-to-date tests.

Set Filter/Sort. Includes the following options:

➤ **Set Filter/Sort.** Opens the Filter dialog box, enabling you to filter and sort the tests in the test plan tree.

➤ **Clear Filter/Sort.** Clears any filters or sorting that you have applied to the test plan tree.

For more information on filtering and sorting tests, see Chapter 3, "Working with Quality Center Data."

Sort Folders. Opens the Sort Folders in Test Plan Tree dialog box, enabling you to custom sort the folders in the test plan tree. By default, folders are sorted by name. For more information, see "Sorting a Test Plan Tree" on page 256.

Flag for Follow Up. Opens the Flag For Follow Up dialog box, enabling you to add or modify a follow up flag for a test. For more information, see "Flagging for Follow Up" on page 82.

Send by E-mail. Opens the Send E-mail dialog box, enabling you to send e-mail containing the selected tests to recipients selected from a list, or to any other e-mail addresses. For more information, see "Mailing Tests" on page 248.

Text Search. Opens the text search pane in the lower part of the window, enabling you to enter keywords and search predefined fields. For more information, see "Searching Records" on page 71.

The Test Grid

The Test Grid displays all the tests in a Quality Center project. Each row displays a separate test record. Each column represents a separate data item.

To view the Test Grid, choose **View** > **Test Grid**.

You can view and modify test information in the Test Grid. For example, you can copy several automated tests and paste them in another project, or you can delete several tests at once. In addition, you can save the grid information in several formats, including a text file, Word document, HTML document, XML document, and Excel spreadsheet.

The Test Grid contains the following key elements:

➤ **Test Grid toolbar.** Contains buttons of commands commonly used when creating and modifying the Test Grid. For more information, see "The Test Grid Toolbar" on page 234.

➤ **Indicator columns.** Indicates that the specified test has attachments, linked defects, alerts, and follow up flags. Choose **View** > **Indicator Columns** to display these columns.

Column	Description
Attachments	Click the 📎 icon to view attachments for the test. For more information, see Chapter 5, "Adding Attachments."
Linked Entities	Click the 🔗 icon to view linked entities for the test. For more information, see Chapter 32, "Linking Defects."
Alerts	Click the ❗ icon to view alerts for the test. For more information, see "Viewing Alerts" on page 80.
Follow Up Flags	Click the 🚩 icon to view follow up alerts for the test. For more information, see "Flagging for Follow Up" on page 82.

➤ **Grid filter.** Displays the filter that is currently applied to a column. For more information, see "Filtering Records" on page 55.

➤ **Description tab.** Displays a description of the selected test in the Test Grid.

➤ **Attachments tab.** Displays the attachments for the selected test. For more information, see Chapter 5, "Adding Attachments."

➤ **History tab.** Displays the changes made to a test. For each change, the grid displays the date and time of the change and the name of the user who made the change. You can expand a change to view a list of fields modified during the change. For each field, the grid displays the old value and the new value.

Tip: To find a specific test by **Test ID** in the Test Grid, choose **Test > Go to Test**, and enter the test ID. To display the test ID, select the **Test ID** column using the Select Columns dialog box.

The Test Grid Toolbar

The Test Grid toolbar has the following buttons:

Delete Selected Tests. Deletes the selected tests from the Test Grid.

Refresh All. Refreshes the Test Grid so that it displays the most up-to-date tests.

Set Filter/Sort. Includes the following options:

➤ **Set Filter/Sort.** Opens the Filter dialog box, enabling you to filter, sort, and group the tests in the Test Grid.

➤ **Clear Filter/Sort.** Clears any filters, sorting, or grouping that you have applied to the Test Grid.

For more information on filtering and sorting tests, see Chapter 3, "Working with Quality Center Data."

Select Columns. Opens the Select Columns dialog box, enabling you to determine which columns to display in the grid and their order. For more information, see "Arranging Columns" on page 51.

Go to Test in Test Plan Tree. Closes the Test Grid and displays the selected test in the test plan tree.

Attachments. Opens the Attachments dialog box, enabling you to add an attachment to the selected test. For more information, see Chapter 5, "Adding Attachments."

Flag for Follow Up. Opens the Flag For Follow Up dialog box, enabling you to add or modify a follow up flag for a test. For more information, see "Flagging for Follow Up" on page 82.

Send by E-mail. Opens the Send E-mail dialog box, enabling you to send e-mail containing the selected test to recipients selected from a list, or to any other e-mail addresses. For more information, see "Mailing Tests" on page 248.

Text Search. Opens the text search pane in the lower part of the window, enabling you to enter keywords and search predefined fields. For more information, see "Searching Records" on page 71.

Test Grid Columns

The Test Grid displays the following test planning data columns:

Column	Description
Comments	Displays comments about the test.
Creation Date	The date on which the test was created. By default, the creation date is set to the current server date. Click the down arrow to display a calendar and select a different creation date.
Description	Describes the test.
Designer	The user name of the person who designed the test.
Estimated DevTime	The time estimated to design and develop the test.
Execution Status	The execution status of the last run of an instance of the test. Execution status can be one of the following: Failed, N/A, No Run, Not Completed, Passed.
Modified	The date and time of the last change to the test.
Path	The test's path on the server side (relative to the test repository).
Status	The planning status of the test. The default status is Design.

Column	Description
Subject	The subject folder in the test plan tree in which the test resides.
Template	Indicates whether the manual test or QuickTest Professional test is a test template. The value in this column is **Y** if the test is a test template; **N** or empty otherwise. For more information on manual template tests, see "Marking a Manual Test as a Template Test" on page 280. For more information on QuickTest Professional template tests, see "Adding Tests to a Test Plan Tree" on page 240.
Test ID	A unique numeric ID for the test, assigned automatically by Quality Center. The Test ID is read-only.
Test Name	The name of the test.
Type	The type of test. For example, manual or WinRunner.

Notes:

➤ You can add user-defined fields and change the label of any of the fields in the Test Grid. You can also customize project lists. For more information, refer to the *HP Quality Center Administrator's Guide*.

➤ You can use the Script Editor to restrict and dynamically change the fields and values in the Test Grid. For more information, refer to the *HP Quality Center Administrator's Guide*.

➤ When you select a Test Grid column with a user name value, Quality Center displays a list with the name and full name of each user. You can search for users, sort users, group users by user group, and select users from the users list or a group tree. For more information, see "Selecting Users" on page 54.

17

Developing the Test Plan Tree

The test plan tree organizes and displays your tests hierarchically, according to test subjects.

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Viewing the Test Plan Tree	245
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About the Test Plan Tree

The typical application is too large to test as a whole. The Test Plan module enables you to divide your application according to functionality. You divide your application into units, or *subjects,* by creating a test plan tree. This is a graphical representation of your test plan, displaying your tests according to the hierarchical relationship of their functions.

After you define subjects in the tree, you decide which tests to create for each subject and add them to the tree. At this stage, you define basic information about the test, such as its name, status, and the designer. You can also attach a file, URL, application snapshot or system information to illustrate a test. Afterwards, you define the *test steps.* Test steps contain detailed instructions on how to execute a test and evaluate the results.

During the testing process, you may need to modify your test plan. You can update the test plan tree at any time.

There are a number of methods for organizing your test plan by subject. For example, you could define subjects according to:

➤ application functionality—such as editing, file operations, and reporting

➤ type of testing—such as functional, user interface, performance, and load

Suppose you are testing a flight reservation application that lets you manage flight scheduling, passenger bookings, and ticket sales. (For the complete example, refer to the **QualityCenter_Demo** project.) You might define the following subjects for the test plan tree:
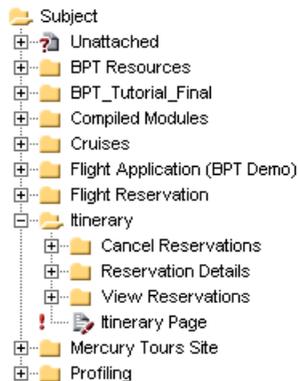
Notice how, for example, the **Itinerary** subject contains additional subject folders. These folders further categorize the tests in the test plan tree by creating additional levels of subjects.

After you build the basic structure of your plan, you create tests and assign them to each subject. For example, in the test plan tree shown above, you might assign tests to the **Reservation Details** subject folder as follows:
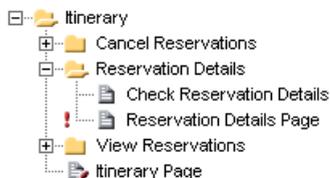
Note: Developing and editing a test plan tree requires appropriate user permissions. For more information, refer to the *HP Quality Center Administrator's Guide*.

Creating a Test Plan Tree

You define a hierarchical framework for your test plan by creating a test plan tree that may contain folders and subfolders.

Note: In addition to creating a test plan tree directly in Quality Center, you can also import test plan data from Microsoft Word or Microsoft Excel to your Quality Center project. To import from Word, you must install the **Microsoft Word Add-in** and the **HP Quality Center Connectivity Add-in**. To import from Excel, you must install the **Microsoft Excel Add-in** and the **HP Quality Center Connectivity Add-in**. You can install the add-ins from the HP Quality Center Add-ins page. For more information, refer to the *HP Quality Center Installation Guide*.

To create a test plan tree:

1 In the test plan tree, select a subject folder and click the **New Folder** button, or choose **Tests** > **New Folder**. The New Folder dialog box opens.


```
New Folder                          [×]
  Folder Name :
  ┌──────────────────────────────────┐
  │                                  │
  └──────────────────────────────────┘
       ┌──────┐  ┌──────┐  ┌──────┐
       │  OK  │  │Cancel│  │ Help │
       └──────┘  └──────┘  └──────┘
```

2 In the **Folder Name** box, type a name for the subject and click **OK**. Note that a folder name cannot include the following characters: \ ^ *

The new subject folder appears under **Subject** in the test plan tree.

3 In the **Description** tab, type a description of the subject.

4 Click the **Attachments** tab to add an attachment to the new folder if necessary. An attachment can be a file, URL, snapshot of your application, an item from the Clipboard, or system information. For more information, see Chapter 5, "Adding Attachments."

5 To create additional subjects at the main level, repeat steps 1 to 4.

6 To create a subfolder, select a subject folder and repeat steps 1 to 4.

Adding Tests to a Test Plan Tree

Once you have created a test plan tree containing the main test subjects, you are ready to create tests. Each test should have a distinct objective, such as verifying a specific function or system requirement. The tests you define should be based on the goals you set at the beginning of the testing process.

For example, in the flight reservation application, you could define a test called **Password Verification** that checks that only users that provide the correct password can sign on. You could place this test under the subject **Sign-On/Sign-Off**.

Tip: You can automatically create tests based directly on your requirements in the Requirements module. For more information, see "Creating Tests from Requirements" on page 182.

To add new tests:

1 Choose a subject folder in the test plan tree.

2 Click the **New Test** button, or choose **Tests** > **New Test**. The Create New Test dialog box opens.

Create New Test	☒
Test Type:	MANUAL ▼
Test Name:	
OK	Cancel	Help

Note: If you have installed the QuickTest Professional Add-in on your machine, the Create New Test dialog box includes the **Template** box.

3 Select a test type from the **Test Type** list. You can select the following test types:

Test Type	Description
MANUAL	A Quality Center manual test.
WR-AUTOMATED	A test that is executed by WinRunner, HP's functional testing tool for Microsoft Windows applications.
LR-SCENARIO	A scenario that is executed by LoadRunner, HP's load testing tool.

Test Type	Description
QUICKTEST_TEST	A test that is executed by QuickTest Professional, HP's functional enterprise testing tool. This test type is only available if you have installed the appropriate add-in from the HP Quality Center Add-ins page. For more information on installing add-ins, refer to the *HP Quality Center Installation Guide*.
VAPI-XP-TEST	A test that is created using Visual API-XP, the Quality Center open test architecture API testing tool. For more information, see Appendix A, "Working with VAPI-XP."
SYSTEM-TEST	A test that instructs Quality Center to provide system information, capture a desktop image, or restart a machine. For more information, see Chapter 21, "Working with System Tests."
BUSINESS-PROCESS	A business process test. For more information, refer to the *HP Business Process Testing User's Guide*.

Note: After test creation, you can change the test type from the Test Grid. You may be able to select from the Test Grid additional test types to those listed above, including the **WR-BATCH** test type for a WinRunner batch test.

4 In the **Test Name** box, type a name for the test. A test name cannot include the following characters: \ / : " **? < > | * %** '

5 If you selected **QUICKTEST_TEST** from the **Test Type** list, the **Template** box is available. You create your new test based on another QuickTest test, defined as a template test. The template test is copied to your new test, without the test results.

Note: To set the QuickTest add-ins that Quality Center associates with a new QuickTest test, choose a template test that lists the appropriate add-ins. Alternatively, use the default template test provided on your Quality Center client. This test loads the Web and ActiveX add-ins by default. For more information, refer to the QuickTest documentation and the relevant QuickTest add-in documentation.

To select a template test, click the browse button. The Select Tests dialog box opens. By default, only QuickTest template tests are displayed.

Select the template test and click the **Add Test** button. The Select Tests dialog box closes and the template test is displayed in the **Template** box.

Note: To set a QuickTest Professional test as a template test, right-click the test in the test plan tree, and choose **Template Test**.

---

6 Click **OK** to close the Create New Test dialog box.

If required test fields were defined in the Project Customization window, the Required Test Fields dialog box opens. Select values for the required fields, and click **OK**.

The new test appears in the test plan tree under the subject folder you selected. In the Details tab, the name is added to the **Test Name** box.

7 Enter the following test details in the Details tab:

Option	Description
Designer	The person who designed the test. By default, the name of the user who is currently logged in to Quality Center is displayed. Click the down arrow to select a different user name.
Creation Date	The date on which the test was created. By default, the creation date is set to the current database server date. Click the down arrow to display a calendar and select a different creation date.
Status	The current status of the test. The default status is **Design**. Click the down arrow to select a different status from the list.

Note: You can change the label of any of the test detail fields. You can also add user-defined fields to the test details. For more information, refer to the *HP Quality Center Administrator's Guide.*

8 In the Details tab, click the **Description** tab and type a description for the test.

9 In the Details tab, click the **Comments** tab to add a comment to the test. In the Comments tab, click the **Add Comment** button. A new section is added to the Comments tab, displaying your user name and the database's current date.

10 Click the **Attachments** tab to add an attachment to the new test if necessary. An attachment can be a file, URL, snapshot of your application, an item from the Clipboard, or system information. For more information, see Chapter 5, "Adding Attachments."

11 Click the **Req Coverage** tab to define requirements coverage. For more information, see Chapter 18, "Linking Tests to Requirements."

12 Click the **Linked Defects** tab to link defects to the test. For more information, see Chapter 32, "Linking Defects."

13 Click the **Design Steps** tab to define steps for the test. For more information, see Chapter 19, "Building Tests."

Viewing the Test Plan Tree

Use the test plan tree to review the overall structure of your test plan and to view the tests assigned to each subject.
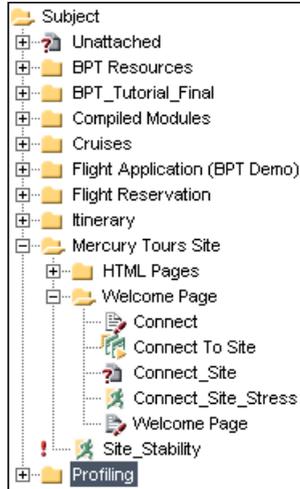
A test plan tree can include the following test icons:

📄	Manual test
📝	Manual test that includes test steps
📄	Manual Template test
📝	Manual Template test that includes test steps
🏃	WinRunner test
🏃	WinRunner batch test For more information on creating and working with WinRunner batch tests, refer to the *WinRunner User's Guide*.
🏃	LoadRunner scenario
🖥	QuickTest Professional test
🖥	QuickTest Professional Template test
🖥	QuickTest Professional test that includes test steps

🖉	QuickTest Professional Template test that includes test steps
🗊	Visual API-XP test
✳	System test
◈	Vuser Script test

Note: A question mark icon in the test plan tree indicates that the QuickTest Professional add-in is not installed on your machine. For more information on installing add-ins, refer to the *HP Quality Center Installation Guide*.

To view tests in the test plan tree:

By default, the test plan tree displays only the highest level subjects in the subject hierarchy.

➤ To expand a branch in the tree, click the Expand ⊞ sign to the left of the branch name. To expand all the branches in the tree, right-click the **Subject** folder and choose **Expand All**.

➤ To collapse a branch in the tree, click the Collapse ⊟ sign to the left of the branch name. To collapse all the branches in the tree, right-click the **Subject** folder and choose **Collapse**.

➤ To view tests associated with a particular subject, double-click a subject folder 📁.

➤ To refresh all tests in the test plan tree, click the **Refresh All** button.

➤ Click the **Set Filter/Sort** button to filter and sort the tests in the test plan tree. For more information, see Chapter 3, "Working with Quality Center Data." Any currently applied filters or sorting orders are displayed under the test plan tree toolbar.

➤ To view all the tests in a Quality Center project at once, choose **View** > **Test Grid**.

Viewing Instances of Tests

You can view instances of tests you create in the Test Plan module in test sets in the Test Lab module. You can view which test sets contain an instance of a test, and go to such a test instance in the Test Lab module.

To view an instance of a test:

1 In the test plan tree, select a test and choose **Tests** > **Go to Test in Test Set**. Alternatively, right-click a test and choose **Go to Test in Test Set**. If there is only one instance of the selected test, the Test Lab module opens with the instance highlighted. If there is more than one instance, the Select Test Set dialog box opens.
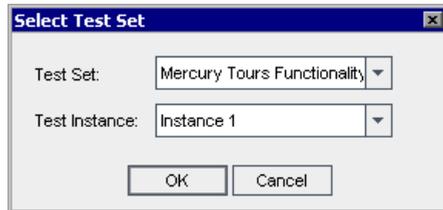
2 In the **Test Set** box, select the test set containing the test instance you want to go to, from the list of all test instances containing the test.

3 In the **Test Instance** box, select the instance of the test from the test instances in the selected test set.

4 Click **OK**. The Test Lab module opens with the selected test instance highlighted.

Mailing Tests

You can send e-mail about a test to other users in your project. This enables you to routinely inform development and quality assurance personnel about the status of your tests. A **Go To Test** link is included in the e-mail, enabling the recipient to go directly to the test.

Note: By default, Quality Center sends e-mail in HTML format. To send e-mail as plain text instead, edit the **MAIL_FORMAT** parameter in the **Site Configuration** tab in Site Administration. For more information, refer to the *HP Quality Center Administrator's Guide*.

To mail a test:

1 Select one or more tests in the test plan tree or in the Test Grid, and click the **Send by E-mail** button. The Send E-mail dialog box opens.

Tip: You can automatically send the e-mail to a specific user type. This can be any test column with a user name value, including user-defined fields. Click the **Send by E-mail** arrow and choose an option. For example, choose **Send Mail to Designer** to send the e-mail to the user who designed the test.

2 Type a valid e-mail address or user name. Alternatively, click the **To** button or **CC** button to select users. The Select Recipients dialog box opens.
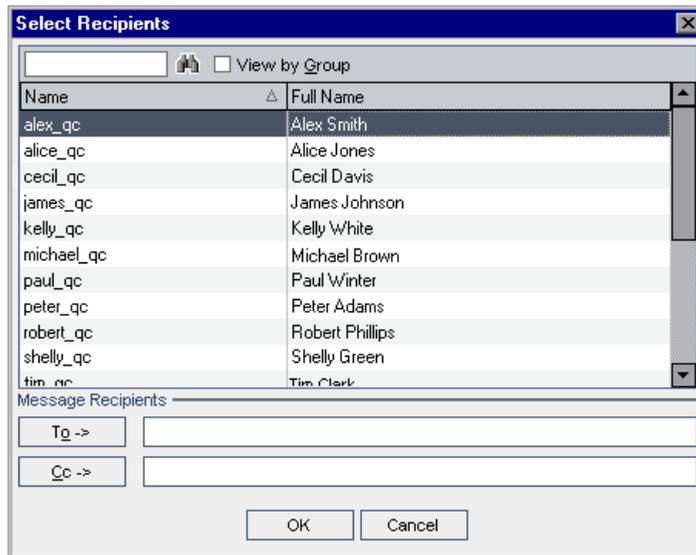
You can sort the users list, search for users, group users by user groups, and select users from the list or from a group tree. For more information, see "Selecting Users" on page 54.

Select the users or user groups to whom you want to send the e-mail, and click **OK**.

3 In the **Subject** box, type a subject for the e-mail. By default, if you select only one test, the domain, project, test ID, and name of the test are displayed in the Subject box.

4 If you select more than one test, the tests are listed in the **Item** box. You can clear any tests you do not want to include in the e-mail.

5 Choose whether you want to include the **Attachments**, **History**, and/or **Design Steps** of the test.

6 In the **Additional comments** box, add any comments you may have.

7 To check the spelling in the dialog box:

➤ Click the **Check Spelling** button to check the spelling for the selected word or text box. If there are no errors, a confirmation message opens. If errors are found, the Spelling dialog box opens and displays the word together with replacement suggestions.

➤ Click the **Spelling Options** button to open the Spelling Options dialog box, enabling you to configure the way spelling is checked.

➤ Click the **Thesaurus** button to open the Thesaurus dialog box and display a synonym, antonym, or related word for the selected word. You can replace the selected word or look up new words.

8 Click **Custom** to customize the e-mail. In the Select Fields dialog box, you can specify fields to include in the e-mail.

9 Click **Send** to send the e-mail.

Finding Tests in the Tree or Test Grid

You can search for a particular test in the test plan tree or in the Test Grid using the Find command.

Tip: If **Text Search** is available, you can use it to search for tests in the test plan tree or Test Grid. Text search provides a more powerful search by allowing you to search for keywords and variations of keywords. For information on using the text search, see "Searching Records" on page 71.

Finding Tests in the Test Plan Tree

You can search for a folder or test in the test plan tree. If you have applied filters to the test plan tree, the search is restricted to the tests currently displayed.

To find a folder or test in the test plan tree:

1 Select a subject folder in the test plan tree, and choose **Edit** > **Find**.

The Find Folder/Test dialog box opens and displays the folder name in the **Find in** box. If you are searching the entire tree, the folder name is **Subject**.
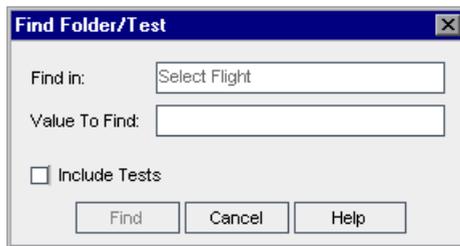
2 In the **Value To Find** box, type the name (or part of the name) of the folder or test. Note that the search is not case sensitive.

3 Check **Include Tests** to search for both folders and tests.

4 Click **Find**.

The Test Plan module attempts to locate the folder or test. If the search is successful, the Search Results dialog box opens and displays a list of possible matches. Select a result from the list and click the **Go To** button to highlight the folder or test in the test plan tree.

If the search is unsuccessful, an information box opens.

Finding Tests in the Test Grid

You can search for tests in the Test Grid, based on the value of a particular field. If you have applied filters to the Test Grid, the search is restricted to the tests currently displayed.

To find tests in the Test Grid:

1 Choose **View** > **Test Grid**.

2 Choose **Edit** > **Find**. The Find dialog box opens.

3 In the **Find in Field** box, select a field in the grid.

4 In the **Value to Find** box, type or select the value of the field, for which you want to search.

5 Select **Exact Match** if you want to find tests with field values that exactly match the Value to Find string.

6 Select **Case Sensitive** if you want the search to distinguish between uppercase and lowercase characters.

7 Select **Use Wildcards** if you want to use asterisk (*****) characters in your search string in order to type only part of the item.

8 Click **Find Next**. If the search is successful, the matching test is chosen in the grid. If the search is unsuccessful, an information box opens.

9 Click **Find Next** again to find the next test that matches the criteria.

Replacing Field Values in the Test Grid

You can replace field values in the Test Grid using the Replace command.

To replace a field value in the Test Grid:

1 Choose **Edit** > **Replace**. The Find/Replace dialog box opens.

2 In the **Find in Field** box, select the column in which you want to search for a specific value.

3 In the **Value to Find** box, type or select the value to find.

4 In the **Replace with** box, type or select a replacement field value.

5 To distinguish between uppercase and lowercase characters, select the **Case Sensitive** check box.

6 To search for an exact value, select the **Exact Match** check box.

7 To start the search from the top of the grid, select the **From Beginning** check box.

8 To use asterisk (*****) characters in your search string in order to type only part of the item, select the **Use Wildcard** check box.

9 To replace the found item and find the next occurrence, click **Replace.**

10 To replace all occurrences of the value in the grid, click **Replace All**.

Copying Tests and Subject Folders

You can copy tests and subject folders within the same project or between projects.

Copying Tests or Subject Folders within the Same Project

You can copy tests and subject folders within the same project.

To copy a test or a subject folder within the same project:

1 Select the test or the subject folder that you want to copy in the test plan tree. To copy more than one test or subject folder, use the **Ctrl** key.

2 Choose **Edit** > **Copy**. Alternatively, right-click and choose **Copy**.

3 Select the folder to which you want to copy the tests or subject folders.

4 Choose **Edit** > **Paste**. Alternatively, right-click and choose **Paste**.

Copying Tests or Subject Folders between Projects

You can copy tests and subject folders from one project to another. If the tests or subject folders contain calls to other tests, you can instruct Quality Center to copy them using one of the following methods:

➤ Copy tests or subject folders and link them to existing tests in the target project. If a called test does not exist in the target project, Quality Center copies and pastes it into the target project.

➤ Copy tests or subject folders along with the called tests into the target project.

➤ Copy tests or subject folders without copying called tests into the target project.

To copy a test or a subject folder between projects:

1 Select the test or the subject folder that you want to copy in the test plan tree. To copy more than one test or subject folder, use the **Ctrl** key.

2 Choose **Edit** > **Copy**. Alternatively, right-click and choose **Copy**.

3 Open another instance of Quality Center and log in to the project to which you want to paste the tests.

4 Select the folder to which you want to copy the tests or subject folders.

5 Choose **Edit > Paste**. Alternatively, right-click and choose **Paste**. The Paste Tests/Subject Folders to Target Project dialog box opens.

6 Select one of the following options:

➤ **Copy tests/subject folders and link to existing called tests.**
Quality Center copies the tests or subject folders and pastes them into the target project. The copied tests or subject folders are linked to existing tests with the same name. If a called test does not exist in the target project, Quality Center copies and pastes it into the target project.

➤ **Copy tests/subject folders and called tests.** Quality Center copies the tests or subject folders along with the called tests, and pastes them into the target project. If a called test name already exists in the target project, the copied called test is renamed to resolve the duplicate test name.

➤ **Copy tests/subject folders without copying called tests.** Quality Center copies the tests or subject folders without copying the called tests, and pastes them into the target projects. The copied tests or subject folders are not linked to any called tests.

Click **OK**.

Copying URLs of Tests

You can copy a test and paste its URL as a link. The test itself is not copied. Instead, you can paste the address into another location, such as an e-mail or a document. Clicking on the link opens up Quality Center and takes you to the test.

To copy a URL of a test:

1 Select a test from the test plan tree or grid.

2 Choose **Edit > Copy URL**. Alternatively, right-click and choose **Copy URL**.

3 Paste the URL.

Sorting a Test Plan Tree

By default, subjects are displayed in a test plan tree in alphabetical order. You can sort the folders in the test plan tree and create a custom sort according to your needs.

Note: You must have project administrator permissions to create a custom sort. For more information on assigning user group permissions, refer to the *HP Quality Center Administrator's Guide*.

To sort a test plan tree:

1 Click the **Sort Folders** button on the toolbar. The Sort Folders in Test Plan Tree dialog box opens.

By default, **Folder Name** is selected.

2 To create a custom sort, select **Custom Sort**.
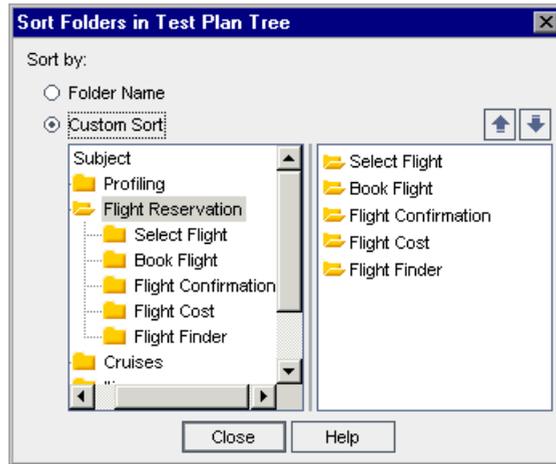
3 Click a subject folder on the left side of the dialog box. The subfolders appear on the right side.

4 Choose a subfolder on the right side of the dialog box and click the **Up** or **Down** arrow buttons to set the sorting priority for your test plan tree. You can also drag the subfolder up or down.

5 Click **Close** to apply the sort order to your test plan tree.

Modifying a Test Plan Tree

You can rename or delete subject folders and tests in the test plan tree.

Renaming a Folder or Test

You can rename a folder or a test.

To rename a folder or test:

1 Select an item from the test plan tree.

2 Click the item. Alternatively, right-click the item and choose **Rename**.

3 Edit the item name and press **Enter** or click another location.

Deleting a Folder or Test

You can delete a folder or test from the test plan tree. When you delete a folder, you can choose to delete the folder only, or the folder, its subfolders, and tests. If you choose to delete the folder only, all of the tests are moved to the **Unattached** folder in the test plan tree. If you choose to delete a folder and tests, all subfolders and tests under the selected folder are deleted permanently. If you delete a test, the test and test script are deleted permanently.

To delete a folder:

1 Select a folder from the test plan tree. To delete more than one folder, press the **Ctrl** key and select the folders you want to delete.

2 Click the **Delete** button, or choose **Edit** > **Delete**. Alternatively, right-click the folder and choose **Delete**. The Confirm Delete Folder dialog box opens.
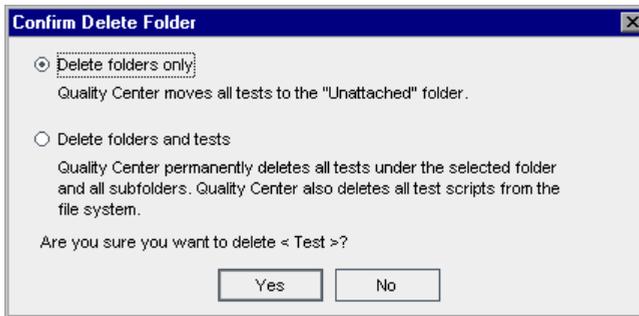
3 Select **Delete folders only** or **Delete folders and tests.**

4 Click **Yes**.

To delete a test:

1 Select a test from the test plan tree. To delete more than one test, press the **Ctrl** key and select the tests you want to delete.

2 Click the **Delete** button, or choose **Edit** > **Delete**. Alternatively, right-click the test and choose **Delete**.

3 Click **Yes** to confirm.

18

Linking Tests to Requirements

It is essential that the tests in your test plan meet your original requirements. To keep track of the relationship between your requirements and tests, you add links between them.

This chapter describes:	On page:
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About Linking Tests to Requirements

You begin by defining your requirements in the requirements tree and then assigning them to a release or a cycle in the releases tree (see Chapter 12, "Developing the Requirements Tree"). In the planning stage, you build a test plan tree based on these assigned requirements (see Chapter 17, "Developing the Test Plan Tree"). To keep track of the relationship between your assigned requirements and tests, you add links between them.

In the Test Plan module, you create *requirements coverage* by selecting requirements to link to a test. Alternatively, in the Requirements module, you create *test coverage* by selecting tests to link to a requirement. A test can cover more than one requirement, and a requirement can be covered by more than one test.

Note: You can also create coverage between test instances and requirements. You can enable this feature using the **ALLOW_REQ_COVERAGE_BY_ TEST_INSTANCE** parameter in Site Administration. For more information on this parameter, see the *HP Quality Center Administrator's Guide*.

You can link requirements and tests to defects. This can help you ensure compliance with your testing needs throughout the testing process (see Chapter 32, "Linking Defects"). If a requirement changes, you can immediately identify which tests and defects are affected, and who is responsible.

Requirements Coverage Example

Suppose you are using the **QualityCenter_Demo** project based on the Mercury Tours application. Click the **Test Plan** button on the sidebar. In the test plan tree, under **Profiling**, expand the **Registration** folder and select the **Phone (Contact Information)** test.
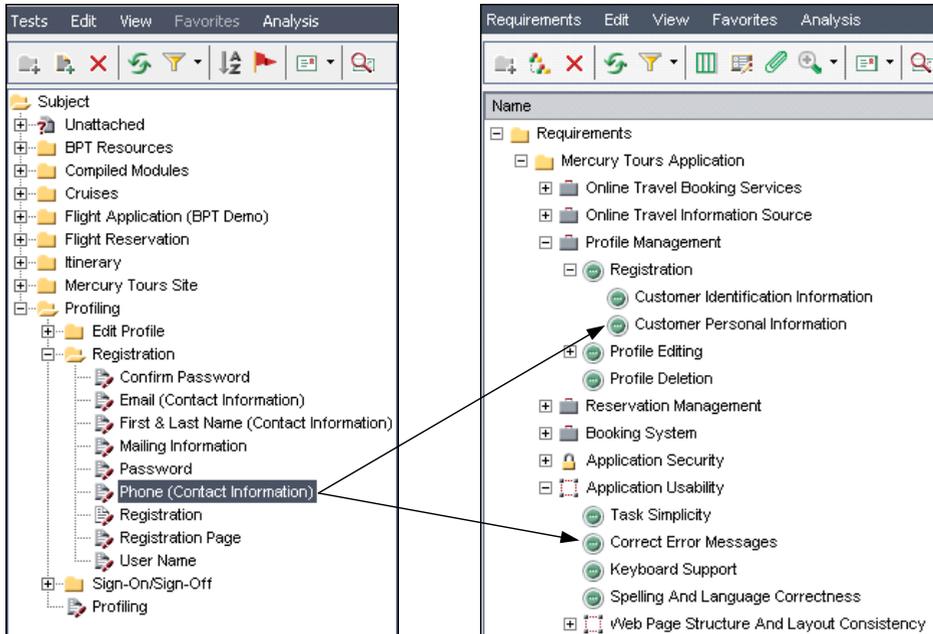
The **Phone (Contact Information)** test verifies the customer phone number in the Registration page. If you click the **Req Coverage** tab, you can see that this test covers the following requirement topics: **Customer Personal Information**, and **Correct Error Messages**.

Test Coverage Example

Continuing with the requirements coverage example, you can also view coverage in the **QualityCenter_Demo** project from the other direction. Click the **Requirements** button on the sidebar. In the requirements tree, under **Requirements**, expand the requirement topics **Mercury Tours Application**, **Profile Management**, and **Registration**, and then select the requirement **Customer Personal Information**.
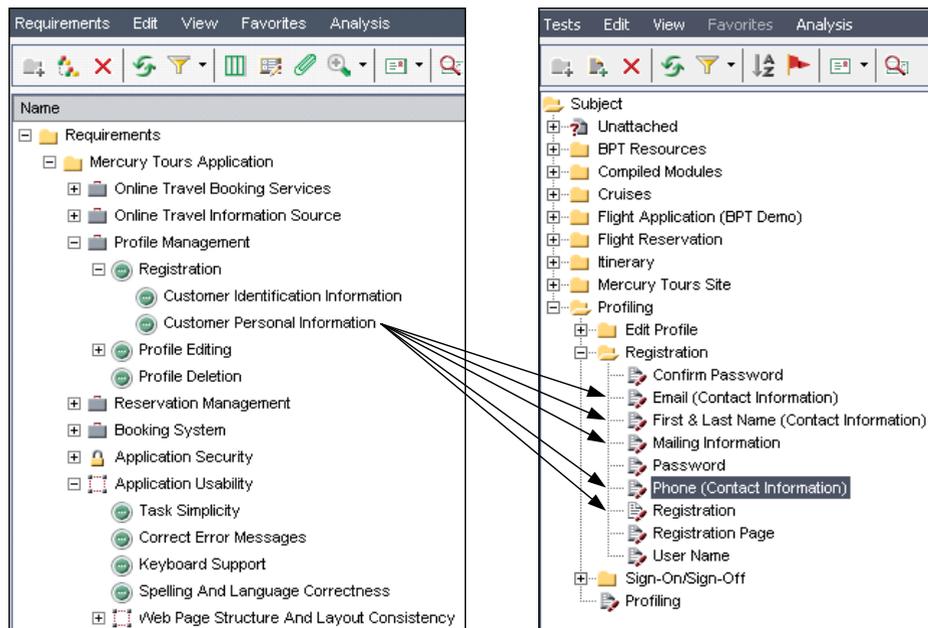
The **Customer Personal Information** requirement ensures that the flight reservation system includes personal information about the customer. In the **Test Coverage** tab, you can see that this requirement is covered by the following tests: **Email (Contact Information)**, **First & Last Name (Contact Information)**, **Mailing Information**, **Phone (Contact Information)**, and **Registration**.

Linking Requirements to a Test

During test planning, when you select a test in the test plan tree, the test's requirements coverage is displayed in the Req Coverage tab.

The coverage grid lists the requirements that are covered by the selected test. You can view, add, and remove requirements from the coverage grid.
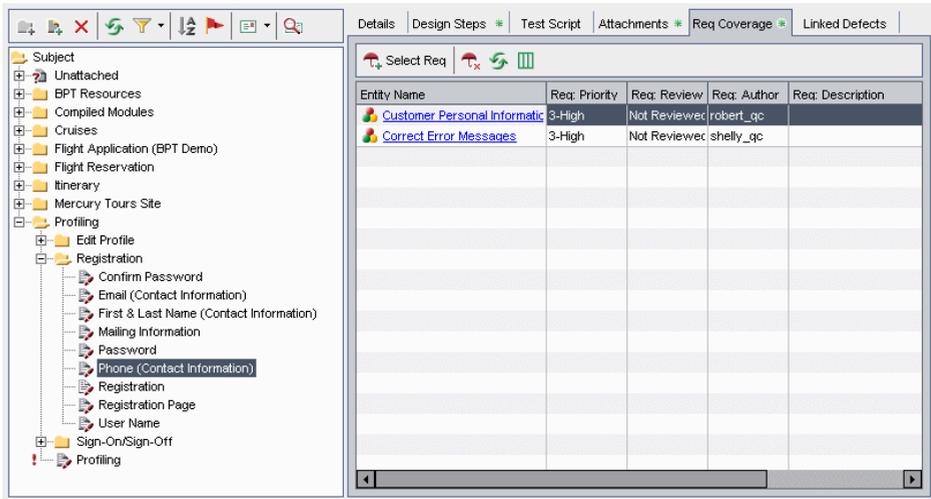
The columns in the Req Coverage tab display data for the covered test requirements. In addition to the columns described in "The Requirement Fields" on page 153, the coverage grid can also display the following columns:

Column	Description
Coverage Type	The type of coverage. The value in this column can be "Test" or "Test Instance".
Entity Name	The entity name.
Entity Status	The current execution status of the entity.

Viewing the Requirements Coverage Grid

You can set column appearance and order in the coverage grid. You can view requirements in the coverage grid with their full path. In addition, you can instruct Quality Center to go to a requirement in the requirements tree.

To view the Requirements Coverage Grid:

1 In the test plan tree, select a test.

2 Click the **Req Coverage** tab.

3 To refresh the coverage grid so that it displays the most up-to-date requirements, click the **Refresh All** button.

4 To set column appearance and order in the coverage grid, click the **Select Columns** button. For more information, see "Arranging Columns" on page 51.

5 To display the location of the requirements in the requirements tree, right-click the coverage grid and choose **Show Full Path**.

6 To go to a requirement in the requirements tree, click the requirement in the coverage grid. Alternatively, right-click the requirement and choose **Go To Requirement in Requirements Tree**.

Adding Requirements Coverage

To add requirements coverage to a test, you select one or more requirements from the requirements tree. Note that by default you cannot add coverage for the following requirement types: Business, Folder, and Group.

Note: Requirements coverage is created automatically when you convert a requirement to a test. Therefore, even if you have not yet added requirements coverage, it may already exist. For more information, see "Creating Tests from Requirements" on page 182.

To add requirements coverage:

1 In the test plan tree, select a test.

2 Click the **Req Coverage** tab.

3 Click the **Select Req** button to display the requirements tree in the right pane.
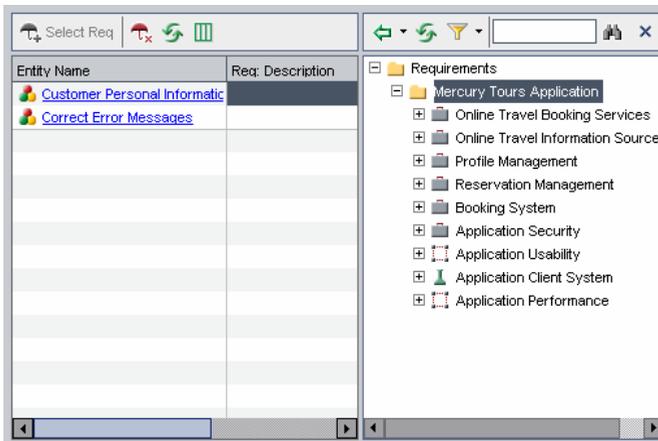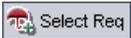
4 To search for a specific requirement in the tree, type the name (or part of the name) of the requirement in the **Find** box and click the **Find** button. If the search is successful, the requirement is highlighted in the tree.

5 To filter and sort requirements in the tree, click the **Set Filter/Sort** button. For more information, see Chapter 3, "Working with Quality Center Data".

6 To refresh the requirements tree or coverage grid, click the appropriate **Refresh All** button.

7 Select a requirement or requirement topic to add to the coverage:

> ➤ Click the **Add to Coverage (Without Children)** button to add the requirement without the requirement's child requirements. Alternatively, double-click the requirement.

> ➤ Click the **Add to Coverage** arrow and choose **Add to Coverage (Include Children)** to add the requirement, including its child requirements. Only child requirements that match the current filter and that belong to a type that supports test coverage are added to the coverage.

The requirement is added to the coverage grid.

Tip: You can also define requirements coverage by dragging a requirement in the requirements tree to the coverage grid. The requirement is added to the coverage grid without its child requirements.

---

8 Click the **Close** button to hide the requirements tree.

Removing Requirements Coverage

You can remove requirements from a test's requirements coverage.

To remove requirements coverage from a test:

1 In the test plan tree, select a test.

2 Click the **Req Coverage** tab.

3 Select a requirement from the coverage grid to delete.

4 Click the **Remove Selected** button, and click **Yes** to confirm.

Linking Tests to a Requirement

You can link tests to requirements using the Requirements module.

When you select a requirement in the requirements tree, the requirement's test coverage is displayed in the Test Coverage tab. The coverage grid lists the tests that cover the selected requirement. You can view, add, and remove tests from the coverage grid.
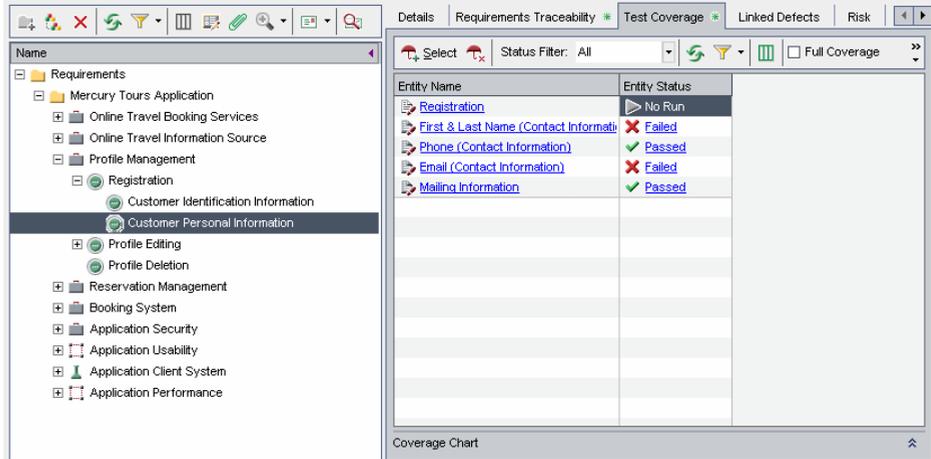
The columns in the Test Coverage grid display data for the tests that cover the requirement. In addition to the columns described in "Test Grid Columns" on page 235, the coverage grid can also display the following columns:

Column	Description
Coverage Type	The type of coverage. The value in this column can be "Test" or "Test Instance".
Entity Name	The entity name.
Entity Status	The current execution status of the entity.

Viewing the Test Coverage Grid

You can filter the coverage grid, and show or hide full coverage. You can also instruct Quality Center to go to a test in the test plan tree.

To view the Test Coverage Grid:

1 In the Requirement Details view, select a requirement.

2 Click the **Test Coverage** tab.

3 To filter the coverage grid by status type, select a status from the **Status Filter** list. For example, you can select to view only tests that have passed. Select **All** to clear the filter.

4 To refresh the data in the coverage grid, click the **Refresh All** button.

5 To filter, sort, or group records in the coverage grid, click the **Set Filter/Sort** button. To clear any filters, sorting, or group by settings, click the **Set Filter/Sort** arrow and choose **Clear Filter/Sort**.

6 To set column appearance and order in the grid, click the **Select Columns** button. For more information on the Select Columns dialog box, see "Arranging Columns" on page 51.

7 To show the test coverage of all the children of the requirement, check the **Full Coverage** check box. By default, full coverage is not displayed.

8 To go to the test in the test plan tree, click the test in the coverage grid. Alternatively, right-click the test in the coverage grid and choose **Go to Test in Test Plan Tree**.

9 To go to the test in the Test Lab module, right-click the test in the coverage grid and choose **Go to Test in Test Set**.

10 On the lower-right side of the window, click **Show** to display the Coverage Chart. This pie chart graphically displays the run status of the tests in the coverage grid.

Adding Test Coverage

To add test coverage to a requirement, you select tests from the test plan tree. Note that by default you cannot add coverage for the following requirement types: Business, Folder, and Group.

Note: Test coverage is created automatically when you generate a test from a requirement. Therefore, even if you have not yet added test coverage, it may already exist. For more information, see "Creating Tests from Requirements" on page 182.

To add test coverage to a requirement:

1 In the requirements tree, select a requirement. The Test Coverage tab displays the coverage grid for the selected requirement.

2 In the Test Coverage tab, click the **Select Tests** button to display the test plan tree in the right pane.

3 To search for a specific test in the tree, type the name (or part of the name) of the test in the **Find** box and click the **Find** button. If the search is successful, the test is highlighted in the tree.

4 To filter or sort tests in the tree, click the **Set Filter/Sort** button**.** For more information on filtering and sorting records, see Chapter 3, "Working with Quality Center Data".

5 To refresh the tree, click the **Refresh All** button.

6 To add a test to the requirement's test coverage, in the Test Plan Tree tab, select a test or a test folder and click the **Add To Coverage** button. The test is added to the coverage grid. If you select a folder, only tests that match your current filter are added to the test coverage.

Tip: You can also define test coverage by dragging a test or a test folder from the Test Plan Tree tab to the coverage grid.

---

7 Click the **Close** button to hide the test plan tree in the right pane.

Removing Test Coverage

You can remove tests from a requirement's test coverage.

To remove test coverage from a requirement:

1 In the requirements tree, select a requirement. The Test Coverage tab displays the coverage grid for the selected requirement.

2 Select a test from the coverage grid to delete.

3 Click the **Remove From Coverage** button and click **Yes** to confirm.

Analyzing Coverage

In the Requirements module, you can use the **Coverage Analysis** view to examine the status of your requirements. This enables you to understand the breakdown of child requirements according to test coverage. You can set the coverage analysis by cycle, enabling you to view in the analysis only the coverage of runs that are assigned to specific cycles.

For example, in the **QualityCenter_Demo** project, select the requirement **Application Client System**, located under the requirement **Mercury Tours Application**. This requirement has twelve children, including itself. In the Coverage Analysis, you can see that two of the children have a status of Failed (one or more of the tests covered by the requirement failed). When you analyze this, you can see that three (27%) of the tests associated with this requirement failed.

Note: By default, coverage is available only for the following requirement types: Functional, Testing, and Undefined.

To analyze coverage:

1 Choose **View** > **Coverage Analysis**.

The Coverage Analysis displays the following columns:

Column	Description
Name	The requirements tree, listing requirements grouped hierarchically.
Direct Cover Status	The current status of the requirement, determined according to the status of the tests associated with the requirement. For example, if the direct cover status is "Not Completed", then one or more tests covered by the requirement have not been completed. For a complete definition, see "Direct Cover Status" on page 154.
Coverage Analysis	This column graphically displays the direct cover status of the requirement and its children. Requirements which do not match the current filter, or requirements with direct cover status "N/A" are not counted in the analysis.
	If you set the coverage by cycle, Quality Center does not use the Direct Cover Status field in its calculations. Instead, it uses calculated direct cover status values based on the tests that have instances belonging to test set folders that are assigned to cycles included in the filter. In this case, requirements that do not have test coverage for any of the cycles in the filter are not counted in the analysis.
	In the above example, the Coverage Analysis for the first requirement **Mercury Tours Application** shows that it has three lowest level child requirements that have Failed and ten lowest level child requirements that are Not Covered.

2 To include in the analysis only tests that have runs that are assigned to specific cycles, in the **Coverage calculation by cycle** box, click the browse button. The releases tree opens. Expand the tree and select the cycles for which you want to analyze coverage. Click **OK** to close the releases tree.

3 Click the **Coverage Analysis** column for the requirement you want to analyze. Alternatively, right-click the requirement, and choose **Coverage Analysis**. The Coverage Analysis dialog box opens.

For example, click the **Coverage Analysis** column for the requirement **Application Client System**. The graph shows that this requirement has two requirements that have Failed and ten child requirements that are Not Covered.
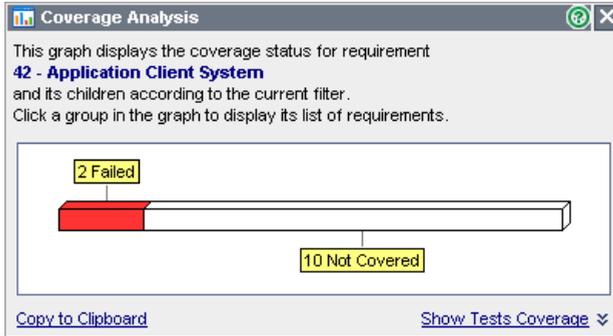
4 Click a section in the graph to display a list of child requirements with the selected status. In this example, click the **Failed** area of the graph to show the requirements with a status of Failed. The names of the two requirements with Failed status are displayed.

You can select a requirement and click **Go To** to highlight the requirement in the requirements tree.

5 Click the **Show Tests Coverage** link to extend the Coverage Analysis dialog box and display the Tests Coverage Chart.
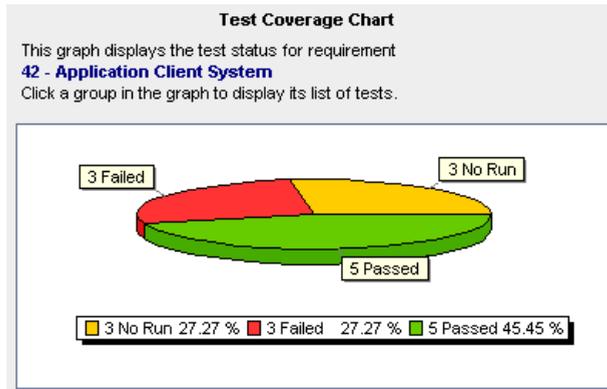
This pie chart graphically displays the full test coverage for the requirement, grouped according to test status. In this example, the Application Client System requirement and its child requirements are associated with three Failed tests, three No Run tests, and five Passed tests. Note that if a parent requirement has several children all of which cover the same test, that test is included only once in the parent requirement's Tests Coverage Chart.

6 Click a section in the chart to view the list of tests with the selected status that cover the requirement and its children. The Tests Coverage dialog box opens with the **Status Filter** set to the status of the area you selected in the chart.
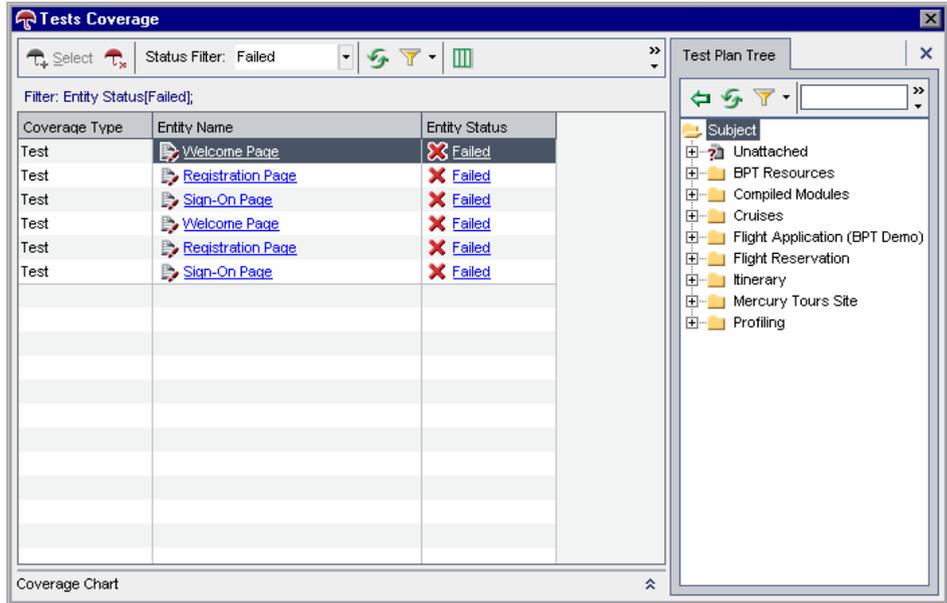
Note that if a parent requirement has several children all of which cover the same test, that test is included once for each child requirement in the parent requirement's Tests Coverage Chart.

You can change the Status Filter or modify test coverage for the requirement. For more information, see "Linking Tests to a Requirement" on page 266.

7 To display the Tests Coverage Chart, click the **Show** button.

8 Click **Close** to close the Test Coverage dialog box.

9 Click **Close** to close the Coverage Analysis dialog box.

10 To save the Coverage Analysis view to a Word document, choose **Requirements > Export > Word Document**. A Word document is created, displaying a bar graph for each parent requirement in the requirements tree.

19

Building Tests

After you create a test plan tree, you are ready to develop the tests by defining design steps.

This chapter describes:	On page:
About Building Tests	275
Defining Design Steps	277
Calling a Manual Test with Parameters	279
Managing Design Steps	284

About Building Tests

You build tests in the Test Plan module by defining design steps: detailed, step-by-step instructions on how to execute a test. A step includes the actions to perform on your application, the input to enter, and the expected output. A step can also include parameters. You define steps for a test after you add the test to the test plan tree and define basic test information.

You can create design steps for both manual and automated tests. For a manual test, you complete test planning and design once you finish creating the steps. Using your plan, you can begin execution immediately. Automated tests require that you create automated test scripts using HP testing tools, or custom or third-party testing tools.

If you decide to automate a test, a test script is created based on the design steps you defined. After evaluating your test design, you decide whether to automate a test. For further information, see Chapter 20, "Creating Automated Tests."

You design steps for a test using the **Design Steps** tab in the test plan tree.

Defining Design Steps

You add design steps to a test using the Design Step Editor.

To define a design step:

1 Select a test in the test plan tree and click the **Design Steps** tab.

2 Click the **New Step** button or right-click in the Design Steps tab and choose **New Step**. The Design Step Editor opens and displays a default step name in the Step Name box.
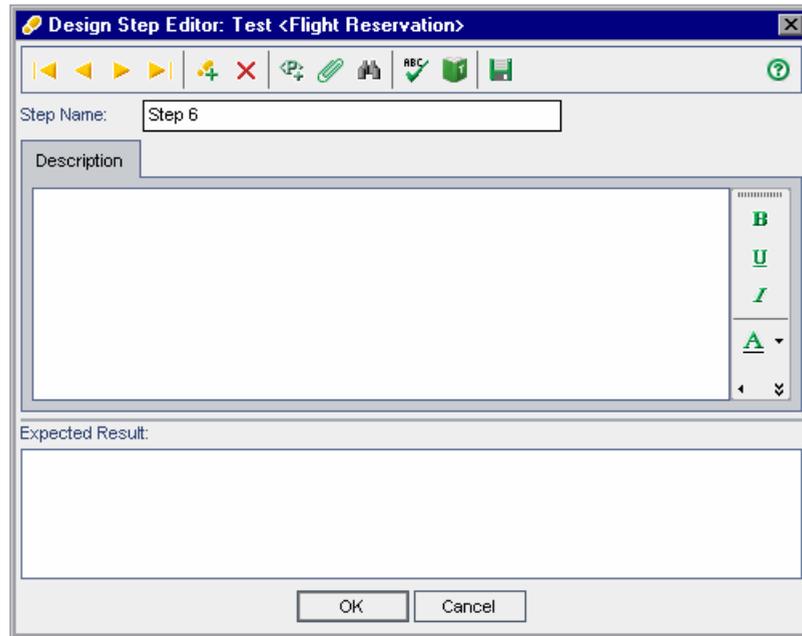
The default step name is the sequential number of the design step (Step 1 if you are adding steps to a test for the first time). You can change the name by typing a different name in the box.

3 Type a **Description** and **Expected Result** for the design step.

4 To insert a parameter, click the **Insert Parameter** button. For more information on parameters, see "Calling a Manual Test with Parameters" on page 279.

5 To manually save the current step, click the **Save Steps** button.

6 To add additional steps, click the **New Step** button. The next sequential number appears in the **Step Name** box.

7 Click **OK** to close the Design Step Editor and add the steps.

The design steps appear in the Design Steps tab. In the test plan tree, a footprint ![footprint icon] appears next to the test icon, indicating that steps were defined for the test.

8 You can associate an attachment with a design step. An attachment can be a file, URL, snapshot, an item from the Clipboard, or system information. To add an attachment to a design step, select a step and click the **Attachments** button. For more information, see Chapter 5, "Adding Attachments."

Notes:

➤ You can copy steps from an existing test. For more information, see "Managing Design Steps" on page 284.

➤ If you add an attachment to a design step, a copy of the attachment is made every time the test is run. For more information on running tests, see "Running a Test Manually" on page 364.

Calling a Manual Test with Parameters

In a design step, you can include a call to a manual test. When you run the calling test, its design steps include the steps from the called test. This is useful if you have common steps that you often want to perform as parts of other tests.

To increase the flexibility and power of a test, you can add *parameters* to the called test and to the tests that call it. A parameter is a variable that can be assigned a value from outside the test in which it is defined. You can change the value of a parameter according to the test that is calling it, or for different instances of a test in a test set.

For example, you can create a template test **Login_Template** that logs in a user when you start your application. You need to call this test at the beginning of each test. In some cases, you will want to log in as a regular user while in others, you will need to log in as the project administrator. You can therefore create two parameters, <<<user name>>> and <<<password>>>, and change the values according to the type of test that is calling **Login_Template**. If the most common login is a regular user, you can set the default values for the parameters to a regular user name and password.

This section includes the following parts:

➤ Marking a Manual Test as a Template Test

➤ Adding a Parameter

➤ Viewing a Parameter Value

➤ Calling a Test with Parameters

Marking a Manual Test as a Template Test

You can mark a manual test in the test plan tree as a *template test*. A template test is called by other tests and generally includes parameters.

Note: You do not need to set a test as a template test to be able to call it or to add parameters. Marking a test as a template test is used for filtering purposes only.

To mark a manual test as a template test:

Right-click a manual test in the test plan tree, and choose **Mark as Template Test**. The manual test icon changes from gray to white to indicate that it is now a template test.

Login_Template

Adding a Parameter

You can add a parameter to the description or expected results of a manual design step.

To add a parameter:

1 In the Design Steps tab, place the cursor in the **Description** box or **Expected Results** box of the step to which you want to add the parameter.

2 Click the **Insert Parameter** button. The Parameter Properties dialog box opens.

3 Type a **Parameter Name** and click **OK**. A parameter name may not include the following characters: ~ ? ' < >

The new parameter is added to the step using the syntax <<<parameter name>>>.

Note: If you apply formatting to a parameter name in a design step, you must apply the same formatting to the entire parameter name, including the <<< and >>> characters. For example, if you want to italicize the parameter <<<password>>>, you must italicize the entire string <<<password>>> and not just the word password.

Viewing a Parameter Value

You can view the parameter values of a manual test.

To view a parameter value:

1 Select a manual test in the test plan tree and click the **Design Steps** tab.

2 Click the **Test Parameter**s button. The Current Test Parameters dialog box opens and displays the parameters contained in the test.
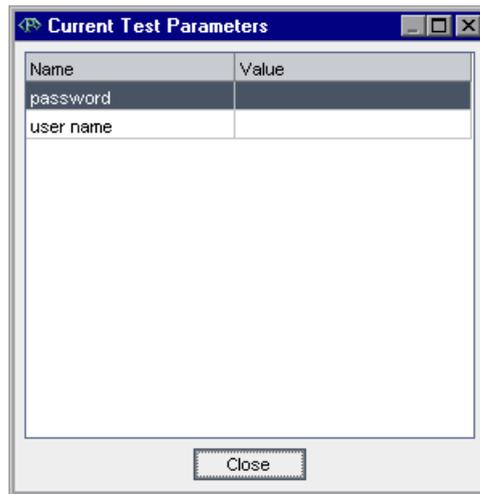
3 Click **Close**.

Calling a Test with Parameters

When you add a call to a manual test containing a parameter, you can assign a value to the parameter.

To call a test with parameters:

1 In the Design Steps tab, select the step after which you want to include a call to another test and click the **Call to Test** button. The Select a Test dialog box opens.
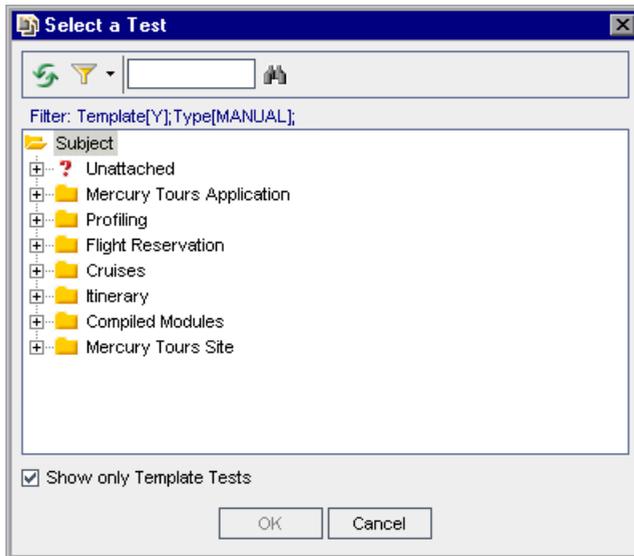
2 By default, only template tests are displayed. If you want to choose a test that is not a template test, clear **Show only Template Tests**.

3 To filter and sort the tests in the Select a Test dialog box, click the **Set Filter/Sort** button. The Filter dialog box opens. For more information on filtering and sorting, see Chapter 3, "Working with Quality Center Data."

4 To search for a specific test, type the name (or part of the name) of the test in the **Find** box and click the **Find** button. If the search is successful, the test is highlighted in the tree.

5 To refresh all tests in the tree, click the **Refresh All** button.

6 Select the manual test with parameters that you want to call.

7 Click **OK**. The Parameters of Test dialog box opens and displays the parameters of the test you are calling.

8 In the **Value** column, type or change the value for each parameter. Note that a parameter value may not include the following characters: **~ ? ' < >**

9 Click **OK**. The call is inserted as a link in your design steps, and the values assigned to the parameters in the called test are displayed.

Note: If you do not assign values to parameters when creating a test call, you are prompted to do so when you call this test from another test, when you add your test to a test set, or when you run your test.

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10 To edit the values you assigned to the parameters in the called test, right-click the test call and choose **Called Test Parameters**. In the Called Test Parameters dialog box, type the new values you want to assign to the parameters, and click **OK**.

Managing Design Steps

This section on managing design steps includes the following topics:

➤ Editing Design Steps

➤ Reordering Design Steps

➤ Renumbering Design Steps

➤ Resizing Design Steps

➤ Arranging Design Step Columns

➤ Deleting Design Steps

➤ Copying Design Steps within the Same Project

➤ Copying Design Steps between Projects

➤ Finding and Replacing Step Text

Editing Design Steps

You can edit existing design steps or add new ones.

To modify design steps:

1 Choose a test in the test plan tree and click the **Design Steps** tab.

2 Double-click a step, or select a step and click the **Edit Step** button. The Design Step Editor opens.
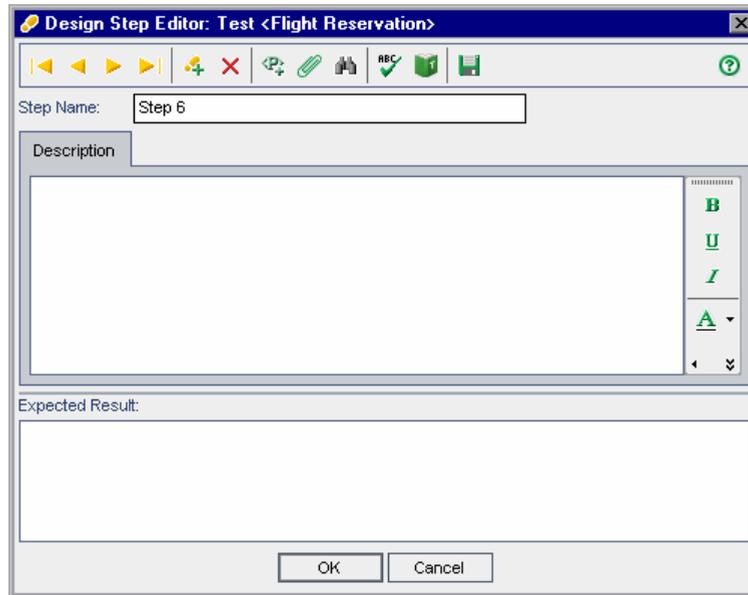
You can proceed through the steps in a test using the browse buttons:

➤ Click the **First Step** button to display the first step in the test, or the **Previous Step** button to display the preceding step.

➤ Click the **Next Step** button to display the subsequent step in the test, or the **Last Step** button to display the final step in the test.

Tip: You can navigate between steps in the Design Step Editor using shortcut keys. Use ALT+HOME to access the first step, ALT+LEFT to access the previous step, ALT+RIGHT to access the next step, and ALT+END to access the last step.

3 Edit step descriptions and expected results by typing in the **Description** and **Expected Result** areas.

4 Click the **New Step** button to add a step after the currently selected step.

5 Click **OK** to close the Design Step Editor and save your changes.

Reordering Design Steps

You can change the order of the steps in a test.

To reorder design steps:

1 Choose a test in the test plan tree and click the **Design Steps** tab.

2 Position the mouse pointer on the gray sidebar to the left of the step you want to move. The mouse pointer changes to ➡.

3 Click and drag the step to the desired position.

Renumbering Design Steps

You can renumber your steps after you add, delete, or reorder steps in a test.

To renumber design steps:

1 Choose a test in the test plan tree and click the **Design Steps** tab.

2 Click the **Renumber Steps** button.

Resizing Design Steps

You can adjust the row size of the steps in a test. This enables you to view all the text in the Description or Expected Result columns if the text is long.

To resize design steps:

1 Choose a test in the test plan tree and click the **Design Steps** tab.

2 Position the mouse pointer in the gray sidebar on the lower edge of the step you want to resize. The mouse pointer changes to ⬍.

3 Click and drag the step to adjust the row size.

4 Click the **Adjust Rows Height** button.

Arranging Design Step Columns

You can determine which columns appear and the order in which they appear in the Design Steps tab.

To arrange columns:

1 Choose a test in the test plan tree and click the **Design Steps** tab.

2 Click the **Select Columns** button. The Select Columns dialog box opens. For more information, see "Arranging Columns" on page 51.

Deleting Design Steps

You can remove steps from a test.

To delete a design step:

1 Choose a test in the test plan tree and click the **Design Steps** tab.

2 Choose the step that you want to delete. To delete more than one step, position the mouse pointer on the gray sidebar to the left of the step that you want to delete. The mouse pointer changes to ➡. Click to select the step. Then use the CTRL or SHIFT key to select additional steps.

3 Click the **Delete Selected** button. Alternatively, right-click and choose **Delete Selected**.

4 Click **Yes** to confirm.

Copying Design Steps within the Same Project

You can copy design steps from another test in the same project.

To copy design steps from another test in a different project, see "Copying Design Steps between Projects" on page 288.

To copy a design step within the same project:

1 Select the test in the test plan tree from which you want to copy steps and click the **Design Steps** tab.

2 Select the step that you want to copy. To copy more than one step, position the mouse pointer on the gray sidebar to the left of the step that you want to copy. The mouse pointer changes to ➡. Click to select the step. Then use the CTRL or SHIFT key to select additional steps.

3 Click the **Copy Steps** button, or right-click and choose **Copy**.

4 Select the test to which you want to copy the steps, and click the **Design Steps** tab.

5 Click the **Paste Steps** button or right-click and choose **Paste**.

Copying Design Steps between Projects

You can copy design steps in a test from one project to another. If the design steps contain calls to other tests, you can instruct Quality Center to copy them using one of the following methods:

➤ Copy design steps and link them to existing tests in the target project. If a called test does not exist in the target project, Quality Center copies and pastes it into the target project.

➤ Copy design steps and called tests into the target project.

➤ Copy design steps without copying called tests into the target project.

To copy a design step between projects:

1 Select the test in the test plan tree from which you want to copy steps and click the **Design Steps** tab.

2 Select the step that you want to copy. To copy more than one step, position the mouse pointer on the gray sidebar to the left of the step that you want to copy. The mouse pointer changes to ➡. Click to select the step. Then use the CTRL or SHIFT key to select additional steps.

3 Click the **Copy Steps** button, or right-click and choose **Copy**.

4 Open another instance of Quality Center and log in to the project to which you want to paste the steps.

5 Select the test to which you want to copy the steps, and click the **Design Steps** tab.

6 Click the **Paste Steps** button or right-click and choose **Paste**. The Paste Design Steps to Target Project dialog box opens.

7 Select one of the following options:

➤ **Copy design steps and link to existing called tests.** Quality Center copies the design steps and pastes them into the target project. The copied design steps are linked to existing tests with the same name. If a called test does not exist in the target project, Quality Center copies and pastes it into the target project.

➤ **Copy design steps and called tests.** Quality Center copies the design steps and called tests and pastes them into the target project. If a called test name already exists in the target project, the copied called test is renamed to resolve the duplicate test name.

➤ **Copy design steps without copying called tests.** Quality Center copies the design steps without copying the called tests, and pastes them into the target projects. The copied design steps are not linked to any called tests.

Click **OK**.

Finding and Replacing Step Text

You can search for specific text in the design steps in the Design Steps tab. For a single step, you can also find and replace specific text in the Design Steps Editor.

To find text in the Design Steps tab:

1 Choose a test in the test plan tree and click the **Design Steps** tab.

2 Click the **Find Text** button. The Find dialog box opens.

Find		☒
Find in Field:	Description	▼
Value to Find:		
☐ Exact Match	☐ Use Wildcard	
☐ Case Sensitive		
	Find Next	Close

3 In the **Find in Field** box, select the criterion to search for.

4 In the **Value to Find** box, select the value of the field you chose.

5 To distinguish between uppercase and lowercase characters, select the **Case Sensitive** check box.

6 To search for an exact value, select the **Exact Match** check box.

7 To use asterisk (*****) characters in your search string to type only part of the item, select the **Use Wildcard** check box.

8 Click **Find Next**. If the search is successful, the step is highlighted. If the search is unsuccessful, an information box opens.

9 Click **Close** to close the dialog box.

To find and replace text in the Design Steps Editor:

1 Choose a test in the test plan tree and click the **Design Steps** tab.

2 Click the **New Step** button to add a new step, or click the **Edit Step** button to modify an existing step. The Design Step Editor opens.

3 Click the **Find/Replace Text** button. The Replace dialog box opens.
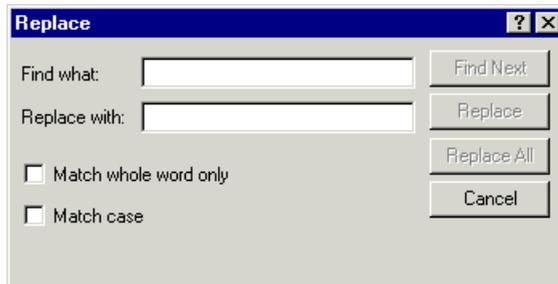
4 In the **Find what** box, type the text for which you want to search.

5 To replace the specified text, type the text you want to use as replacement text in the **Replace with** box.

6 To search for whole words, select the **Match whole word only** box.

7 To search for an exact value, select the **Match case** check box.

8 Click **Find Next**. If the search is unsuccessful, an information box opens.

9 Click **Replace** to replace the first occurrence of the text, or **Replace All** to replace all occurrences of the text.

20

Creating Automated Tests

After you have designed test steps, you can use them as a framework for creating an automated test script.

This chapter describes:	On page:
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Generating Automated Test Scripts	293

About Creating Automated Tests

Test planning involves deciding which tests to automate. If you choose to automate a test, you can generate a test script and run the test using WinRunner, QuickTest Professional, LoadRunner, or Visual API-XP.

Consider the following issues when deciding whether to automate a test.

Frequency of Execution

Tests that will run with each new version of your application are good candidates for automation. These include sanity tests that check basic functionality across an entire application. Each time there is a new version of the application, you run these tests to check the stability of the new version, before proceeding to more in-depth testing.

Tests that use multiple data values for the same operation (data-driven tests) are also good candidates for automation. Running the same test manually—each time with a different set of input data—can be tedious and ineffective. By creating an automated data-driven test, you can run a single test with multiple sets of data.

Stress/Load Testing

It is also recommended that you automate tests that are run many times (stress tests) and tests that check a multi-user client/server system (load tests). For example, suppose a test must be repeated a thousand times. Running the test manually would be extremely impractical. In this case, you could use QuickTest Professional to create a test that runs a thousand iterations.

When Not To Automate Tests

Generally, the more user involvement a test requires, the less appropriate it is to automate. The following describes test cases that should not be automated:

➤ Usability tests—tests providing usage models that check how easy the application is to use.

➤ Tests that you only have to run once.

➤ Tests that you need to run immediately.

➤ Tests based on user intuition and knowledge of the application.

➤ Tests with no predictable results.

Generating Automated Test Scripts

After you have created steps for a manual test, you can generate a test script skeleton in which you can write scripts to run the test as an automated test.

Any text that appeared in the steps of the manual test is listed as comments in the generated test script. If the manual test has parameters, they are also listed as comment text.

To generate an automated test script:

1 In the test plan tree, choose the manual test that you want to automate.

2 Click the **Design Steps** tab and click the **Generate Script** button.

3 Choose an automated test type to convert to:

Test Icon	Test Type	Description
	WR-AUTOMATED	A test that is executed by WinRunner, the HP functional testing tool for Microsoft Windows applications.
	VAPI-XP-TEST	A test that is created by Visual API-XP, the Quality Center open test architecture API testing tool. For more information on VAPI-XP tests, see Appendix A, "Working with VAPI-XP."
	LR-SCENARIO	A scenario that is executed by LoadRunner, the HP load testing tool.
	QUICKTEST_TEST	A test that is executed by QuickTest Professional, the HP functional enterprise testing tool.

Note: The **QUICKTEST_TEST** test type is only available if you have installed the appropriate add-in from the HP Quality Center Add-ins page. For more information on installing add-ins, refer to the *HP Quality Center Installation Guide*.

The Test Plan module uses the steps of the selected test to create an automated test script. In the test plan tree, note that the manual test icon next to the test you just automated is now replaced with the automated test icon.

4 Click the **Test Script** tab to view the test script.

5 If the test is a WinRunner test, you can attach a different test script to the test by clicking the **Copy From** button. The Select Test dialog box opens, enabling you to select a WinRunner test from the file system.

6 For WinRunner, LoadRunner, and QuickTest Professional tests, to display your test script in the testing tool for which it is created, click the **Launch** button. You can now modify your test as necessary.

21

Working with System Tests

Using system tests, you can instruct Quality Center to provide system information for a machine, capture a desktop image, or restart a machine.

About Working with System Tests

You can run a system test to retrieve a machine's system information, view a captured desktop image of a test run on a machine, or restart a machine. For example, you can run a system cleanup test that will restart the machine on which an automated test failed. You can also create a system test to retrieve information about a machine's resource usage before or after a test run.

You create a system test by adding a system test to the test plan tree, defining the test, and adding the test to a test set.

Note: To run a system test, you must install the System Test Remote Agent Add-in and the HP Quality Center Connectivity Add-in on the machine where the test is to be run. For more information on HP Quality Center add-ins, refer to the *HP Quality Center Installation Guide*.

When running a system test, the following steps are created:

➤ **SysInfo.** Collection of system information

➤ **Snapshot.** Capture of desktop image

➤ **Reboot Start** and **Reboot Finish.** Machine restart

You can view details for each of these steps after your system test has finished running. You can also view the system information that has been retrieved—such as CPU, memory, and processes running on the machine—and an image of the machine executing the system test.

Adding System Tests to a Test Plan Tree

You begin creating a system test by adding it to your test plan tree.

To add a system test to a test plan tree:

1 Choose a subject folder in the test plan tree.

2 Click the **New Test** button, or choose **Tests** > **New Test**. The Create New Test dialog box opens.

3 In the **Test Type** box, select **SYSTEM-TEST**.
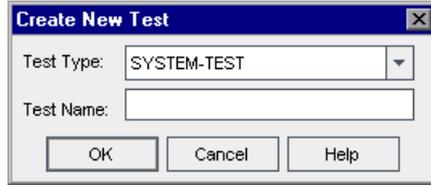
Note: If you have installed the QuickTest Professional Add-in on your machine, the Create New Test dialog box includes the **Template** box.

---

4 In the **Test Name** box, type a name for the test.

5 Click **OK**.

Note: If required test fields were defined in Project Customization, the Required Test Fields dialog box opens. Select values for the required fields and click **OK**.

The new system test with a system test icon ![icon] appears in the test plan tree under the subject folder you selected.

6 You can add details and attachments to the test, and define requirements coverage. For more information, see Chapter 17, "Developing the Test Plan Tree."

Defining a System Test

Once you have added your system test to the test plan tree, you can define a test script for the test.

To define a system test:

1 Select the system test you created from the test plan tree, and click the **Test Script** tab.
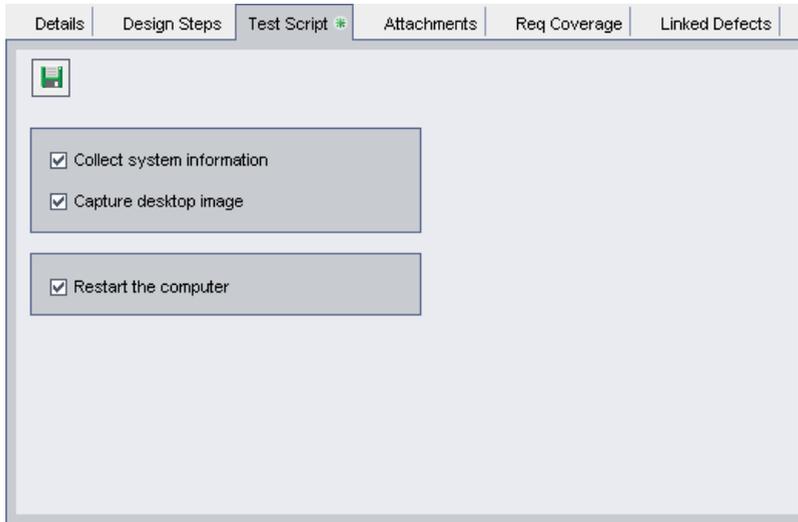
2 Select **Collect system information** to collect information such as CPU, memory, and processes running on the machine when the system test is run.

3 Select **Capture desktop image** to add an attachment displaying a snapshot of the machine's desktop, when the system test is run.

4 Select **Restart the computer** to instruct Quality Center to restart the machine when the system test is run.

Notes:

➤ To use the **Restart the computer** option, you must enable auto login on your machine. Choose **Start** > **Programs** > **HP Quality Center SystemTest Agent** > **SystemTest Agent (configuration)**. The Auto Restart Settings dialog box opens. By default, **User Name** and **Domain** are read-only. Type your password and click **OK**.

➤ To select a different user name, reopen the Auto Restart Settings dialog box. **User Name** and **Domain** are no longer read-only. Modify the values and click **OK**.

---

5 Click the **Save** button to save your system test settings.

After you define your system test in the Test Plan module, you can choose to add the test to a test set in the Test Lab module. For information on creating test sets, see Chapter 24, "Creating Test Sets".

Running a System Test

Once you have defined your system test and added it to a test set in the Test Lab module, you can run it. System tests can be run on your own machine, or on multiple remote host machines connected to your network.

For more information on running tests, see Chapter 27, "Running Tests Automatically".

Viewing System Test Results

You can view the results of your system test in the Test Lab module.

To view system test results:

1 In the Execution Grid, double-click your system test, or select the test and click the **Test Instance Properties** button. In the Execution Flow tab, right-click the system test and choose **Test Instance Properties**.

The Test Instance Properties dialog box opens and displays the All Runs view.
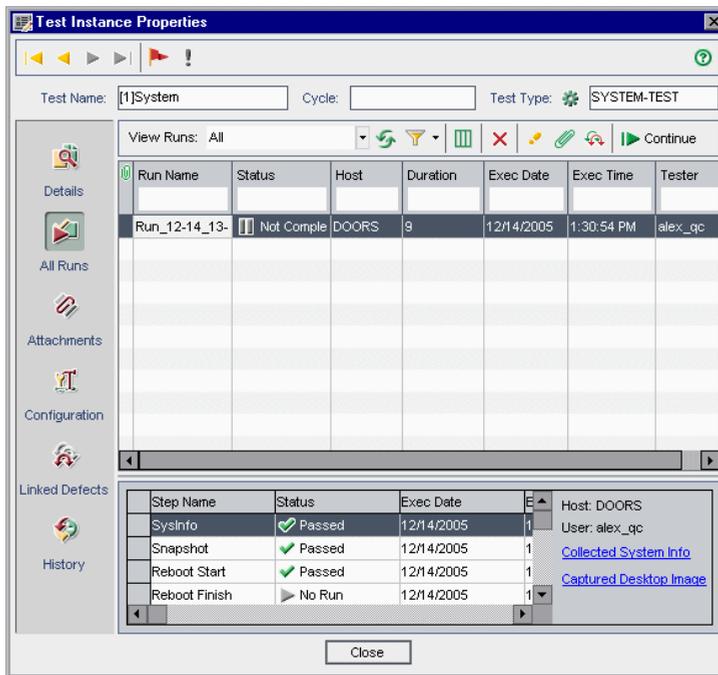
You can view the status, execution date, and execution time for the following steps that are created during a system test run:

➤ **SysInfo.** Details for collection of system information

➤ **Snapshot.** Details for capture of desktop image

➤ **Reboot Start** and **Reboot Finish.** Details for machine restart

2 Click the **Collected System Info** link to view the collected system information, for example, CPU, memory, and processes running on the machine.
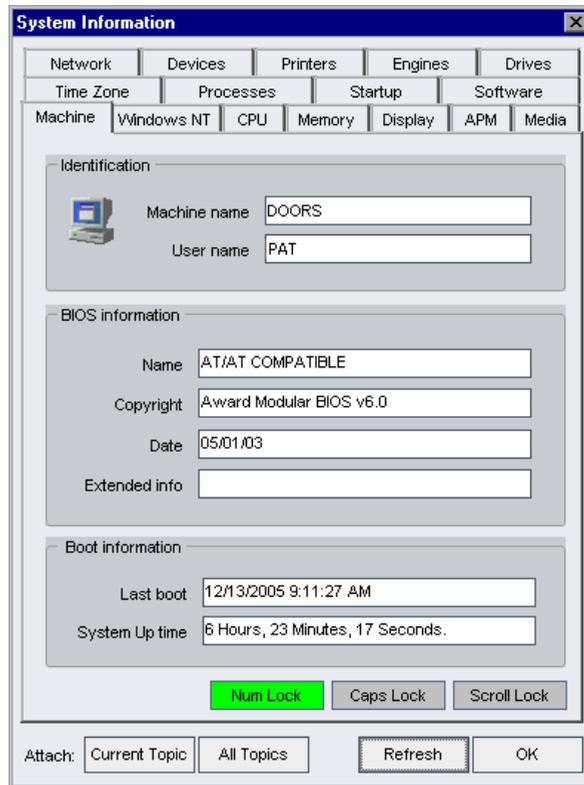
3 Click the **Captured Desktop Image** link to view the desktop image of the machine executing the system test.

Part V

Test Execution

22

The Test Lab Workflow

As your application changes, you run the manual and automated tests in your project in order to locate defects and assess quality.

This chapter describes how you run tests using the Quality Center Test Lab module. Executing tests consists of the following:

```
Create
Test Sets
   │
   ▼
Schedule
Runs
   │
   ├──────────────┬──────────────┐
   ▼              ▼
Run Tests       Run Tests
Automatically   Manually
   │              │
   └──────────────┴──────────────┘
          │
          ▼
   Analyze Test Results
```
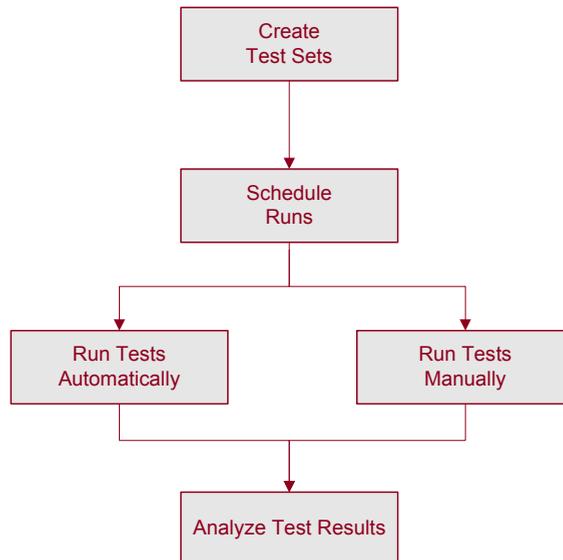
Creating Test Sets

Start by creating test sets and choosing which tests to include in each set. A test set is a group of tests in a Quality Center project designed to achieve specific testing goals. In the sample Mercury Tours application, for example, you could create a set of sanity tests that checks the basic functionality of the application. You could include tests that check the login mechanism, and tests that check the flight booking mechanism.

After you have created test sets, you assign test set folders to cycles defined in the releases tree in the Releases module. A cycle represents a development and QA cycle based on the project timeline.

For more information, see Chapter 24, "Creating Test Sets".

Scheduling Test Runs

Quality Center enables you to control the execution of tests in a test set. You can set conditions, and schedule the date and time for executing your tests. You can also set the sequence in which to execute the tests. For example, you can determine that you want to run *test2* only after *test1* has finished, and run *test3* only if *test1* passed.

For more information, see Chapter 25, "Scheduling Test Runs."

Running Tests Manually

Once you have defined test sets, you can begin executing the tests. When you run a test manually, you execute the test steps that you defined during test planning. You pass or fail each step, depending on whether the application's actual results match the expected output.

For example, suppose you are testing the process of booking a flight in the sample Mercury Tours application. You open the application, create a new order, and book a flight, following the instructions detailed by the test steps.

For more information, see Chapter 26, "Running Tests Manually."

Running Tests Automatically

Once you have defined test sets, you can begin executing the tests. You can select all the tests in a test set, or specific tests. Your selection can include both automated and manual tests.

When you run an automated test, the selected testing tool opens automatically, runs the test, and exports the test results to Quality Center. When you run a manual test, e-mail is sent to a designated tester, requesting that they run the manual test.

For more information, see Chapter 27, "Running Tests Automatically."

You can also run an automated system test to provide system information, capture a desktop image, or restart a machine. For more information on running system tests, see Chapter 21, "Working with System Tests."

Analyzing Test Results

Following a test run, you analyze test results. Your goal is to identify failed steps and to determine whether a defect has been detected in your application, or if the expected results of your test need to be updated. If a defect has been detected, you can create a new defect and link it to the test run, or link an already-existing defect with the test run. For more information, see Chapter 32, "Linking Defects."

You can validate test results regularly by viewing run data and by generating reports and graphs. For more information, see Chapter 33, "Generating Reports," Chapter 34, "Generating Graphs," and Chapter 35, "Generating Live Analysis Graphs."

For more information on understanding the data that appears in Quality Center following a test run, see Chapter 28, "Viewing Test Results."

23

The Test Lab Module at a Glance

This chapter introduces the key elements in the Test Lab module.

This chapter describes:	On page:
The Test Lab Module	310
The Test Lab Menu Bar	311
The Test Lab Toolbars	312
The Execution Grid	314
The Execution Flow	320

The Test Lab Module

You create test sets and perform test runs in the Test Lab module of Quality Center, which you open by clicking the **Test Lab** button on the sidebar.
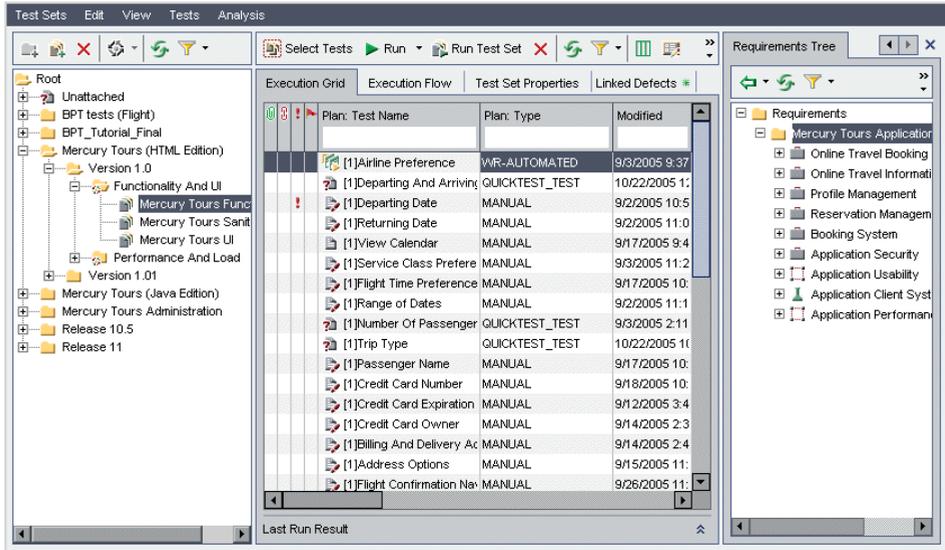
The Test Lab module contains the following key elements:

➤ **Test Lab menu bar.** Displays drop-down menus of Test Lab module commands. For more information, see "The Test Lab Menu Bar" on page 311.

➤ **Test Set toolbar.** Contains buttons of commands commonly used when creating and modifying test sets in the test sets tree. For more information, see "Test Set Toolbar" on page 313.

➤ **Test Set pane.** Displays your test sets hierarchically in a test sets tree. By default, the tests are grouped in folders. You can also view your test sets as a list, by choosing **View > Test Sets Grid**. For more information on creating a test sets tree, see "Creating a Test Sets Tree" on page 326.

➤ **Execution Grid tab.** Displays test data in a grid. For more information, see "The Execution Grid" on page 314.

➤ **Execution Flow tab.** Displays test data in a diagram. For more information, see "The Execution Flow" on page 320.

➤ **Test Set Properties tab.** Displays the current test set details, attachments, e-mail notification rules, and on failure instructions. For more information, see Chapter 24, "Creating Test Sets."

➤ **Linked Defects tab.** Displays a list of entities linked to the current test set. For more information, see Chapter 32, "Linking Defects."

➤ **Select Tests pane.** Displays tests in the right pane to enable you to add tests to a test set. To open this pane, click the **Select Tests** button. The Select Tests pane contains two tabs. The **Test Plan Tree** tab displays the test plan tree. The **Requirements Tree** tab displays tests according to associated requirements.

➤ **Live Analysis tab.** A graphical representation of test data related to the selected test set folder in the test set tree. For more information, see Chapter 35, "Generating Live Analysis Graphs."

Tip: Right-click a test in the Execution Grid or Execution Flow, and choose **Go to Test in Test Plan Tree** to open the Test Plan module and highlight the selected test in the test plan tree.

The Test Lab Menu Bar

The Test Lab menu bar has the following menus:

➤ The **Test Sets** menu contains commands that enable you to create, manage, and run your test sets. You can purge runs, view test set properties, add hosts and set host groups, and export the contents of the Execution Grid to a file. For more information, see Chapter 24, "Creating Test Sets".

➤ The **Edit** menu contains commands that enable you to cut, copy, paste, rename, or delete a test set, or to find a folder or test set. In the Execution Flow tab, it enables you to find the test in the flow.

➤ The **View** menu contains commands that enable you to filter and sort test sets, and set the display in the Test Sets Tree and the Test Sets Grid.

➤ The **Tests** menu is available only in the Execution Grid and Execution Flow. It contains commands that enable you to run tests, run tests manually, continue test runs, remove tests from test sets, set the display in the Execution Grid, view test instance properties, reorder tests, find tests, select tests, and view last run result. For more information, see Chapter 24, "Creating Test Sets". You can also add, view , and organize favorites. For more information, see Chapter 6, "Working with Favorite Views." In additional, you can view and add alerts for tests and flag tests for follow-ups. For more information, see Chapter 4, "Alerting on Changes".

➤ The **Analysis** menu contains commands that enable you to generate execution reports and graphs. For more information on execution reports, see Chapter 33, "Generating Reports." For more information on execution graphs, see Chapter 34, "Generating Graphs," and Chapter 35, "Generating Live Analysis Graphs."

Tip: You can access the Test Lab menu bar from the Test Lab module by pressing the shortcut key F9. Additionally, you can perform many other Quality Center operations using shortcut keys. For a list of shortcut keys, see Appendix B, "Quality Center Keyboard Shortcuts."

The Test Lab Toolbars

The Test Lab module includes the following toolbars: Test Set and Select Tests.

In addition, you can use the toolbars in the Execution Grid tab and Execution Flow tab. For more information, see "The Execution Grid Toolbar" on page 316, and the "The Execution Flow Toolbar" on page 321.

Test Set Toolbar

The Test Set toolbar has the following buttons:

New Folder. Opens the New Folder dialog box, enabling you to create a new test set folder. The folder is added to the test sets tree in the left pane. For more information, see "Creating a Test Sets Tree" on page 326.

New Test Set. Opens the New Test Set dialog box, enabling you to create a new test set in an existing folder. For more information, see "Adding Test Sets" on page 328.

Delete. Deletes folders and test sets from the test sets tree. Deletes test sets from the test sets grid. For more information, see "Deleting a Test Set" on page 346.

Assign To Cycle. Enables you to assign a test set folder to a cycle. For more information, see "Assigning Test Set Folders to Cycles" on page 327.

Refresh All. Refreshes the test sets tree or test sets grid so that it displays the most up-to-date test sets.

Set Filter/Sort. Includes the following options:

➤ **Set Filter/Sort.** Opens the Filter dialog box, enabling you to filter and sort test sets.

➤ **Clear Filter/Sort.** Clears any filters or sorts that you have applied.

For more information, see "Filtering Records" on page 55.

Select Tests Toolbar

To display the test plan tree in the right pane, click the **Select Tests** button. The Test Plan Tree tab is displayed. If you click the **Requirements Tree** tab, the tests are displayed according to associated requirements.

The Select Tests toolbar has the following buttons:

Add Tests to Test Set. Adds tests to a test set.

Refresh All. Refreshes the tree.

> **Set Filter/Sort.** Includes the following options:
>
> ➤ **Set Filter/Sort.** Opens the Filter dialog box, enabling you to filter and sort tests.
>
> ➤ **Clear Filter/Sort.** Clears any filters or sorting that you have applied.

Find. Searches for a specific test in the tree. If the search is successful, the test is highlighted in the tree.

The Execution Grid

In the Execution Grid, your test data is organized and displayed in a grid. Each line in the grid displays a separate test record.

The Execution Grid tab contains the following key elements:

➤ **Execution Grid toolbar.** Contains buttons of commands commonly used when executing and viewing tests. See "The Execution Grid Toolbar" on page 316.

➤ **Indicator columns.** Indicates that the specified test instance has attachments, linked defects, alerts, and follow up flags. Choose **Tests > Indicator Columns** to display these columns.

Column	Description
Attachments	Click the 📎 icon to view attachments for the test instance. For more information, see Chapter 5, "Adding Attachments."
Linked Entities	Click the 🔗 icon to view linked entities for the test instance. For more information, see Chapter 32, "Linking Defects."
Alerts	Click the ❗ icon to view alerts for the test instance. For more information, see "Viewing Alerts" on page 80.
Follow Up Flags	Click the 🚩 icon to view follow up alerts for the test instance. For more information, see "Flagging for Follow Up" on page 82.

➤ **Grid filter.** Displays the filter that is currently applied to a column. To display grid filters, choose **Tests > Grid Filters**.

➤ **Last Run Result pane.** Displays the results of the last test run. To display the last run result pane, choose **Tests > Last Run Result** or click the **Show** arrow.

➤ **Favorite views.** Enables you to view, add, and organize views in the Favorites list. Choose **Tests > Favorites** to access the favorite views commands. For more information on favorite views, see Chapter 6, "Working with Favorite Views."

The Execution Grid Toolbar

The Execution Grid toolbar has the following buttons:

Select Tests. Displays the test plan tree in the right pane. You use the test plan tree to select tests to add to a test set. You can also click the **Requirements Tree** tab to view tests according to associated requirements. For more information, see "Adding Tests to a Test Set" on page 330.

Run. If you select a manual test, opens the Manual Runner dialog box to run the test. If you select an automated test, opens the Automatic Runner dialog box to run the test. It also includes the following options:

➤ **Run Manually.** Runs an automated test manually.

➤ **Continue Manual Run.** Resumes a manual test run.

For more information on running a test manually, see Chapter 26, "Running Tests Manually". For more information on running a test automatically, see Chapter 27, "Running Tests Automatically".

Run Test Set. Opens the Automatic Runner dialog box to run the test set. Test sets can include both manual and automated tests. For more information, see "Running a Test Automatically" on page 374.

Remove Tests from Test Set. Removes the selected tests from the test set. For more information, see "Removing a Test from a Test Set" on page 342.

Refresh All. Refreshes the Execution Grid so that it displays the most up-to-date tests based on the filters you have selected.

Set Filter/Sort. Opens the Filter dialog box, enabling you to filter and sort the tests in the Execution Grid. Includes the following options:

➤ **Set Filter/Sort.** Opens the Filter dialog box, enabling you to filter and sort tests.

➤ **Clear Filter/Sort.** Clears any filters or sorting that you have applied in the Execution Grid.

For more information, see "Filtering Records" on page 55.

Select Columns. Opens the Select Columns dialog box, enabling you to determine which columns to display in the Execution Grid and their order. For more information, see "Arranging Columns" on page 51.

Test Instance Properties. Opens the Test Instance Properties dialog box to display the properties of the selected test instance. For more information, see "Viewing Test Results" on page 385.

Attachments. Opens the Test Instance Properties dialog box, enabling you to add an attachment to a test run instance. For more information, see Chapter 5, "Adding Attachments."

Flag for Follow Up. Opens the Flag For Follow Up dialog box, enabling you to add or modify a follow up flag for a test instance. For more information, see "Flagging for Follow Up" on page 82.

Execution Grid Columns

The Execution Grid displays the following columns, grouped into test planning data (Plan) and test run data:

Column	Description
Exec Date	The date on which the test was last executed.
Modified	The date and time of the last change to the test in the Execution Grid.
Plan: Comments	Displays comments about the test.
Plan: Creation Date	The date on which the test was created. By default, the creation date is set to the current database server date.
Plan: Description	Describes the test.
Plan: Designer	The user name of the person who designed the test.
Plan: Estimated DevTime	The time estimated to design and develop the test.
Plan: Execution Status	The execution status of the last run of an instance of the test. Execution status can be one of the following: Failed, N/A, No Run, Not Completed, Passed.
Plan: Modified	The date and time of the last change to the test in the Test Plan module.
Plan: Path	The test's file system path on the server side (relative to the test repository).

Column	Description
Plan: Status	The planning status of the test. The default status is Design.
Plan: Subject	The subject folder in the test plan tree in which the test resides.
Plan: Template	Indicates whether the test is a test template. The value in this column can be "Y" or "N".
Plan: Test Name	The name of the test.
Plan: Type	The type of test. For example, manual or WinRunner.
Planned Exec Date	The date on which it was planned to execute the test.
Planned Exec Time	The time at which it was planned to execute the test.
Planned Host Name	The name or IP address of the machine to run the test.
Responsible Tester	The user name of the person responsible for running the test.
Status	The status of the last test run. Execution status can be one of the following: Failed, N/A, No Run, Not Completed, Passed.
Target Cycle	Indicates the cycle in which the test was assigned. Click the down arrow to select a different cycle.
Test Version	The version number of the test.
Tester	The user name of the person who last executed the test.
Time	The time at which the test was last executed.

Notes:

➤ You can add user-defined fields and change the label of any of the fields in the Execution Grid. You can also customize project lists. For more information, refer to the *HP Quality Center Administrator's Guide.*

➤ You can use the Script Editor to restrict and dynamically change the fields and values in the Execution Grid. For more information, refer to the *HP Quality Center Administrator's Guide.*

➤ When you select an Execution Grid column with a user name value, Quality Center displays a list with the name and full name of each user. You can search for users, sort users, group users by user group, and select users from the users list or a group tree. For more information, see "Selecting Users" on page 54.

The Execution Flow

In the Execution Flow, your test data is organized and displayed in a diagram. You use the Execution Flow to control the way your tests are executed. You can specify when and under what conditions you want a test to be executed.

For more information on the Execution Flow tab, see Chapter 25, "Scheduling Test Runs."
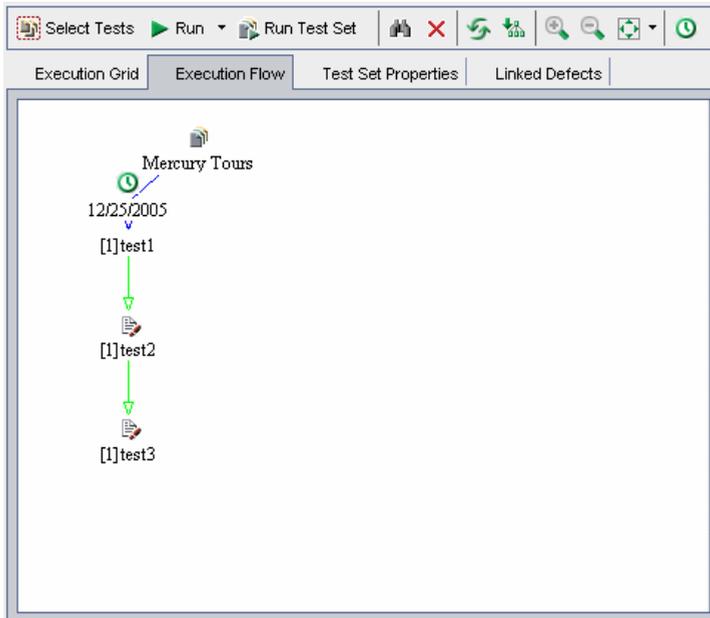
The Execution Flow tab contains the following key elements:

➤ **Execution Flow toolbar.** Contains buttons of commands commonly used when scheduling test executions. See "The Execution Flow Toolbar" on page 321.

➤ **Execution Flow diagram.** Displays tests with conditions in a diagram. For more information, see Chapter 25, "Scheduling Test Runs."

The Execution Flow Toolbar

The Execution Flow toolbar has the following buttons:

Select Tests. Displays the test plan tree in the right pane. You use the test plan tree to select tests to add to a test set. You can also click the **Requirements Tree** tab to view tests according to associated requirements. For more information, see "Adding Tests to a Test Set" on page 330.

Run. If you select a manual test, opens the Manual Runner dialog box to run the test. If you select an automated test, opens the Automatic Runner dialog box to run the test. It also includes the following options:

➤ **Run Manually.** Runs an automated test manually.

➤ **Continue Manual Run.** Resumes a manual test run.

For more information on running test manually, see Chapter 26, "Running Tests Manually". For more information on running test automatically, see Chapter 27, "Running Tests Automatically."

Run Test Set. Opens the Automatic Runner dialog box to run the test set. Test sets can include both manual and automated tests. For more information, see "Running a Test Automatically" on page 374.

Find Test In Flow. Opens the Find Test dialog box, enabling you to find a test in the Execution Flow. For more information, see "Finding Tests" on page 361.

Remove Tests from Test Set. Removes the selected tests from the test set.

Refresh Flow. Refreshes the Execution Flow diagram so that it displays the most up-to-date tests.

Arrange Layout. Rearranges the tests in a hierarchical layout, enabling you to view dependencies between different tests.

Zoom In. Increases the magnification level so that you can view a section of the Execution Flow more closely.

Zoom Out. Decreases the magnification level so that you can view more of the Execution Flow.

Fit Picture In Window. Redisplays the diagram to fit the window. Click the **Fit Picture In Window** arrow to select a magnification option. For more information, see "Viewing the Execution Flow Diagram" on page 361.

Add Time Dependency to Flow. Adds a time dependency icon to the diagram. To create a time dependency for a test, link the arrow from the icon to a test in the Execution Flow. The default time dependency is the Quality Center server's current date and time. For more information, see "Scheduling a Test Run" on page 354.

24

Creating Test Sets

You can organize test execution by creating *test sets*. A test set contains a subset of the tests in your project. The test sets tree organizes and displays your test sets hierarchically.

About Creating Test Sets

After you design tests in the Test Plan module, you create a *test sets tree*. A test sets tree enables you to organize your testing process by grouping *test sets* in folders and organizing them in different hierarchical levels in the Test Lab module. A test set is a group of tests in a Quality Center project designed to achieve specific test goals. Test sets can include both manual and automated tests. After you create a test sets tree, you assign test set folders to cycles defined in the releases tree in the Releases module.

To decide which test sets to create, think about the testing goals you defined at the beginning of the testing process. Consider issues such as the current state of the application and the addition or modification of new features.

Following are examples of general categories of test sets you can create:

Test Set	Description
Sanity	Checks the entire application at a basic level—focusing on breadth, rather than depth—to verify that the application is functional and stable. This set includes fundamental tests that contain positive checks, validating that the application is functioning properly. For example, in the Mercury Tours application, you could test whether the application opens, and enables you to log in.
Regression	Tests the system in a more in-depth manner than a sanity set. This set can include both positive and negative checks. Negative tests attempt to fail an application to demonstrate that the application is not functioning properly.
Advanced	Tests both breadth and depth. This set covers the entire application, and also tests the application's advanced options. You can run this set when there is ample time for testing.
Function	Tests a subsystem of an application. This could be a single feature or a group of features. For example, in the Mercury Tours application, a function set could test all activities related to booking a flight.

Suppose you want to test new features added to Release 10.5 of the Mercury Tours application. Release 10.5 consists of four cycles, and you want to test the new features for the release in Cycle 1, Cycle 2, and Cycle 4. Because the tests you need to run to test the new features are the same for each of these cycles, you want to use the same test set as a basis for testing new features in each of the cycles.

In the test sets tree, you can create the folder **Release 10.5** for the release. Under this folder, you create the folder **Cycle 1** for the first cycle of the release. In the **Cycle 1** folder, you create a test set **New Features** containing the tests necessary to test new features for the release. After you create this test sets and add its tests, you can copy and paste the **Cycle 1** folder and use it as a basis for the other cycles that test new features.
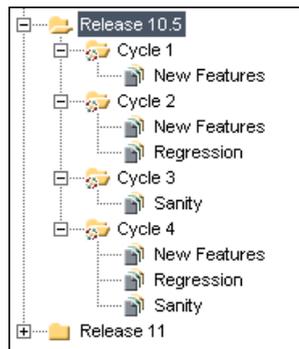
Note that by default, the uppermost level in a test sets tree is the **Root** folder. You cannot delete the Root folder or add test sets directly to it. Under the Root folder, the **Unattached** folder contains all test sets no longer associated with a folder. You cannot add a test set to the Unattached folder. When you delete a folder, you can instruct the Test Lab module to move the folder's test sets to the Unattached folder or to permanently delete the test sets.

Creating a Test Sets Tree

You define a hierarchical framework for your test sets by creating a test sets tree. The test sets tree can contain folders at the main level and subfolders below the main folders. For each folder in the test sets tree, you define a test set and add test instances to it. You start a test sets tree by adding a folder to the **Root** folder.

After you have created a test sets tree, you assign test set folders to cycles defined in the releases tree in the Releases module. For more information, "Assigning Test Set Folders to Cycles" on page 327.

To create a test sets tree:

1 Choose **View** > **Test Sets Tree** to display the test sets tree view in the Test Set pane.

2 In the test sets tree, select the **Root** folder.

3 Click the **New Folder** button or choose **Test Sets** > **New Folder**. The New Folder dialog box opens.

New Folder	☒
Folder Name :	
OK	Cancel	Help

4 Type the **Folder Name** and click **OK**. Note that a folder name cannot include the following characters: \ ^ *****

The new folder appears under **Root** in the test sets tree.

5 In the **Details** tab, complete the test set folder details by assigning the test set folder to a cycle. For more information, see "Assigning Test Set Folders to Cycles" on page 327.

6 In the **Description** tab, type a description of the test set folder.

7 Click the **Attachments** tab to add an attachment to the new test set folder if necessary. An attachment can be a file, URL, snapshot of your application, an item from the Clipboard, or system information. For more information, see Chapter 5, "Adding Attachments."

8 To create additional folders, select a folder and repeat steps 3 and 7.

Assigning Test Set Folders to Cycles

After you have created a test sets tree, you assign test set folders to cycles defined in the releases tree in the Releases module. For more information, see Chapter 9, "Developing the Releases Tree."

To assign a test set folder to a cycle:

1 In the test sets tree, select the test set folder that you want to assign to a cycle.

2 Click the **Assign To Cycle** button or choose **Test Sets** > **Assign To Cycle**. Alternatively, in the Details tab, click the browse button next to the **Assigned to cycle** box. The Assign To Cycle dialog box opens.

3 Expand the tree and select a cycle.

4 Click **OK** to close the Assign To Cycle dialog box. In the test set tree, the test set folder icon 📁 is replaced by the assigned test set folder icon 📁 .

The Details tab displays the following test set folder details:

Field	Description
Assigned to cycle	Indicates the cycle to which the selected test set folder is assigned.
Cycle start date	The date on which the cycle starts.
Cycle end date	The date on which the cycle ends.
Remaining days in cycle	The total number of days remaining in the cycle.

You can click the **Show** button to view the following details:

Total test instances	The total number of test instances in the selected test set folder.
Remaining test instances to run	The total number of test instances in the selected test set folder that have not yet run.

5 To clear an assigned test set folder, select it, click the **Assign To Cycle** arrow, and choose **Clear Assigned Cycle**. Alternatively, select an assigned test set folder and choose **Test Sets** > **Clear Assigned Cycle**.

Adding Test Sets

You can add a test set to a folder in your test sets tree, or to the test sets grid.

To add a test set:

1 You can add a test set to the test sets tree or test sets grid:

➤ Display the test sets tree by choosing **View** > **Test Sets Tree**. In the test sets tree, choose a folder and click the **New Test Set** button or choose **Test Sets** > **New Test Set**.

➤ Display the test sets grid by choosing **View** > **Test Sets Grid**. Click the **New Test Set** button or choose **Test Sets** > **New Test Set**.

The New Test Set dialog box opens.

If you opened the dialog box from the test sets tree, the **Test Set Folder** box displays the preselected folder name.

2 If you opened the New Test Set dialog box from the test sets grid, click the browse button in the **Test Set Folder** box, and choose a folder.

3 In the **Test Set Name** box, type a name for the test set. Note that a test set name cannot include the following characters: \ ^ , " *

4 In the **Description** box, type a description of the test set.

5 Click **OK**. The test set name is added to the test sets tree.

6 Click the **Test Set Properties** tab and select the **Details** link. Alternatively, choose **Test Sets** > **Test Set Properties** > **Test Set Details**.

7 In **Close Date**, select the planned closing date for the test set.

8 In **Open Date**, select a date from the calendar. By default, the date is set to the current database server date.

9 In **ITG Request Id**, add the IT Governance request ID. Note that this is relevant only when integrating with an IT Governance tool.

10 In **Status**, set the status of the test set to **Open** or **Closed**.

11 Click the **Attachments** link to add an attachment to the test set. An attachment can be a file, URL, snapshot of your application, an item from the Clipboard, or system information. For more information on attachments, see Chapter 5, "Adding Attachments."

12 Click the **Notifications** link to instruct Quality Center to send e-mail to specified users if certain events occur. For more information, see "Setting the Test Set Notifications" on page 332.

13 Click the **On Failure** link to set rules for the automated tests in the test set in the event of a test failure. For more information, see "Setting the Test Set On Failure Rules" on page 334.

Adding Tests to a Test Set

After you have defined a test set, you can add manual and automated tests from the test plan tree, or tests covering requirements from the requirements tree, to the test set. You can also include instances of the same test in different test sets or add more than one instance to the same test set.

To add tests from the test plan tree to a test set:

1 Select a test set from the test sets tree or test sets grid.

2 In the Execution Grid tab or Execution Flow tab, click the **Select Tests** button. By default, the right pane displays the test plan tree in the Test Plan Tree tab.

3 Select a test or folder and click the **Add Tests to Test Set** button.

Tip: You can also add tests by double-clicking or dragging a folder or test in the test plan tree to the Execution Grid or Execution Flow.

---

4 If you are adding a folder, a message box opens. Click **Yes** to confirm.

Note: Only tests that match the current filter in the Test Plan Tree tab are added.

---

5 If any of the tests you are adding are already in the test set, the Create Test Instance dialog box opens. It displays the tests that already exist in the test set and how many instances there are. Select the tests you still want to add to the test set and click **Create**.

6 If the test you are adding has unassigned parameters, the Parameters dialog box opens, enabling you to assign values to the parameters. For more information on parameters, see "Calling a Manual Test with Parameters" on page 279.

7 Click the **Close** button to close the right pane.

To add tests covering requirements from the requirements tree to a test set:

1 Select a test set from the test sets tree or test sets grid.
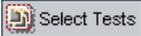
2 In the Execution Grid tab or Execution Flow tab, click the **Select Tests** button.

3 In the right pane, click the **Requirements Tree** tab, the tests are displayed according to associated requirements.

4 To add a test, select the test and click the **Add Tests Covering Requirement** button.

Tip: You can also add tests by double-clicking or dragging a test or requirement in the Requirements Tree tab to the Execution Grid or Execution Flow.

---

5 To add all tests that cover a selected requirement, select the requirement and click the **Add Tests Covering Requirement** button.

To add all tests that cover a selected requirement and its children, select the requirement. Click the **Add Tests Covering Requirement** arrow and choose **Add Tests Covering Requirement and Children**.

A message box opens. Click **Yes** to confirm.

Note: Only tests that match the current filter in the Requirements Tree tab are added.

---

6 If any of the tests you are adding are already in the test set, the Create Test Instance dialog box opens. It displays the tests that already exist in the test set and how many instances there are. Select the tests you still want to add to the test set and click **Create**.

7 If the test you are adding has unassigned parameters, the Parameters dialog box opens, enabling you to assign values to the parameters. For more information on parameters, see "Calling a Manual Test with Parameters" on page 279.

8 Click the **Close** button to close the right pane.

Setting the Test Set Notifications

You can instruct Quality Center to send e-mail to a specified user if any of the following events occur for a test set:

➤ Any test in the test set fails.

➤ A test in the test set fails due to reasons other than the test logic itself. Environmental failure could include, for example, function calls not returning, access violations, version incompatibility between application components, a missing DLL, inadequate permissions, and many other reasons.

➤ All tests in the test set that were run have finished running. Note that this does not include tests that were not run.

To set the test set notifications:

1 Select a test set from the test sets tree or the test sets grid.

2 Click the **Test Set Properties** tab and select the **Notifications** link. Alternatively, choose **Test Sets > Test Set Properties > Notifications**.

3 Select one or more events for the test set.

4 To specify who should receive the e-mail, type a valid e-mail address.

Alternatively, click the **To** button. The Select Recipients dialog box opens. Select individual users or an entire user group. Click **OK**. To send an e-mail to a user, the user must have a valid e-mail address set up in their user properties. For more information on defining user properties, refer to the *HP Quality Center Administrator's Guide*.

5 In the **Message** box, type a message for the e-mail.

Setting the Test Set On Failure Rules

You can set on failure rules for a test set which instruct Quality Center in the event that an automated test in the test set fails. This includes instructions on how many times the test should be rerun, and the clean up test that should be run before the test is rerun. For any automated test in the test set, you can change the default on failure rules.

To set the test set on failure rules:

1 Select a test set from the test sets tree or test sets grid.

2 Click the **Test Set Properties** tab and select the **On Failure** link. Alternatively, choose **Test Sets** > **Test Set Properties** > **On Failure**.

3 To set the test set on failure rule, select the first check box and specify the number of times an automated test should be rerun.

4 To include a cleanup test, select the second check box and click the browse button to select the cleanup test from the test plan tree in the Select Cleanup Test dialog box.

5 You can change the default failure rules for a specific test in the test set. For more information, see "Changing the Default Failure Rules for Specific Tests" on page 335.

6 On the final failure of any test in the test set, you can instruct
Quality Center to:

➤ Do nothing.

➤ Stop the test set.

➤ Run the test set again a specified number of times.

Changing the Default Failure Rules for Specific Tests

You can change the default failure rules for specific tests in a test set. These
rules instruct Quality Center in the event that the test fails. This includes
the number of times the test should be rerun and the clean up test that
should be run before the test is rerun.

Note: You can also use the Run Events view in the Test Instance Properties
dialog box to set the on failure rules for a test in a test set. For more
information, see "Viewing Test Run Events" on page 396.

To change the default failure rules for specific tests:

1 Set the default failure rules. For more information, see "Setting the Test Set
On Failure Rules" on page 334.

2 To change the default failure rules for specific tests, click the **Settings per test** button. The On Test Failure dialog box opens.

	Test	Number of Reruns	Cleanup Test
	[1]Connect To Site	0 times	
	[1]Connect_Site_Stress	0 times	
	[2]Connect To Site	0 times	
	[3]Connect To Site	0 times	
	[1]Signing_Stress	0 times	
	[4]Connect To Site	0 times	
	[5]Connect To Site	0 times	
	[1]Flight_Reservation_Stress	0 times	
	[6]Connect To Site	0 times	
	[7]Connect To Site	0 times	

On Test Failure

Set to Default   X Clear | Select All ▾   Change Selected Tests ▾

For each test in the test set, define the number of times it should be rerun if it fails, and the cleanup test to run before rerunning the test.

OK   Cancel

3 You can use the following options to specify the number of times an automated test should be rerun:

➤ To specify for a selected test, double-click the corresponding cell in the **Number of Reruns** column. The Number of Reruns dialog box opens. Specify the number of reruns and click **Apply**.

➤ To specify for selected tests, select the tests or click the **Select All** button. Press **Ctrl** and double-click any cell in the **Number of Reruns** column. Alternatively, click the **Change Selected Tests** arrow and choose **Change Number of Reruns**. The Number of Reruns dialog box opens. Note that the **Apply to all selected tests** option is selected. Specify the number of reruns and click **Apply**.

4 You can use the following options to specify a cleanup test:

➤ To specify for a selected test, double-click the corresponding cell in the **Cleanup Test** column. The Select Cleanup Test dialog box opens. Select a clean up test from the test plan tree and click **Apply**.

➤ To specify one cleanup test for the selected tests, select the tests or click the **Select All** button. Press **Ctrl** and double-click any cell in the **Cleanup Test** column. Alternatively, click the **Change Selected Tests** arrow and choose **Change Cleanup Test**. The Select Cleanup Test dialog box opens. Note that the **Apply to all selected tests** option is selected. Select a clean up test from the test plan tree and click **Apply**.

5 To reset the default failure rules, select a test and click the **Set to Default** button. Click **Yes** to confirm.

6 To clear the settings for a test, select a test and click **Clear**. Click **Yes** to confirm.

7 To copy the settings from one test to another, select a test to copy and click the **Copy Test Settings** button.

Select a test to paste and click the **Paste Test Settings** button.

8 Click **OK** to save your changes and close the On Test Failure dialog box.

Managing Test Sets

This section on managing test sets includes the following topics:

➤ Finding a Test Set in the Tree

➤ Finding a Test in the Execution Grid

➤ Replace Field Values in the Execution Grid

➤ Removing a Test from a Test Set

➤ Copying a Test Set or a Test Set Folder within the Same Project

➤ Copying a Test Set or a Test Set Folder between Projects

➤ Copying a URL of a Test Set

➤ Renaming a Test Set

➤ Deleting a Test Set Folder

➤ Deleting a Test Set

➤ Resetting a Test Set

➤ Purging a Test Run from a Test Set

Finding a Test Set in the Tree

You can search for a folder or test set in the test sets tree. If you have applied filters to the test sets tree, the Test Lab module restricts the search to the test sets currently displayed.

To find a folder or test set:

1 Select a folder in the test sets tree.

2 Choose **Edit > Find Folder/Test Set**. The Find Folder/Test Set dialog box opens and displays the folder name in the Find in box. If you are searching the entire tree, the folder name is **Root**.
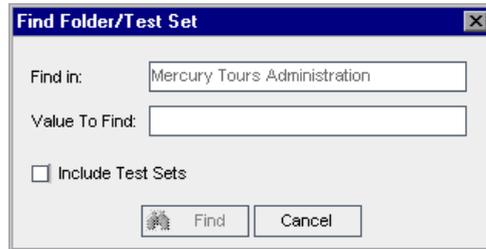
3 In the **Value To Find** box, type the name (or part of the name) of the folder or test set. Note that the search is not case sensitive.

4 Check **Include Test Sets** to include test sets in the search.

5 Click **Find**.

The Test Lab module attempts to locate the folder or test set. If the search is successful, the Search Results dialog box opens and displays a list of possible matches. Select a result from the list and click the **Go To** button to highlight the folder or test set in the test sets tree.

If the search is unsuccessful, an information box opens.

Finding a Test in the Execution Grid

You can search for tests in the Execution Grid, based on the value of a particular field. If you have applied filters to the grid, the search is restricted to the tests currently displayed.

To find a test in the Execution Grid:

1 Choose **Tests > Find**. The Find dialog box opens.
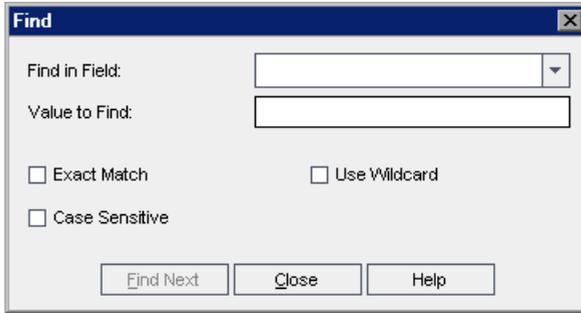
2 In the **Find in Field** box, select a field in the grid.

3 In the **Value to Find** box, type or select the value of the field, for which you want to search.

4 Select **Exact Match** if you want to find tests with field values that exactly match the Value to Find string.

5 Select **Case Sensitive** if you want the search to distinguish between uppercase and lowercase characters.

6 Select **Use Wildcard** if you want to use asterisk (*****) characters in your search string in order to type only part of the item.

7 Click **Find Next**. If the search is successful, the matching test is chosen in the grid. If the search is unsuccessful, an information box opens.

8 Click **Find Next** again to find the next test that matches the criteria.

Replace Field Values in the Execution Grid

You can replace field values in the Execution Grid using the Replace command.

To replace a field value in the requirements grid:

1 Choose **Tests** > **Replace**. The Find/Replace dialog box opens.

Find/Replace	☒

Find in Field: Status ▼

Value to Find: ▼

Replace with: ▼

☐ Case Sensitive ☑ From Beginning
☐ Exact Match ☐ Use Wildcard

Replace	Replace All	Find Next	Close

2 In the **Find in Field** box, select the column in which you want to search for a specific value.

3 In the **Value to Find** box, type or select the value to find.

4 In the **Replace with** box, type or select a replacement field value.

5 To distinguish between uppercase and lowercase characters, select the **Case Sensitive** check box.

6 To search for an exact value, select the **Exact Match** check box.

7 To start the search from the top of the grid, select the **From Beginning** check box.

8 To use asterisk (*****) characters in your search string in order to type only part of the item, select the **Use Wildcard** check box.

9 To replace the found item and find the next occurrence, click **Replace.**

10 To replace all occurrences of the value in the grid, click **Replace All**.

Removing a Test from a Test Set

You can remove tests from a test set.

To remove a test from a test set:

1 Select a test set from the test sets tree or the test sets grid. The tests are displayed in the Execution Grid or Execution Flow.

2 Select the test that you want to remove. To remove more than one test from the Execution Grid or Execution Flow, press the **Ctrl** key and select the tests you want to remove.

3 Click the **Remove Tests from Test Set** button.

4 Click **Yes** to confirm.

Copying a Test Set or a Test Set Folder within the Same Project

You can copy a test set or a test set folder within the same project. Note that test run information is not copied.

To copy a test set or a test set folder within the same project:

1 Select a test set or a test set folder from the test sets tree. To copy more than one test set or folder, use the **Ctrl** key.

2 Choose **Edit > Copy**. Alternatively, right-click and choose **Copy**.

3 Select the folder to which you want to copy the test set or subject folder.

4 Choose **Edit > Paste**. Alternatively, right-click and choose **Paste**.

Copying a Test Set or a Test Set Folder between Projects

You can copy test sets and test set folders from one project to another. If the test sets or test set folders contain calls to other tests, you can instruct Quality Center to copy them using one of the following methods:

➤ Copy test sets or test set folders and link them to existing tests in the target project. If a called test does not exist in the target project, Quality Center copies and pastes it into the target project.

➤ Copy test sets or test set folders along with the called tests into the target project.

➤ Copy test sets or test set folders without copying called tests into the target project.

Note that test run information is not copied.

To copy a test set or a test set folder between projects:

1 Select the test set or the test set folder that you want to copy in the test sets tree. To copy more than one test set or folder, use the **Ctrl** key.

2 Choose **Edit** > **Copy**. Alternatively, right-click and choose **Copy**.

3 Open another instance of Quality Center and log in to the project to which you want to paste the tests.

4 Select the folder to which you want to copy the test sets or test set folders.

5 Choose **Edit** > **Paste**. Alternatively, right-click and choose **Paste**. The Paste Test Sets/Test Set Folders to Target Project dialog box opens.

6 Select one of the following options:

➤ **Copy test sets/test set folders and link to existing called tests.** Quality Center copies the test sets or test set folders and pastes them into the target project. The copied test sets/test set folders are linked to existing tests with the same name. If a called test does not exist in the target project, Quality Center copies and pastes it into the target project.

➤ **Copy test sets/test set folders and called tests.** Quality Center copies the test sets or test set folders along with called tests, and pastes them into the target project. If a called test name already exists in the target project, the copied called test is renamed to resolve the duplicate test name.

➤ **Copy test sets/test set folders and called tests.** Quality Center copies the test sets or test set folders without copying the called tests, and pastes them into the target projects. The copied test sets or test set folders are not linked to any called tests.

Click **OK**.

Copying a URL of a Test Set

You can copy a test set and paste its URL as a link. The test set itself is not copied. Instead, you can paste the address into another location, such as an e-mail or a document. Clicking on the link opens up Quality Center and takes you to the test set.

To copy a URL of a test set:

1 Select a test set from the test sets tree or grid.

2 Choose **Edit > Copy URL**. Alternatively, right-click and choose **Copy URL**.

3 Paste the URL.

Renaming a Test Set

You can rename a test set or test set folder. Note that you cannot rename the default test set.

To rename a test set:

1 Select a test set or test set folder from the test sets tree or the test sets grid.

2 Right-click the test set or test set folder and choose **Rename**.

3 Edit the test set name and press **Enter**.

Deleting a Test Set Folder

You can delete a folder and move all of its test sets to the **Unattached** folder, or you can permanently delete a folder with all its test sets.

To delete a test set folder:

1 Select a folder from the test sets tree. To delete more than one folder, press the **Ctrl** key and select the folders you want to delete.

2 Click the **Delete** button, or choose **Edit > Delete**. The Confirm Delete Folder dialog box opens.
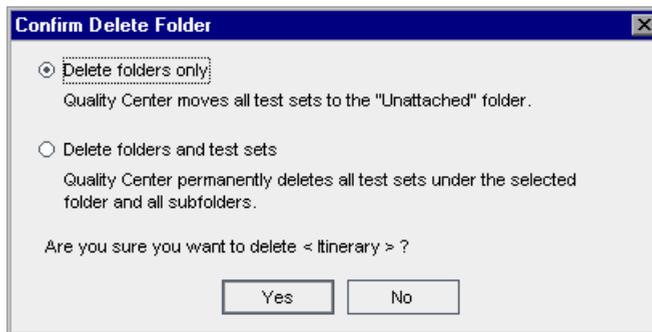
3 To delete, you can:

> ➤ Select **Delete folders only** to delete the folder and move all test sets to the the **Unattached** folder. The Unattached folder contains all test sets that are no longer associated with a folder.

> ➤ Select **Delete folders and test sets** to permanently delete the folder and all its test sets.

4 Click **Yes** to confirm.

Deleting a Test Set

You can delete a test set from a project. Note that you cannot delete the default test set.

To delete a test set:

1 Select a test set from the test sets tree or the test sets grid. To delete more than one test set, press the **Ctrl** key and select the test sets you want to delete.

2 Click the **Delete** button, or choose **Edit** > **Delete**.

3 Click **Yes** to confirm.

Resetting a Test Set

Resetting a test set changes the status of all the tests in the test set to **No Run**. When resetting a test set, you can also decide if you want to delete the test run results.

To reset the current test set:

1 Select a test set from the test sets tree or the test sets grid.

2 Choose **Test Sets** > **Reset Test Set**. The Confirm Reset Test Set dialog box opens.

3 To instruct the Test Lab module not to delete the test run results for the test set, clear the **Delete all the test run results in test set** check box.

4 Click **Yes** to confirm.

Purging a Test Run from a Test Set

You can use the Purge Runs wizard to delete old test run results in your project.

To purge a test run from a test set:

1 Choose **Test Sets** > **Purge Runs**. The Select Test Sets to Purge dialog box opens, enabling you to select test sets to purge.

```
┌─────────────────────────────────────────────┐
│ Step 1 of 3: Select Test Sets to Purge    ✕ │
├─────────────────────────────────────────────┤
│ Available Test Sets:        Selected Test Sets: │
│ ┌─────────────────┐        ┌─────────────────┐ │
│ │ Create Order    │        │                 │ │
│ │ default         │        │                 │ │
│ │ Sales           │  ┌───┐ │                 │ │
│ │                 │  │ > │ │                 │ │
│ │                 │  └───┘ │                 │ │
│ │                 │  ┌───┐ │                 │ │
│ │                 │  │>> │ │                 │ │
│ │                 │  └───┘ │                 │ │
│ │                 │        │                 │ │
│ │                 │  ┌───┐ │                 │ │
│ │                 │  │ < │ │                 │ │
│ │                 │  └───┘ │                 │ │
│ │                 │  ┌───┐ │                 │ │
│ │                 │  │<< │ │                 │ │
│ │ ◄ ▓▓▓▓ ►        │  └───┘ │                 │ │
│ └─────────────────┘        └─────────────────┘ │
│ ┌────────┐ ┌────────┐ ┌────────┐ ┌────────┐   │
│ │ < Back │ │ Next > │ │ Cancel │ │  Help  │   │
│ └────────┘ └────────┘ └────────┘ └────────┘   │
└─────────────────────────────────────────────┘
```
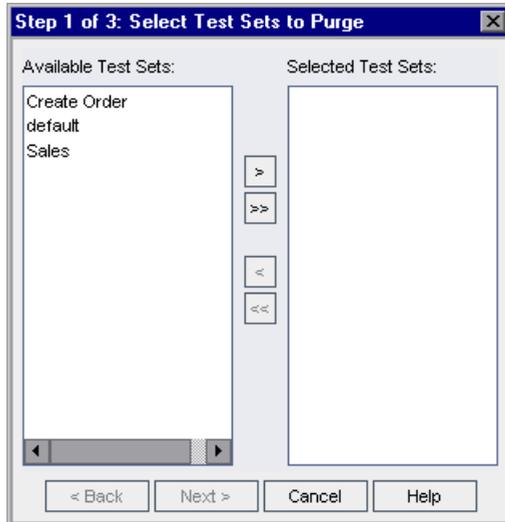
Using the arrows, move the appropriate test set names from the **Available Test Sets** box to the **Selected Test Sets** box.

Tip: You can also drag the test sets between lists.

---

2 Click **Next**. The Choose Type of Purge dialog box opens, enabling you to select the purge type and define the purge conditions.
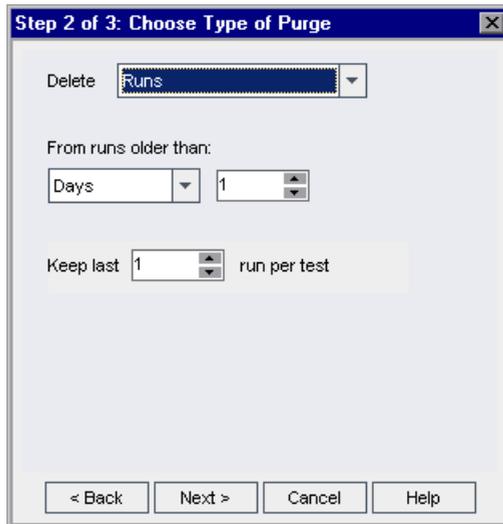
By default, the Purge Runs wizard deletes all the runs in the selected test sets. To instruct the wizard to only delete run steps but keep the overall run details, in the **Delete** box select **Run Steps Only**.

➤ If you are deleting **Runs**:

Under **From runs older than**, select a period of time before which you want to delete test run results.

In **Keep last**, select the number of test run results to keep for each test.

➤ If you are deleting **Run Steps Only**:

Under **From runs older than**, select a period of time before which you want to delete run steps.

3 Click **Next**. The Confirm Purge Request dialog box opens, summarizing the deletions you chose to make.

```
Step 3 of 3: Confirm Purge Request                    [X]

If you want to review or change any settings, click Back.
Otherwise, click Purge.

 The following runs will be deleted from
 <QualityCenter_Demo>:
  Runs in the following test sets:
   default
  Only runs older than 1 day will be purged
  The last 1 run in each test will not be deleted.




        < Back      Purge      Cancel       Help
```
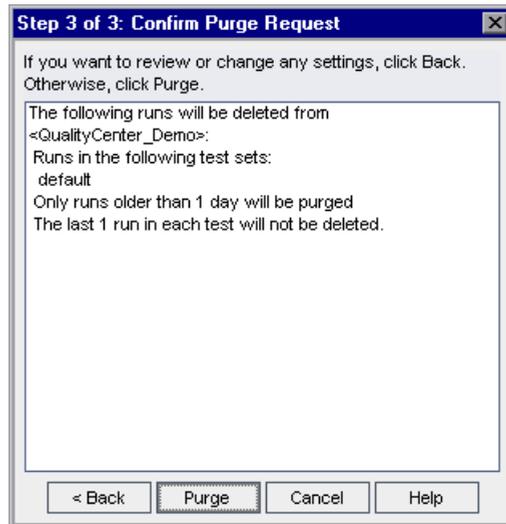
4 Click **Purge** to confirm.

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Scheduling Test Runs

The Test Lab module enables you to control the execution of the tests in a test set.

This chapter describes:	On page:
About Scheduling Test Runs	351
Scheduling a Test Run	354
Modifying a Test Run Schedule	357
Arranging Tests Sequentially	360
Finding Tests	361
Viewing the Execution Flow Diagram	361

About Scheduling Test Runs

In the Execution Flow, you can specify a date and time, and set conditions for executing a test. A *condition* is based on the results of another specified test in the Execution Flow. By setting conditions, you can instruct the Test Lab module to postpone execution of the current test until the other specified test has either finished running or passed. You can also set the sequence in which to execute the tests.

For example, in the **Mercury Tours** test set, you can determine that **test2** will run only if **test1** passed, and **test3** will run only if **test2** passed.

Unlike the Execution Grid, which displays the tests with only test run information, the Execution Flow displays the tests with conditions in a diagram.
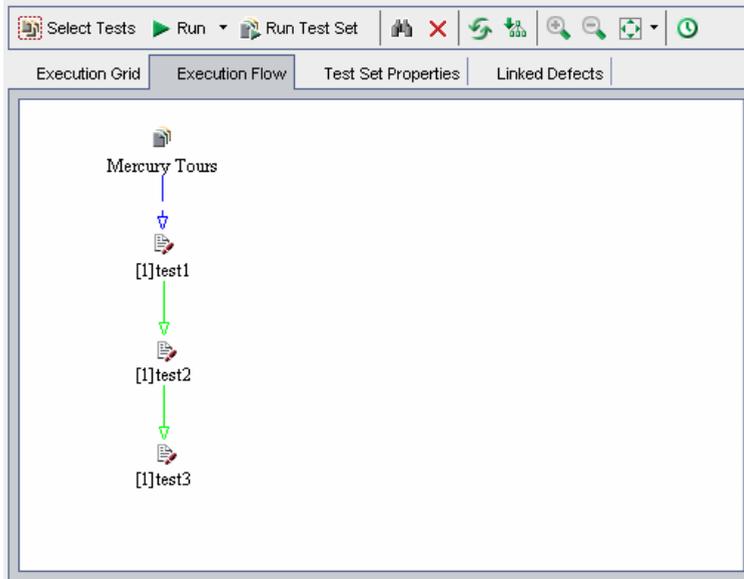
In the Execution Flow, a test set is represented by the Test Set ![icon] icon. Each test in the diagram is represented by a test icon.

A dashed line — — — ▷ arrow indicates that the test is to be executed after the previous test, with no conditions.

A solid line —————▷ arrow indicates a condition and can be blue or green. If the solid line is blue, it indicates that the test is to be executed only if the previous test has status **Finished**. If the solid line is green, it indicates that the test is to be executed only if the previous test has status **Passed**.

When a test is time-dependent, a Time Dependency ⏱ icon is added to the diagram.
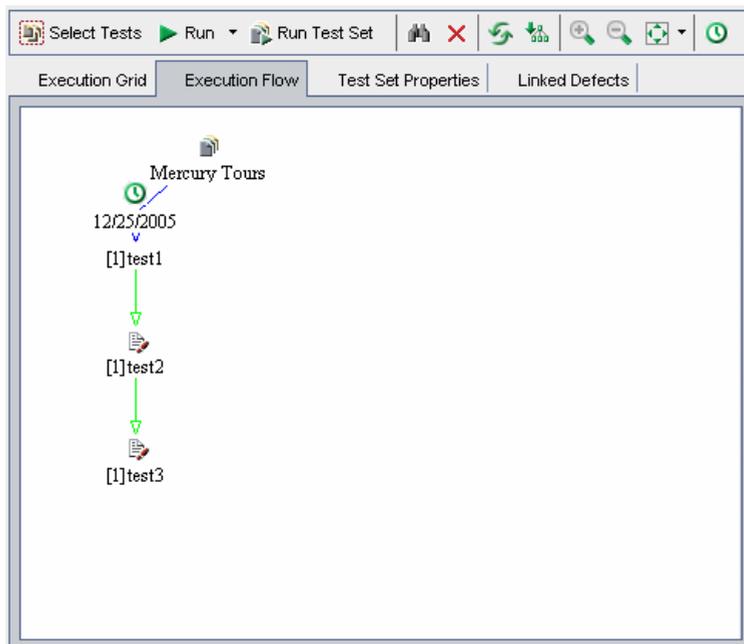
Scheduling a Test Run

The Execution Flow tab enables you to watch the execution process as it happens and to control the way your tests are executed. You can specify under what conditions you want a test to be executed (*execution conditions*) and when (*time dependency*).

Note: After you schedule your tests, you must run them. For more information, see "Running Tests Manually" on page 363 and "Running Tests Automatically" on page 373.

To schedule a test run:

1 In the Execution Flow tab, double-click a test. Alternatively, right-click a test and choose **Test Run Schedule**. The Run Schedule dialog box opens and displays the Execution Conditions tab.
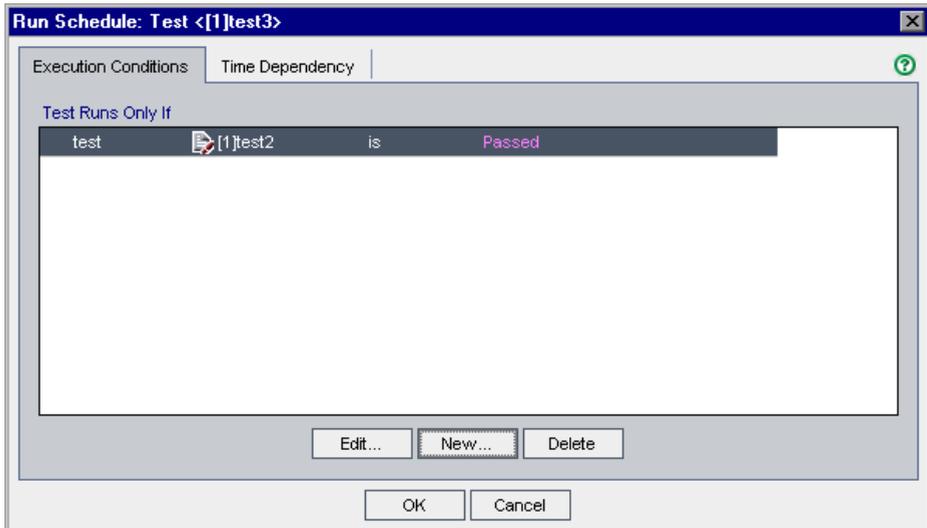
2 To add a condition, click **New**. The New Execution Condition dialog box opens.
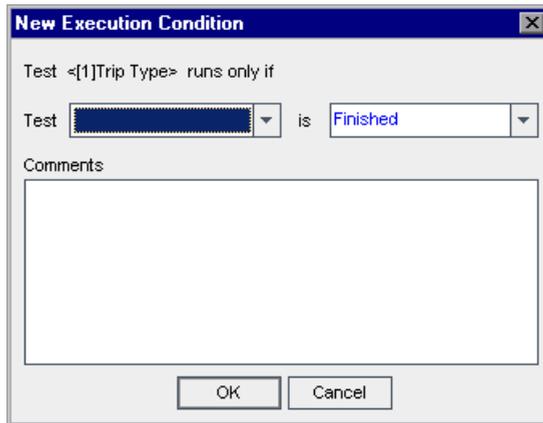
3 In the **Test** box, select the test on which you want the current test to be dependent.

➤ Select **Finished** (default) to instruct the Test Lab module to execute the current test only after the specified test has finished executing.

➤ Select **Passed** to instruct the Test Lab module to execute the current test only if the specified test has finished executing and has passed.

4 In the **Comments** box, add any relevant information regarding the condition.

5 Click **OK**. The condition is added to the list.

Tip: You can also add a condition directly in the Execution Flow. Click a test icon (not the test name) and drag the arrow to another test. By default, the condition is set to **Finished**. To change the condition, double-click the condition arrow and select **Passed**.

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6 Click the **Time Dependency** tab to specify when you want the test to be executed.
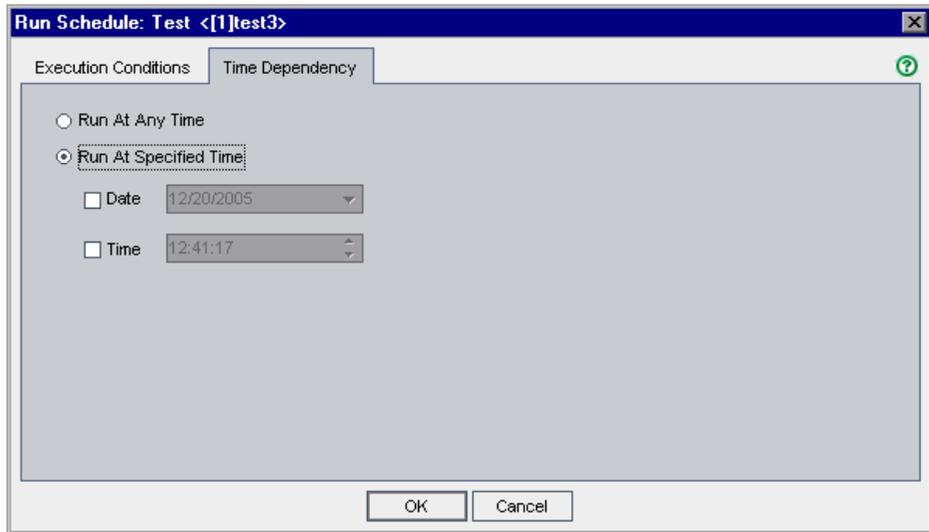
7 Select **Run At Specified Time**, and select a **Date** and/or **Time**.

Tip: You can schedule the test run date and time by clicking the **Add Time Dependency To Flow** ⏱ button, and linking it to a test. Double-click the icon to set the time in the Time Dependency dialog box.

---

8 Click **OK** to close the Run Schedule dialog box. In the Execution Flow, the diagram displays the tests and the conditions.

Modifying a Test Run Schedule

You can modify and delete conditions and time dependency information for a test run schedule.

This section includes:

➤ Editing Execution Conditions

➤ Deleting Execution Conditions

➤ Editing Time Dependency

➤ Deleting Time Dependency

➤ Deleting All Conditions and Dependencies

Editing Execution Conditions

You can edit conditions connected to a test run.

To edit an execution condition:

1 In the Execution Flow, double-click a condition arrow. Alternatively, right-click a condition arrow and choose **Execution Condition**. The Execution Condition dialog box opens.
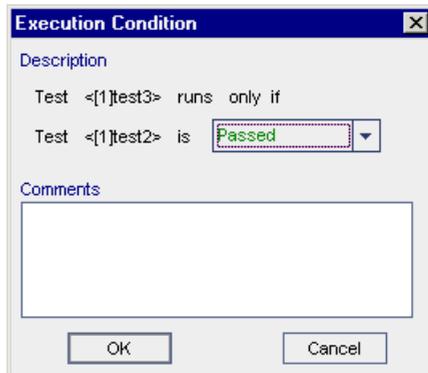
2 Modify any relevant information regarding the condition and click **OK**.

Deleting Execution Conditions

You can delete a single condition or all conditions connected to a test.

To delete an execution condition for a test:

1 In the Execution Flow, right-click a condition arrow and choose **Remove Execution Condition**.

2 Click **Yes** to confirm. The condition arrow is removed.

To delete all execution conditions for a test:

1 In the Execution Flow, right-click a test and choose **Remove Test's Execution Conditions**.

2 Click **Yes** to confirm. All connecting arrows are removed.

Editing Time Dependency

You can modify the date and time of a scheduled test run.

To edit time dependency:

1 In the Execution Flow, double-click the **Time Dependency** 🕐 icon connected to a test. The Time Dependency dialog box opens.
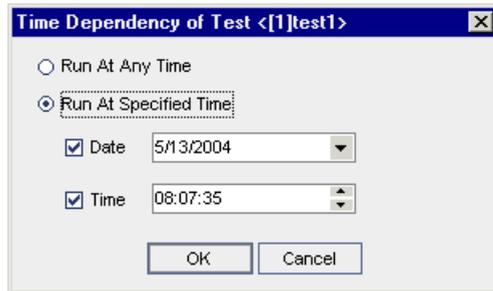
2 Modify the date and/or time, and click **OK.**

Deleting Time Dependency

You can delete a specified time dependency.

To delete time dependency:

1 In the Execution Flow, right-click a **Time Dependency** 🕐 icon connected to a test and choose **Remove Time Dependency**.

2 Click **Yes** to confirm. The Time Dependency icon is removed from the Execution Flow.

Deleting All Conditions and Dependencies

You can delete all execution conditions and time dependencies in a test set.

To delete all execution conditions for a test set:

1 Right-click in the Execution Flow and choose **Remove All Execution Conditions**.

2 If your test set includes both execution conditions and time dependencies, the Remove All Execution Conditions dialog box opens.
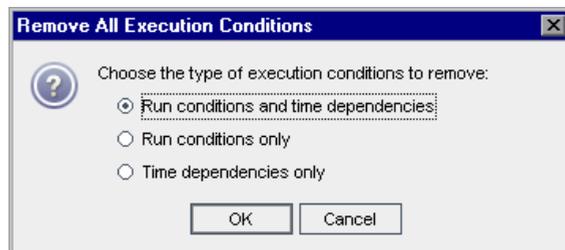
Choose one of the following options:

➤ **Run conditions and time dependencies.** Removes the execution conditions and time dependencies from your test set.

➤ **Run conditions only.** Removes the execution conditions from your test set.

➤ **Time dependencies only.** Removes the time dependencies from your test set.

Click **OK**. The execution conditions and/or time dependencies are removed.

3 If your test set contains only execution conditions or only time dependencies, a confirm dialog box opens. Click **Yes** to confirm. The execution conditions or time dependencies are removed.

Arranging Tests Sequentially

In the Execution Flow, you can change the execution order of the tests displayed in the diagram.

To rearrange tests sequentially:

1 in the Execution Flow, press the CTRL key and select two or more tests.

2 Right-click a test and choose **Order Tests**. The Order Tests dialog box opens.
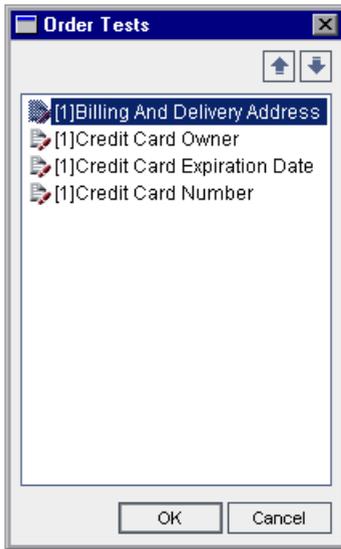
3 Select a test from the list and click the up or down arrow to change the position of the test in the sequence.

4 Click **OK**.

Finding Tests

You can search for a test in the Execution Flow.

To find a test:

1 Click the **Find Test In Flow** button on the toolbar, or choose **Edit** > **Find Test in Flow**. The Find Test dialog box opens.

Find Test	☒
Value To Find:	
	Find · Cancel
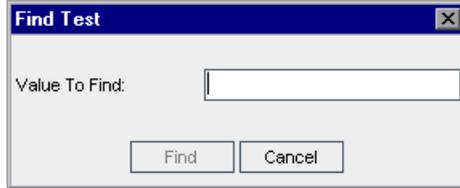
2 In the **Value to Find** box, type the name (or part of the name) of the test. The search is not case sensitive.

3 Click **Find**. The Test Lab module attempts to locate the test.

4 If the search is successful, the Search Results dialog box opens and displays a list of possible matches. Select a result from the list, and click the **Go To** button to highlight the test in the Execution Flow.

Click the **Keep on Top** button to display the Find Results dialog box on top of all open windows.

To display a selected window on top of the Find Results dialog box, click the **Not on Top** button.

5 If the search is unsuccessful, an information box opens.

Viewing the Execution Flow Diagram

You can change the way the Execution Flow is displayed. This includes zooming in and out of the diagram, rearranging the tests in a hierarchical layout, refreshing the diagram, and displaying full test names in the diagram. You can also copy the diagram to the Clipboard.

Layout

Click the **Arrange Layout** button to rearrange the tests in a hierarchical layout. This enables you to view dependencies between different tests.

Zoom In

Click the **Zoom In** button to increase the magnification level of the diagram to make it appear larger.

Zoom Out

Click the **Zoom Out** button to reduce the magnification level of the diagram to make it appear smaller.

Fit Picture In Window

Click the **Fit Picture in Window** button to redisplay the diagram to fit in the window. You can also click the down arrow to select a magnification option:

➤ Select a specific magnification level, such as **25%**, **50%**, **150%** or **200%**.

➤ Select **Normal** to display the diagram at 100% magnification.

➤ Select **Fit In Window** to display the entire diagram in the window.

➤ Select **Custom Zoom** to specify a zoom level. In the Custom Zoom dialog box, type a zoom level and click **Zoom**.

Refresh Flow

Click the **Refresh Flow** button to refresh the Execution Flow diagram so that it displays the most up-to-date tests.

Show Full Test Names

Choose **Tests** > **Flow** > **Show Full Test Names** to display full test names in the Execution Flow diagram. By default, long names are truncated.

Copy to Clipboard

Choose **Tests** > **Flow** > **Copy to Clipboard** to copy the Execution Flow diagram to the Clipboard as a bitmap.

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Running Tests Manually

When you run tests manually, you follow the test steps and perform operations on the application under test. You pass or fail each step, depending on whether the actual application results match the expected output. You can run both manual and automated tests manually.

This chapter describes:	On page:
About Running Tests Manually	363
Running a Test Manually	364
Editing the Test Steps	370
Resuming a Manual Test Run	371

About Running Tests Manually

You run tests manually by following the test steps you defined during test planning:

1 Perform operations on the application under test. Follow the instructions detailed in the test step descriptions.

2 Compare the actual results with the expected results. When performing the steps, decide whether the application responds according to the expected results.

3 Assign a pass or fail status to each step, depending on whether or not the expected results match the actual results.

4 If a step fails, explain how the application actually responded. A test fails if one or more steps fail.

You can execute tests more than once in the same set. Each execution is considered a new test run.

After test execution is complete, you can view a summary of test results in the Test Lab module. The updated status for each test run appears in the Execution Grid. Results for each test step appear in the Last Run Result pane. You can view more detailed results in the Test Instance Properties dialog box. For more information on viewing test results, see Chapter 28, "Viewing Test Results."

Running a Test Manually

When you run a test manually, you follow the test steps and perform operations on the application under test. You compare the expected results with the actual outcome and record the results. You can execute a test as many times as you want. Test results are stored separately for each run. You can run both manual and automated tests manually.

Note that while executing a test manually you can modify the test steps. You can choose to save the modifications in the original test in the Test Plan module and the test instance in the Test Lab module. Alternatively, you can save them for the current test run only. For more information, see "Editing the Test Steps" on page 370.

You can also resume a manual test run that was paused during execution. For more information, see "Resuming a Manual Test Run" on page 371.

Note: If you are running a business process test, refer to the *HP Business Process Testing User's Guide*.

To run a test manually:

1 In the Execution Grid tab or Execution Flow tab, select the tests you want to run manually.

➤ To run a single manual test, select the test and click the **Run** button.

➤ To run two or more manual tests, select the tests and click the **Run** button. The Manual Test Run dialog box opens.
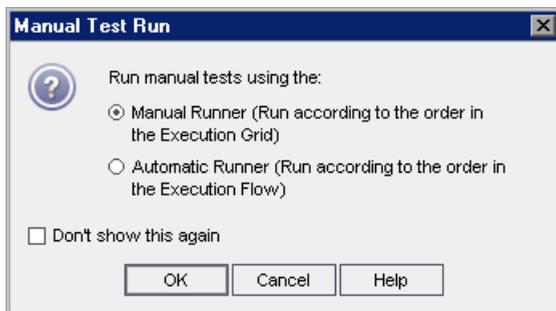
By default, the **Manual Runner (Run according to the order in the Execution Grid)** option is selected. This option runs the tests according to the order displayed in the Execution Grid.

To run manual tests automatically, select **Automatic Runner (Run according to the order in the Execution Flow)**. This option runs the tests according to the order displayed in the Execution Flow. For more information on running tests automatically, see "Running a Test Automatically" on page 374.

If you do not want the Manual Test Run dialog box to be displayed the next time you run manual tests, select **Don't show this again**. To enable, choose **Tests > Enable Manual Test Run Confirmation**.

Click **OK**.

➤ To run automated tests manually, select the tests, click the **Run** arrow, and choose **Run Manually**.

The Manual Runner dialog box opens.
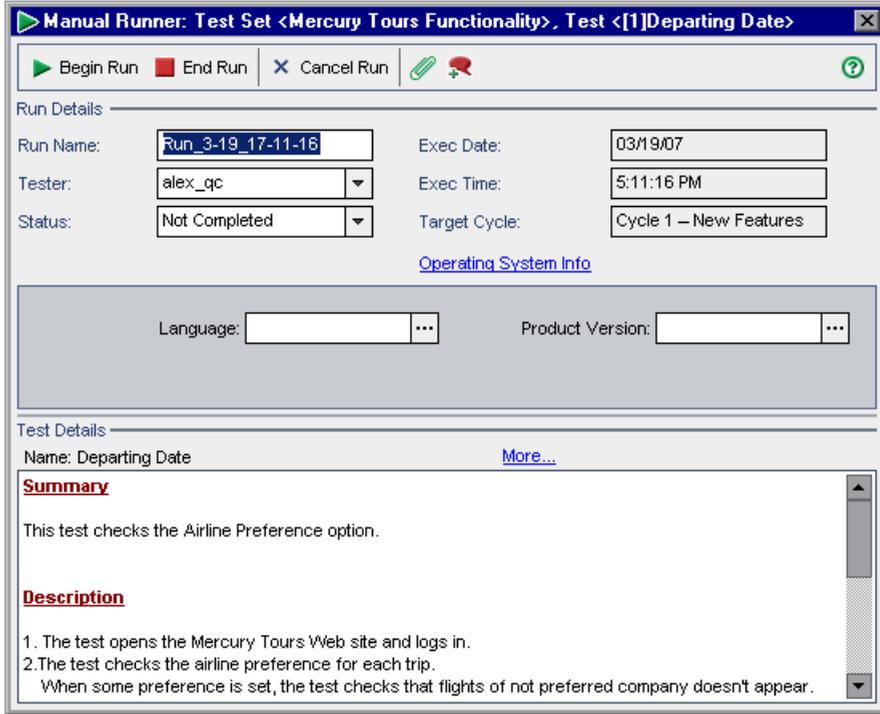
2 Under **Run Details**, you can edit the following run information:

➤ **Run Name.** The name of the test run.

➤ **Tester.** The user name of the person who executed the test.

3 Click the **Operating System Info** link to display operating system information. The Operating System Information dialog box opens.
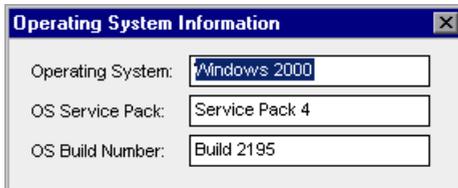
You can edit the following operating system information:

> ➤ **Operating System.** The operating system on the machine where you perform your test steps. By default, the operating system on your Quality Center client machine is displayed.

> ➤ **OS Service Pack.** The operating system service pack.

> ➤ **OS Build Number.** The operating system build number.

4 Under **Test Details**, you can view details of the test. Click **More** to open the Test Properties dialog box and display test details and attachments. For more information on test properties, see Chapter 17, "Developing the Test Plan Tree."

5 To add attachments to the test run, click the **Attach to Run** button. An attachment can be a file, URL, snapshot of your application, an item from the Clipboard, or system information. For more information on attachments, see Chapter 5, "Adding Attachments."

6 To add a defect to the test run, click the **New Defect** button. The New Defect dialog box opens. Quality Center automatically creates a link between the test run and the new defect. For more information, see Chapter 31, "Adding and Tracking Defects", and Chapter 32, "Linking Defects".

7 To end the run at this point, you can click the **End Run** button. Quality Center saves the test run. To cancel the run completely, click the **Cancel Run** button and click **No** to confirm.

8 Click the **Begin Run** button to start the test run.

If the test you are running has unassigned parameters, the Parameter Values for Run dialog box opens, enabling you to assign values. For more information on parameters, see "Calling a Manual Test with Parameters" on page 279.

The Manual Runner: Step Details dialog box opens.
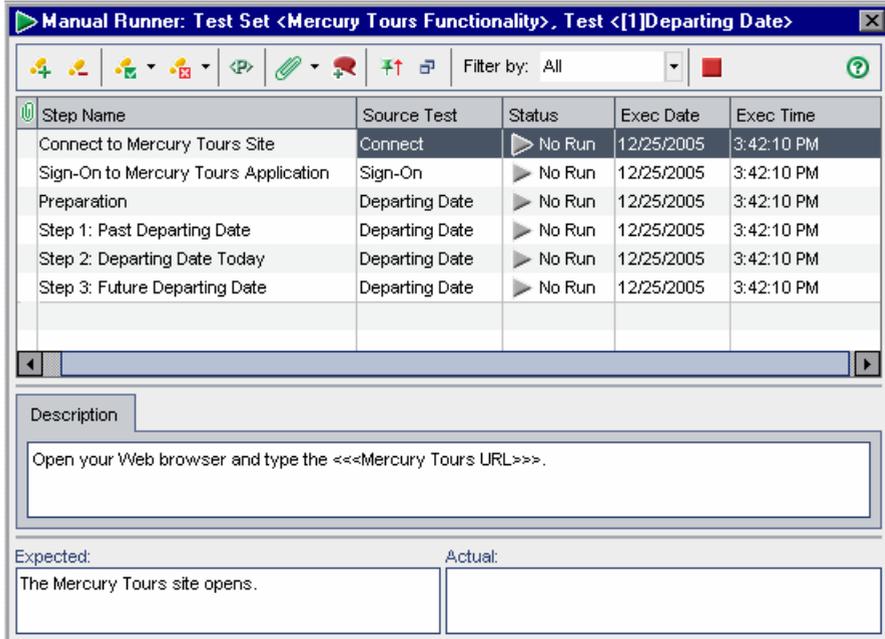
Note: You cannot assign multiple values to a parameter during a test run.

In **Filter by**, you can filter the steps in the test according to the Status column.

Tip: You can conveniently read each test step and record the results using the compact view display of this dialog box. To open this display, click the **Compact View** button. To return to the steps grid, click the **Back to Steps Grid** button.

---

9 If there are no test steps, or if you want to make changes to the steps, you can edit the test steps before you begin executing them. For more information, see "Editing the Test Steps" on page 370.

10 To view the values of the test parameters, click the **Show Parameters** button. The Parameter Values for Run dialog box opens. For more information on parameters, see "Calling a Manual Test with Parameters" on page 279.

11 Open the application being tested and execute the first step of the test.

➤ Click **Pass Selected** if the actual result is the same as the expected result. A green check is added to the step and the step status changes to Passed. (To pass all the test steps at once, click the **Pass Selected** arrow and choose **Pass All**.)

➤ If the actual result is different from the expected result, type the actual result in the **Actual** box and click the **Fail Selected** button. A red X is added to the step and the step status changes to Failed. (To fail all the test steps at once, click the **Fail Selected** arrow and choose **Fail All**.)

12 Click **Attachments** to add attachments to the test step. To add attachments to the entire test run, click the **Attachments** arrow and choose **Attach to Run**. For more information on attachments, see Chapter 5, "Adding Attachments."

13 Click **New Defect** if you detect an application flaw while running the test. The New Defect dialog box opens, enabling you to add the defect. Quality Center automatically creates a link between the test run and the new defect. For more information, see "Adding New Defects" on page 419 and "Linking Defects" on page 435.

14 Click the **Keep on Top** button to display the Manual Runner: Step Details dialog box on top of all open windows. To display selected windows on top of the Manual Runner: Step Details dialog box, click the **Not on Top** button.

15 Perform the remaining steps.

16 Click the **End Run** button when you complete the test run, or to pause execution of the test run. To resume a manual test run that was paused during execution, see "Resuming a Manual Test Run" on page 371.

Editing the Test Steps

While executing a test in the Manual Runner: Step Details dialog box, you can add, delete, or modify test steps. After you finish executing the test, you can save your design steps with the changes you make.

To edit a test step:

1 Open the Manual Runner: Step Details dialog box. For more information, see "Running a Test Manually" on page 364.

2 Click the **Add Step** button to add a step. A new step with a default step name is added. You can enter details about the new step in the **Description** box.

3 Click the **Delete Selected** button to delete a selected step or steps, and click **Yes** to confirm.

4 Click the **End Run** button to close the dialog box. A message box opens.

5 Click **Yes** to save your changes and update your test in the Test Plan and Test Lab modules. Click **No** to save your changes in the current test run only.

Note that the Test Lab module enables you to update changes made to called tests in the current test run only. The called tests are not affected. For more information on called tests, see "Calling a Manual Test with Parameters" on page 279.

Resuming a Manual Test Run

If a manual test run was paused during execution, you can continue the run at a later stage.

Note: The Continue Manual Run command continues the last run of the selected test. If you want to resume running a previous run, click the **Test Instance Properties** button, select **All Runs** on the sidebar and choose the test run you want to resume. Click the **Continue** button.

To resume a manual test run:

1 In the Execution Grid tab or Execution Flow tab, select the test you want to resume running.

2 Choose **Tests** > **Continue Manual Run**. Alternatively, click the **Run** arrow and choose **Continue Manual Run**. The Manual Runner dialog box opens for the selected test.

3 Continue running the test.

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Running Tests Automatically

You can run tests automatically, directly from Quality Center. You can choose to run tests on your machine or on remote hosts.

About Running Tests Automatically

You can run tests automatically on your machine or on remote hosts. A *host* is any machine connected to your network on which a testing tool has already been installed.

You can select the tests you want to run from the Execution Grid tab or Execution Flow tab. Note that you can choose to run all of the tests in a test set, or specific tests, and that you can include both automated and manual tests. The selected tests are displayed in the Automatic Runner dialog box.

When you run an automated test, Quality Center opens the selected testing tool automatically, runs the test on your local machine or on remote hosts, and exports the results to Quality Center.

When you run a manual test from the Automatic Runner dialog box, Quality Center notifies a designated tester by e-mail to run the test on a specified host.

You can also run an automated system test to provide system information, capture a desktop image, or restart a machine. For more information on system tests, see Chapter 21, "Working with System Tests."

Running a Test Automatically

When you run an automated test, Quality Center opens the selected testing tool automatically, runs the test, and exports the test results to Quality Center. When you run a manual test, e-mail is sent to a designated tester, requesting that they run the manual test.

You can run an entire test set or specific tests including both automated and manual tests. Your selected tests are displayed in the Automatic Runner dialog box.

The following should be considered when running tests automatically:

➤ Before running a test on a remote host, you must first set up hosts in the Host Manager dialog box. For more information, see "Setting Up Hosts for Remote Test Execution" on page 379.

➤ To run the same test concurrently on multiple remote hosts, add multiple instances of the test to your test set. For more information, see "Adding Tests to a Test Set" on page 330.

➤ To run several test sets concurrently on multiple remote hosts, open a new Automatic Runner dialog box instance for each test set.

➤ To enable Quality Center to run QuickTest Professional or WinRunner tests on a remote host, open the relevant application on the remote host and select the required option. For more information, refer to the *QuickTest Professional User's Guide* or the *WinRunner User's Guide*.

➤ If you run a WinRunner test in batch mode, each test that is called from the batch test is considered a separate test, and not part of the batch test itself. Any test called from the batch test that is not already included in the test set is added to the test set at the end of the test run.

QuickTest Professional users should consider the following:

➤ Before running a QuickTest test, Quality Center loads the QuickTest add-ins that are associated with the selected test. You must ensure that you run the test on a machine on which the required QuickTest add-ins are installed. For more information on working with add-ins and associated add-in lists in QuickTest, refer to the QuickTest Professional documentation and the relevant QuickTest add-in documentation.

➤ When you run QuickTest Professional tests from the Test Lab module, they are automatically run in **Fast** mode. They cannot be run in **Normal** mode.

To run tests automatically:

1 Select a test set from the test sets tree or the test sets grid.

2 You can set conditions and schedule the date and time for executing your tests. You can also set the order in which you want your tests to be executed. For more information, see Chapter 25, "Scheduling Test Runs."

3 You can run all the tests in a test set or select specific tests:

➤ To run a test set, in the Execution Grid tab or Execution Flow tab, click the **Run Test Set** button. Alternatively, choose **Test Sets** > **Run Test Set**.

➤ To run selected tests, in the Execution Grid tab or Execution Flow tab, select one or more tests and click the **Run** button. Alternatively, choose **Tests** > **Run**.

The Automatic Runner dialog box opens and displays the tests.
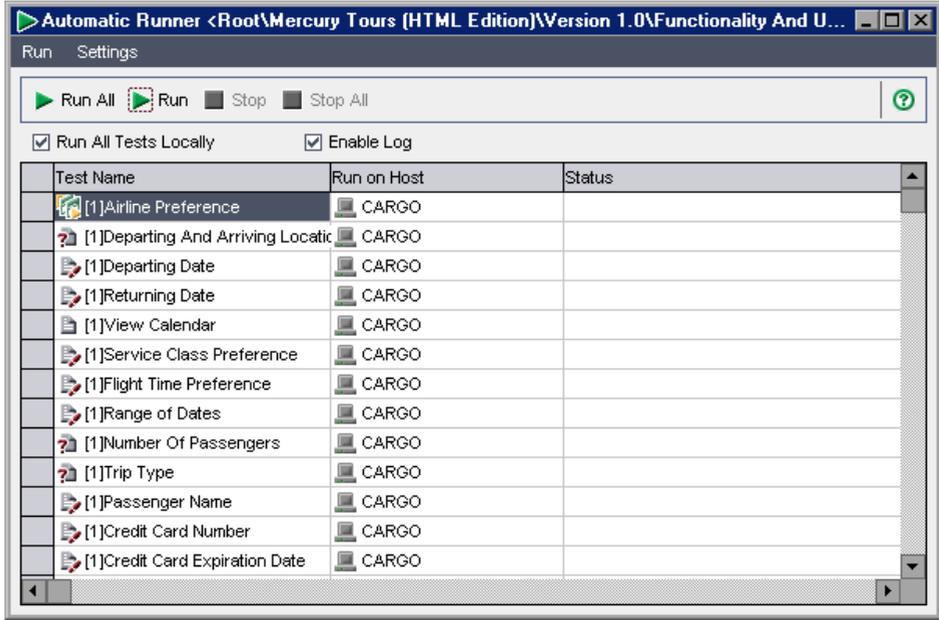
4 You can run your tests locally or remotely:

➤ To execute the tests locally, select the **Run All Tests Locally** check box.

➤ To execute the tests remotely, clear the **Run All Tests Locally** check box. For each test, you must select a host machine. Click the **Run on Host** grid box, and click the browse button. The Select Host dialog box opens. Under **<Any Host>**, you can select a host to run the test.

Alternatively, you can select a host group. Note that if you select a host group, Quality Center runs the test on the first available host in the group, not on every host in the group.

5 To instruct Quality Center to create an execution log file during the test run, select the **Enable Log** check box. For more information, see "Viewing the Execution Log" on page 378.

6 Click **Run** to run the selected tests. Click **Run All** to run all the tests in the Automatic Runner dialog box.

For an automated test, Quality Center opens the selected testing tool automatically and runs the test. Test execution commences only when the selected host becomes available to run tests.

For a manual test, Quality Center notifies a designated tester by e-mail to run the test. This notification can be sent only if you have designated a tester for the test with a valid e-mail address. To designate a tester, locate the test in the Execution Grid tab, place the mouse pointer in the **Responsible Tester** column, and click the arrow button. Select a name from the list.

The test execution progress is displayed in the Status column.

7 If you need to terminate test execution before it has been completed, click **Stop**.

8 If you selected **Enable Log** before you started the test run (see Step 5), you can view the Execution Log by choosing **Run** > **View Execution Log**. For more information, see "Viewing the Execution Log" on page 378.

9 Choose **Run** > **Exit** to close the Automatic Runner dialog box.

10 After the test run is complete, you can view a summary of test results in Quality Center. The updated status for each test run appears in the Execution Grid tab. Results for each test step appear in the Last Run Result pane. You can view more detailed results in the Test Instance Properties dialog box. For more information on test results, see Chapter 28, "Viewing Test Results."

Viewing the Execution Log

The Execution Log contains details about the executed tests, such as the project name, user name, and test set name. For each test, the log includes the date and time of the run, the host, and a description of the run.

Note: You can only view the Execution Log if you selected **Enable Log** in the Automatic Runner dialog box before you executed the test. For more information, see Step 5 on page 376.

To view the Execution Log:

1 After the test run is complete, choose **Run > View Execution Log** in the Automatic Runner dialog box. The Execution Log dialog box opens.
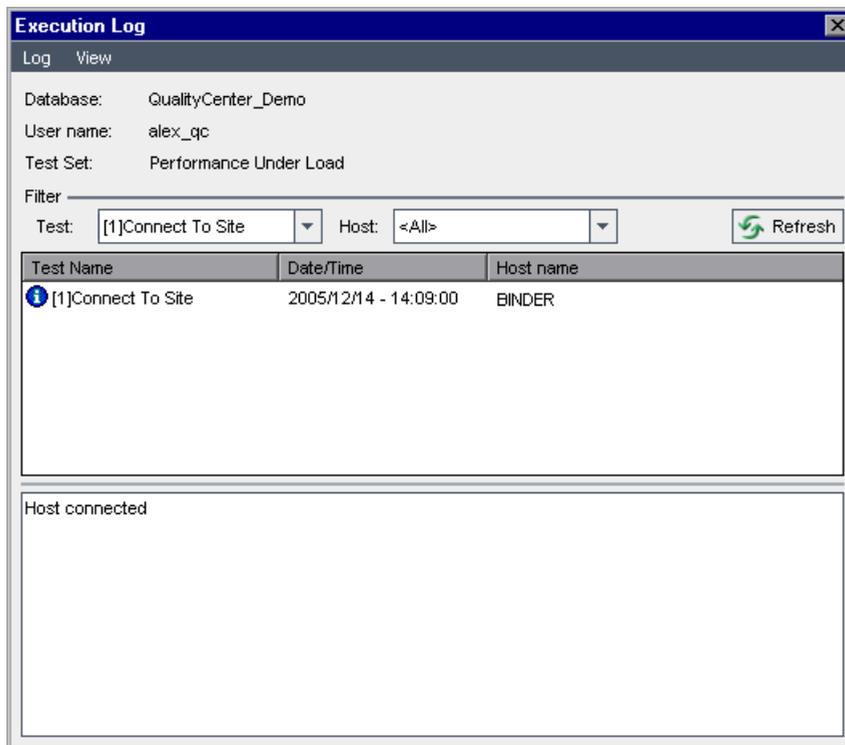
2 To filter the execution log:

> ➤ In the **Test** list box, select a test and click the **Refresh** button.

> ➤ In the **Host** list box, select a host and click the **Refresh** button.

3 Choose **Log > Open** to display another execution log file.

4 Choose **Log > Delete** to delete the execution log. Click **Yes** to confirm.

5 Choose **Log > Exit** to close the Execution Log.

Setting Up Hosts for Remote Test Execution

You can run tests on any host connected to your network. Using the Host Manager dialog box, you can create a list of available hosts for test execution. You can also organize hosts into groups to be used for a specific project.

Note: If you specify a host group for remote test execution, Quality Center runs the test on the first available host, not every host in the host group.

To set up hosts for remote test execution:

1 Choose **Test Sets** > **Host Manager**. The Host Manager dialog box opens.
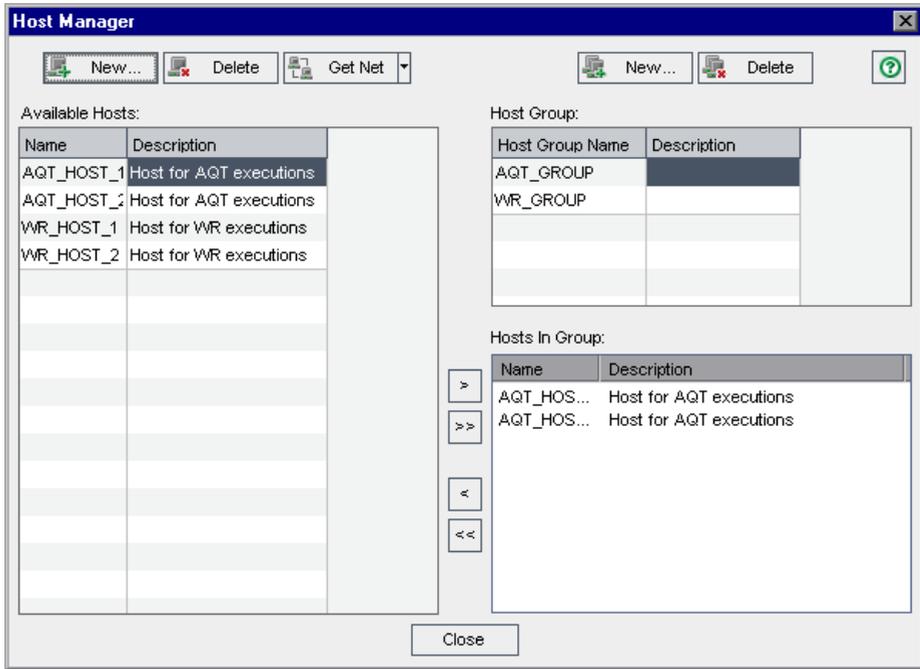
[Get Net] If no hosts are displayed in the **Available Hosts** list, click the **Get Hosts on the Network** button. Quality Center scans the Network Neighborhood directory and inserts each host found into the **Available Hosts** list.

To synchronize the hosts in the **Available Hosts** list with the hosts in the Network Neighborhood directory, click the **Get Hosts on the Network** arrow and choose **Synchronize Hosts in the Project with Hosts on Net**. Quality Center adds hosts found in the Network Neighborhood directory and deletes hosts that were not found in the Network Neighborhood directory.

[New...] **2** To add a host to the **Available Host**s list, click the **New Host** button. The New Host dialog box opens. In the **Host Name** box, type the name of the host machine. In the **Description** box, type a description of the host. Click **OK**.

Delete

3 To delete a host from the **Available Hosts** list, select the host and click the **Delete Host** button. Click **Yes** to confirm.

New...

4 To create a host group, click the **New Host Group** button. The New Host Group dialog box opens. In the **Group Name** box, type a name for the host group. In the **Description** box, type a description of the host group. Click **OK**.

\>

5 To add a host to a host group, select a group from the **Host Group** list. Select a host from the **Available Hosts** list, and click the **Add Host To Host Group** button. Alternatively, double-click a group.

<

6 To remove a host from a host group, select a group from the **Host Group** list. Select a host from the **Hosts in Group** list. Click the **Remove Host From Host Group** button.

Delete

7 To delete a host group, select the group from the **Host Group** list. Click the **Delete Host Group** button. Click **Yes** to confirm.

8 Click **Close** to close the Host Manager dialog box.

Ordering Tests in the Execution Grid

You can change the order of the tests in the Execution Grid. Quality Center runs the tests according to the specified order, grouped by host type. For example, if you have your tests ordered as **test1**, **test2**, and **test3**, Quality Center runs **test1** and **test3** first if they are set to run on the same host, followed by **test2** on a different host.

Note: When determining the order for running tests, Quality Center first checks the Execution Flow. The order you define in the Execution Grid is only used if there are no conditions set in the Execution Flow. For more information on scheduling tests in the Execution Flow, see Chapter 25, "Scheduling Test Runs."

To order tests in the Execution Grid:

1 Choose **Tests > Order Tests**. The Order Tests dialog box opens.
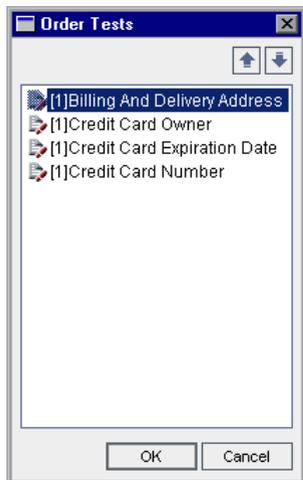
2 Select a test from the list, and click the up or down arrow to change the position of the test in the sequence.

Tip: You can also drag the tests up or down.

---

3 Click **OK**.

Finding and Replacing Values in the Execution Grid

You can search and replace field values in the Execution Grid.

To find a value:

1 Choose **Tests > Find**. The Find dialog box opens.
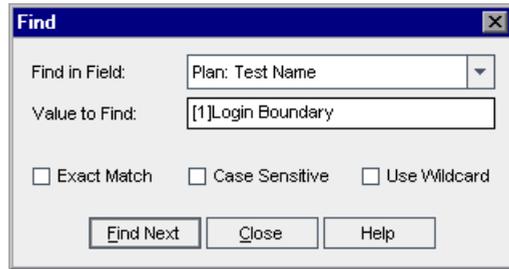
2 In the **Find in Field** box, select the column in which you want to search for a specific value.

3 In the **Value to Find** box, type or select the value to find.

4 You can select **Exact Match** to search for an exact value.

5 You can select **Case Sensitive** to distinguish between uppercase and lowercase characters.

6 You can select **Use Wildcard** to use asterisk (*****) characters in your search string in order to type only part of the item.

7 Click **Find Next**. Quality Center attempts to locate any tests with the specified value. If the search is successful, the test is highlighted in the Execution Grid. If the search is unsuccessful, an information box opens.

To replace a value:

1 Choose **Tests** > **Replace**. The Find/Replace dialog box opens.
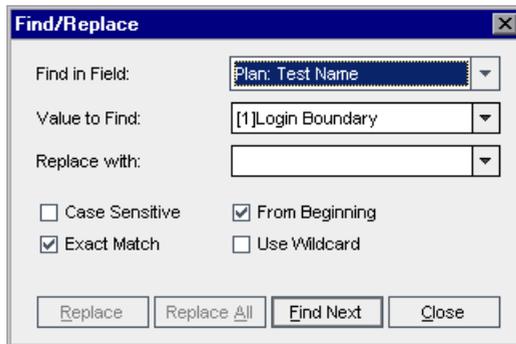
2 In the **Find in Field** box, select the column in which you want to search for a specific value.

3 In the **Value to Find** box, type or select the value to find.

4 In the **Replace with** box, type or select a replacement field value.

5 You can select **Case Sensitive** to distinguish between uppercase and lowercase characters.

6 You can select **Exact Match** to search for an exact value.

7 You can select **From Beginning** to start the search from the top of the Execution Grid.

8 You can select **Use Wildcard** to use asterisk (*****) characters in your search string in order to type only part of the item.

9 To replace:

➤ Click **Replace** to replace the found item and find the next occurrence.

➤ Click **Replace All** to replace all occurrences in the Execution Grid.

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Viewing Test Results

After running test instances, you analyze the test results to determine which test instances failed, and which steps caused the failure.

About Viewing Test Results

After running test instances, you can view the results in Quality Center. Test results consist of the overall pass/fail status of a test instance and the pass/fail status of each step in a test instance. These results help you determine whether a defect was detected in your application. In some cases, you may decide that a step failed because the expected results are no longer valid and need to be updated.

Following the execution of manual and automated tests, you can view results and general test information in the Execution Grid. Use the Test Instance Properties dialog box to view test run details, compare the results of the most recent test run with previous runs, manage attachments, view test run configuration information, view linked defects, and view a history of test run changes.

Note: For information on viewing system test results, see Chapter 21, "Working with System Tests."

In addition, you can analyze the progress of a test set by periodically generating execution reports and graphs. For further information, see Chapter 33, "Generating Reports," Chapter 34, "Generating Graphs," and Chapter 35, "Generating Live Analysis Graphs."

Viewing Test Results

You can view the test results from the Test Instance Properties dialog box.

To view the test results:

1 In the Execution Grid, double-click a test, or select a test instance and click the **Test Instance Properties** button.

In the Execution Flow, right-click a test instance and choose **Test Instance Properties**.

The Test Instance Properties dialog box opens and displays the test name and test type. By default, the All Runs view is displayed.
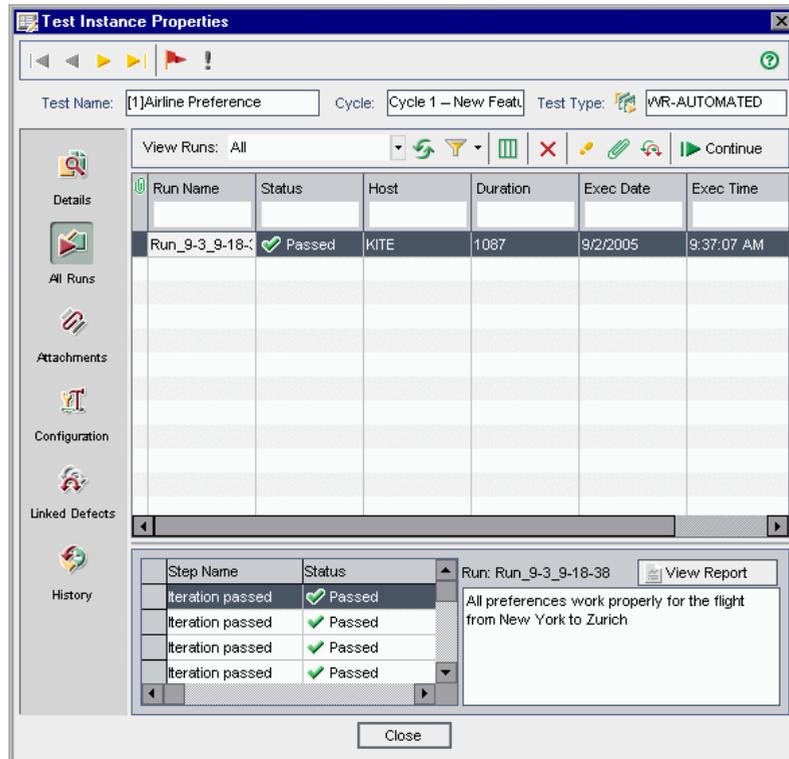
2 Click a view on the sidebar. The Test Instance Properties dialog box contains the following views:

View	Description
Details	Displays run details of a test instance. For more information, see "Viewing Details of a Test Run" on page 389.
All Runs	Display the results of all test runs. For more information, see "Comparing Results of All Runs" on page 391.

View	Description
Attachments	Displays any attachments to a test instance. Also includes any attachments that were added to the test during test planning. For more information, see Chapter 5, "Adding Attachments."
Configuration	Displays run configuration information for a test instance. For more information, see "Viewing Configuration of a Test Run" on page 393.
Linked Defects	Displays linked defects and requirements coverage for a test instance. For more information, see "Viewing Linked Defects" on page 398.
	Note: If coverage between test instances and requirements is enabled with the **ALLOW_REQ_COVERAGE_ BY_TEST_INSTANCE** parameter, the Linkage and Coverage view is available instead of the Linked Defects view. The Linkage and Coverage view displays linked defects and requirements coverage for a test instance. For more information on this parameter, see the *HP Quality Center Administrator's Guide*. For more information on requirements coverage, see "Linking Requirements to a Test" on page 262.
History	Displays the history of changes to the test instance. For more information, see "Viewing Test Run History" on page 399.

3 You can click the **First Test** button to display the first test instance, or the **Previous Test** button to display the preceding test instance in the current Execution Grid.

4 You can click the **Next Test** button to display the next test instance, or the **Last Test** button to display the final test instance in the current Execution Grid.

5 You can click the **Flag for Follow Up** button to add or modify a follow up flag for the test instance. For more information, see Chapter 4, "Alerting on Changes."

6 If the test instance has an alert, you can click the **Alerts** button to open the Alerts dialog box. For more information, see "Viewing Alerts" on page 80.

Viewing Details of a Test Run

You can view run details of a test instance in the **Details** view.

To view details of a test run:

1 Open the Test Instance Properties dialog box. For more information, see "Viewing Test Results" on page 386.

2 In the Test Instance Properties dialog box, click **Details** on the sidebar.
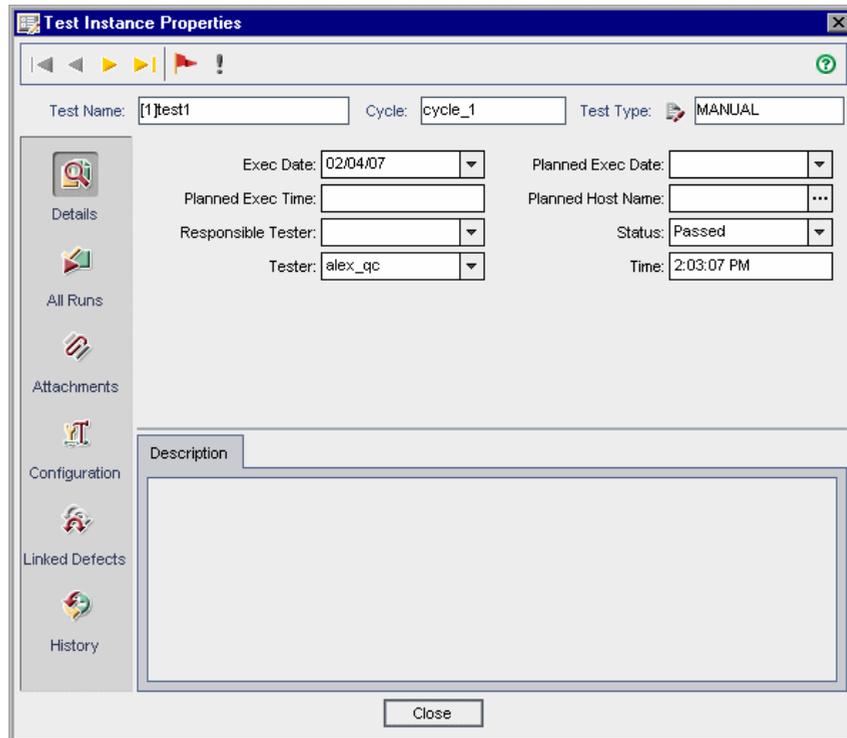
3 In the **Details** view, you can verify the following test information:

Option	Description
Description	The description of the test.
Exec Date	The date on which the test was last executed.
Planned Exec Time	The time at which the test was planned to be executed.
Responsible Tester	The user name of the user who last executed the test.
Planned Exec Date	The date on which the test was planned to be executed.
Planned Host Name	The name or IP address of the machine on which the test was planned to run.
Status	The current status of the test. A test status can be one of the following: **Failed.** The test run failed. **N/A.** The current status of the test is not applicable. **No Run.** The test has not been run. **Not Completed.** The test run was not completed. **Passed.** The test run was successful.
Tester	The user name of the user that is actually executing the test.
Time	The time at which the test was last executed.

If you edit the test information, the changes you make are reflected in the Execution Grid.

Note: You can change the label of any of the fields in the Details tab. You can also add user-defined fields to the Details view. For more information, refer to the *HP Quality Center Administrator's Guide*.

Comparing Results of All Runs

Quality Center enables you to compare the results of a test run with the results of previous runs. Using the **All Runs** view, you can view run details and step results for all the runs of a selected test instance.

To view results of all runs for a test:

1 Open the Test Instance Properties dialog box. For more information, see "Viewing Test Results" on page 386.

2 In the Test Instance Properties dialog box, click **All Runs** on the sidebar.
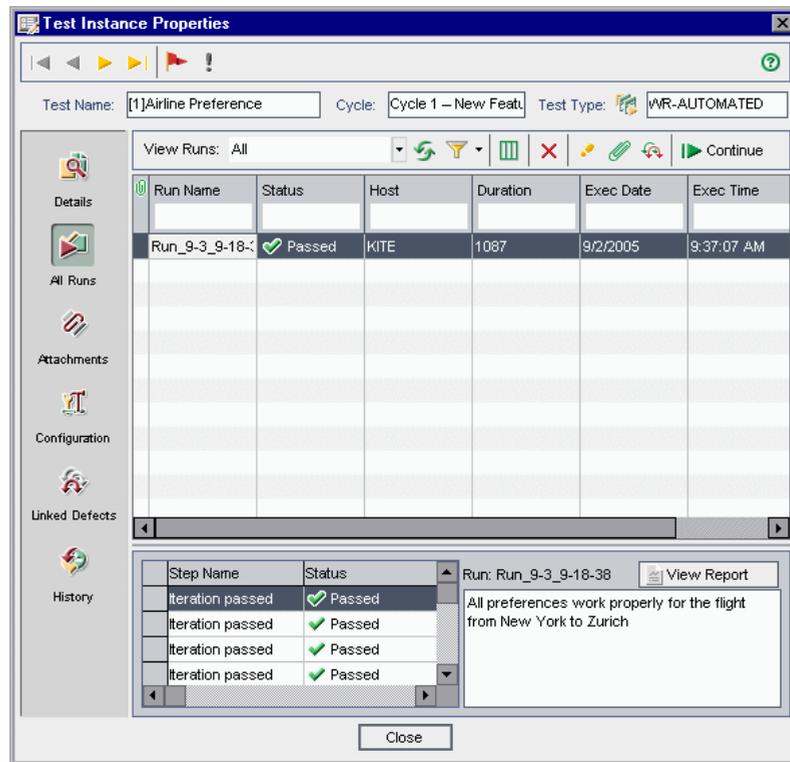
3 To view run records with a certain status, choose a status from the **View Runs** list.

4 To filter, sort, or group the run records, click the **Set Filter/Sort** button. For more information on filtering, sorting, and grouping records, see Chapter 3, "Working with Quality Center Data." If you set a filter, the description is displayed above the grid.

5 To clear any filters or sorting that you have applied to the run records, click the **Set Filter/Sort** arrow and choose **Clear Filter/Sort**.

6 To refresh the grid so that it displays the most up-to-date runs based on the filters you have selected, click the **Refresh** button.

7 To set column appearance and order in the grid, click the **Select Columns** button. For more information on the Select Columns dialog box, see "Arranging Columns" on page 51.

8 To remove a run from the grid, select a run and click **Delete Selected**. Click **Yes** to confirm.

9 To view the test steps of a run, select a run and click **Show Run Steps**. The Run Steps dialog box opens and displays the step's description, expected results, and actual results. For more information on test steps, see Chapter 19, "Building Tests."

10 To add an attachment to a test run, select a run and click the **Attachments** button. The Attachments dialog box opens. For more information on attachments, see Chapter 5, "Adding Attachments."

11 To add defect links to a run, select a run and click **Linked Defects**. The Linked Defects dialog box opens. For more information on linked defects, see Chapter 32, "Linking Defects."

12 To continue running a previous run, select a run and click **Continue**.

13 For automated test instances, you can click one of the following buttons or links:

Button/Link	Test Type	Description
LR Analysis	**LR-SCENARIO**	Opens and displays the results in LoadRunner Analysis.
Launch Report	**QUICKTEST_TEST**	Opens and displays the report in QuickTest Professional.

Button/Link	Test Type	Description
Collected System Info **Captured Desktop Image**	**SYSTEM-TEST**	The **Collected System Info** link opens the System Information dialog box. The **Captured Desktop Image** link opens the captured image. For more information on viewing system tests, see "Viewing System Test Results" on page 300.
View Report	**WR-AUTOMATED** or **WR-BATCH**	Opens and displays the report in WinRunner.

Note: The **QUICKTEST_TEST** test type is only available if you have installed the appropriate add-in from the HP Quality Center Add-ins page. For more information on installing add-ins, refer to the *HP Quality Center Installation Guide*.

Viewing Configuration of a Test Run

You can view or set the parameter values for a manual test instance or an automated test instance in the **Configuration** view. You can also view and edit the On Failure rules for an automated test instance.

This section includes:

➤ Setting Manual Test Parameters

➤ Setting Automated Test Parameters

➤ Viewing Test Run Events

Setting Manual Test Parameters

You can view the manual test parameters that you defined in the Design Steps tab of the Test Plan module. You can also set values for these parameters before a test run. For information on adding manual test parameters, see "Calling a Manual Test with Parameters" on page 279.

To view and set manual test parameter values:

1 Open the Test Instance Properties dialog box. For more information, see "Viewing Test Results" on page 386.

2 In the Test Instance Properties dialog box, click **Configuration** on the sidebar. The Manual tab is displayed.
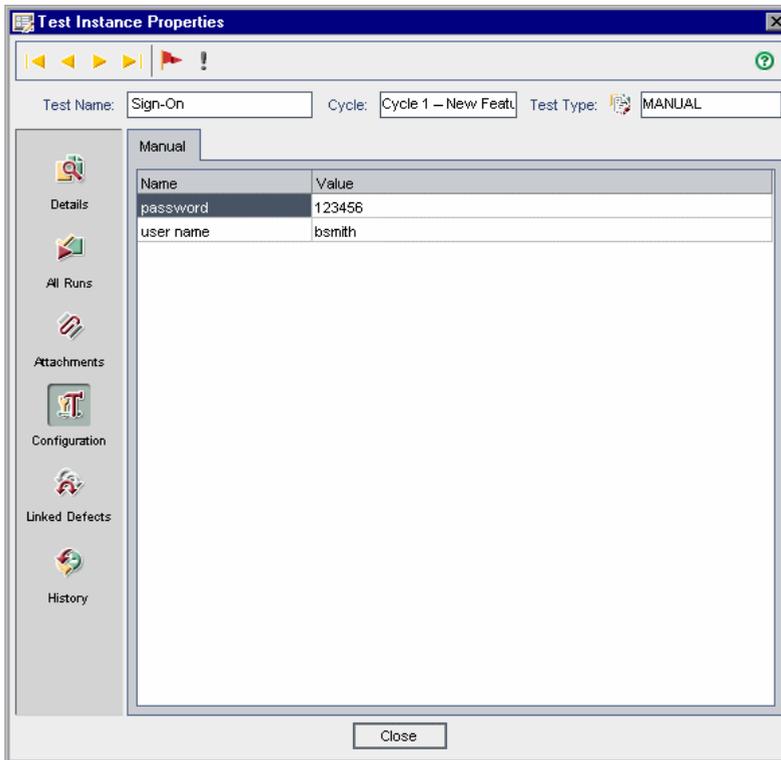
3 In the **Value** column, you can view and set the value of each parameter. If you change a parameter value, the change is implemented in the next test run.

Setting Automated Test Parameters

You can set parameter values and other configuration options for an automated test instance from the **Configuration** view. For more information on working with parameters and other run options in automated tests, refer to the user guide for your automated test, *QuickTest Professional User's Guide* or *WinRunner User's Guide*.

To set automated test parameters and other configuration options:

1 Open the Test Instance Properties dialog box. For more information, see "Viewing Test Results" on page 386.

2 In the Test Instance Properties dialog box, click **Configuration** on the sidebar and click the **Automated** tab.

395
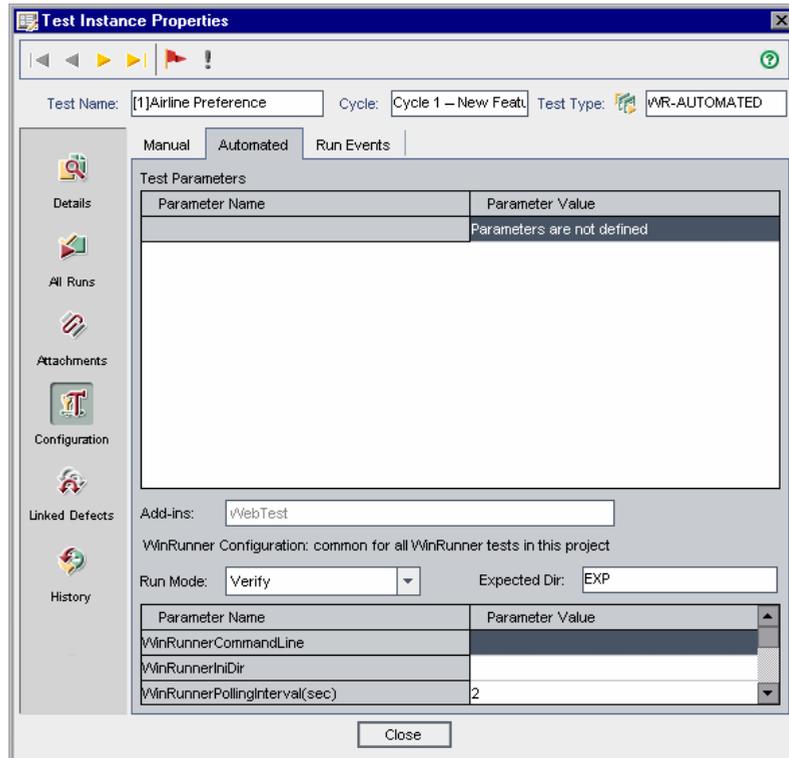
3 In the **Parameter Value** column, you can view and edit the value of each parameter. Note that if you change a parameter value, the change is implemented in the next test run.

Note: When defining the **WinRunnerCommandLine** parameter, you must specify the path within quotes. For example:

-ini "C:\program files\wrun.ini"

---

4 You may be able to set additional configuration options, depending on the type of automated test you are running. For more information, refer to the user guide for your automated test.

Viewing Test Run Events

You can view and edit the On Failure rules for an automated test instance using the **Run Events** view. These rules instruct Quality Center in the event that the test instance fails. This includes the number of times the test instance should be rerun and the clean up test that should be run before the test instance is rerun.

Note: If you change the failure rules in the **Run Events** view, your changes are implemented in the next test run.

You can also set On Failure rules for a test by choosing **Test Set** > **Test Set Properties** > **On Failure** and clicking the **Settings per Test** button. For more information, see "Setting the Test Set On Failure Rules" on page 334.

To view test run events:

1 Open the Test Instance Properties dialog box. For more information, see "Viewing Test Results" on page 386.

2 In the Test Instance Properties dialog box, click **Configuration** on the sidebar, and click the **Run Events** tab.
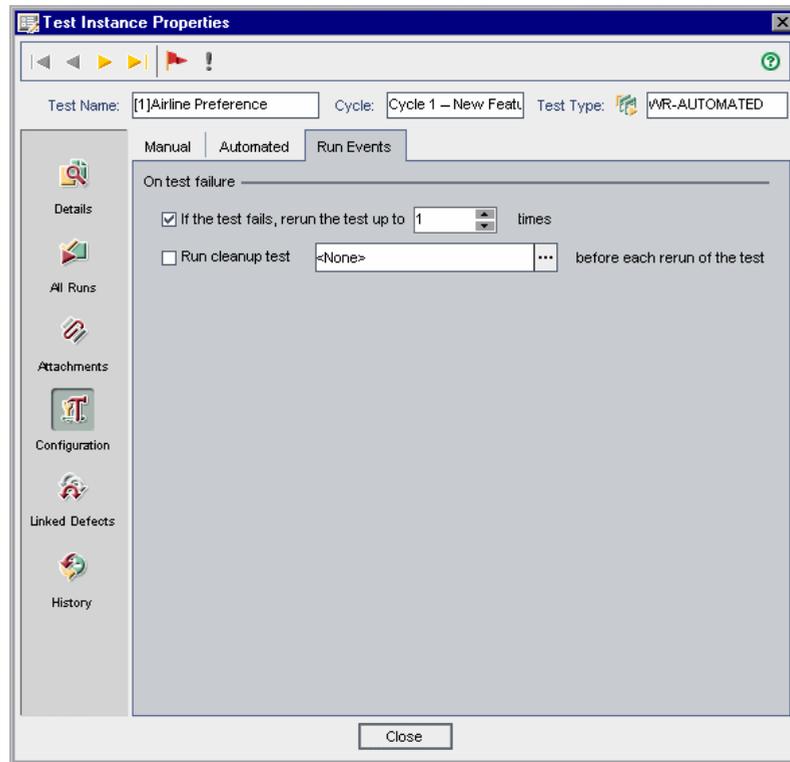
3 To set the test On Failure rule, select the first check box and specify the number of times the test instance should be rerun.

4 To include a clean up test, select the **Run clean up test** check box and click the browse button. In the Select Clean Up Test dialog box, select the test from the test plan tree and click the **Add Test** icon.

Viewing Linked Defects

You can view and manage defect links made to other Quality Center entities.

To view linked defects:

 1 Open the Test Instance Properties dialog box. For more information, see "Viewing Test Results" on page 386.

 2 In the Test Instance Properties dialog box, click **Linked Defects** on the sidebar.

Note: If coverage between test instances and requirements is enabled with the **ALLOW_REQ_COVERAGE_BY_TEST_INSTANCE** parameter, click **Linkage and Coverage** on the sidebar. For more information on this parameter, see the *HP Quality Center Administrator's Guide*.

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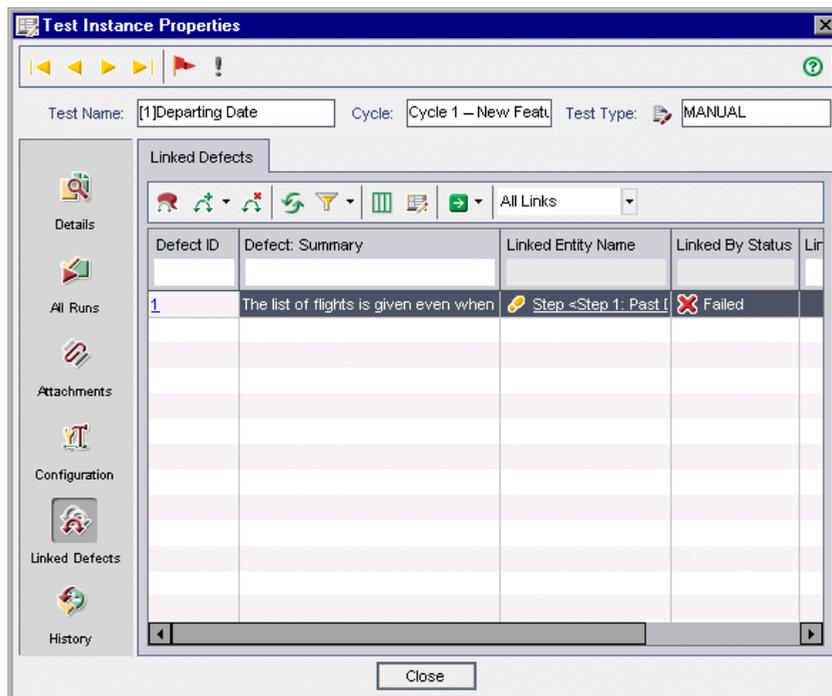
3 In the **Linked Defects** tab, you can view, add, and remove defect links. For more information, see Chapter 32, "Linking Defects."

Viewing Test Run History

You can view a list of changes made to the test instance in the **History** view.

To view the history of changes to a test run:

1 Open the Test Instance Properties dialog box. For more information, see "Viewing Test Results" on page 386.

2 In the Test Instance Properties dialog box, click **History** on the sidebar.
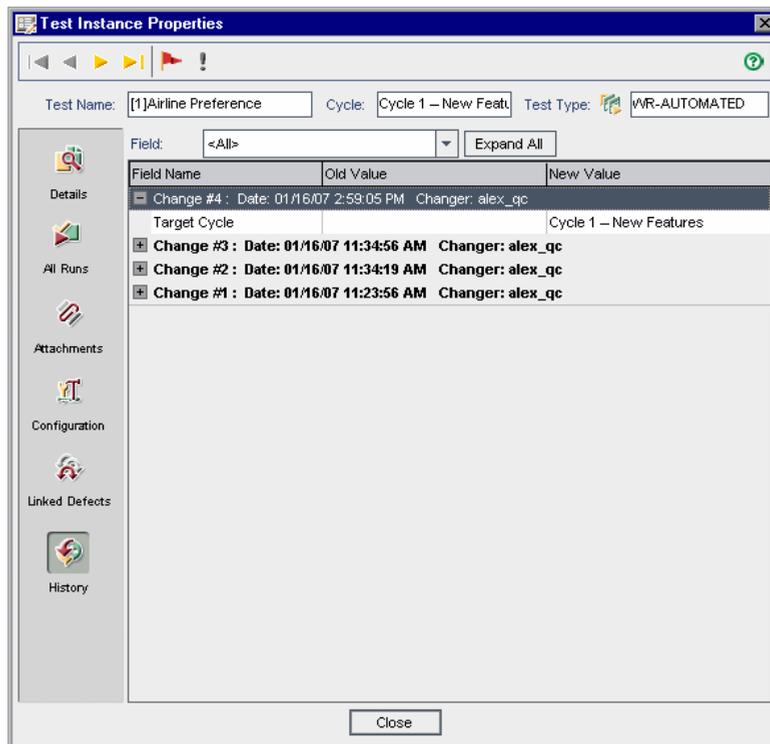
For each change to the test instance, the grid displays the date and time of the change and the name of the user who made the change.

3 Expand a change to view a list of fields modified during the change. For each field, the grid displays the old value and the new value. To expand all changes, click the **Expand All** button.

4 You can specify which changes are displayed in the grid. In the **Field** list, select a field name to view only changes made to that field. Select **<All>** to view changes made to all fields.

For information on preserving the history of changes made to a field, refer to the *HP Quality Center Administrator's Guide*.

Part VI

Defect Tracking

29

The Defect Tracking Workflow

Locating and repairing application defects efficiently is essential to the development process. Defects can be detected and added to your Quality Center project by users during all stages of the testing process. Using the Quality Center Defects module, you can report design flaws in your application, and track data derived from defect records.

This chapter describes how you track defects. The defects tracking workflow consists of the following:

```
┌─────────────────┐
│      Add        │
│    Defects      │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│     Review      │
│   New Defects   │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│     Repair      │
│  Open Defects   │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│      Test       │
│   New Build     │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│     Analyze     │
│  Defect Data    │
└─────────────────┘
```
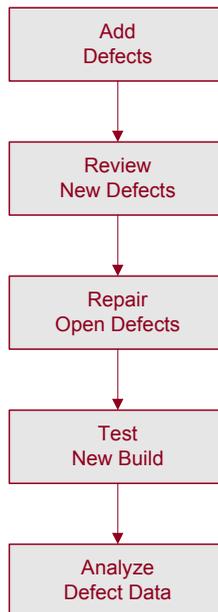
Adding Defects

When you discover a defect in your application, you submit a defect to the Quality Center project. The project stores defect information that can be accessed by authorized users, such as members of the development, quality assurance, and support teams. You can associate this new defect with the cycle and release in which it was detected.

Suppose you are testing the Mercury Tours application. You just ran the **Cycle 1** test set under the **Release 10.5** test set folder and one of the test runs revealed a defect when entering expiration dates for credit card numbers. When the defect is initially submitted to the project, the **Detected in Release** field is assigned to the **Release 10.5** release, and the **Detected in Cycle** field is assigned to the **Cycle 1 - New Features** cycle. For more information on releases and cycles, see Chapter 7, "The Release Management Workflow."

You can link this new defect with the test you ran, for future reference. You can also link defects to other Quality Center entities, such as requirements, tests and other defects. For more information, see Chapter 32, "Linking Defects."

You can also view, update, and analyze defects in the project. For more information, see Chapter 31, "Adding and Tracking Defects".

Reviewing New Defects

Review all new defects in the project and decide which ones to fix. This task is usually performed by the project manager. Change the status of a new defect to **Open**, and assign it to a member of the development team.

In the **Target Release** field, assign the open defect to the release that is targeted to be fixed. In the **Target Cycle** field, assign the defect to the cycle that is targeted to be closed. For example, suppose the defect detected when entering expiration dates for credit card numbers is planned to be fixed in the next cycle. Assign the **Target Release** field to **Release 10.5**, and the **Target Cycle** field to **Cycle 2 - New Features + Regression**.

While reviewing new defects, if duplicate defects appear in the project, change their status to either **Closed** or **Rejected**, or delete them from the project.

Repairing Open Defects

Fix the **Open** defects. This involves identifying the cause of the defects, and modifying and rebuilding the application. These tasks are performed by application developers. When a defect is repaired, assign it the status **Fixed**. For example, suppose the defect detected when entering expiration dates for credit card numbers was repaired in a new application build. You would update the defect status from **Open** to **Fixed**.

Testing a New Application Build

Run tests on the new build of the application. If a defect does not recur, assign it the status **Closed**. If a defect is detected again, assign it the status **Reopen**, and return to the previous stage (see "Repairing Open Defects" on page 405). This task is usually performed by the quality assurance manager or project manager. For information on running tests, see Chapter 26, "Running Tests Manually" and Chapter 27, "Running Tests Automatically."

Analyzing Defect Data

View data from defect reports to see how many defects were resolved, and how many still remain open. As you work, you can save settings that are helpful in the defect-tracking process, and reload them as needed. For more information, see Chapter 6, "Working with Favorite Views."

Reports and graphs enable you to analyze the progress of defect repairs, and view how long defects have been residing in a project. This helps you determine when the application can be released. For more information, see Chapter 33, "Generating Reports" or Chapter 34, "Generating Graphs."

30

The Defects Module at a Glance

This chapter introduces the key elements in the Defects module.

This chapter describes:	On page:
The Defects Module	408
The Defects Menu Bar	411
The Defects Toolbar	412
The Defects Grid	414

The Defects Module

You track defects in the Quality Center Defects module, which you open by clicking the **Defects** button on the sidebar.

The Defects module contains the following key elements:

➤ **Defects menu bar.** Displays drop-down menus of Defects module commands. For more information, see "The Defects Menu Bar" on page 411.

➤ **Defects toolbar.** Contains buttons for commands commonly used when adding, managing, and tracking defects. For more information, see "The Defects Toolbar" on page 412.

➤ **Indicator Columns.** Indicates that the specified defect has attachments, linked entities, alerts, and follow up flags. Choose **View** > **Indicator Columns** to display these columns.

Column	Description
Attachments	Click the ◖ icon to view attachments for the defect. For more information, see Chapter 5, "Adding Attachments."
Linked Entities	Click the ◖ icon to view linked entities for the defect. For more information, see Chapter 32, "Linking Defects."
Alerts	Click the ! icon to view alerts for the defect. For more information, see "Viewing Alerts" on page 80.
Follow Up Flags	Click the ▶ icon to view follow up alerts for the defect. For more information, see "Flagging for Follow Up" on page 82.

➤ **Grid filter.** Displays the filter that is currently applied to a column.

➤ **Defects Grid.** Displays defect data in a grid. For more information, see "The Defects Grid" on page 414.

➤ **Information Panel.** Displays the following tabs: Description, Attachments, and History. Choose **View** > **Information Panel** > **Show** or click the **Show** arrow ⌃ to display these tabs.

Tab	Description
Description	Displays the description for the currently selected defect. You can also display the following options: ➤ **Summary.** Choose **View** > **Information Panel** > **Summary** to display a defect's summary. ➤ **Comments.** Choose **View** > **Information Panel** > **Comments** to view and add comments for a defect. For more information, see "Updating Defects" on page 425.
Attachments	Displays the attachments for the selected defect. For more information, see Chapter 5, "Adding Attachments."
History	Displays a defect's history. For more information, see "Viewing Defect History" on page 429.

Tip: To find a specific defect by **Defect ID** in the Defects Grid, choose **Defects** > **Go To Defect**.

The Defects Menu Bar

The Defects menu bar has the following menus:

➤ The **Defects** menu contains commands that enable you to add, go to, mail, print, and export defects, as well as view defect details.

➤ The **Edit** menu contains commands that enable you to copy, paste, or delete defects, find and replace field values, search defects, go to a specific defect in the grid, and find similar defects or text. You can also view and clear alerts for defects and flag defects for follow-ups. For more information on alerts and follow-ups, see Chapter 4, "Alerting on Changes."

➤ The **View** menu contains commands that enable you to set the display in the Defects Grid.

➤ The **Favorites** menu contains commands that enable you to view a selected item in the Favorites list, add a Defects Grid view to your Favorites list, and organize the Favorites list. For more information on favorite views, see Chapter 6, "Working with Favorite Views."

➤ The **Analysis** menu contains commands that enable you to generate defect reports and graphs. For more information on defect reports, see Chapter 33, "Generating Reports." For more information on defect graphs, see Chapter 34, "Generating Graphs."

Tip: You can access the Defects menu bar from the Defects module by pressing the shortcut key F9. Additionally, you can perform many other Quality Center operations using shortcut keys. For a list of shortcut keys, see Appendix B, "Quality Center Keyboard Shortcuts."

The Defects Toolbar

The Defects toolbar has the following buttons:

New Defect. Opens the New Defect dialog box, enabling you to add a new defect to the Defects Grid. For more information, see "Adding New Defects" on page 419.

Delete. Deletes the selected defects from the Defects Grid. For more information, see "Deleting Defects" on page 434.

Refresh All. Refreshes the Defects Grid so that it displays the most up-to-date defects based on the filters you have selected.

Set Filter/Sort. Includes the following options:

➤ **Set Filter/Sort.** Opens the Filter dialog box, enabling you to filter, sort, and group the defects in the Defects Grid.

➤ **Clear Filter/Sort.** Clears any filters, sorting, or grouping that you have applied to the Defects Grid.

For more information on filtering and sorting defects, see Chapter 3, "Working with Quality Center Data."

Select Columns. Opens the Select Columns dialog box, enabling you to define which columns appear in the Defects Grid, and the order in which they appear. For more information, see "Arranging Columns" on page 51.

Defect Details. Opens the Defect Details dialog box to display the details of the selected defect. For more information, see "Updating Defects" on page 425.

Attachments. Opens the Defect Details dialog box, enabling you to add an attachment to a defect. For more information, see Chapter 5, "Adding Attachments."

Flag for Follow Up. Opens the Flag For Follow Up dialog box, enabling you to add or modify a follow up flag for a defect. For more information, see "Flagging for Follow Up" on page 82.

Send by E-mail. Opens the Send E-mail dialog box, enabling you to send defect e-mail to recipients selected from a list, or to any other e-mail address. For more information, see "Mailing Defects" on page 430.

Find Similar Defects. Includes the following options:

➤ **Find Similar Defects.** Conducts a search for similar defects and, if any are found, displays them in the Similar Defects dialog box.

➤ **Find Similar Text.** Opens the Find Similar Text dialog box, enabling you to search for similar defects by specifying a text string and, if any are found, displays them in the Similar Defects dialog box.

For more information on finding similar defects, see "Matching Defects" on page 421.

Text Search. Opens the text search pane in the lower part of the window, enabling you to enter keywords and search predefined fields. For more information, see "Searching Records" on page 71.

Favorite. Click the **Favorite** arrow to display a list of favorite views. Favorite views enable you to reload a Quality Center window with the settings you apply to it. If you do not see the Favorite bar, choose **View** > **Favorite Bar** to display it. For more information on favorite views, see Chapter 6, "Working with Favorite Views."

The Defects Grid

Quality Center organizes and displays defect data in a grid. Each line in the Defects Grid displays a separate defect record. The Defects Grid can display the following columns:

Column	Description
Actual Fix Time	Indicates the actual number of days needed to fix the defect. If this field is left blank, Quality Center automatically calculates the Actual Fix Time as Closing Date - Detected on Date.
Assigned To	The user name of the person who is assigned to fix the defect. Click the down arrow to display a list displaying the name and full name of each user.
Closed in Version	Indicates the application version in which the defect was closed. Click the down arrow to display a list of versions.
Closing Date	Indicates the date on which the defect was closed. Click the down arrow to display a calendar and select a closing date.
Comments	Displays comments about the defect.
Defect ID	A unique numeric ID for the defect, assigned automatically by Quality Center. The Defect ID is read-only.
Description	Describes the defect in detail.
Detected By	The user name of the person who found the defect. By default, Quality Center inserts the login user name into this field.
Detected in Cycle	Indicates the cycle in which the defect was detected. Click the down arrow to select a different cycle. Note that when assigning a defect to a cycle in the **Detected in Cycle** field, Quality Center automatically assigns its release to the **Detected in Release** field.
Detected in Release	Indicates the release in which the defect was detected. Click the down arrow to select a different release.

Column	Description
Detected in Version	Indicates the application version in which the defect was detected. Click the down arrow to display a list of versions.
Detected on Date	The date on which the defect was detected. By default, the current database server date is displayed. Click the down arrow to select a different detection date.
Estimated Fix Time	Indicates the estimated number of days required for fixing the defect.
Modified	Indicates the date and time when this defect was last changed.
Planned Closing Version	Indicates in which version the defect is planned to be fixed. Click the down arrow to display a list of versions.
Priority	The priority of the defect, ranging from low priority (level 1) to urgent priority (level 5).
Project	The name of the project where the defect occurs. Click the down arrow to display a list of projects.
Reproducible	Indicates whether the defect can be recreated under the same conditions by which it was detected. Click the down arrows to choose Y or N.
Severity	The severity of the defect, ranging from low (level 1) to urgent (level 5).
Status	The current status of the defect. By default, the status is New. Defect status can be one of the following: Closed, Fixed, New, Open, Rejected, Reopen.
Subject	Indicates the subject folder. Click the down arrow to display a list of subjects.
Summary	A brief summary of the defect.

Column	Description
Target Cycle	Indicates in which cycle the defect is targeted to be fixed. Click the down arrow to select a different cycle.
	Note that when assigning a defect to a cycle in the **Target Cycle** field, Quality Center automatically assigns its release to the **Target Release** field.
Target Release	Indicates in which release the defect is targeted to be closed. Click the down arrow to select a different release.

Notes:

➤ You can add user-defined fields and change the label of any of the fields in the Defects Grid. You can also customize project lists. For more information, refer to the *HP Quality Center Administrator's Guide.*

➤ You can use the Script Editor to restrict and dynamically change the fields and values in the Defects Grid. For more information, refer to the *HP Quality Center Administrator's Guide.*

➤ When you select a defects column with a user name value, Quality Center displays a list with the name and full name of each user. You can search for users, sort users, group users by user group, and select users from the users list or a group tree. For more information, see "Selecting Users" on page 54.

31

Adding and Tracking Defects

You use the Defects module to add application defects directly to a Quality Center project. You can then track defects until the application developers and application testers determine that they are resolved.

About Adding and Tracking Defects

Defect records inform members of the application development and quality assurance teams of new defects discovered by other members. By sharing defect information, both the application development and defect repair processes are faster, more efficient, and more comprehensive. As you monitor the progress of defect repair, you update the information in your Quality Center project.

Suppose you detect a defect in the Mercury Tours application. When you initially report the defect in Quality Center, by default it is assigned the status **New**. A quality assurance manager or project manager reviews the defect, determines a repair priority, changes its status to **Open**, and assigns it to a member of the development team. A developer repairs the defect and assigns it the status **Fixed**. You retest the application, making sure that the defect does not recur. The quality assurance manager or project manager determines that the defect is actually repaired and assigns it the status **Closed**.

Notes:

➤ You can link defects to other Quality Center entities, such as requirements, tests and other defects. For more information, see Chapter 32, "Linking Defects."

➤ You can use the Workflow Script Editor to restrict and dynamically change the fields and values in the Defects module. You can also customize the fields for a specific user group. For more information, refer to the *HP Quality Center Administrator's Guide*.

Adding New Defects

You can add a new defect to a Quality Center project from any module at any stage of the testing process.

Note: In addition to adding defects directly in Quality Center, you can also import defect data from Microsoft Excel to your Quality Center project. To import from Excel, you must install the **Microsoft Excel Add-in** and the **HP Quality Center Connectivity Add-in**. You can install these add-ins from the HP Quality Center Add-ins page. For more information, refer to the *HP Quality Center Installation Guide*.

To add a new defect:

TOOLS

1 To add a new defect from any module, click the **Tools** button on the upper-right corner of the Quality Center window. Choose **New Defect**.

To add a new defect from the Defects module, click the **New Defect** button. The New Defect dialog box opens.

2 Enter the relevant defect details. Note that a required field is displayed in red and that Quality Center fills in some fields by default. For more information on available fields in the New Defect dialog box, see Chapter 30, "The Defects Module at a Glance."

3 To clear the data in the New Defect dialog box, click the **Clear** button.

4 You can add an attachment to your defect:

➤ Click the **Attach File** button to attach a file.

➤ Click the **Attach URL** button to attach a URL.

➤ Click the **Attach Snapshot** button to capture and attach an image.

➤ Click the **Attach SysInfo** button to attach information about your machine.

➤ Click the **Attach Clipboard Content** button to attach an item from the Clipboard.

For more information about adding attachments, see Chapter 5, "Adding Attachments."

5 To eliminate duplicate or similar defects, you can:

➤ Click the **Find Similar Defects** button to conduct a search for similar defects based on keywords from the **Summary** and **Description** fields.

➤ Click the **Find Similar Defects** arrow and choose **Find Similar Text** to search for similar defects by specifying a text string.

For more information, see "Matching Defects" on page 421.

6 You can check the spelling in the dialog box:

➤ Click the **Check Spelling** button to check the spelling for the selected word or text box. If there are no errors, a confirmation message opens. If errors are found, the Spelling dialog box opens and displays the word which is misspelled together with replacement suggestions.

➤ Click the **Spelling Options** button to open the Spelling Options dialog box, enabling you to configure the way Quality Center checks spelling.

➤ Click the **Thesaurus** button to open the Thesaurus dialog box and display a synonym, antonym, or related word for the selected word. You can replace the selected word or look up new words.

7 Click the **Submit** button to add the defect to the project. Quality Center assigns a Defect ID to the new defect.

8 Click **Close**.

Matching Defects

Matching defects enables you to eliminate duplicate or similar defects in your project. Each time you add a new defect, Quality Center stores lists of keywords from the **Summary** and **Description** fields. When you search for similar defects, keywords in these fields are matched against other defects.

Note that keywords are more than two characters, and letter case does not affect your results. The following are ignored: articles (a, an, the); coordinate conjunctions (and, but, for, nor, or); boolean operators (and, or, not, if, then); and wildcards (?, *, [ ]).

There are two methods you can use to conduct a search for similar defects:

➤ **Find Similar Defects.** Compares a selected defect with all other existing defects in your project. You can conduct a search for similar defects in the Defects Grid, or before submitting a new defect in the New Defect dialog box. See "Finding Similar Defects" on page 422.

➤ **Find Similar Text.** Compares a specific text string against all other existing defects in your project. You can conduct a search for similar defects in the Defects Grid, or before submitting a new defect in the New Defect dialog box. You can limit your results by specifying a percentage of detected similarity. See "Finding Similar Text" on page 423.

Tip: If **Text Search** is available, it is recommended that you use it to search for similar defects. Text search provides a more powerful search by allowing you to search for keywords and variations of keywords. For information on using the text search, see "Searching Records" on page 71.

Finding Similar Defects

You can match defects by comparing a selected defect with all other existing defects in your project. When similar defects are found, they are displayed according to the percentage of detected similarity.

To find similar defects:

1 In the Defects Grid, select a defect and click the **Find Similar Defects** button. Alternatively, in the New Defect dialog box, before you submit a defect, click the **Find Similar Defects** button.

Results are displayed in the Similar Defects dialog box, ordered by percentage of detected similarity, as listed in the **Similar** column. If no similar defects are found, a message is displayed.

Defect ID	Status	Similar	Summary
11	Open	80%	User Profile registered with illegal email field value
12	Open	65%	User profile is registered when special characters use
10	Open	62%	User profile is registered when Contact and Mailing inf
8	Rejected	60%	User profile is registered when Contact and Mailing inf
18	Closed	57%	The itinerary is booked when Credit Card number field
42	New	56%	Profile is registered when Password is empty
9	Reopen	55%	Email fields in Edit Profile form is empty, even if value v
19	Closed	53%	The itinerary is booked when Credit Card number cont
15	Closed	53%	The itinerary is booked when First Or Last name is em
17	Open	52%	The itinerary is booked when Credit Card number field
26	Open	51%	The itinerary is booked when Credit Card Owner detail
27	Open	50%	The itinerary is booked when illegal characters used ir
16	Open	50%	The itinerary is booked when Passenger Name contain
43	New	49%	All fields in Edit profile form are empty
38	Closed	46%	Cancel All Reservation button is available when there

Description:
Test Set: Mercury Tours Functionality
Test: [1]Email (Contact Information)
Run: Run_9-3_9-35-55
Step: Step 4: "@" Symbol Missing

Description:

Comments:

2 To see more details for a defect in the Similar Defects dialog box, double-click the defect.

3 Click **Close** to close the Similar Defects dialog box.

Finding Similar Text

You can match defects by comparing a specific text string with all other existing defects in your project. You can limit the results of defects found to those that meet a specific similarity percentage. For example, suppose that you are searching for defects with the word Help. If you limit your results to 25 percent, the search returns the following results:

Defect ID	Status	Similar	Summary
46	New	100%	help
44	New	57%	Help contents not implemented
45	New	37%	Help About doesn't show the version number of the application

If you limit your results to 100 percent, the search returns the following results:

Defect ID	Status	Similar	Summary
46	New	100%	help

To find similar text:

1 In the Defects Grid, click the **Find Similar Defects** arrow and choose **Find Similar Text**. Alternatively, in the New Defect dialog box, before you submit a defect, click the **Find Similar Defects** arrow and choose **Find Similar Text**.

The Find Similar Text dialog box opens.
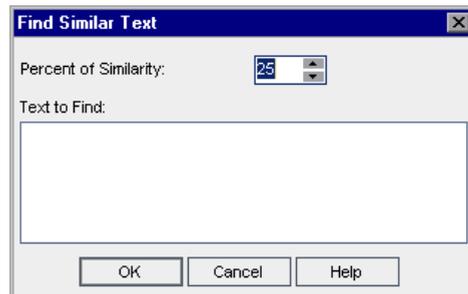
2 To limit the results of defects found to those with a minimum similarity, type a percentage in the **Percent of Similarity** box. By default, Quality Center returns defects with a similarity of at least 25 percent.

3 In the **Text to Find** box, type the text string.

4 Click **OK**. Results are displayed in the Similar Defects dialog box, ordered by percentage of detected similarity, as listed in the **Similar** column. If no similar defects are found, a message is displayed.

5 To see more details for a defect in the Similar Defects dialog box, double-click the defect.

6 Click **Close** to close the Similar Defects dialog box.

Updating Defects

Tracking the repair of defects in a project requires that you periodically update defects. You can do so directly in the Defects Grid, or in the Defect Details dialog box.

To update defects:

1 In the Defects Grid, double-click the defect you want to update. Alternatively, select the defect and click the **Defect Details** button. The Defect Details dialog box opens.

2 You can click the **First** button to display the first defect in the grid, or the **Previous** button to display the preceding defect.

3 You can click the **Next** button to display the next defect in the grid, or the **Last** button to display the final defect in the grid.

4 To display a specific defect in the Defect Details dialog box, click the **Go To Defect** button. The Go To Defect dialog box opens. Type a **Defect ID** and click **OK**.

5 You can click the **Flag for Follow Up** button to add or modify a follow up flag for the defect. For more information, see Chapter 4, "Alerting on Changes."

6 If the defect has an alert, you can click the **Alerts** button to open the Alerts dialog box. For more information, see "Viewing Alerts" on page 80.

7 Click the **Send by E-mail** button to send e-mail with the defect details. For more information on mailing defects, see "Mailing Defects" on page 430.

8 Click the **Create Report For This Defect** button to generate a defect report for the defect. For more information on defect reports, see Chapter 33, "Generating Reports."

9 If the defect is linked to a test run, you can click the **Execution Report** link at the bottom of the Defect Details dialog box to generate an execution report. The execution report displays detailed information about the linked test run. For more information on execution reports, see Chapter 33, "Generating Reports."

10 In the **Details** view, you can add or modify information for the selected defect. For more information on available fields in the **Details** view, see Chapter 30, "The Defects Module at a Glance."

To add a new comment, click the **Add Comment** button. A new section is added to the Comments box, displaying your user name and the database's current date.

11 Click **Attachments** on the sidebar to add an attachment to the defect. An attachment can be a file, URL, snapshot of your application, system information, or an item from the Clipboard. A clickable attachment icon is placed next to the defect in the Defects Grid. For more information on attachments, see Chapter 5, "Adding Attachments."

12 Click **Linked Entities** on the sidebar. The following tabs are available:

> ➤ **Defects.** Enables you to view and add links to existing defects. For example, you can link a defect to a duplicate defect.

> ➤ **Others.** Enables you to view and remove links from other entities. You cannot add new links.

For more information on linked defects, see Chapter 32, "Linking Defects."

13 Click **History** on the sidebar to view the history of changes made to the defect. For more information, see "Viewing Defect History" on page 429.

14 Click **OK** to save your changes and return to the Defects Grid.

Finding and Replacing Values

You can search and replace field values in the Defects Grid using the Find/Replace command.

Tip: If text search is available, you can use it to search for defects in the Defects Grid. Text search provides a more powerful search by allowing you to search for keywords and variations of keywords. For information on using the text search, see "Searching Records" on page 71.

To find a value:

1 In the Defects Grid, choose **Edit > Find**. The Find dialog box opens.
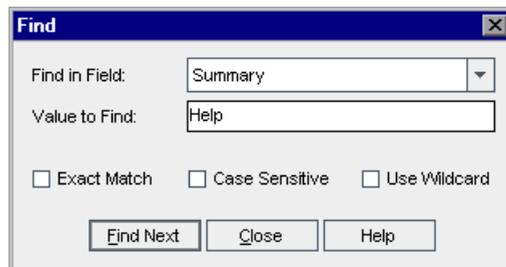
2 In the **Find in Field** box, select the column in which you want to search for a specific value.

3 In the **Value to Find** box, type or select the value to find.

4 To search for an exact value, select the **Exact Match** check box.

5 To distinguish between uppercase and lowercase characters, select the **Case Sensitive** check box.

6 To use asterisk (*) characters in your search string in order to type only part of the item, select the **Use Wildcard** check box.

7 Click **Find Next**. Quality Center attempts to locate any defects with the specified value. If the search is successful, the defect is highlighted in the Defects Grid. If the search is unsuccessful, an information box opens.

To replace a value:

1 In the Defects Grid, choose **Edit > Replace**. The Find/Replace dialog box opens.
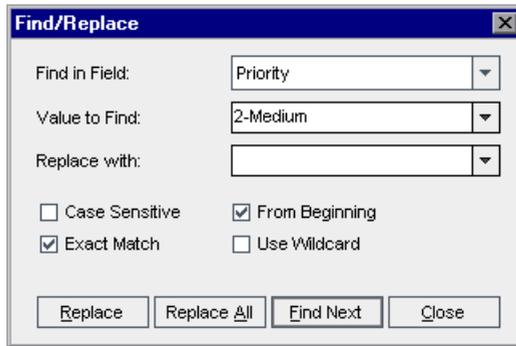
2 In the **Find in Field** box, select the column in which you want to search for a specific value.

3 In the **Value to Find** box, type or select the value to find.

4 In the **Replace with** box, type or select a replacement field value.

5 To distinguish between uppercase and lowercase characters, select the **Case Sensitive** check box.

6 To search for an exact value, select the **Exact Match** check box.

7 To start the search from the top of the Defects Grid, select the **From Beginning** check box.

8 To use asterisk (*****) characters in your search string in order to type only part of the item, select the **Use Wildcard** check box.

9 To replace the found item and find the next occurrence, click **Replace.**

10 To replace all occurrences of the value in the Defects Grid, click **Replace All**.

Viewing Defect History

You can view a list of changes made to a defect. Note that you can only see changes for selected fields predefined by the project administrator in Project Customization. For more information on enabling the history option for a field, refer to the *HP Quality Center Administrator's Guide*.

To view the history of changes to a defect:

1 To display the history in the Defects Grid, select a defect and choose **View** > **Information Panel** > **Show.** Click the **History** tab.

Alternatively, in the Defects Grid, double-click a defect to open the Defect Details dialog box and click **History** on the sidebar.

The history of changes made to the defect is displayed in a grid.

For each change to the defect, the grid displays the date and time of the change and the name of the user who made the change.

2 Expand a change to view a list of fields modified during the change. For each field, the grid displays the old value and the new value. To expand all changes, click the **Expand All** button.

3 You can specify which changes are displayed in the grid. In the **Field** list, select a field name to view only changes made to that field. Select **<All>** to view changes made to all fields.

Mailing Defects

You can send e-mail about a defect to another user. This enables you to inform development and quality assurance personnel about defect repair activity. Quality Center includes a **Go To Defect** link in the e-mail, which enables the recipient to go directly to the defect.

Note: By default, Quality Center sends e-mail in HTML format. To send e-mail as plain text instead, edit the **MAIL_FORMAT** parameter in the **Site Configuration** tab in Site Administration. For more information, refer to the *HP Quality Center Administrator's Guide*.

To mail a defect:

1 In the Defects Grid, select one or more defects and click the **Send by E-mail** button. The Send E-mail dialog box opens.

Send E-mail

To

CC

Subject:

Items:
- ☑ 20 - Mercury Tours site crash during execution of load test for Welcome Page
- ☑ 21 - Welcome page download time during the load exceeds 10 seconds
- ☑ 32 - The average response time for the Sign-On Page Download transaction exceeded 8-second thresh

Include: ☐ Attachments ☐ History

Additional comments:

Send Custom... Cancel Help

Tip: You can automatically send the e-mail to a specific user type. This can be any defect column with a user name value, including user-defined fields. Click the **Send by E-mail** arrow and choose an option. For example, choose **Send Mail to Detected By** to send the e-mail to the user who detected the defect.
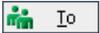
2 Type a valid e-mail address or user name. Alternatively, click the **To** button or **CC** button to select users. The Select Recipients dialog box opens.
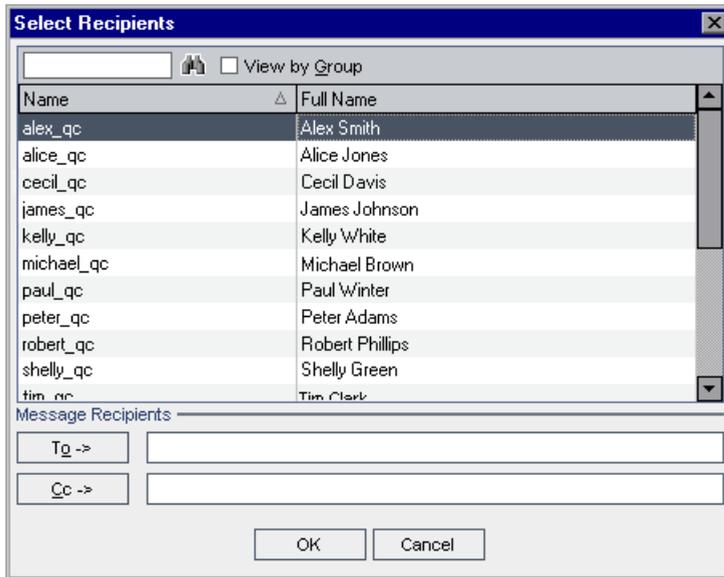
You can sort the users list, search for users, group users by user groups, and select users from the list or from a group tree. For more information, see "Selecting Users" on page 54.

Select the users or user groups to which you want to send the e-mail, and click **OK**.

3 In the **Subject** box, type a subject for the e-mail. By default, if you select only one defect, the domain, project, defect ID, and summary of the defect are displayed in the Subject box.

4 In the **Items** box, you can clear any items you do not want to include in the e-mail.

5 Select whether you want to include the **Attachments** and/or **History** of the defect.

6 In the **Additional comments** box, add any comments you have.

7 You can check the spelling in the dialog box:

➤ Click the **Check Spelling** button to check the spelling for the selected word or text box. If there are no errors, a confirmation message opens. If errors are found, the Spelling dialog box opens and displays the word that is misspelled together with replacement suggestions.

➤ Click the **Spelling Options** button to open the Spelling Options dialog box, enabling you to configure the way Quality Center checks spelling.

➤ Click the **Thesaurus** button to open the Thesaurus dialog box and display a synonym, antonym, or related word for the selected word. You can replace the selected word or look up new words.

8 Click **Custom** to customize the e-mail. In the Select Fields dialog box, you can specify fields to include in the e-mail.

9 Click **Send** to send the e-mail.

Copying Defects

You can copy a defect to any Quality Center project.

To copy a defect:

1 In the Defects Grid, select the defect you want to copy. To copy more than one defect, press the CTRL key and select the defects you want to copy.

2 Choose **Edit > Copy**. Alternatively, right-click and choose **Copy**.

3 In the project to which you want to copy the defects, in the Defects Grid, choose **Edit > Paste**. Alternatively, right-click and choose **Paste**.

Copying URLs of Defects

You can copy a defect and paste its URL as a link. The defect itself is not copied. Instead, you can paste the address into another location, such as an e-mail or a document. Clicking on the link opens up Quality Center and takes you to the defect.

To copy a URL of a defect:

1 From the Defects Grid, select a defect.

2 Choose **Edit** > **Copy URL**. Alternatively, right-click and choose **Copy URL**.

3 Paste the URL.

Printing Defects

You can print all defects or selected defects in the Defects Grid.

To print defects:

1 You can print all defects or selected defects:

➤ To print all defects, choose **Defects** > **Print** > **All**.

➤ To print selected defects, select the defects using the CTRL or SHIFT keys and choose **Defects** > **Print** > **Selected**.

The Print Preview dialog box opens.

2 Use the buttons on the toolbar to adjust and set up the page before printing.

3 Click the **Print** button or choose **File** > **Print**.

Deleting Defects

You can delete old or duplicate defects from a project. When you delete a defect, Quality Center does not reuse the Defect ID.

To delete a defect:

1 In the Defects Grid, select a defect to delete.

2 Click the **Delete** button or choose **Edit** > **Delete**. Alternatively, right-click the defect and choose **Delete**.

3 Click **Yes** to confirm.

32

Linking Defects

You can link defects to any other entity in Quality Center.

This chapter describes:	On page:
About Linking Defects	435
Viewing Defect Links	438
Adding Defect Links	439
Removing Defect Links	440

About Linking Defects

You can link a defect to the following entities: requirements, tests, test sets, test instances, runs, run steps, and other defects. Defect linkage is useful, for example, when a new test is created specifically for a defect. By creating this linkage, you can determine if the test should be run based on the status of the defect.

A defect can be linked directly or indirectly to an entity. When you add a defect link to an entity, Quality Center adds a direct link to this entity and indirect links to other related entities. In addition, during a manual test run, if you add a defect, Quality Center automatically creates a linkage between the test run and the new defect.

The following diagram illustrates the flow of indirect linkage:

For example, when you link a defect to a run step, Quality Center adds an indirect link to its run, test instance, test set, and test. If the same test is covered by a requirement, an indirect link is also added to the requirement. Note that the indirect linkage is a one-directional flow. For example, if you link a defect to a run it is not indirectly linked to its run steps.

Using the Linked Defects dialog box or tab, you can view and manage defect links.

The Linked Defects grid contains the following columns:

Column	Description
Created By	The user name of the person who created the link.
Creation Date	The date on which the link was created.
Defect ID	A unique numeric ID for the defect, assigned automatically by Quality Center. The Defect ID is read-only.
Link Comment	Enables you to add comments about the link.
Link ID	A unique numeric ID for the link, assigned automatically by Quality Center. The Link ID is read-only.
Link Type	A value of the Link Type customized list. For more information on lists, refer to the *HP Quality Center Administrator's Guide*.
Linked By Status	The current status of the linked entity.
Linked Entity ID	A unique numeric ID for the linked entity, assigned automatically by Quality Center. The Linked Entity ID is read-only.
Linked Entity Name	The linked entity name. For example, the requirement name.
Link Entity Type	The linked entity type (for example: step, test, test set).

For more information on the defect fields, see "The Defects Grid" on page 414.

Viewing Defect Links

You can filter links, set column appearance and order in the grid, and refresh the grid. In addition, you can view details of a defect and instruct Quality Center to go to a module and highlight a linked entity.

➤ To refresh the grid, click the **Refresh All** button.

➤ To filter and sort the defect links, click the **Set Filter/Sort** button. For more information on filtering and sorting, see "Filtering Records" on page 55. If you set a filter, the description of the filter is displayed above the grid.

➤ To set column appearance and order in the grid, click the **Select Columns** button. For more information, see "Arranging Columns" on page 51.

➤ To view details of a defect, select a defect link and click the **Defect Details** button. The Defect Details dialog box opens. For more information, see "Updating Defects" on page 425.

➤ To open the Defects module and highlight the linked defect, select a defect link. Click the **Go To** arrow and choose **Go To Defect**.

Alternatively, click the **Defect ID** link to open the Defects module and highlight the linked defect.

➤ To open the relevant module and highlight the linked entity, select a defect link. Click the **Go To** arrow and choose **Go To 'Linked By' Entity**.

Alternatively, click the **Linked Entity Name** link to open the relevant module and highlight the linked entity.

➤ To display direct links, select **Direct Links** from the Type of Link list. To display direct and indirect links, select **All Links**. Not available in the Defects module.

➤ To display defect links added to parent requirements, select **Current Req Links** from the **Show Links For** list. To display defect links added to parent and children requirements, select **Including Child's Links**. Available only in the Requirements module.

Adding Defect Links

You can add a defect link by submitting a new defect or by selecting an existing defect. When you link an entity to a defect, Quality Center adds the 🔗 icon to the entity and to the linked defect.

Adding Links by Submitting New Defects

You can add a defect link by submitting a new defect.

To add a link by submitting a new defect:

1 In the Linked Defects tab or dialog box, click the **Add and Link Defect** button, or right-click the grid and choose **Add and Link Defect**. The New Defect dialog box opens.

2 Enter the relevant defect details. For more information on adding defects, see "Adding New Defects" on page 419.

3 Click the **Submit** button in the New Defect dialog box. The defect is added to the project and the defect link is displayed in the Linked Defects grid.

Adding Links by Selecting Existing Defects

You can add a defect link by selecting an existing defect.

To add a link by selecting an existing defect:

1 In the Linked Defects tab or dialog box, click the **Link Existing Defect** arrow, or right-click the grid and choose **Link Existing Defect**.

2 Choose **By ID** or **Select**:

➤ To add a link by typing a defect ID, choose **By ID**. In the Link Existing Defect dialog box, type the defect ID and click **Link**. The defect link is displayed in the grid.

➤ To add a link by a selecting a defect, choose **Select**. In the Defects to Link dialog box, select the defect. To select more than one defect, press the CTRL key and select the defects you want to link. Click **Link**. The defect links are displayed in the grid.

Removing Defect Links

You can remove defect links from the Linked Defects grid.

Note: You can only remove direct links. Indirect links are removed automatically when the direct links are removed.

To remove a defect link:

1 In the Linked Defects tab or dialog box, select a link in the grid. To select more than one defect, press the **Ctrl** key and select the defects you want to remove.

2 Click the **Remove Link** button, or right-click and choose **Remove Link**.

3 Click **Yes** to confirm.

Part VII

Quality Center Analysis

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Generating Reports

Quality Center reports can be generated from each Quality Center module.

About Generating Reports

Quality Center reports help you assess the progress of defining requirements and tests coverage, the test plan, test runs, and defect tracking. You use reports to assist in determining testing priorities and defect repair schedules, and in setting application release dates. You can generate reports at any time during the testing process.

Reports can be generated from the Requirements, Test Plan, Test Lab, and Defects modules. You can display reports using their default settings, or you can customize them. When customizing a report, you can apply filters and sort conditions, and determine the layout of the fields in the report. You can further customize the report by adding sub-reports. For more information on customizing reports, "Customizing Reports" on page 450.

You can save the settings of your reports as favorite views and reload them as needed. You can also save your reports as text files or HTML documents. In addition, you can export report data to Microsoft Excel.

Note: You can export grid data as a text file, Microsoft Excel spreadsheet, Microsoft Word document, or HTML document. You export data from the Requirements Grid, Test Grid, Execution Grid, or Defects Grid. For more information, see "Exporting Data to a File" on page 73.

Available Reports and Sub-Reports

You can generate reports from the Requirements module, Test Plan module, Test Lab module, and Defects module. For each report you can add sub-reports.

Available Reports

You can generate reports from the Requirements module, Test Plan module, Test Lab module, and Defects module.

Requirements Module Reports

The following reports are available in the Requirements module:

Report	Description
Standard Requirements	Lists the requirements that appear in the requirements tree.
Tabular	Displays the requirements that appear in the requirements tree in a grid format.
Requirements with Coverage Tests	Lists the requirements that appear in the requirements tree with their tests coverage information.

Report	Description
Requirements with Coverage Tests and Steps	Lists the requirements that appear in the requirements tree with their tests coverage information. It also displays the test steps for each tests coverage.
Requirements with Linked Defects	Lists the requirements that appear in the requirements tree with their linked defects.
Requirements with Traceability	Lists the requirements that appear in the requirements tree with their associated traced to and traced from requirements.

Test Plan Module Reports

The following reports are available in the Test Plan module:

Report	Description
Standard Test Planning	Lists the tests in the test plan tree.
Subject Tree	Lists the tests in the test plan tree by subject.
Tests with Design Steps	Lists the tests that appear in the test plan tree, including their design steps.
Tests with Covered Requirements	Lists the tests that appear in the test plan tree with their requirements coverage information.
Tests with Linked Defects	Lists the tests that appear in the test plan tree with their linked defects.

Test Lab Module Reports

The following reports are available in the Test Lab module:

Report	Description
Current Test Set	Lists the tests that appear in the current test set.
Cross Test Set	Lists the test sets that appear in the Test Sets list, without listing their tests.
Test Set Hierarchy with Tests	Lists the test sets hierarchically, as well as the status of each of the test sets.

Report	Description
Cross Test Set with Tests	Lists the test sets that appear in the Test Sets list, including their tests.
Current Test Set with Failed Test Runs	Lists tests from the current test set, with "Failed" test run status.
Cross Test Set with Failed Test Runs	Lists tests from all test sets, with "failed" test run status.
Execution Notification	Lists the tests that are displayed in the current test set with the results of their last test run.

Defects Module Reports

The following reports are available in the Defects module:

Report	Description
Standard Defects	Lists the defects that appear in the project.
Tabular Defects	Displays the defects that appear in the project in a grid format.
Defects with Linked Tests and Runs	Lists the defects with their linked tests and test run results.
Fixed or Rejected Defects	Lists defects with "fixed" or "rejected" status.
Fixed or Rejected Defects Detected by Current User	Lists defects with "fixed" or "rejected" status that were detected by the current user.
Opened Defects Assigned to Current User	List defects with "open" status that are assigned to the current user.

Available Sub-Reports

Each report can contain sub-reports. In addition, sub-reports themselves might contain other sub-reports. The sub-reports available depend on the type of the parent report.

The following sub-reports may be available:

Report	Description
Contained Tests	Lists the tests in a test set.
Coverage Requirements	Lists information for requirements that cover a test.
Design Steps	Lists the design steps for a test.
Linked Defects	Lists the defects that are linked to a record.
Linked Entities	List all entities that are linked to a defect.
Parent Test	Lists the parent test of a test.
Related Defects	Lists related defects for each subject in a test plan tree.
Related Requirements	Lists the requirements that are linked to a defect.
Requirements Coverage	Lists the tests that cover a requirement.
Run Steps	Lists the run steps for a test run.
Runs	Lists all runs of a test.
Source Execution Test	Lists the executed tests that are linked to a defect.
Source Run	Lists the test runs that are linked to a defect.
Source Test	Lists the tests that are linked to a defect.
Trace To	Lists the requirements traced to a requirement.
Trace From	Lists the requirements traced from a requirement.

Creating Reports

You can create a report from the Requirements, Test Plan, Test Lab, and Defects modules. Depending on the current module, you have different report options. You can use the default report or customize it to meet your needs.

To create a report:

1 Select the Quality Center module from which you want to create a report.

2 Choose **Analysis** > **Reports**, and select the type of report you want to create. For more information on report types, see "Available Reports" on page 444.

Tip: You can create a quick report for specific records. For more information, see "Creating Quick Reports" on page 449.

The report opens with default data displayed.

3 You can click the **First Page** button to display the first page of the report, or the **Previous Page** button to display the preceding page.

4 You can click the **Next Page** button to display the subsequent page of the report, or the **Last Page** button to display the final page.

5 To customize your report, click the **Configure Report and Sub-Reports** button. For more information, see "Customizing Reports" on page 450.

6 To regenerate the report so that it displays the most up-to-date data, click the **Generate Report** button.

7 To print your report, click the **Print** arrow and choose **Current Page** or **All Pages**. The Print dialog box opens. Change the printer settings if necessary. Click **Print**.

8 To save your report, click the **Save** arrow and choose **Current Page** or **All Pages**. The Save Web Page dialog box opens. Change the file name if necessary. To save the report in its original format, select **Web Page, complete** in the **Save as type** list. To save it as a text file, select **Text File** and click **Save**.

9 To export the report data to Microsoft Excel, right-click the report and choose **Export to Microsoft Excel**. Excel must be installed on your machine to export report data to Excel.

10 To save the settings of your report as a favorite view, click the **Add to Favorites** button. For more information, see Chapter 6, "Working with Favorite Views."

11 Click **Close** to close the report and return to the current Quality Center module.

Creating Quick Reports

You can create a quick report for specific records. In addition, in the Requirements module you can create a quick report for a requirement and its children.

Note: You cannot view a quick report for multiple nodes in the test plan tree.

To create a quick report:

1 Select the requirements, tests, or defects for which you want to create a report. To create a report for more than one record, press the **Ctrl** key and select the records for which you want to create a report.

2 Create the report using one of the following options:

➤ To create a report for the selected records, choose **Analysis** > **Report Selected**. Alternatively, right-click the records and choose **Report Selected**. The report opens with data for the selected records displayed.

➤ In the Requirements module, to create a quick report for a requirement and its children, choose **Analysis** > **Report Selected with Children**. Alternatively, right-click the requirement and choose **Report Selected with Children**. The report opens with data for the selected requirement and its children.

Customizing Reports

You can determine the appearance and contents of your Quality Center reports.

To customize a report:

1 Select the Quality Center module from which you want to generate a report.

2 Choose **Analysis** > **Reports** and select the report you want to customize. For more information on report types, see "Available Reports" on page 444. The report opens with default data displayed.

3 Click the **Configure Report and Sub-Reports** button to customize your report. The Report Configuration page opens with the default options displayed.

4 In the Reports list, select a main report or a sub-report. The Report Configuration pane displays the available options.

5 Under **Page**, you can set the number of items per display page (available for the main report):

➤ To limit the number of items per page, select **Limit items per page to** and specify the number of items per page.

➤ To display all items in one page, select **All items in one page**.

6 Under **Template**, you can use the Quality Center default report template or your own template. (This option is available for the main report only.)

7 Under **Filter**, you can define or clear filters and sorting priorities:

➤ Click the **Set Filter/Sort** button to filter and sort your data according to criteria you choose.

➤ Click the **Clear Filter/Sort** button to clear all the filters and sorting priorities.

For more information, see Chapter 3, "Working with Quality Center Data."

8 Under **Fields**, you can set the fields you want to appear in the report and their order.

➤ Select **All Fields (auto-layout)** to display all fields in the report.

➤ Select **Custom Fields (layout)**, and click the **Select Fields** button to choose the fields and set their order. For more information, see "Arranging Columns" on page 51.

9 You can also select the following options. Note that not all options are available in all modules.

Option	Description
Grid View	Displays the report as a grid.
Attachments	Displays a list of associated attachments.
History	Displays a list of all the changes made to a requirement, test, or defect.
Keep Parent-Child Order	Displays the requirement topic with the child requirement below it. Selecting this option disables your defined filters and sorting priorities.
Show Paragraph Number	Displays the assigned hierarchical numbers to each requirement in the tree. Note that the numbers are not related to the unique Req ID assigned to each requirement.
Rich Text	Includes rich text for the requirements in the report.
Show Full Coverage	Displays the tests coverage for each requirement in the tree.

Option	Description
Show Steps only for "Failed" Runs	Displays test steps only for failed test runs.
Show Test Set Name	Displays the test set name in the test run information.

10 To add a sub-report, click the **Add Sub-Report** button. In the **Type** list, select a sub-report type and click **OK**. The sub-report is added to the Reports list. For more information on available sub-report types, see "Available Sub-Reports" on page 447.

11 To delete a sub-report, select the sub-report and click the **Delete Sub-Report** button.

12 Click the **Apply** button to generate a new report.

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Generating Graphs

You can generate graphs that let you view images describing the information in a Quality Center project.

About Generating Graphs

Quality Center graphs help you draw conclusions quickly and see the relationships between different types of data in a project. You can create graphs at any stage of the testing process to check the progress of test requirements, test planning, test execution, and defect tracking for your application. After you generate a graph, you can customize graph properties to display information according to your specifications.

Quality Center Graph Types

Quality Center enables you to generate graphs from the Requirements module, Test Plan module, Test Lab module, and Defects module.

Requirements Module Graphs

You can generate the following graphs from the Requirements module:

Graph	Description
Requirements - Summary Graph	Shows how many requirements are currently in a Quality Center project. For more information, see "Requirements - Summary Graph" on page 459.
Requirements - Progress Graph	Shows how many requirements accumulated in a Quality Center project at specific points during a period of time. For more information, see "Requirements - Progress Graph" on page 460.
Requirements - Coverage Graph	Shows how many requirements are currently in a Quality Center project, according to their test coverage status. For more information, see "Requirements - Coverage Graph" on page 461.
Requirements - Trend Graph	Shows the history of changes to specific requirement fields in a Quality Center project, for each time interval displayed. For more information, see "Requirements - Trend Graph" on page 462.

Test Plan Module Graphs

You can generate the following graphs from the Test Plan module:

Graph	Description
Test Planning - Summary Graph	Shows how many tests are currently in a Quality Center project. For more information, see "Test Planning - Summary Graph" on page 463.
Test Planning - Progress Graph	Shows how many tests accumulated in a Quality Center project at specific points during a period of time. For more information, see "Test Planning - Progress Graph" on page 464.
Test Planning - Trend Graph	Shows the history of changes to specific Test Plan fields in a Quality Center project, for each time interval displayed. For more information, see "Test Planning - Trend Graph" on page 465.

Test Lab Module Graphs

You can generate the following graphs from the Test Lab module:

Graph	Description
Test Execution - Summary Graph (Current Test Set)	Shows how many tests in a Quality Center project belong to the current test set. For more information, see "Test Execution - Summary Graph (Current Test Set)" on page 466.
Test Execution - Progress Graph (Current Test Set)	Shows how many tests accumulated in the current test set at specific points during a period of time. For more information, see "Test Execution - Progress Graph (Current Test Set)" on page 467.
Test Execution - Summary Graph (Cross Test Set)	Shows how many tests in a Quality Center project belong to all the test sets. For more information, see "Test Execution - Summary Graph (Cross Test Set)" on page 468.
Test Execution - Progress Graph (Cross Test Set)	Shows how many tests accumulated in all the test sets at specific points during a period of time. For more information, see "Test Execution - Progress Graph (Cross Test Set)" on page 469.

Defects Module Graphs

You can generate the following graphs from the Defects module:

Graph	Description
Defects - Summary Graph	Shows a summary of the number of defects in a Quality Center project, or the estimated/actual amount of time taken to fix these defects. For more information, see "Defects - Summary Graph" on page 470.
Defects - Progress Graph	Shows the accumulation of defects in a Quality Center project, or the estimated/actual amount of time taken to fix these defects, at specific points during a period of time. For more information, see "Defects - Progress Graph" on page 471.
Defects - Age Graph	Shows the lifetime of defects in a Quality Center project. For more information, see "Defects - Age Graph" on page 472.
Defects - Trend Graph	Shows the history of changes to specific defect fields in a Quality Center project, for each time interval displayed. For more information, see "Defects - Trend Graph" on page 473.

Requirements - **Summary Graph**

The Requirements - Summary Graph shows how many requirements are currently in a Quality Center project. The number of requirements is displayed according to the criteria that you specify. You can specify the type of data displayed along the x-axis, and the requirement information by which Quality Center groups the data.
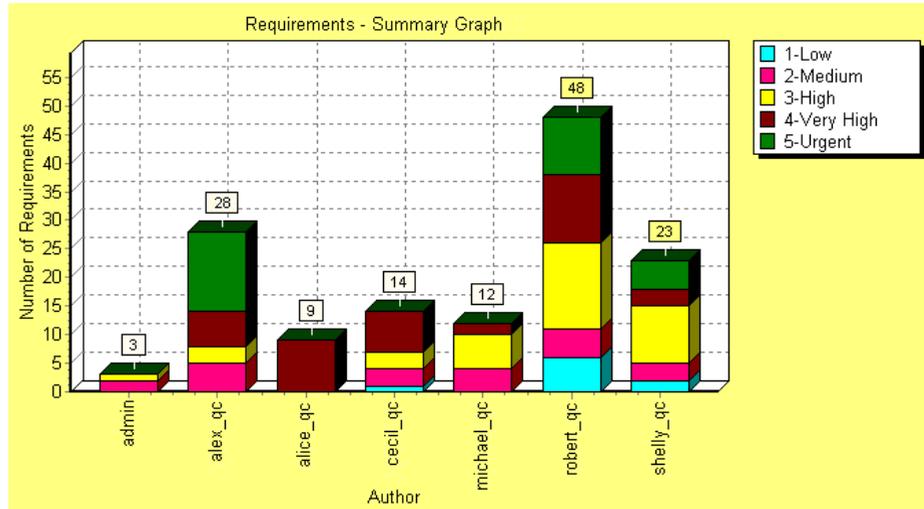
For example, choose **Author** from the **X-Axis** list to display the number of requirements that exist in your project, according to author. Select **Priority** from the **Grouped By** list to group requirements in the graph columns according to their level of priority. You can select the **Show 'Not Covered' parents** check box to include parent requirements with a 'Not Covered' status in the graph. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Requirements - Summary Graph, see "Customizing Summary Graphs" on page 479.

By default, the graph appears as a bar chart. To view the graph as a pie chart, click the **Pie Chart** tab.

Requirements - Progress Graph

The Requirements - Progress Graph shows how many requirements accumulated in a Quality Center project at specific points during a period of time. The number of requirements is displayed according to the criteria that you specify. You can specify the time interval displayed along the x-axis, and the requirement information by which Quality Center groups the data. You can also specify whether you want to view the number of requirements or the change in the number of requirements.
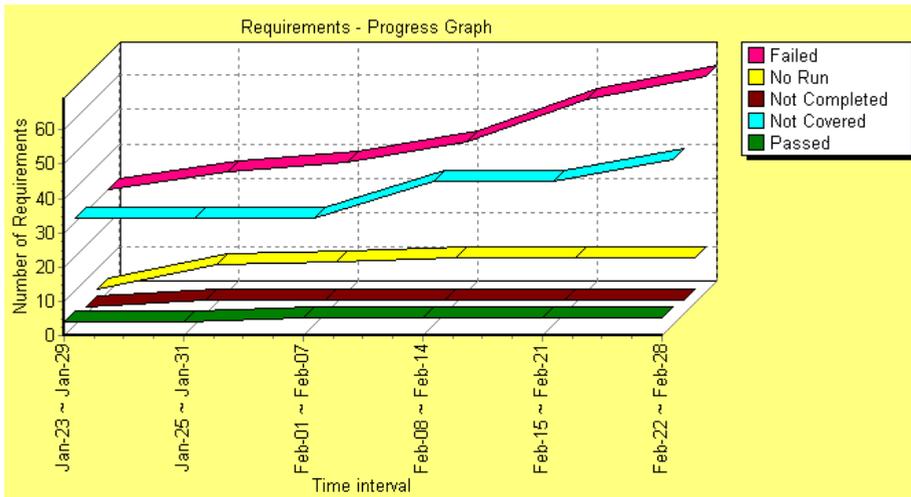
For example, choose **Direct Cover Status** from the **Group By** list to group the displayed requirements according to their test coverage status. Under **Period**, select **Last 5 weeks** to display this interval along the x-axis. (Note that the graph displays data measured on the last day of each week.) Under **Display Options**, select **Regular** to view the number of requirements, as opposed to the change in the number of requirements. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Requirements - Progress Graph, see "Customizing Progress Graphs" on page 480.

The graph can be viewed as a line chart only.

Requirements - Coverage Graph

The Requirements - Coverage Graph shows how many requirements are currently in a Quality Center project, according to their test coverage status.
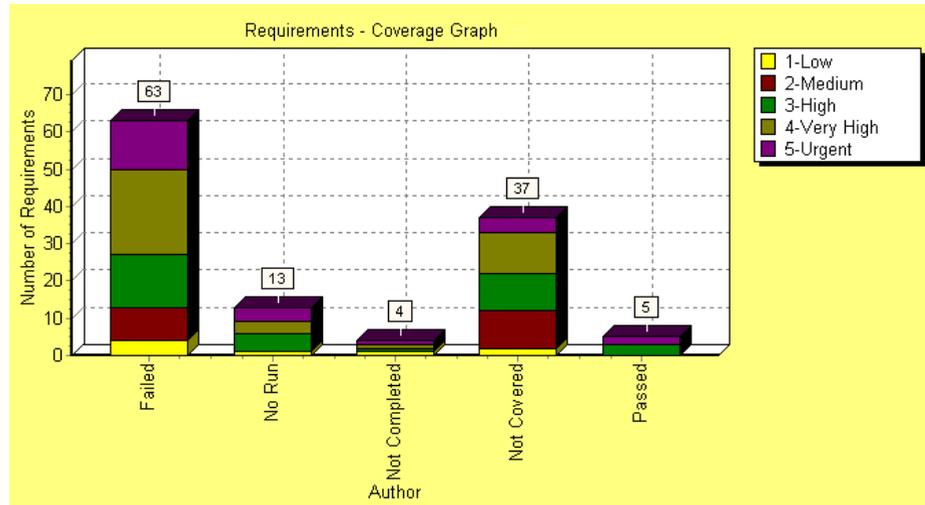
You can specify the requirement information by which Quality Center groups the data. For example, select **Priority** from the **Grouped By** list to group requirements in the graph's columns according to their level of priority. Select the **Show 'Not Covered' parents** check box to include parent requirements with a 'Not Covered' status in the graph. Click the **Refresh** button to refresh the graph display.

Note: The Requirements - Coverage Graph is a specific type of summary graph. If you select a different requirement field from the X-Axis list, a regular Requirements - Summary Graph is displayed.

For more information on customizing the Requirements - Coverage Graph, see "Customizing Summary Graphs" on page 479.

By default, the graph appears as a bar chart. To view the graph as a pie chart, click the **Pie Chart** tab.

Requirements - Trend Graph

The Requirements - Trend Graph shows the history of changes to specific requirement fields in a Quality Center project, for each time interval displayed. You specify the field for which you want to view the number of changes, and the time period for which you want to view data.
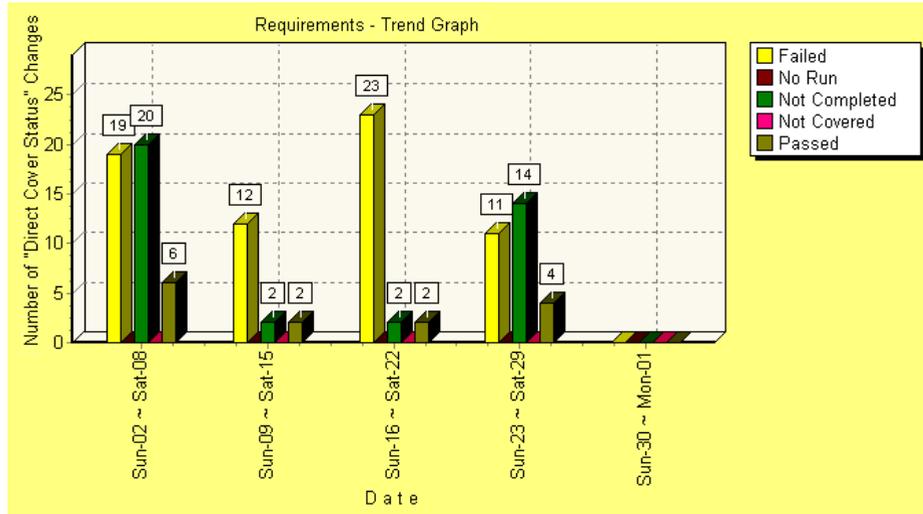
For example, choose **Direct Cover Status** from the **Count Changes in Field** list to display the number of changes made to the "Direct Cover Status" requirement field. Under **Period**, select **Last 5 weeks** to display this time period along the x-axis. (Note that the graph displays a sum of the data measured for each week.) Click the **Refresh** button to refresh the graph display.

For more information on customizing the Requirements - Trend Graph, see "Customizing Trend Graphs" on page 483.

Note that each status change is only recorded once for the purpose of this graph. For example, if a field was changed from "Not Completed" to "Passed" to "Not Completed", the "Not Completed" status change will only be recorded once in this graph.

The Requirements - Trend Graph can be viewed as a bar chart only.

Test Planning - Summary Graph

The Test Planning - Summary Graph shows how many tests are currently in a Quality Center project. The number of tests is displayed according to the criteria that you specify. You can specify the type of data displayed along the x-axis, and the test plan information by which Quality Center groups the data.
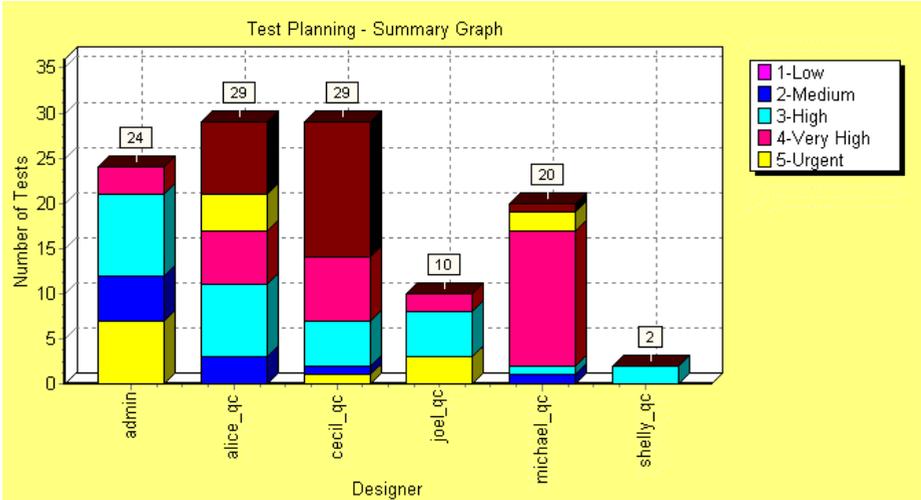
For example, choose **Designer** from the **X-Axis** list to display the number of tests that exist in your project, according to designer. Select **Priority** from the **Grouped By** list to group tests in the graph's columns according to their level of priority. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Test Planning - Summary Graph, see "Customizing Summary Graphs" on page 479.

By default, the graph appears as a bar chart. To view the graph as a pie chart, click the **Pie Chart** tab.

Test Planning - Progress Graph

The Test Planning - Progress Graph shows how many tests accumulated in a Quality Center project at specific points during a period of time. The number of tests is displayed according to the criteria that you specify. You can specify the time interval displayed along the x-axis and the test plan information by which Quality Center groups the data. You can also specify whether you want to view the number of tests or the change in the number of tests.

For example, choose **Status** from the **Group by** list to group the displayed tests according to their level of priority. Under **Period**, select **All days** and **Show daily info** to display each day along the x-axis. Under **Display Options**, select **Regular** to view the number of tests, as opposed to the change in the number of tests. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Test Planning - Progress Graph, see "Customizing Progress Graphs" on page 480.

The graph can be viewed as a line chart only.

Test Planning - Trend Graph

The Test Planning - Trend Graph shows the history of changes to specific Test Plan fields in a Quality Center project, for each time interval displayed. You specify the field for which you want to view the number of changes, and the time period for which you want to view data.
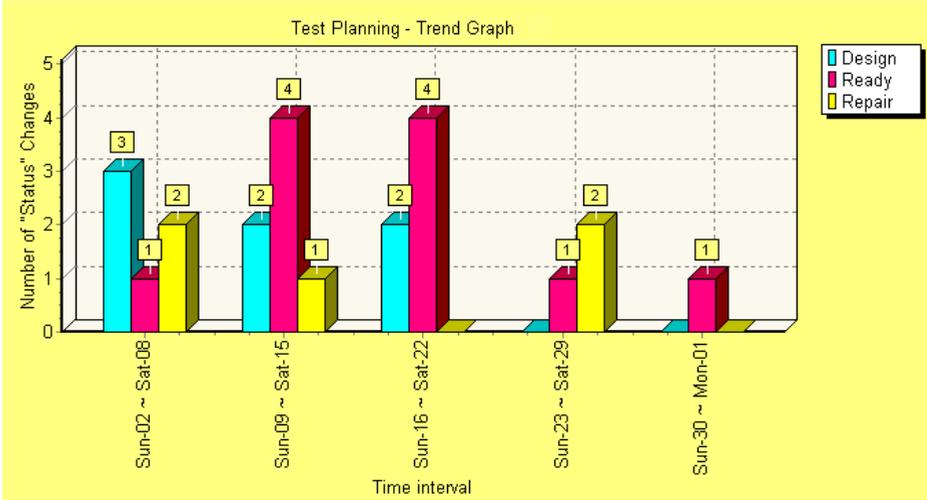
For example, choose **Status** from the **Count changes in field** list to display the number of changes made to the Test Plan "Status" field. Under **Period**, select **Last 5 weeks** to display this time period along the x-axis. (Note that the graph displays a sum of the data measured for each week.) Click the **Refresh** button to refresh the graph display.

For more information on customizing the Test Planning - Trend Graph, see "Customizing Trend Graphs" on page 483.

Note that each status change is only recorded once for the purpose of this graph. For example, if a field was changed from "Ready" to "Repair" to "Ready", the "Ready" status change will only be recorded once in this graph.

The Test Planning - Trend Graph can be viewed as a bar chart only.

Test Execution - Summary Graph (Current Test Set)

The Test Execution - Summary Graph (Current Test Set) shows how many tests in a Quality Center project belong to the current test set. The number of tests is displayed according to the criteria that you specify. You can specify the type of data displayed along the x-axis, and the test plan and test in test set information by which Quality Center groups the data.
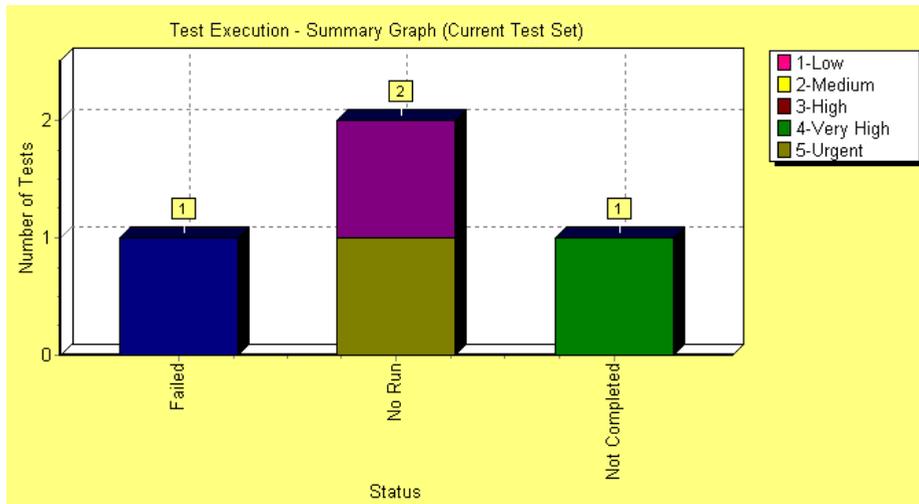
For example, choose **Status** from the **X-Axis** list to display the number of tests that exist in your project, according to test status. Select **Plan: Priority** from the **Grouped By** list to group tests in the graph's columns according to their level of priority. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Test Execution - Summary Graph (Current Test Set), see "Customizing Summary Graphs" on page 479.

By default, the graph appears as a bar chart. To view the graph as a pie chart, click the **Pie Chart** tab.

Test Execution - Progress Graph (Current Test Set)

The Test Execution - Progress Graph (Current Test Set) shows how many tests accumulated in the current test set at specific points during a period of time. The number of tests is displayed according to the criteria that you specify. You can specify the time interval displayed along the x-axis, and the test plan and test in test set information by which Quality Center groups the data. You can also specify whether you want to view the number of tests or the change in the number of tests.

For example, choose **Status** from the **Group by** list to group the displayed tests according to their status. Under **Period**, select **Last 5 weeks** to display this interval along the x-axis. (Note that the graph displays data measured on the last day of each week.) Under **Display Options**, select **Regular** to view the number of tests, as opposed to the change in the number of tests. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Test Execution - Progress Graph (Current Test Set), see "Customizing Progress Graphs" on page 480.

The graph can be viewed as a line chart only.

Test Execution - Summary Graph (Cross Test Set)

The Test Execution - Summary Graph (Cross Test Set) shows how many tests in a Quality Center project belong to all the test sets. The number of tests is displayed according to the criteria that you specify. You can specify the type of data displayed along the x-axis, and the test plan and test in test set information by which Quality Center groups the data.
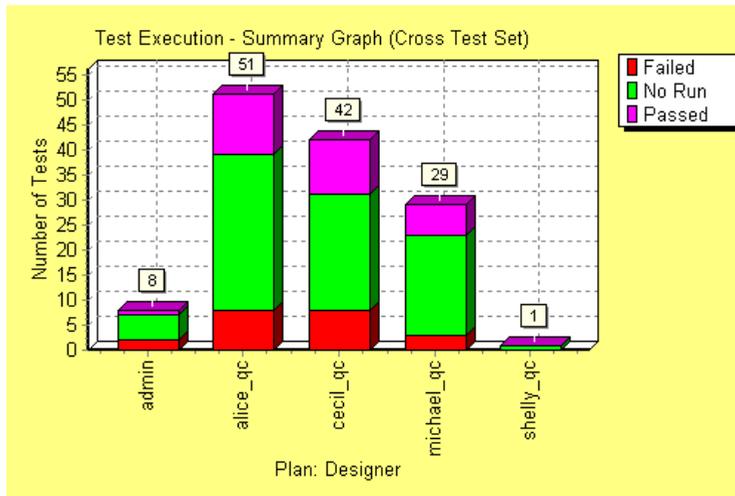
For example, choose **Plan:Designer** from the **X-Axis** list to display the number of tests that exist in your project, according to the test plan designer. Select **Status** from the **Grouped by** list to group tests in the graph's columns according to their status. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Test Execution - Summary Graph (Cross Test Set), see "Customizing Summary Graphs" on page 479.

By default, the graph appears as a bar chart. To view the graph as a pie chart, click the **Pie Chart** tab.

Test Execution - Progress Graph (Cross Test Set)

The Test Execution - Progress Graph (Cross Test Set) shows how many tests accumulated in all the test sets at specific points during a period of time. The number of tests is displayed according to the criteria that you specify. You can specify the time interval displayed along the x-axis, and the test plan and test in test set information by which Quality Center groups the data. You can also specify whether you want to view the number of tests or the change in the number of tests.

For example, choose **Status** from the **Group By** list to group the displayed tests according to their status. Under **Period**, select **Last 5 weeks** and **Show daily info** to display daily data for this time interval along the x-axis. Under **Display Options**, select **Regular** to view the number of tests, as opposed to the change in the number of tests. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Test Execution - Progress Graph (Cross Test Set), see "Customizing Progress Graphs" on page 480.

The graph can be viewed as a line chart only.

Defects - **Summary Graph**

The Defects - Summary Graph shows a summary of the number of defects in a Quality Center project, or the estimated/actual amount of time taken to fix these defects. The information is displayed according to the criteria that you specify. You can specify the type of data displayed along the x-axis, the type of data displayed along the y-axis, and the defect information by which Quality Center groups the data.
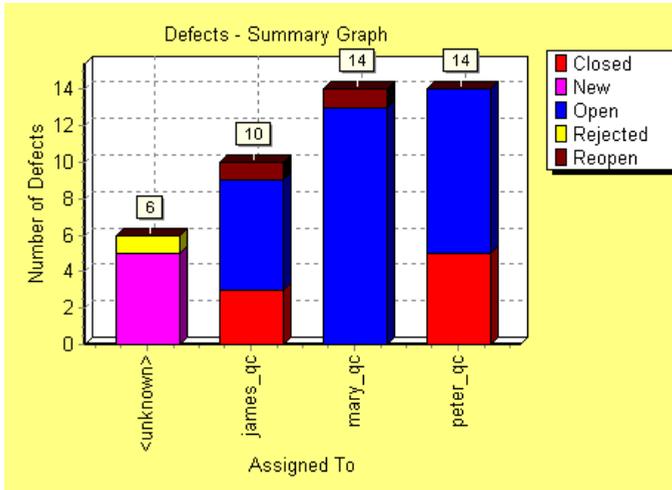
For example, choose **Assigned To** from the **X-Axis** list to display the number of defects that exist in your project, according to the people to whom they are assigned. Select **Status** from the **Grouped By** list to group defects in the graph's columns according to their status. Under **Data Type**, select **Count** to display the number of defects along the y-axis. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Defects - Summary Graph, see "Customizing Summary Graphs" on page 479.

By default, the graph appears as a bar chart. To view the graph as a pie chart, click the **Pie Chart** tab.

Defects - Progress Graph

The Defects - Progress Graph shows the accumulation of defects in a Quality Center project, or the estimated/actual amount of time taken to fix these defects, at specific points during a period of time. The information is displayed according to the criteria that you specify. You can specify the time interval displayed along the x-axis, the defect information by which Quality Center groups the data, and the data displayed along the y-axis. You can also specify whether you want to view the number of defects or the change in the number of defects.
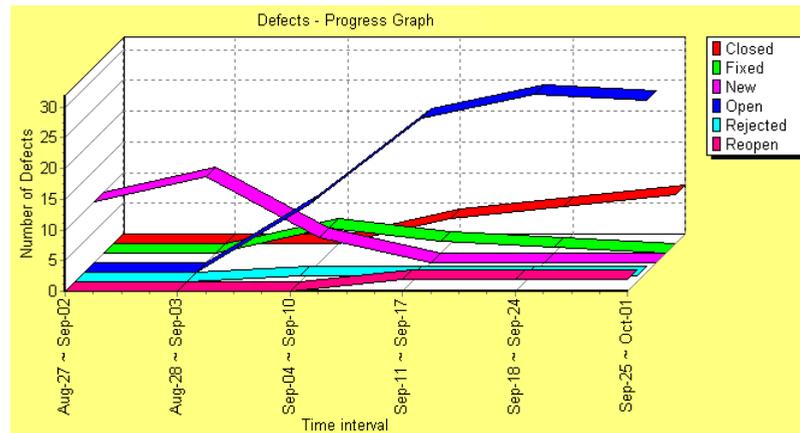
For example, choose **Status** from the **Group by** list to group the displayed defects according to their status. Under **Data Type**, select **Count** to view the number of defects along the y-axis, as opposed to the estimated/actual amount of time taken to fix the defects. Under **Period**, select **Last 5 weeks** to display this interval along the x-axis. (Note that the graph displays data measured on the last day of each week.) Under **Display Options**, select **Regular** to view the number of defects, as opposed to the change in the number of defects. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Defects - Progress Graph, see "Customizing Progress Graphs" on page 480.

The graph can be viewed as a line chart only.

Defects - Age Graph

The Defects - Age Graph shows the lifetime of defects in a Quality Center project. The lifetime of a defect begins when it is reported, and ends when it is closed. The information in this graph is displayed according to the criteria that you specify. You can specify the defect information by which Quality Center groups the data, and the data displayed along the y-axis. You can also specify the time interval that you want to use to divide the data, if you want to view graph content in two data columns.
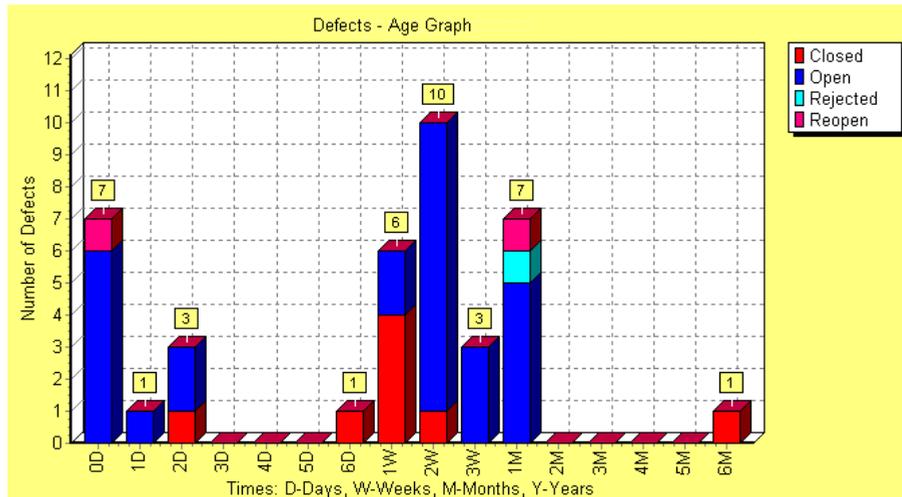
For example, choose **Status** from the **Group by** list to group the displayed defects according to their status. Under **Data Type**, select **Count** to view the number of defects along the y-axis, as opposed to the estimated/actual amount of time taken to fix the defects. Under **Age Grouping**, select **No Grouping** to display all of the available age groupings. Click the **Refresh** button to refresh the graph display.

For more information on customizing the Defects - Age Graph, see "Customizing Defect Age Graphs" on page 482.

Note that the age of a "Closed" defect is the difference between the date on which it was reported and the date on which it was closed. After a defect is closed, its age is fixed.

The Defects - Age Graph can be viewed as a bar chart only.

Defects - Trend Graph

The Defects - Trend Graph shows the history of changes to specific defect fields in a Quality Center project, for each time interval displayed. You specify the field for which you want to view the number of changes, and the time period for which you want to view data.
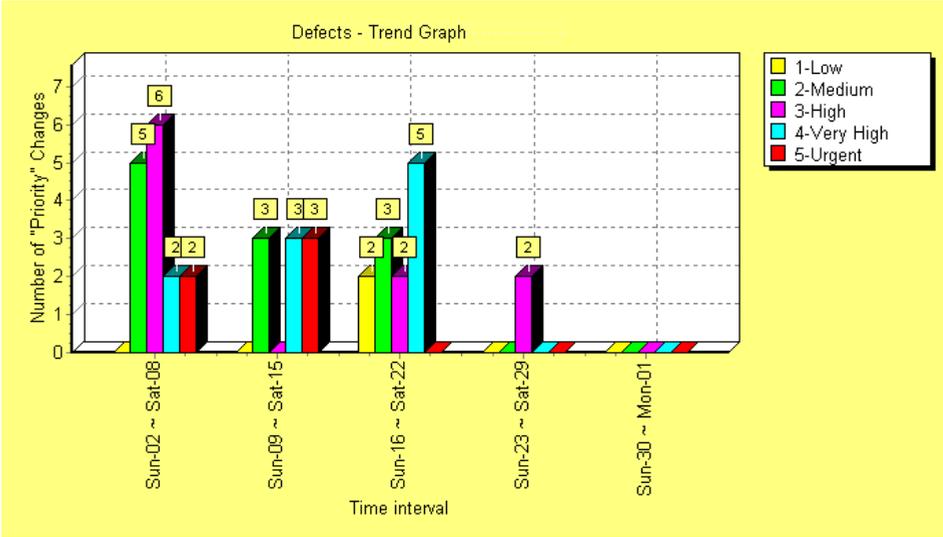
For example, choose **Priority** from the **Count Changes in Field** list to display the number of changes made to the "Priority" defect field. Under **Period**, select **Last 5 weeks** to display this time period along the x-axis. (Note that the graph displays a sum of the data measured for each week.) Click the **Refresh** button to refresh the graph display.

For more information on customizing the Defects - Trend Graph, see "Customizing Trend Graphs" on page 483.

Note that each priority change is only recorded once for the purpose of this graph. For example, if a field was changed from "Urgent" to "Very High" to "Urgent", the "Urgent" priority change will only be recorded once in this graph.

The Defects - Trend Graph can be viewed as a bar chart only.

Creating Graphs

You can generate a graph from any Quality Center module. Depending on the current Quality Center module, you have different graph options. For example, in the Defects module, you can generate a graph that displays the number of defects assigned to each member of a quality assurance team.

To create a graph:

1 Select the Quality Center module from which you want to generate a graph.

2 Choose **Analysis** > **Graphs**, and select a graph type. For more information on graph types, see "Quality Center Graph Types" on page 456.

Tip: You can also use the Graph Wizard to guide you through the graph creation process. For more information on using the Graph Wizard, see "Creating Graphs Using the Graph Wizard" on page 476.

The graph opens with default data and appearance settings.
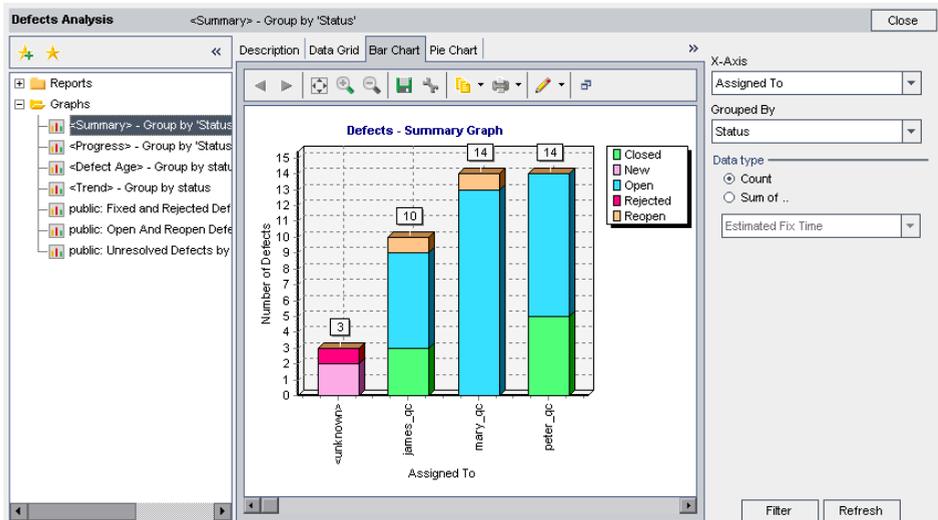
A graph contains the following components:

➤ **Display tabs.** Displays the graph as a bar chart, pie chart, line chart, or data grid. You can also display information about the graph.

➤ **Favorite graphs area.** Enables you to save and load favorite customized graphs.

➤ **Graph toolbar.** Contains the commands you use to display, print, magnify, and customize graphs.

➤ **Customizing graph properties area.** Enables you to specify the information that appears in a graph.

3 Select an available graph display tab:

➤ **Bar Chart.** Displays the graph as a bar graph.

➤ **Pie Chart.** Displays the graph as a pie graph.

➤ **Line Chart.** Displays the graph as a line graph.

➤ **Data Grid.** Displays the graph as a grid.

4 Customize the graph content. For more information, see "Customizing the Graph Content" on page 478.

5 To further analyze your data, click a segment in the graph. The Drill Down Results dialog box opens and displays a grid with more details. You can determine the column appearance and order. You can also save the contents of a grid as a text file, Microsoft Excel spreadsheet, Microsoft Word document, or HTML document. For more information, see Chapter 3, "Working with Quality Center Data."

6 You can use the graph toolbar to customize graph settings and appearance, as well as to print the graph and copy it to the clipboard. For more information, see "Customizing the Graph Settings" on page 484.

7 You can click the **Save Graph Data** button to save the contents of a graph as a text file, Microsoft Excel spreadsheet, or HTML document.

8 You can click the **Add to Favorites** button to add a graph view to your Favorites list. For more information, see Chapter 6, "Working with Favorite Views."

If you save your graph as a favorite, you can change the predefined graph description. For more information, see "Customizing the Graph Description" on page 488.

9 Click **Close** to close the graph and return to the current Quality Center module.

Creating Graphs Using the Graph Wizard

You can create a graph using the Graph Wizard. The Graph Wizard takes you through the steps involved in creating a graph and defining its settings.

To create a graph using the Graph Wizard:

1 Select the Quality Center module from which you want to generate the graph.

2 Choose **Analysis** > **Graphs** > **Graph Wizard**. The Graph Wizard dialog box for the current module opens.
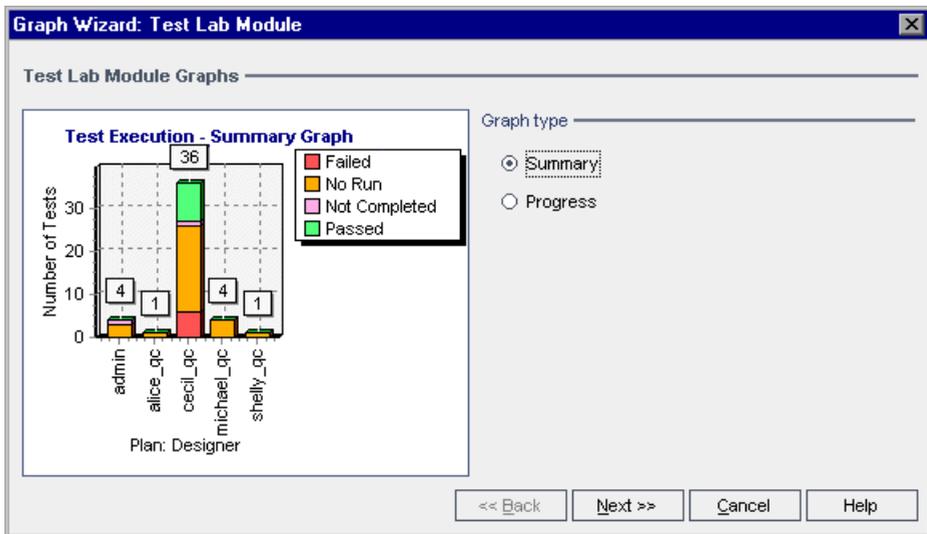
3 Under **Graph type**, select the type of graph that you want to display. For more information on graph types, see "Quality Center Graph Types" on page 456. Click **Next**.

4 This step applies if you are working in the Test Lab module. Under **Select a test set option**, specify which test sets to include in the graph. The following options are available:

➤ **Show current test set.** Includes data from the currently selected test set only. This is selected by default.

➤ **Show all test sets.** Includes data from all test sets.

Click **Next**.

5 Under **Select a filter option**, specify which filter to use to define the records included in the graph:

➤ **Use current filter.** Uses the filter defined in the current view. This is selected by default.

➤ **Do not use a filter.** Includes all records in the current module in the graph.

➤ **Define a new filter.** Enables you to define a new filter. Click the **Filter** button to open the Filter dialog box, and define the filter.

For more information on filtering Quality Center data, see "Filtering Records" on page 55.

Click **Next**.

6 In the **Group By** box, select the field by which you want data to be grouped in the graph. For a progress graph, you can only select a field for which history has been enabled. For more information on enabling history for a field, refer to the *HP Quality Center Administrator's Guide*.

If you are working in the Requirements module, and you select **Direct Cover Status** in this step, you will later need to specify whether to include parent requirements with a "Not Covered" status.

Click **Next** if applicable.

7 This step applies if you are creating a summary graph. In the **X-Axis** box, select the field that you want to use for the X-axis. Click **Next** if applicable.

8 This step applies if you are working in the Requirements module, and you have selected **Direct Cover Status** in the **Group By** box. Under **Select a coverage option**, select which requirements to include in the graph:

➤ **Do not show 'Not Covered' parents.** Does not include parent requirements with a 'Not Covered' status.

➤ **Show 'Not Covered' parents.** Includes all requirements.

For more information on coverage, see Chapter 18, "Linking Tests to Requirements."

9 Click **Finish**. The graph opens with the settings you defined in the Graph Wizard.

Customizing the Graph Content

You can specify what information appears in a graph. This includes customizing a summary graph, progress graph, age graph, and trend graph.

Note: If you group data 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 will be grouped once as English;French, and not as part of separate English and French categories. For more information on allowing multiple values, refer to the *HP Quality Center Administrator's Guide*.

Customizing Summary Graphs

You can specify the information that appears in a summary type graph.

To customize a summary graph:

1 Choose a field from the **X-Axis** list to determine the information displayed along the x-axis of the graph.

2 Choose a field from the **Grouped By** list to determine the information by which Quality Center groups data in the graph.

Note that you can group the data by **string** or **list** fields only.

3 In the Requirements module, if you chose to group by the **Direct Cover Status** field, you can select the **Show 'Not Covered' parents** check box to include parent requirements with a **Not Covered** status in the graph.

4 Under **Data Type**, you set the y-axis of the graph:

> ➤ Select **Count** to display the total number of items (for example, a count of open defects).

> ➤ Select **Sum of** and choose **Estimated Fix Time** to display the estimated time required for fixing the defects, or **Actual Fix Time** to display the actual time spent on fixing the defects. (Available only in the Defects module.)

5 Click the **Filter** button to open the Filter dialog box and filter the graph content. For more information, see "Filtering Records" on page 55.

6 Click the **Refresh** button to apply your changes. The new graph is displayed.

Customizing Progress Graphs

You can specify the information that appears in a progress type graph.
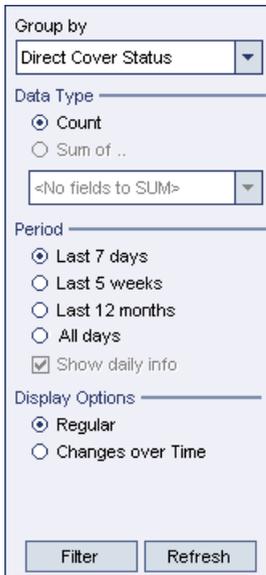
To customize a progress graph:

1 Choose a field from the **Group by** list to specify the information by which Quality Center groups data in the graph. You can select only a field for which the **History** option has been enabled in Project Customization.

2 Under **Data Type**, set the y-axis of the graph:

➤ Select **Count** to display the total number of items (for example, a count of open defects).

➤ Select **Sum of** and choose **Estimated Fix Time** to display the estimated time required for fixing the defects, or **Actual Fix Time** to display the actual time spent on fixing the defects. (This is available only in the Defects module.)

3 Under **Period**, select the period of time you want the graph to show.

4 Under **Display Options**:

➤ Select **Regular** to view the number of requirements, tests, or defects over the period of time you selected.

➤ Select **Changes over Time** to view the change in the number of requirements, tests, or defects over the period of time you selected. Note that each record begins at 0.

5 Click **Filter** to open the Filter dialog box and filter the graph content. For more information, see "Filtering Records" on page 55.

6 Click the **Refresh** button to apply your changes. The new graph is displayed.

Customizing Defect Age Graphs

You can specify the information that appears in an age type graph. The age type graph is only available in the Defects module.

To customize an age graph:

1 Choose a field from the **Group By** list to determine the information by which Quality Center groups data in the graph.

2 Under **Data Type**, set the y-axis of the graph:

➤ Select **Count** to display the total number of items (for example, a count of open defects).

➤ Select **Sum of** and choose **Estimated Fix Time** to display the estimated time required for fixing the defects, or **Actual Fix Time** to display the actual time spent on fixing the defects.

3 You can view the graph content in two data columns. All data older than a certain time interval (for example, older than six months) appears in one column, and all data more recent than that time interval (for example, less than six months old) appears in the other column.

To view graph content in two data columns, under **Age Grouping**, select the time interval.

4 Click the **Filter** button to open the Filter dialog box and filter the graph content. For more information, see "Filtering Records" on page 55.

5 Click the **Refresh** button to apply your changes. The new graph is displayed.

Customizing Trend Graphs

You can specify the information that appears in a trend type graph.

To customize a trend graph:

1 Choose a field from the **Count changes in field** list to determine the information for which Quality Center shows changes in the graph. You can select one field or all fields.

2 Under **Period**, select the time period you want the graph to show.

3 Click **Filter** to open the Filter dialog box and filter the graph content. For more information, see "Filtering Records" on page 55.

4 Click the **Refresh** button to apply your changes. The new graph is displayed.

Customizing the Graph Settings

You can determine how information appears in the graph using the graph toolbar. The toolbar includes the following buttons. Some buttons may not be available for all graph types.

Show Total Values. Toggles between displaying and hiding a total value in the graph. This option is only available for progress type graphs.

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 graph.

Zoom Out. Decreases the magnification of the graph.

Set Graph Appearance. Changes the appearance of the graph, enabling you to customize the graph title, graph color, and graph display. For more information, see "Setting the Graph Appearance" on page 485.

Copy Graph to Clipboard. Includes the following options:

➤ **Copy Graph (Color).** Copies the graph in color to the Clipboard.

➤ **Copy Graph (Monochrome).** Copies the graph in monochrome to the Clipboard.

➤ **Copy Full Screen Graph (Color).** Copies the graph in color to the Clipboard, enlarged to fit full screen.

➤ **Copy Full Screen Graph (Monochrome).** Copies the graph in monochrome to the Clipboard, enlarged to fit full screen.

Print Graph. Includes the following options:

➤ **Print Graph (Color).** Prints the graph in color.

➤ **Print Graph (Monochrome).** Prints the graph in monochrome.

➤ **Print Graph and Details (Color).** Prints the graph and its description in color.

➤ **Print Graph and Details (Monochrome).** Prints the graph and its description in monochrome.

Edit Categories. Enables you to combine **X-Axis** and **Group By** field values into categories. For more information, see "Editing Graph Categories" on page 486.

Setting the Graph Appearance

After you have created your graph, you can change its titles and appearance. For a bar chart, you can specify the display parameters for the bars. For a line chart, you can specify the display parameters for the lines.

To set the graph appearance:

 1 Click the **Set Graph Appearance** button located in the graph toolbar. The Graph Appearance dialog box opens.
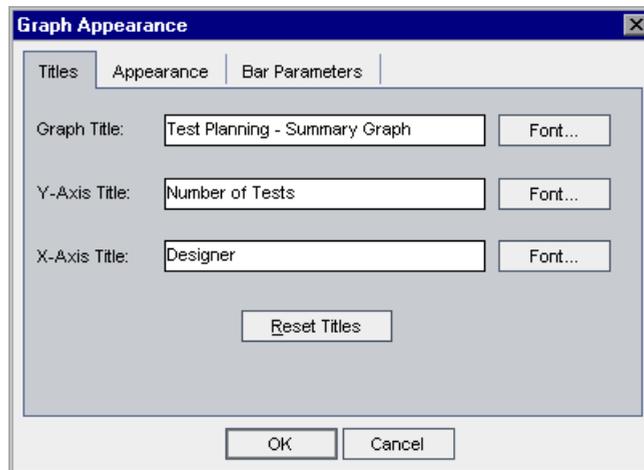
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2 Click the **Titles** tab to change the titles of the graph, the Y-axis, or the X-axis. You can click the **Font** button to change a title's font or color. You can click the **Reset Titles** button to reset the original titles. Note that for a pie chart, you can only change the title of the graph.

3 Click the **Appearance** tab to change the colors of the various components in your graph, to modify the orientation of the labels at the base of the graph (for a bar chart and a line chart only), or to display the graph with a 3-D effect.

4 For a bar chart, click the **Bar Parameters** tab to specify whether you want the values for each bar to be displayed. You can also fix the bar width. If you specify that the values of each bar are to be displayed, you can change the data that is displayed for each bar, or its position relative to the bar.

For a line chart, click the **Line Parameters** tab to specify whether you want the line frame to be displayed and which format you want to use for the date on the X-axis.

Editing Graph Categories

You can combine values for the **X-Axis** and **Grouped By** fields into categories. This enables you to group together data for different field values and display the combined data as one category. For example, suppose the **Priority** field has five values: Low, Medium, High, Very High, and Urgent. You might combine the values Medium and High into a category Important, and the values Very High and Urgent into a category Critical. The graph would then display data divided into three categories: Low, Important, and Critical.

To edit categories for a graph:

1 Click the **Edit Categories** button located in the graph toolbar and select one of the following options:

➤ **Edit X-Axis Categories.** Enables you to combine **X-Axis** field values into categories for graph display. This option is only available for summary graphs and Requirements Coverage graphs.

➤ **Edit Group By Categories.** Enables you to combine **Group By** field values into categories for graph display.

The Edit X-Axis Categories or Edit Group By Categories dialog box opens.

Edit 'X Axis' Categories

#	Name	Expression	
1	<New group>		

New ..
Delete
Clear All
OK
Cancel
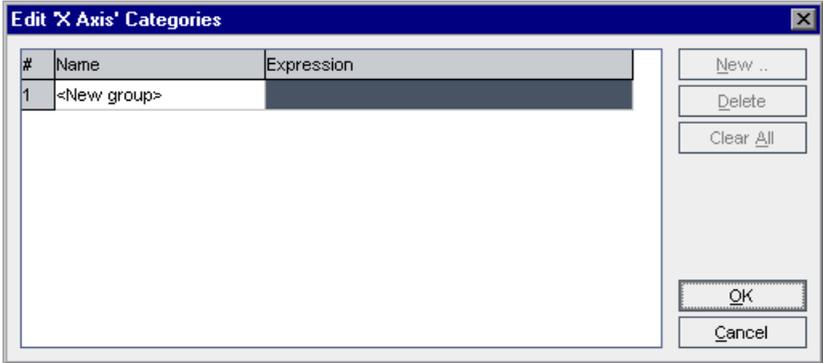
2 In the **Name** column, type a name for a category.

3 Click the **Expression** column and click the browse button. The New Category dialog box opens.

New Category

Available groups
<unknown>
1-Low
2-Medium
3-High
4-Very High
5-Urgent

>
>>
<
<<

Groups in new category

OK   Cancel
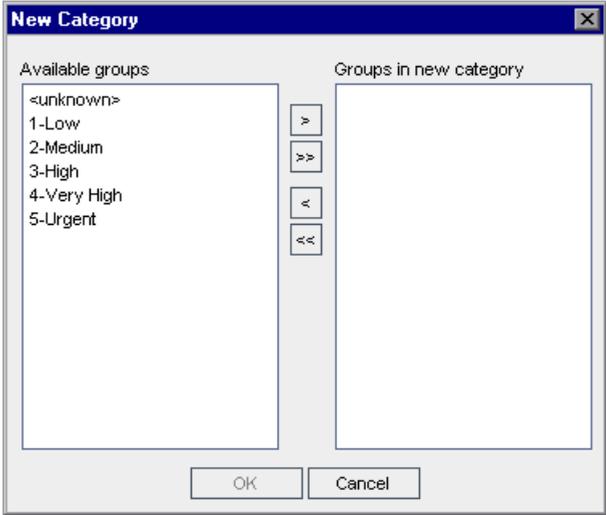
4 To select which field values to include in the category, select field values and click the arrow buttons (> and <) to move them between **Available groups** and **Groups in new category**. Click the double arrow buttons (>> and <<) to move all the field values from one list to the other. You can also drag field values between lists.

Note: You cannot include a field value in more than one category.

Click **OK** to close the New Category dialog box.

5 To add a new category, click the **New** button and repeat steps 2 to 4.

6 To delete a category, select the category and click the **Delete** button.

7 To delete all categories, click the **Clear All** button. Click **Yes** to confirm.

8 Click **OK** to close the Edit X-Axis Categories or Edit Group By Categories dialog box.

9 To reset the **X-Axis** or **Grouped By** categories to their default settings, click the **Edit Categories** button located in the graph toolbar and select one of the following options:

➤ **Reset X-Axis Categories.** Restore the **X-Axis** categories. This option is only available for summary graphs and Requirements Coverage graphs.

➤ **Reset Group By Categories.** Restore the **Group By** categories.

Click **Yes** to confirm. The **X-Axis** or **Grouped By** categories are reset.

Customizing the Graph Description

If you save your graph as a favorite, you can change the predefined graph description. You can also add any text you like to the description.

To customize the graph description:

1 Click the **Description** tab to display the Graph Description pane.

2 In the Graph Description pane, edit the graph description.

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Generating Live Analysis Graphs

Live Analysis graphs enable you to create and display a dynamic graphical representation of data related to test plans and test sets. You use Live Analysis graphs to view data that relates to a test subject folder or test set folder. Each time that you click on a test subject folder or test set folder, the graphs change to reflect the data related to your selection.

This chapter describes:	On page:
About Generating Live Analysis Graphs	490
Creating Live Analysis Graphs	490
Deleting Live Analysis Graphs	498
Setting the Graph Appearance	499

About Generating Live Analysis Graphs

You create Live Analysis graphs to provide a dynamic quick visual overview of all the tests in a folder, or test sets in a test set folder. After you have created a graph, you can access it by choosing the Live Analysis tab when you are in the tree view of the Test Plan or Test Lab modules.

When you update a record in the folder, the data change is reflected in the graph, without the need for the graph to be manually regenerated.

Live Analysis graphs differ from the graphs described in Chapter 34, "Generating Graphs", in that you do not have to recreate a graph to view data that has changed. In addition, the layout and settings of the graph are preserved when you select another folder in the same module. This enables you to view the same graphical analysis of different folders without the need to recreate the graphs.

Creating Live Analysis Graphs

You can create Live Analysis graphs for test subject folders and test set folders. For more information on creating Live Analysis graphs for test subject folders, see "Creating Test Subject Folder Graphs" on page 491. For more information on creating Live Analysis graphs for test set folders, see "Creating Test Set Folder Graphs" on page 494.

Note: The Live Analysis graphs that you create are unique for your user login. Each project user can create Live Analysis graphs which will be visible only to that user but will not be visible to other users.

Creating Test Subject Folder Graphs

In the Live Analysis tab, you can create Live Analysis graphs for tests in your test subject folders. After you define the data that you want to display, the graphs are automatically updated each time the data changes in one or more of the tests in the test subject folder for which you created the graph.

Note: Live Analysis graphs only represent tests which are located directly below the selected test subject folder. They do not include tests located at a lower hierarchical level in child folders of the selected test subject folder.

To create a test subject folder graph:

1 Click the **Test Plan** button on the sidebar to display the Test Plan module.

2 Choose **View** > **Test Plan Tree**. The test plan tree view is displayed.

3 In the test plan tree, select a test subject folder.

4 Click the **Live Analysis** tab.
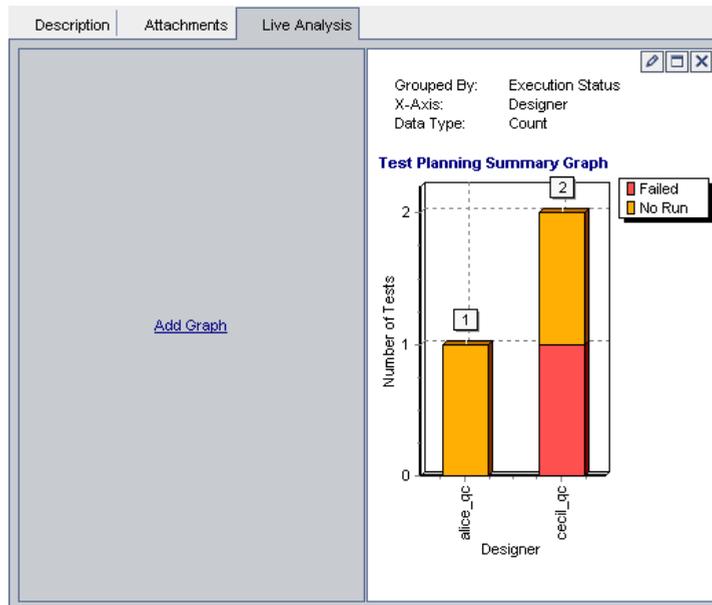
The Live Analysis tab is divided into two panes, each of which can display a graph.

5 If you already have two graphs displayed and you want to create a new graph, delete one of the existing graphs. For more information, see "Deleting Live Analysis Graphs" on page 498.

6 Click the **Add Graph** link in the pane in which you want to display the graph. Alternatively, choose **Analysis > Live Analysis > Add Graph**. The Graph Wizard: Test Plan Module dialog box opens.
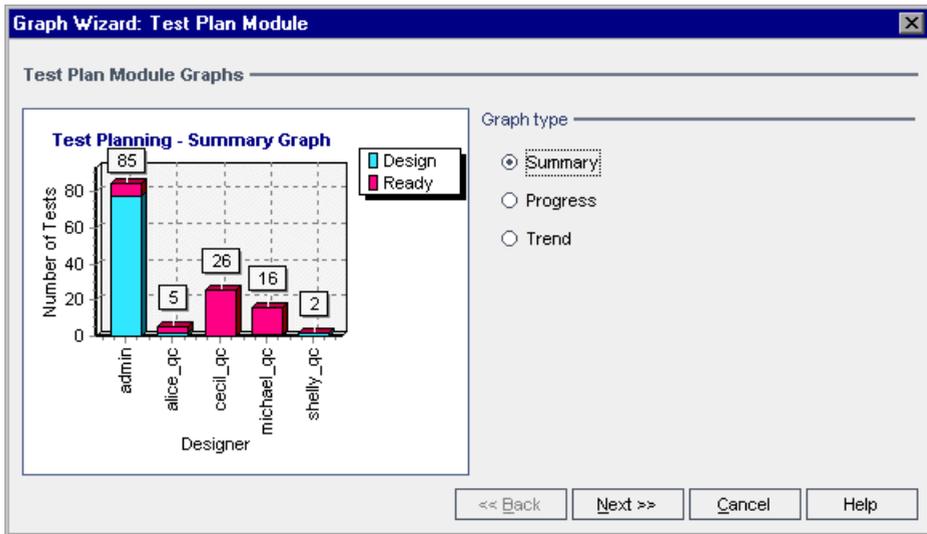
7 Under **Graph type**, select the type of graph that you want to display. You can generate the following graphs from the Test Plan module:

Graph	Description
Summary Graph	Shows how many tests are currently in the selected test subject folder.
Progress Graph	Shows how many tests accumulated in the selected test subject folder, at specific points during a period of time.
Trend Graph	Shows the history of changes to specific Test Plan fields in the selected test subject folder, for each time interval displayed.

Click **Next**.

8 In the **Group By** box, select the field by which you want the tests to be grouped in the graph. For a progress graph, you can only select a field for which history has been enabled. For more information on enabling history for a field, refer to the *HP Quality Center Administrator's Guide*

9 If you chose to create a summary graph, click **Next**. In the **X-Axis** box, select the field that you want to use for the X-axis.

10 Click **Finish**. The Live Analysis graph is displayed in the pane that you selected.

The graph properties that you specified are displayed at the top of the graph.

Note: The data displayed in the graph reflects the filters that you have set for the test plan tree. For more information on filtering, see "Filtering Records" on page 55.

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11 Click the **Full Screen View** button to maximize the graph. To return to the normal view, click the **Close** button.

12 To further analyze your data, click a segment in the graph. The Drill Down Results dialog box opens and displays a grid with more details. You can determine the column appearance and order. You can also export the contents of a grid as a text file, Microsoft Excel spreadsheet, Microsoft Word document, or HTML document. For more information, see "Exporting Data to a File" on page 73.

13 To change the color of a bar in a bar graph or a line in a line graph, right-click the bar or line, or click the corresponding entry in the graph legend. In the Color dialog box that opens, select the new color from one of the color palettes.

14 Click the **Set Graph Appearance** button to customize the graph title, graph color, and graph display. For more graph appearance options, see "Setting the Graph Appearance" on page 499.

Creating Test Set Folder Graphs

In the Live Analysis tab, you can create Live Analysis graphs for the test sets in your test set folders. After you define the data that you want to display, the graphs are automatically updated each time the data changes in one or more test sets in the folder for which you created the graph.

Note: Live Analysis graphs only represent test sets which are located directly below the selected test set folder. They do not include test sets located at a lower hierarchical level in child folders of the selected test set folder.

To create a test set folder graph:

1 Click the **Test Lab** button on the sidebar to display the Test Lab module.

2 Choose **View** > **Test Sets Tree**. The Test Sets Tree view is displayed.

3 In the test sets tree, select a test set folder.

4 Click the **Live Analysis** tab.
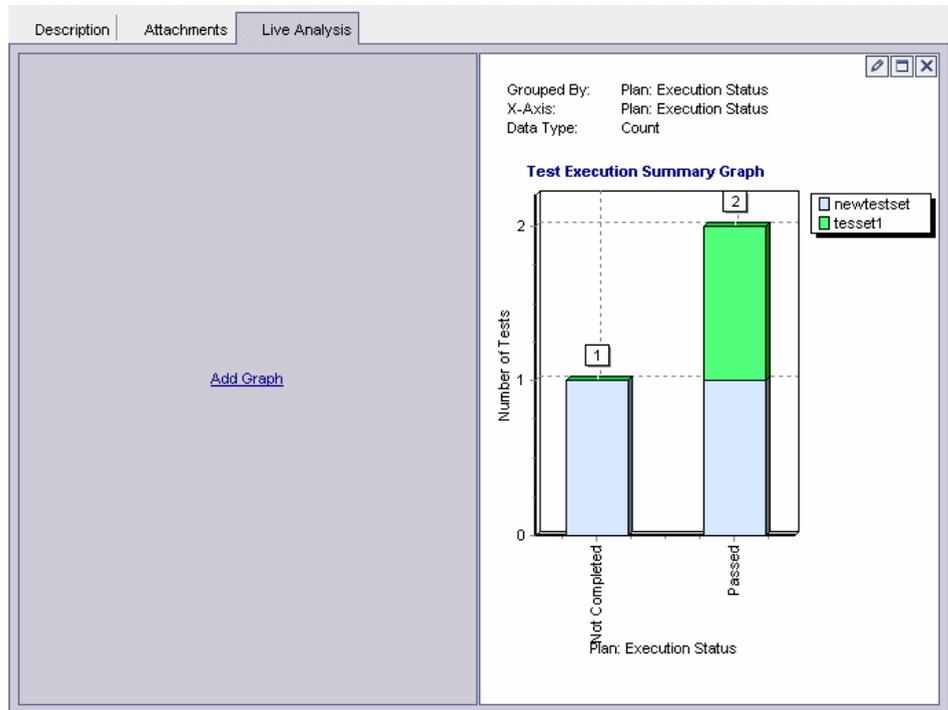
The Live Analysis tab is divided into two panes, each of which can display a graph.

5 If you already have two graphs displayed and you want to create a new graph, delete one of the existing graphs. For more information, see "Deleting Live Analysis Graphs" on page 498.

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6 Click the **Add Graph** link in the pane in which you want to display the graph. Alternatively, choose **Analysis > Live Analysis > Add Graph**. The Graph Wizard: Test Lab Module dialog box opens.
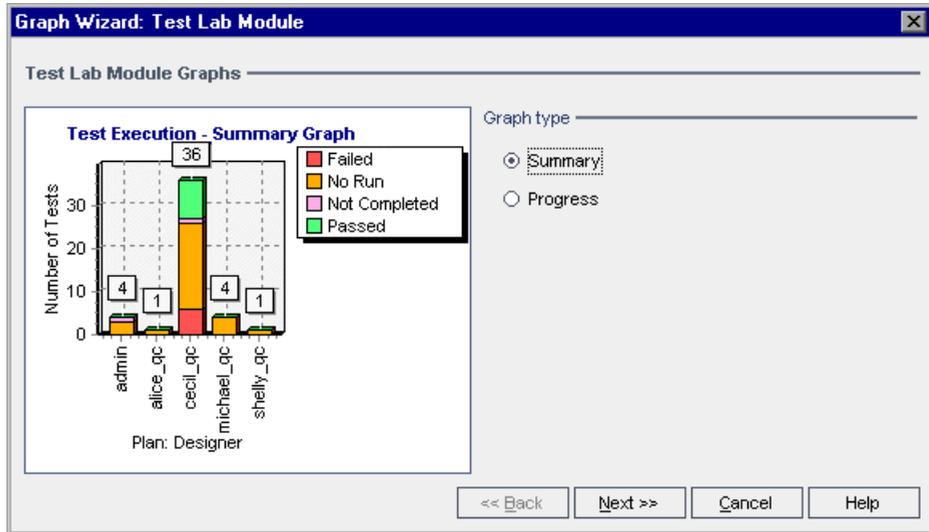
7 Under **Graph type**, select the type of graph that you want to display. You can generate the following graphs from the Test Lab module:

Graph	Description
Summary Graph	Shows how many tests belong to the test sets in the selected folder.
Progress Graph	Shows how many tests accumulated in the test sets in the selected folders, at specific points during a period of time.

Click **Next**.

8 In the **Group By** box, select the field by which you want the tests to be grouped in the graph. For a progress graph, you can only select a field for which history has been enabled. For more information on enabling history for a field, refer to the *HP Quality Center Administrator's Guide*.

9 If you chose to create a summary graph, click **Next**. In the **X-Axis** box, select the field that you want to use for the X-axis.

10 Click **Finish**. The Live Analysis graph is displayed in the pane that you selected.

The graph properties that you specified are displayed at the top of the graph.

> **Note:** The data displayed in the graph reflects the filters that you have set for the test sets tree. For more information on filtering, see "Filtering Records" on page 55.

11 Click the **Full Screen View** button to maximize the graph. To return to the normal view, click the **Close** button.

12 To further analyze your data, click a segment in the graph. The Drill Down Results dialog box opens and displays a grid with more details. You can determine the column appearance and order. You can also export the contents of a grid as a text file, Microsoft Excel spreadsheet, Microsoft Word document, or HTML document. For more information, see "Exporting Data to a File" on page 73.

13 To change the color of a bar in a bar graph or a line in a line graph, right-click the bar or line, or click the corresponding entry in the graph legend. In the Color dialog box that opens, select the new color from one of the color palettes.

14 Click the **Set Graph Appearance** button to customize the graph title, graph color, and graph display. For more graph appearance options, see "Setting the Graph Appearance" on page 499.

Deleting Live Analysis Graphs

You can delete a Live Analysis graph. If you have two Live Analysis graphs displayed for a folder and you want to create a new graph, you must first delete one of the existing graphs.

To delete a Live Analysis graph:

1 Click the **Remove Graph** button located at the top of the graph you want to delete. Alternatively, choose **Analysis** > **Live Analysis** > **Remove Graph**.

2 Click **Yes** to confirm. The graph is deleted from the selected pane and the **Add Graph** link is displayed.

Setting the Graph Appearance

After you have created your graph, you can change its titles and appearance. For a bar chart, you can specify the display parameters for the bars. For a line chart, you can specify the display parameters for the lines.

To set the graph appearance:

1 Click the **Set Graph Appearance** button located at the top of the graph. Alternatively, choose **Analysis** > **Live Analysis** > **Set Graph Appearance**. The Graph Appearance dialog box opens and displays the General tab.
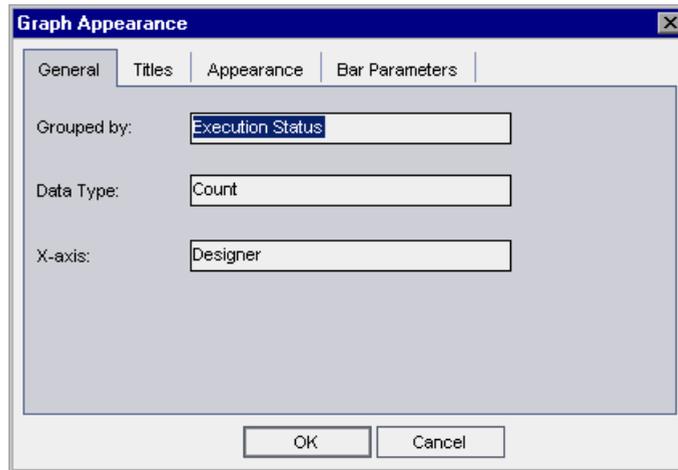
The General tab displays read-only information about the graph.

2 Click the **Titles** tab to change the titles of the graph, the Y-axis, or the X-axis. You can click the **Font** button to change a title's font, size, formatting, or color. You can click the **Reset Titles** button to reset the original titles.

3 Click the **Appearance** tab to change the colors of the various components in your graph, to modify the orientation of the labels at the base of the graph, or to display the graph with a 3-D effect.

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4 For a bar chart, click the **Bar Parameters** tab to specify whether you want the values for each bar to be displayed. You can also fix the bar width. If you specify that the values of each bar are to be displayed, you can change the data that is displayed for each bar, or its position relative to the bar.

For a line chart, click the **Line Parameters** tab to specify whether you want the line frame to be displayed and which format you want to use for the date on the X-axis.

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Generating Project Documents

The Quality Center Document Generator enables you to create a Microsoft Word document containing a project's requirements, planning, test list, test set folders, and defect tracking data.

Notes:

➤ The Document Generator can only be run if Microsoft Word has been enabled to run macros. If you receive a security message while using the Document Generator, you must set the security level of Microsoft Word to medium or low. To do this, choose **Tools** > **Macro** > **Security** from the Word menu bar. On the Security Level tab, select the desired level of protection (Medium or Low), and click **OK**.

➤ To verify supported versions of Microsoft Word, refer to the *HP Quality Center Installation Guide*.

About Using the Document Generator

The Document Generator enables you to create a hard copy of the data contained in a Quality Center project. You create the document by performing the following tasks:

1 Set document format.

2 Specify document content.

3 Generate and edit the document.

First, you set formatting instructions in order to determine how your project document will look. For example, you can print a company logo on each page of the document, create a table of contents and an index, and place test scripts and file attachments in the text of your document.

Next, you specify the project data that will be presented in your document. You can select information from the Quality Center modules. For example, from the Test Plan module, you can choose which folders and tests to include from the test plan tree, sort this data alphabetically or in a custom sort order, and display the data as lists or tables.

After you have set the formatting instructions and specified the document's content, you can save the document settings as a favorite view for future use and generate the document. After document generation is complete, you can view and edit the document in Microsoft Word. The information for each module that you select is printed in a separate chapter of the project document.

Below is a sample page from a Microsoft Word project document generated by the Document Generator.

Launching the Document Generator

TOOLS

To start the Document Generator, click the **Tools** button on the upper-right of the Quality Center window. Choose **Document Generator**. The Document Generator opens.
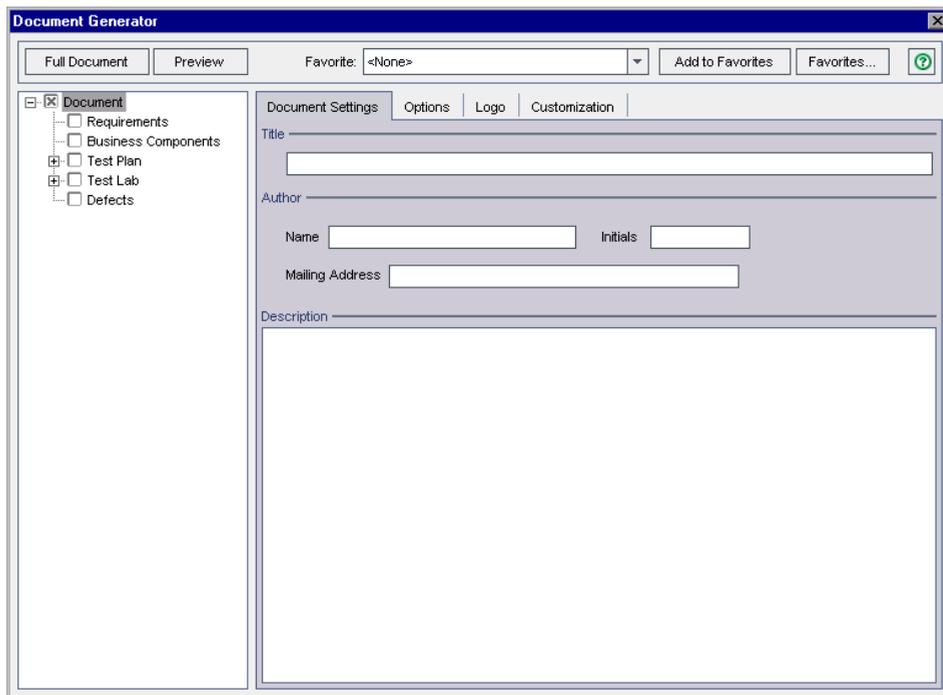
Setting Formatting Instructions

Before you can generate a document, you set formatting instructions that control how the document will look and what is included in the cover page.

To set formatting instructions:

1 Open the Document Generator. By default, the **Document** link is selected in the Document Generator tree and the Document Settings tab is displayed.

2 Type a **Title** for the document, **Author** details, and a **Description** of the document.

3 Click the **Options** tab.
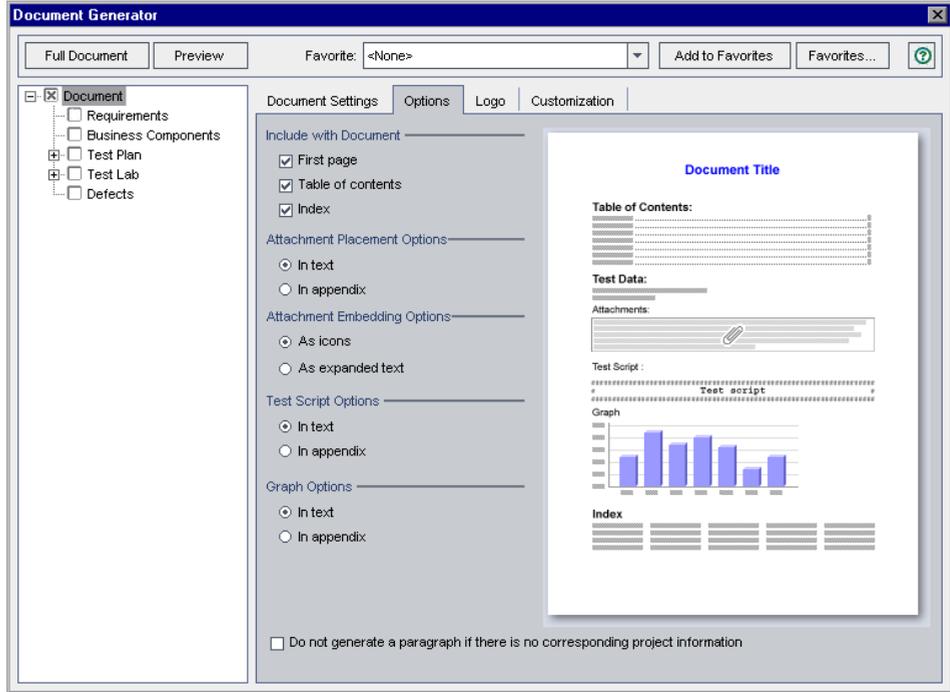
4 Under **Include with Document**, you can select the following options to include in the project document:

Option	Description
First page	The cover page of the project document. This displays the title of the document, the date the document was created, and the name of the document's author. You specify this information in the Document Settings tab.
Table of contents	A list of all sections in the project document.
Index	An alphabetical list of all the information in the project document. The index appears at the end of the document.

5 Under **Attachment Placement Options**, choose where attachments will appear in the document:

Option	Description
In text	Displays attachments in the main text of the document.
In appendix	Places attachments in a separate appendix.

6 Under **Attachment Embedding Options**, choose whether the project document contains the data from attachments as a linked icon or as embedded text:

Option	Description
As icons	Places a link to the attachment in the document as an icon.
As expanded text	Adds the attachment to the document as expanded text.

7 Under **Test Script Options**, choose where test scripts will appear in the document:

Option	Description
In text	Displays test scripts in the main text of the document.
In appendix	Places test scripts in a separate appendix.

8 Under **Graph Options**, choose where graphs will appear in the document:

Option	Description
In text	Displays graphs in the main text of the document.
In appendix	Places graphs in a separate appendix.

9 Select **Do not generate a paragraph if there is no corresponding project information** if you do not want to include empty data fields in the project document.

10 To set the image that is placed at the top of each page of the project document, click the **Logo** tab.
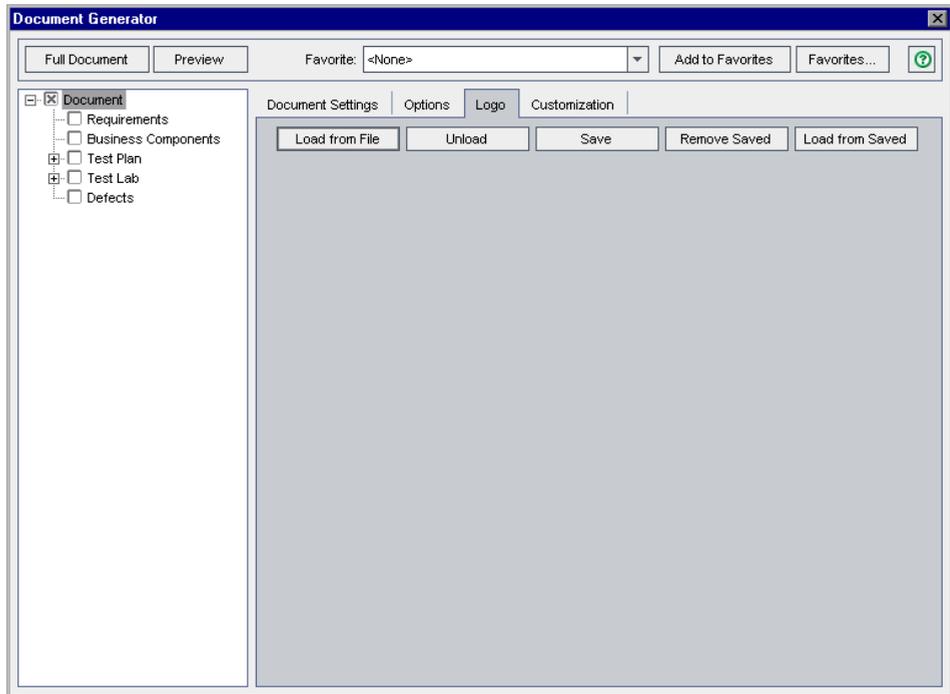
You can define a logo for the project document, and save the image so that it is available for other users in the current project. If you do not select an image, the Document Generator uses the HP logo in the project document.

11 Click the **Load from File** button. The Open dialog box opens.

12 Locate the image and click **Open**. The image is displayed in the Logo tab. To unload the image, click **Unload**.

13 To save the displayed image in the current project, click the **Save** button. To delete the image, click the **Remove Saved** button.

14 To load a saved image that was cleared (using the **Unload** button), click the **Load from Saved** button.

15 To set paper properties, click the **Customization** tab and click the **Page Setup** button.
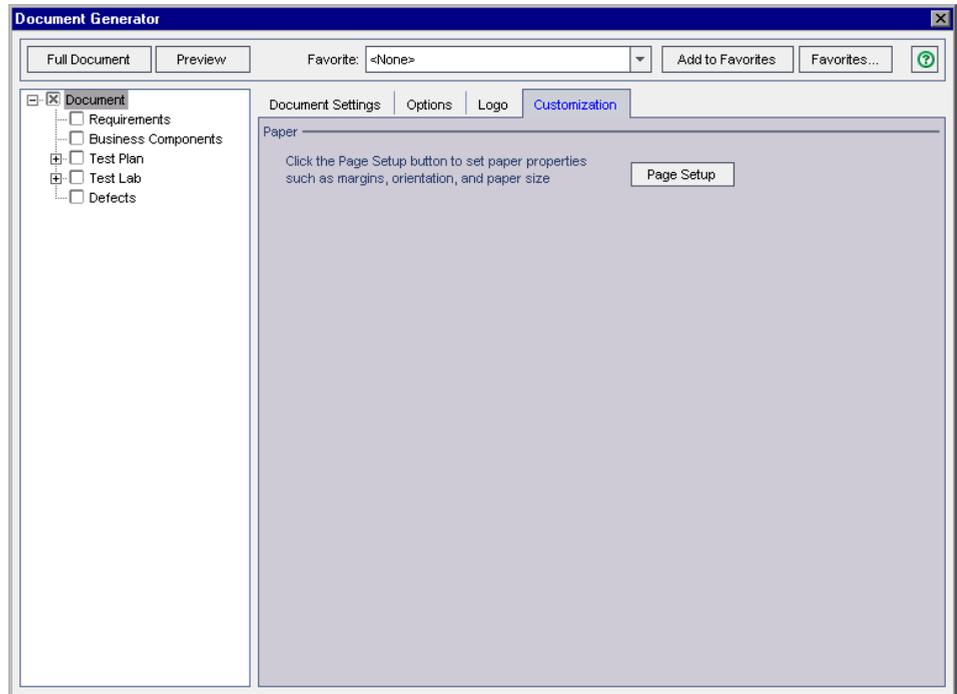
The Page Setup dialog box opens.
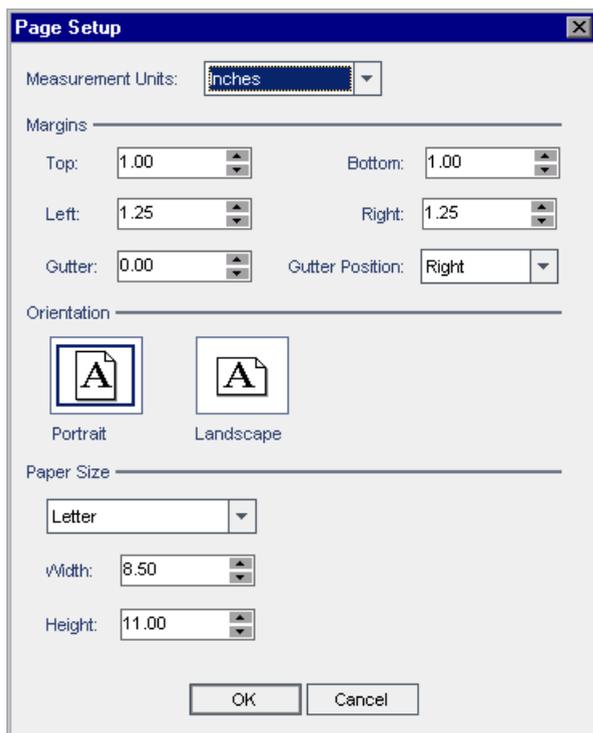
16 Set the measurement units, margins, orientation, and paper size to be used for project documents. Click **OK** to return to the Customization tab.

Specifying Project Data

Select a check box in the Document Generator tree to specify project data to include in your project document.

Check Box	Description
Document	Use the Document Settings, Options, Logo, and Customization tabs to set formatting instructions. For more information, see "Setting Formatting Instructions" on page 505. Note that this option is always selected.
Requirements	Specify which requirements, traced requirements, tests coverage, and linked defects to include from the Requirements module. For more information, see "Specifying Requirements Module Data" on page 512.
Business Components	If you use HP Business Process Testing, refer to the *HP Business Process Testing User's Guide*.
Test Plan	Expand to specify which test subject folders and which tests to include from the Test Plan module. For more information, see "Specifying Test Plan Module Data from the Test Plan Tree View" on page 516 and "Specifying Test Plan Module Data from the Test Grid View" on page 520. Select **Subject Tree** to specify which test subject folders to include from the Test Plan module. Select **Subject Tests** to specify which tests to include from the selected folders. Select **Test List** to specify which tests to include from the Test Grid.

Check Box	Description
Test Lab	Specify which test set folders to include from the Test Lab module. Expand to select which test sets, tests and test runs to include. For more information, see "Specifying Test Lab Module Data" on page 524. Select **Test Sets** to specify which test sets to include. Select **Tests** to specify which tests to include from the selected test sets. Select **Runs** to specify which test runs to include from the selected tests in a test set.
Defects	Specify which defects to include from the Defects module. For more information, see "Specifying Defects Module Data" on page 533.

Specifying Requirements Module Data

You use the Requirements page to specify the requirement information from the Requirements module that should appear in the Requirements section of the project document.

Note: Microsoft Word is limited to nine header levels in the table of contents. If the requirements tree has more than nine hierarchical levels, these levels will not appear in the table of contents of the generated project document.

To specify Requirements module data:

1 Select the **Requirements** check box in the Document Generator tree and click the **Requirements** link. The Requirements page is displayed.
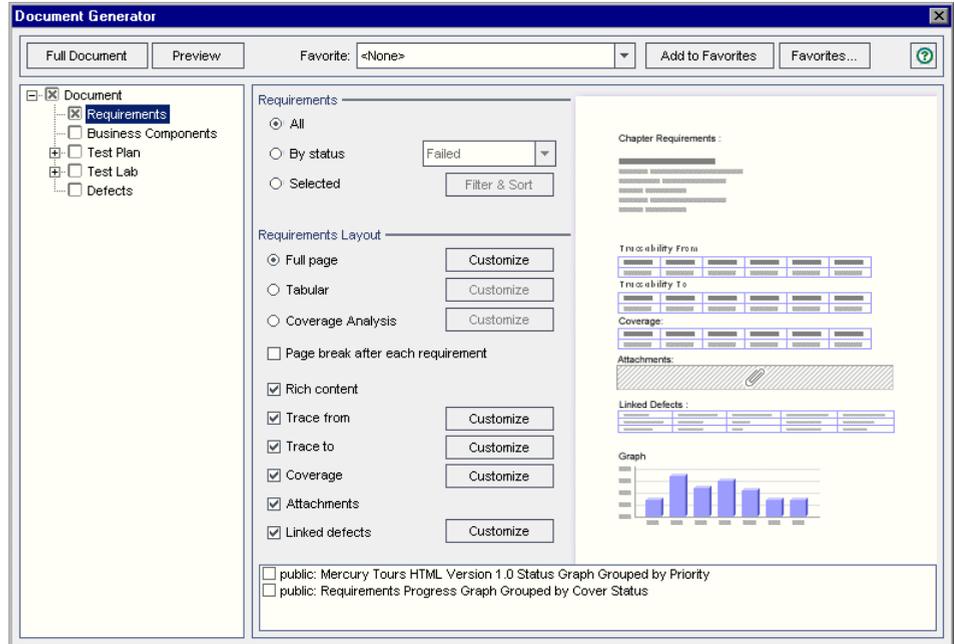
2 Under **Requirements**, select one of the following options:

Option	Description
All	Includes all the requirements from the requirements tree.
By status	Includes only requirements with the selected status.
Selected	Includes only selected requirements. Click the **Filter & Sort** button to specify the criteria for selecting requirements. For more information on using the Filter dialog box, see Chapter 3, "Working with Quality Center Data."

3 Under **Requirements Layout**, select one of the following options:

Option	Description
Full page	Displays a list of the selected requirements. Click the **Customize** button to choose the information to appear in the document.
Tabular	Displays the requirements as a table. Click the **Customize** button to open the Tabular Layout dialog box to customize the table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, and set the column order, width, and captions.
Coverage Analysis	Displays a graphical breakdown of the direct cover status for each requirement. Click the **Customize** button to open the Coverage Analysis dialog box to choose whether to display the analysis in color or black and white, the number of hierarchal levels to display, and whether to display a legend.

4 If you selected **Full page** as the Requirements Layout, you can set the following options:

Option	Description
Page break after each requirement	Inserts page breaks in the project document after each requirement.
Rich content	Includes Microsoft Word content for each requirement.
Trace From	Includes traced from requirements in the document. Click the **Customize** button to open the Tabular Layout dialog box to customize the traceability table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, and set the column order, width, and captions.

Option	Description
Trace To	Includes traced to requirements in the document. Click the **Customize** button to open the Tabular Layout dialog box to customize the traceability table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, and set the column order, width, and captions.
Coverage	Includes test coverage for the requirements in the document. Click the **Customize** button to open the Tabular Layout dialog box to customize the coverage table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, and set the column order, width, and captions.
Attachments	Includes requirement attachments in the document. Requirement attachments are files that have been associated with the requirement, such as text files, images, or URLs.
Linked defects	Includes linked defects in the document. Click the **Customize** button to open the Tabular Layout dialog box to customize the linked defects table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. You can also specify whether to display only defects that have been directly linked to requirements or to include indirectly-linked defects as well.

5 To include graphs in the project document, select **Graphs** and select graphs from the graph list located at the bottom of the page. Only graphs that you saved as favorites are included in the list. For more information on favorite views, see Chapter 6, "Working with Favorite Views."

Specifying Test Plan Module Data from the Test Plan Tree View

You use the Subject Tree and Subject Tests pages to specify the information from the test plan tree view of the Test Plan module that should appear in the project document.

Note: Microsoft Word is limited to nine header levels in the table of contents. If the test plan tree has more than nine hierarchical levels, these levels will not appear in the table of contents of the generated project document.

To specify Test Plan module data from the test plan tree view:

1 Expand the **Test Plan** node in the Document Generator tree. Select the **Subject Tree** check box and click the **Subject Tree** link. The Subject Tree page is displayed.
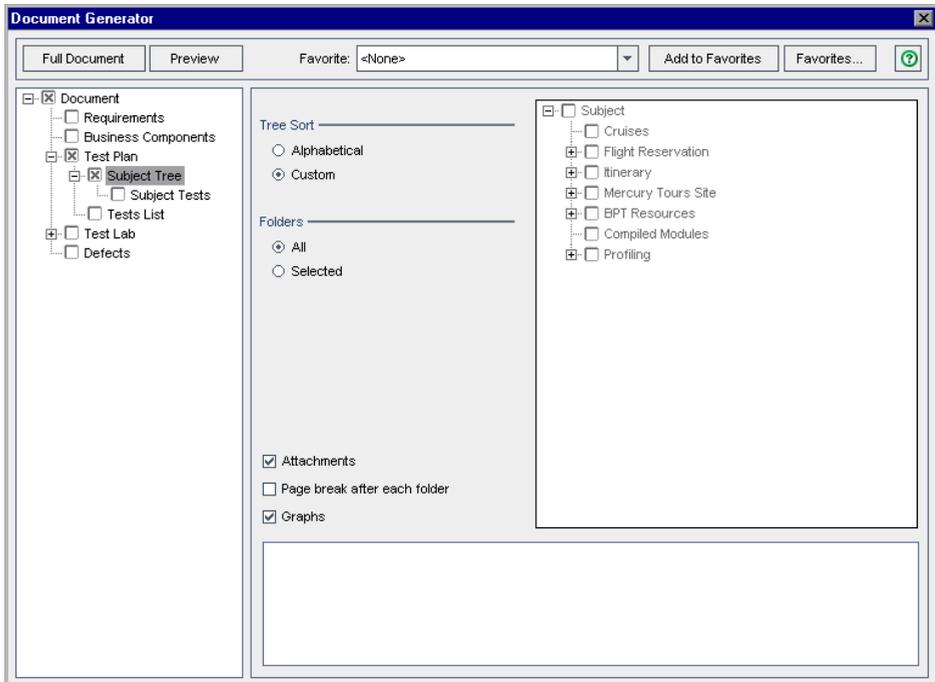
2 Under **Tree Sort**, determine the order of the test plan tree information in the document:

Option	Description
Alphabetical	The contents of the folders will be organized according to the alphabetical order of the folders in the test plan tree. For example, suppose the test plan tree contains two folders, Automated Tests and Manual Tests. The tests in the Automated Tests folder will be printed before the tests in the Manual Tests folder.
Custom	The contents of the folders will be organized according to the custom sort order you set for displaying test plan tree folders. By default, subject folders in the test plan tree appear in alphabetical order (by name). For example, suppose the test plan tree contains two folders, Automated Tests and Manual Tests. You can create a sort order that prints the tests in the Manual Tests folder before the tests in the Automated Tests folder. For more information about creating a custom sort order for the test plan tree, see Chapter 17, "Developing the Test Plan Tree."

3 Under **Folders**, specify which test plan tree folders you want to include in the document:

Option	Description
All	Includes all the folders in the test plan tree.
Selected	Includes only the folders you choose from the test plan tree. You select the folders from the test plan tree displayed on the right side of the Subject Tree page.

4 To include folder attachments in the document, select **Attachments**. Folder attachments are files that have been associated with the folder, such as text files, images, or URLs.

5 To insert page breaks in the project document after each test subject folder, select **Page break after each folder**.

6 To include graphs in the document, select **Graphs** and select graphs from the list. Only graphs you saved as favorites are included in the list. For more information on favorite views, see Chapter 6, "Working with Favorite Views."

7 To include test data in the project document, expand the **Subject Tree** node in the Document Generator tree. Select the **Subject Tests** check box and click the **Subject Tests** link. The Subject Tests page is displayed.
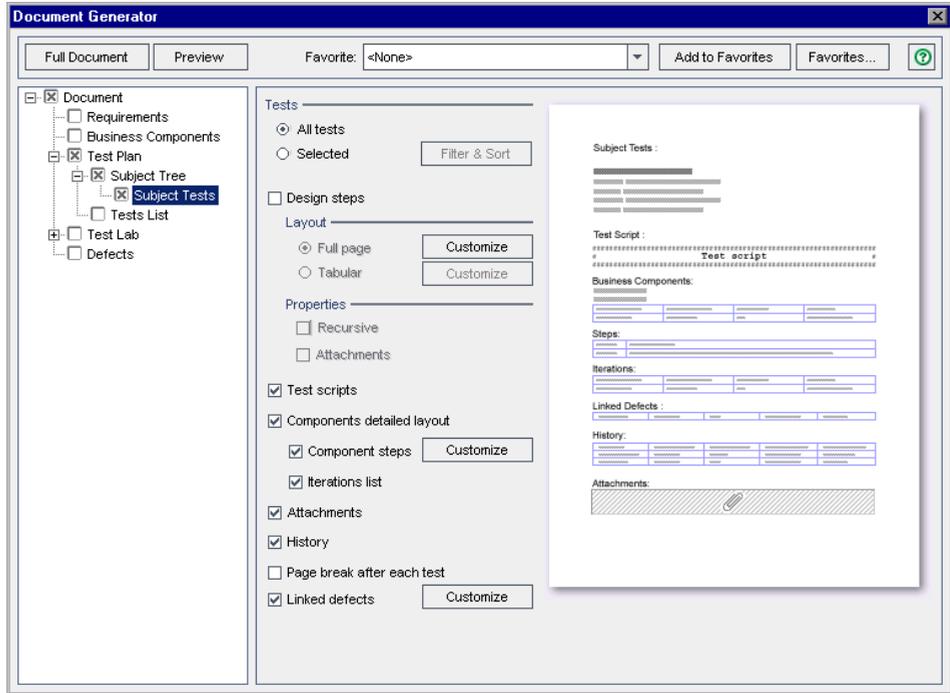
8 Under **Tests**, specify which tests you want to include in the document:

Option	Description
All tests	Includes all the tests from the selected test plan tree folders.
Selected	Includes only selected tests. Click the **Filter & Sort** button to specify the criteria for selecting tests. For more information on using the Filter dialog box, see Chapter 3, "Working with Quality Center Data."

9 To include design steps from the test, select **Design steps**.

Under **Layout**, specify how design steps will be organized:

Option	Description
Full page	Displays a list of all the design steps in a test. Click the **Customize** button to choose the information to appear in the document.
Tabular	Displays all the design steps in a test as a table. Click the **Customize** button to open the Tabular Layout dialog box to customize the table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, and set the column order, width, and captions.

Under **Properties**, specify what to include from the design steps:

Option	Description
Recursive	Includes called tests from the design steps.
Attachments	Includes all design step attachments.

10 To include test scripts in the document, select **Test scripts**.

11 If you use Business Process Testing, you can include the layout of the components included in the tests. Select **Components detailed layout** and choose what to include in the detailed layout:

➤ To include component steps, select **Component steps**. Click the **Customize** button to open the Tabular Layout dialog box to customize the component steps table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions.

➤ To include the iteration list, select **Iterations list**.

12 To include test attachments in the document, select **Attachments**.

13 To display a list of all the changes made to the tests, and which user made each change, select **History**.

14 To insert page breaks in the project document after each test, select **Page break after each test**.

15 To include a table of linked defects, select **Linked defects**. Click the **Customize** button to open the Tabular Layout dialog box to customize the linked defects table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. You can also specify whether to display only defects that have been directly linked to tests or to include indirectly-linked defects as well.

Specifying Test Plan Module Data from the Test Grid View

You use the Test List page to specify the tests from the Test Grid that should appear in the project document. For more information about the Test Grid, see Chapter 3, "Working with Quality Center Data."

To specify Test Plan module data from the Test Grid view:

 1 Expand the **Test Plan node** in the Document Generator tree. Select the **Test
   List** check box and click the **Test List** link. The Test List page is displayed.

 2 Under **Tests**, specify which tests you want to include in the document:

Option	Description
All tests	Includes all the tests from the Test Grid.
Selected	Includes only selected tests. Click the **Filter & Sort** button to specify the criteria for selecting tests. For more information on using the Filter dialog box, see Chapter 3, "Working with Quality Center Data."

3 Under **Test Layout**, specify how the tests will be organized:

Option	Description
Full page	Displays a list of all the tests in the project. Click the **Customize** button to choose the information to appear in the document.
Tabular	Displays all the tests as a table. Click the **Customize** button to open the Tabular Layout dialog box to customize the table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, and set the column order, width, and captions.

4 To insert page breaks in the project document after each test, select **Page break after each test**.

5 If you selected **Full page** as the Test Layout, you can select **Design steps** to include design steps from the test.

Under **Layout**, specify how design steps will be organized:

Option	Description
Full page	Displays a list of all the design steps in a test. Click the **Customize** button to choose the information to appear in the document.
Tabular	Displays all the design steps in a test as a table. Click the **Customize** button to open the Tabular Layout dialog box to customize the table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, and set the column order, width, and captions.

Under **Properties**, specify what to include from the design steps:

Option	Description
Recursive	Includes called tests from the design steps.
Attachments	Includes all design step attachments.

6 If you selected **Full page** as the Test Layout, you can also set the following options:

Option	Description
Test scripts	Includes test scripts in the document.
Components detailed layout	If you use HP Business Process Testing, you can include the detailed layout of the components included in the tests. Choose what to include in the detailed layout: **Component steps:** Includes component steps. Click the **Customize** button to open the Tabular Layout dialog box to customize the component steps table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. **Iterations list:** Includes the iteration list.
Attachments	Includes test run attachments in the document.
Linked defects	Includes a table of linked defects. Click the **Customize** button to open the Tabular Layout dialog box to customize the linked defects table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. You can also specify whether to display only defects that have been directly linked to tests or to include indirectly-linked defects as well.
History	Displays a list of all the changes made to the tests, and who made them.

7 To include graphs in the document, select **Graphs** and select graphs from the graph list located at the bottom of the page. Only graphs you saved as favorites are included in the list. For more information on favorite views, see Chapter 6, "Working with Favorite Views."

Specifying Test Lab Module Data

You use the Test Lab, Test Sets, Tests, and Runs pages to specify the information from the Test Lab module that should appear in the project document.

Note: Microsoft Word is limited to nine header levels in the table of contents. If the test sets tree has more than nine hierarchical levels, these levels will not appear in the table of contents of the generated project document.

To specify Test Lab module data:

1 Select the **Test Lab** check box in the Document Generator tree and click the **Test Lab** link. The Test Lab page opens.
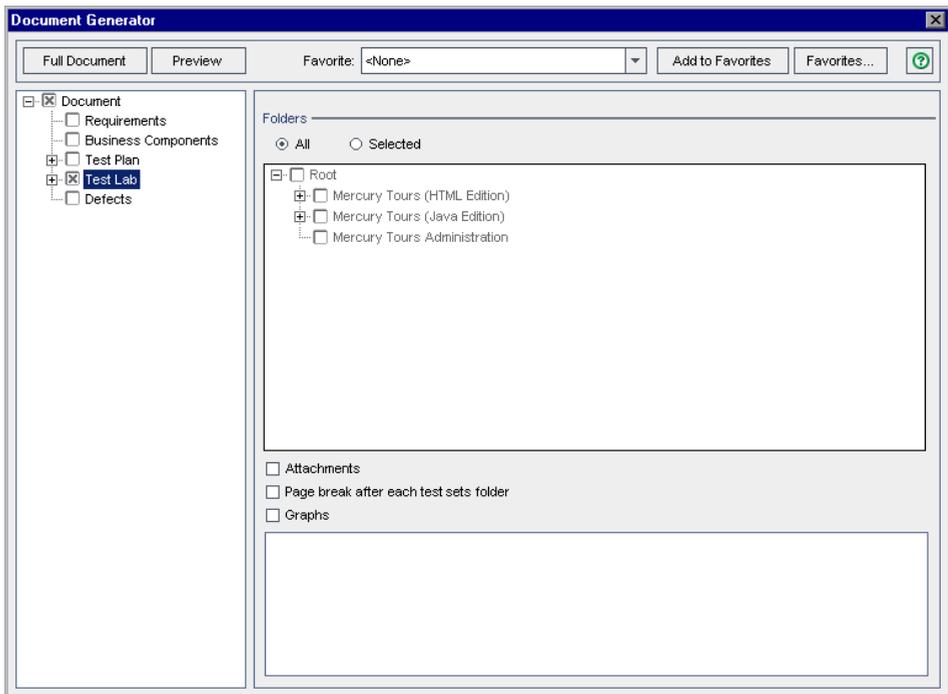
2 Under **Folders**, specify which test lab folders you want to include in the document:

Option	Description
All	Includes all the folders in the test sets tree.
Selected	Includes only the folders you choose from the test sets tree. You select the folders from the test sets tree displayed under Folders.

3 To include test set attachments, select **Attachments**.

4 To insert page breaks in the project document after each test sets folder, select **Page break after each test sets folder**.

5 To include graphs in the document, select **Graphs** and select graphs from the graph list located at the bottom of the page. Only graphs you saved as favorites are included in the list. For more information on favorite views, see Chapter 6, "Working with Favorite Views."

6 Expand the Test Lab node in the Document Generator tree.

To include test set data in the project document, select the **Test Sets** check box and click the **Test Sets** link in the Document Generator tree. The Test Sets page is displayed.
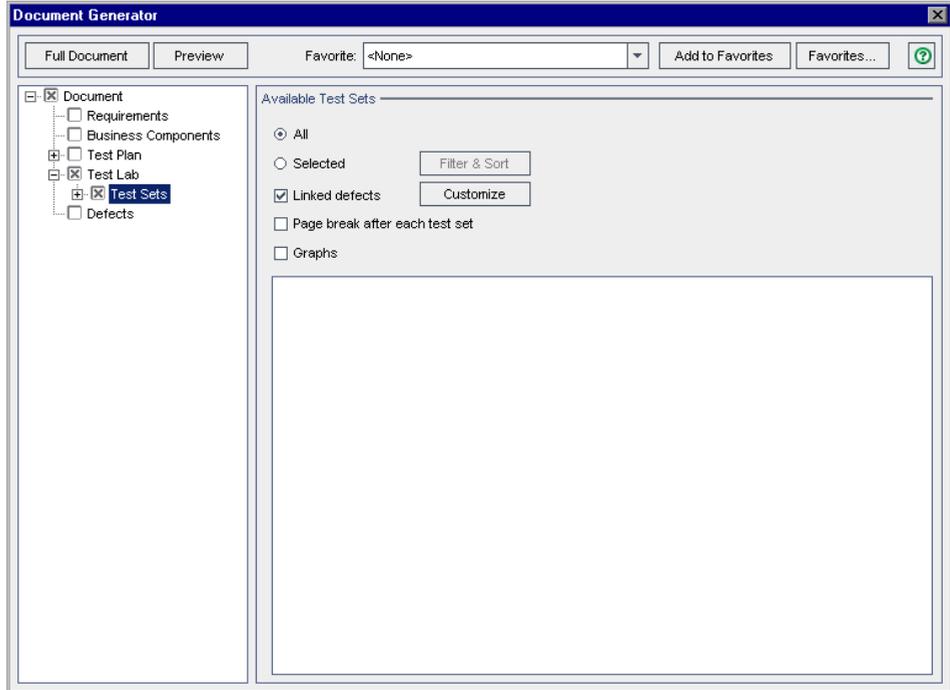
7 Under **Available Test Sets**, specify which test sets you want to include in the document:

Option	Description
All	Includes all the test sets in the selected test set folder.
Selected	Includes only selected test sets. Click the **Filter & Sort** button to specify the criteria for selecting the test sets. For more information on using the Filter dialog box, see Chapter 3, "Working with Quality Center Data."

8 To include linked defects, select **Linked defects**. Click the Customize button to customize the linked defects. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. You can also specify whether to display only defects that have been directly linked to test sets or to include indirectly-linked defects as well.

9 To insert page breaks in the project document after each test set, select **Page break after each test set**.

10 To include graphs in the document, select **Graphs**, and select graphs from the list. Only graphs you saved as favorites are included in the list. For more information on favorite views, see Chapter 6, "Working with Favorite Views."

11 Expand **Tests Sets** in the Document Generator tree.

To include test data in the project document, select the **Tests** check box and click the **Tests** link. The Test Page is displayed.
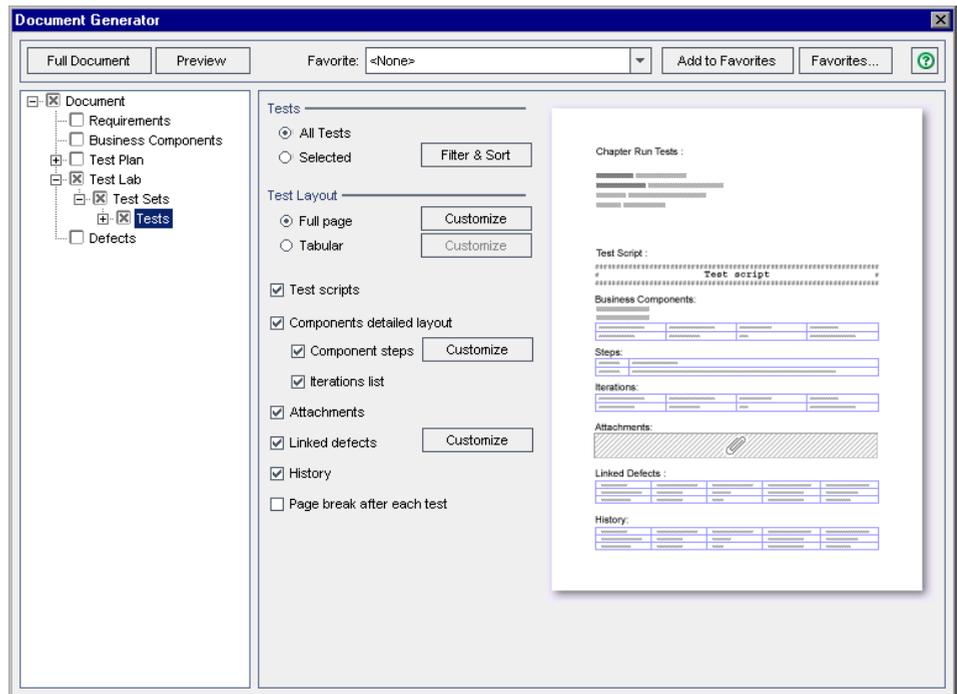
12 Under **Tests**, specify which tests you want to include in the document:

Option	Description
All tests	Includes all the tests in the selected test set.
Selected	Includes only selected tests. Click the **Filter & Sort** button to specify the criteria for selecting tests. For more information on using the Filter dialog box, see Chapter 3, "Working with Quality Center Data."

13 Under **Test Layout**, specify how the tests will be organized:

Option	Description
Full page	Displays test information as a list. Click the **Customize** button to choose the information to appear in the document.
Tabular	Displays test information as a table. Click the **Customize** button to open the Tabular Layout dialog box to customize the table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, and set the column order, width, and captions.
	Note: If you select Tabular, you cannot include test runs in the document.

14 If you selected **Full page** as the Test Layout, you can also set the following options:

Option	Description
Test scripts	Includes test scripts in the document.
Components detailed layout	If you use HP Business Process Testing, you can include the detailed layout of the components included in the tests. Choose what to include in the detailed layout: **Component steps:** Includes component steps. Click the **Customize** button to open the Tabular Layout dialog box to customize the component steps table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. **Iterations list:** Includes the iteration list.
Attachments	Includes test run attachments in the document.
Linked defects	Includes linked defects as a table. Click the **Customize** button to customize the linked defects table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. You can also specify whether to display only defects that have been directly linked to tests or to include indirectly-linked defects as well.
History	Displays a list of all the changes made to the tests, and who made them.
Page break after each test	Inserts page breaks in the project document after each test.

15 To include test run data in the project document, expand **Tests** in the Document Generator tree. Select the **Runs** check box and click the **Runs** link. The Runs page is displayed.
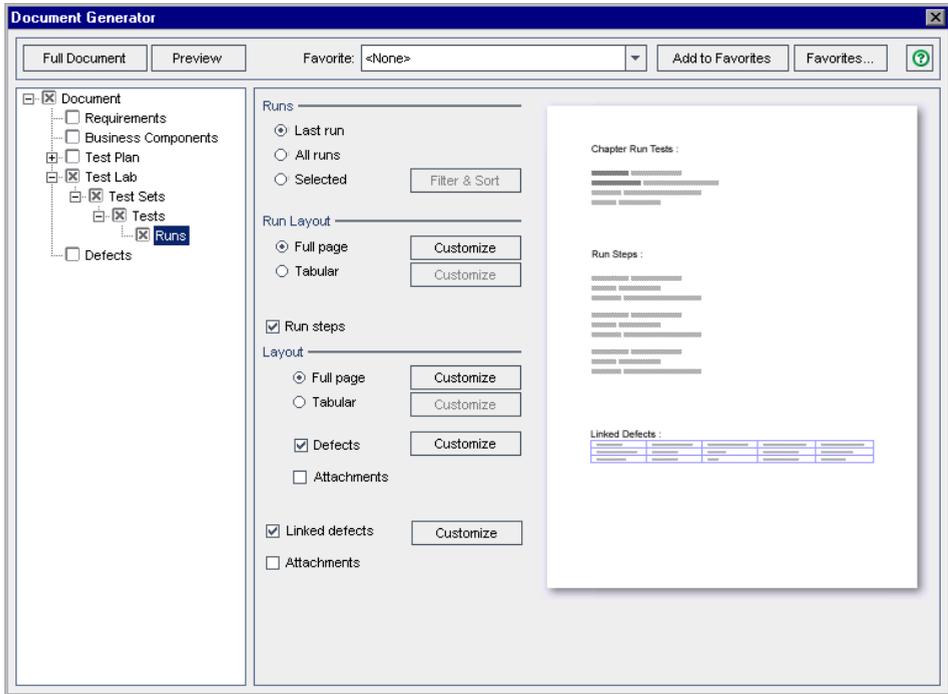
16 Under **Runs**, choose one of the following options:

Option	Description
Last run	Includes only the last run of the test.
All runs	Includes all runs of the test.
Selected	Includes only selected runs in the document. Click the **Filter & Sort** button to specify the criteria for selecting tests. For more information on using the Filter dialog box, see Chapter 3, "Working with Quality Center Data."

17 Under **Run Layout**, choose one of the following options:

Option	Description
Full page	Displays a list of all the test runs. Click the **Customize** button to choose the information to appear in the document.
Tabular	Displays all the test runs as a table. Click the **Customize** button to open the Tabular Layout dialog box to customize the table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, and set the column order, width, and captions.

18 If you selected **Full page** as the Run Layout, you can select **Run steps** to include a list of run steps in the document.

If you are including run steps in the document, choose one of the following options under **Layout**:

Option	Description
Full page	Displays a list of all the steps in a run. Click the **Customize** button to choose the information to appear in the document.
Tabular	Displays all the steps in a run as a table. Click the **Customize** button to open the Tabular Layout dialog box to customize the table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, and set the column order, width, and captions.

You can also select **Defects** to include a table of defects linked with run steps. Click the **Customize** button to open the Tabular Layout dialog box to customize the linked defects table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. You can also specify whether to display only defects that have been directly linked to run steps or to include indirectly-linked defects as well.

If you are including run steps in the document, you can select **Attachments** to include run steps attachments in the document.

19 If you selected **Full page** as the Run Layout, you can set the following options:

Option	Description
Linked defects	Includes a table of defects linked with test runs. Click the **Customize** button to open the Tabular Layout dialog box to customize the linked defects table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. You can also specify whether to display only defects that have been directly linked to test runs or to include indirectly-linked defects as well.
Attachments	Includes test run attachments in the document.

Specifying Defects Module Data

You use the Defects page to specify the defect information from the Defects
module that should appear in the Track Defects section of the project
document.

To specify Defects module data:

1 To include defect data in the project document, select the **Defects** check box
and click the **Defects** link in the Document Generator tree. The Defects page
is displayed.
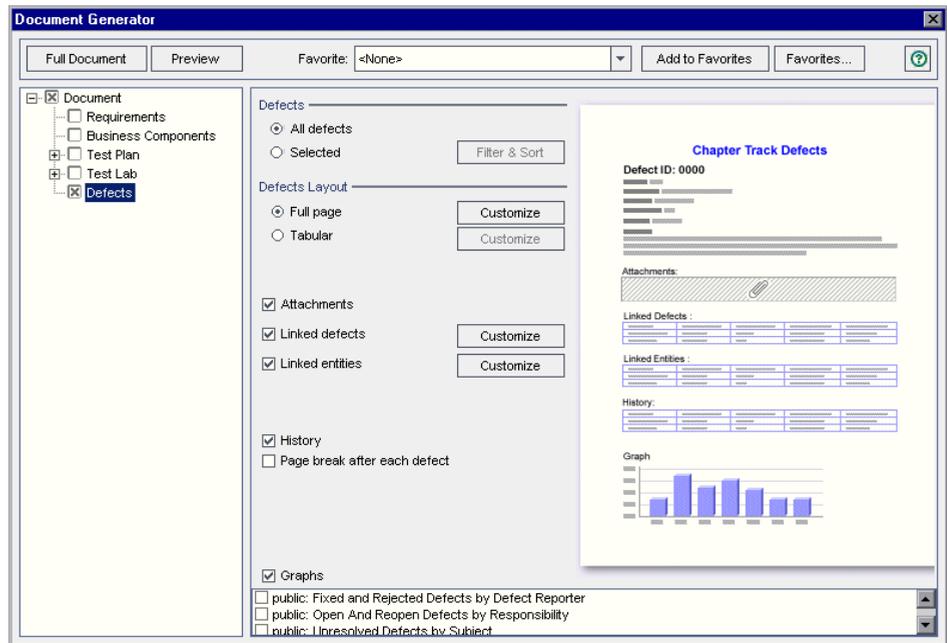
2 Under **Defects**, choose one of the following options:

Option	Description
All defects	Includes all the defects from the Defects Grid.
Selected	Includes only selected defects. Click the **Filter and Sort** button to specify the criteria for selecting defects. For more information on using the Filter dialog box, see Chapter 3, "Working with Quality Center Data."

3 Under **Defects Layout**, choose one of the following options:

Option	Description
Full page	Displays all the selected defects as a list. Click the **Customize** button to choose the information to appear in the document.
Tabular	Displays all the selected defects as a table. Click the **Customize** button to open the Tabular Layout dialog box to customize the table. Use the Tabular Layout dialog box to choose the columns that will appear in the table, set the column order, width, and captions.

4 If you selected the **Full page** as the Defects Layout, you can also set the following options:

Option	Description
Attachments	Includes defect attachments in the document.
Linked defects	Includes linked defects as a table. Click the **Customize** button to open the Tabular Layout dialog box to customize the linked defects table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. You can also specify whether only direct links will be displayed.

Option	Description
Linked entities	Includes linked entities as a table. Click the **Customize** button to open the Tabular Layout dialog box to customize the linked entities table. Use the Tabular Layout dialog box to choose the defect columns that will appear in the table, and to set the column order, width and captions. You can also change the captions and the width of the table columns.
History	Displays a list of all the changes made to the defects.
Page break after each defect	Inserts page breaks in the project document after each defect.

5 To include graphs in the document, select **Graphs** and select graphs from the list. Only graphs you saved as favorites are included in the list. For more information on favorite views, see Chapter 6, "Working with Favorite Views."

Generating a Project Document

After you set formatting instructions and specify project data, you can generate the project document. You save the document as a Microsoft Word file.

Tip: You can generate a preview project document that enables you to quickly see how the document will look, without all the detail included. To generate a preview project document, click the **Preview** button. Quality Center opens Microsoft Word and displays the preview project document.

To generate a document:

1 If there are open project document files from previous runs of the Document Generator, close the files.

2 Click the **Full Document** button. The Save As dialog box opens.

3 In the **Save As** box, set the location for the document in your network file system.

4 In the **File name** box, assign the document a name.

5 Click the **Save** button.

Quality Center begins generating the document and a dialog box displays document creation progress. To cancel document generation, click the **Stop** button.

When the process is complete, Microsoft Word opens and displays the document.

If the generated document contains links to attachments, a folder is created in the same location as the document, and the attachment files are copied to this folder. The name of the attachment folder is the name of the document with the suffix "_Attachments". If you send the document to someone, you can send the attachment folder along with it so that the recipient can access the attachments by using the links.

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Generating Excel Reports

You can generate Excel reports that enable you to export Quality Center data to Microsoft Excel and analyze the data from within Excel.

Note: To verify supported versions of Microsoft Excel, refer to the *HP Quality Center Installation Guide*.

About Generating Excel Reports

You can export Quality Center data to Microsoft Excel. This enables you to use Excel to analyze your data and present it in graphical form. A report consists of a set of data defined by SQL queries on the project database. You can also run a Visual Basic script on the extracted data to process and analyze the data.

For example, you could create a pivot table to summarize Defects module data, such as to display in tabular format the number of defects assigned to different users with different statuses.

Count of STATUS	STATUS ▼			
ASSIGNED_TO ▼	Closed	Open	Reopen	Grand Total
james_qc	3	6	1	10
mary_qc		13	1	14
peter_qc	5	9		14
Grand Total	8	28	2	38

You can also create a report with parameters. This enables you to create a more flexible report that you only need to create once but can be used in a number of different contexts.

After you have created a report, you can delete it, rename it, duplicate it, or export its definition to an XML file. You can also import a report definition that has previously been exported to an XML file.

Launching The Excel Report Generator

You create, generate, and manage reports in the Excel Report Generator. To open the Excel Report Generator, click the **Tools** button on the upper-right of the Quality Center window, and select **Excel Report Generator**.

Note: Most of the Excel Reports functionality is unavailable if you do not belong to a user group that has the necessary permissions. For more information on user groups and permissions, see the *HP Quality Center Administrator's Guide*.
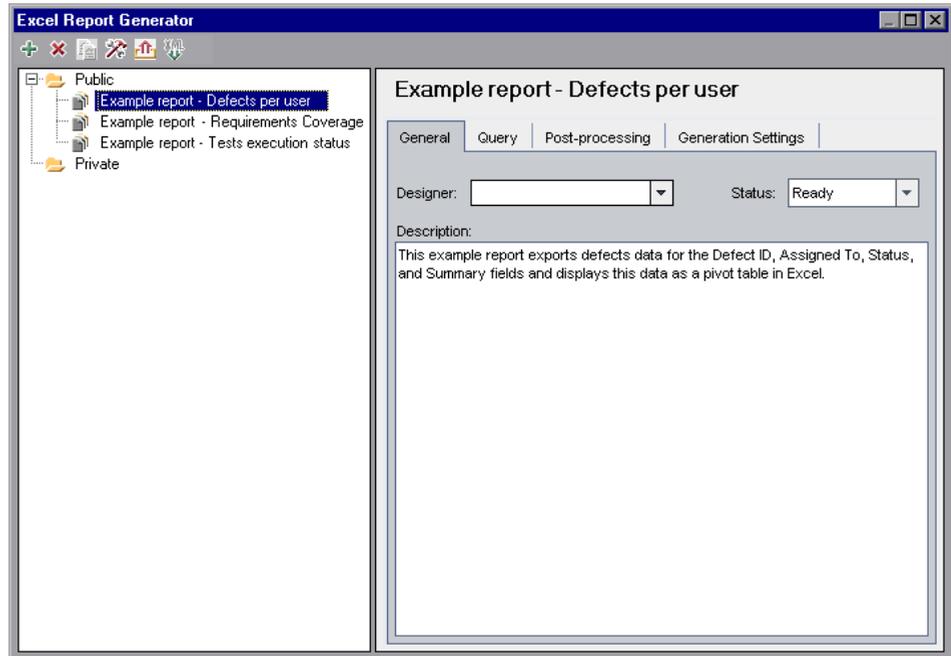
The Excel Report Generator consists of the following key elements:

➤ **Excel Reports toolbar.** Contains buttons for commands commonly used when creating and modifying Excel reports.

➤ **Excel Reports tree.** Located in the left pane, displaying available reports for the project.

➤ **General tab.** Contains basic data about a report.

➤ **Query tab.** Enables you to define and test SQL queries that extract data from the Quality Center project database to Excel.

➤ **Post-processing tab.** Enables you to define a Visual Basic script to run in Excel after report data has been exported.

➤ **Generation Settings tab.** Enables you to define settings for generating a report.

Creating Excel Reports

To create an Excel report, you follow the following steps:

➤ You first add the report to the Excel Reports tree. For more information, see "Adding Reports" on page 541.

➤ You then define which data to include in the report by defining an SQL query to extract the data from the project database. For more information, see "Creating SQL Queries" on page 543.

➤ You can also optionally include a Visual Basic script to process the data in Excel after it has been exported from Quality Center. For more information, see "Creating a Post-processing Script" on page 546.

After you have defined these settings, you can generate the report. For more information on generating reports, see "Generating Reports" on page 551.

Adding Reports

You begin report creation by adding a report to the Excel Reports tree.

To add a report:

1 Click the **Tools** button on the upper-right of the Quality Center window, and select **Excel Report Generator**. The Excel Report Generator opens.

2 In the Excel Reports tree, select the folder in which you want to create the report:

➤ **Public.** Reports in this folder are available to all users of the project.

➤ **Private.** Reports in this folder are available only to the user who created them.

Click the **Add Excel Report** button. The New Excel Report dialog box opens.

3 In the **Excel Report Name** box, type a name for your report and click **OK**. Note that a report name cannot include the following characters: / \ **? * = <** **> | : .** " ' **%**

The report is added to the Excel Reports tree.

4 Click the **General** tab. The General tab displays general settings for the report.
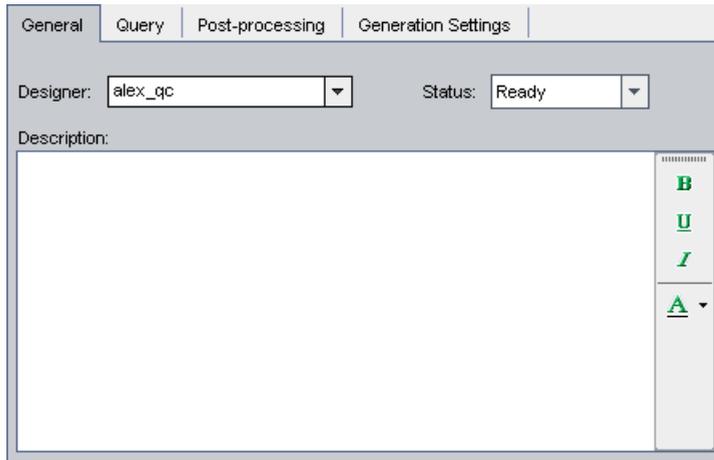
5 In the **Designer** box, select the name of the report designer. By default, your user name is displayed.

6 In the **Status** box, select the status of your report.

The report status informs other users whether the report is ready to generated. The following options are available for the report status:

➤ **Ready.** Indicates that the report is ready to be generated.

➤ **Not Ready.** Indicates that the report is not ready to be generated. If a user tries to generate a report with this status, a warning message displays.

7 In the **Description** box, type a description for your report. You can change how the description is formatted using the options in the formatting toolbar. If this toolbar is not available, right-click the **Description** box and select **Toolbar Visible**.

8 You can now define SQL queries to extract data from your Quality Center project. For more information, see "Creating SQL Queries" on page 543.

Creating SQL Queries

After you have added a report to the Excel Reports tree, you must define which project data you want to include in the report. You define this data by creating SQL queries to extract the data.

Important: It is recommended that you run only queries that extract data from the project database. You should not run queries that alter the project database by adding, modifying, or deleting database records.

By default, to ensure that your queries are valid and do not alter the project database, Quality Center checks the following:

➤ that the query starts with the command **SELECT**.

➤ that the query contains only one SQL statement.

➤ that the query does not contain any of the following commands (except in comments): **INSERT**, **DELETE**, **UPDATE**, **DROP**, **CREATE**, **COMMIT**, **ROLLBACK**, **ALTER**, **EXEC**, **EXECUTE**, **MERGE**, **GRANT**, **REVOKE**, **SET**, **INTO**, or **TRUNCATE**.

You can customize whether this verification is performed, and how it is performed, using the **SQL_QUERY_VALIDATION_ENABLED** and **SQL_QUERY_VALIDATION_BLACK_LIST** parameters in Site Administration. For more information, see the *HP Quality Center Administrator's Guide*.

To create an SQL query:

1 In the Excel Reports tree, select a report. Click the **Query** tab.
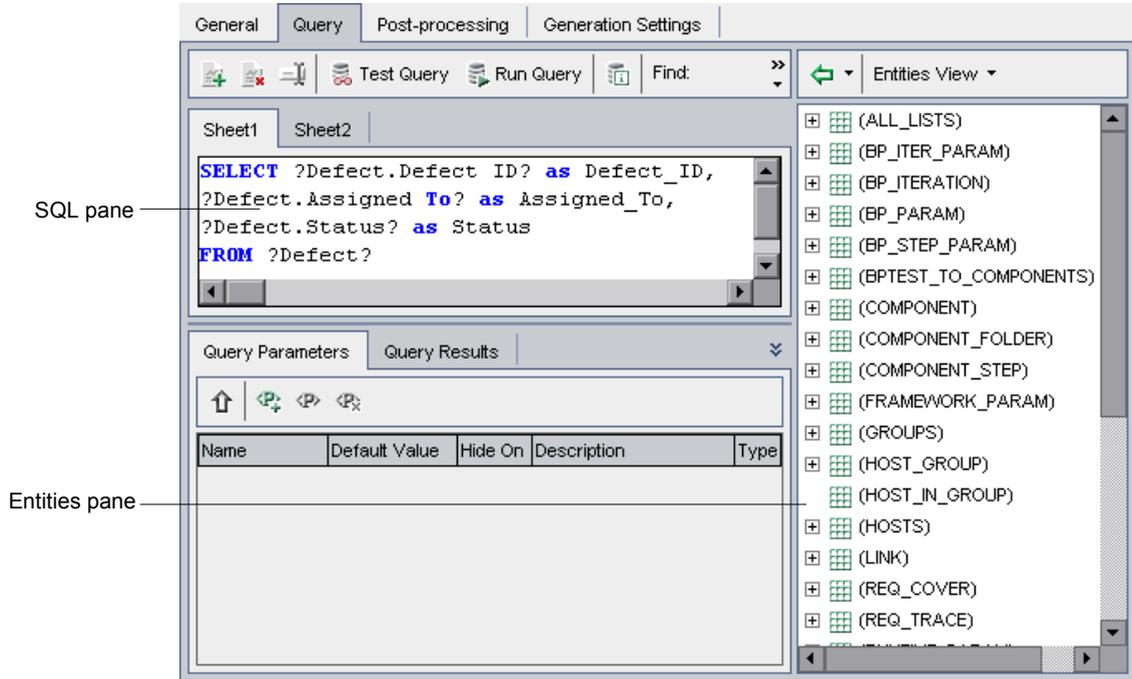
The Query tab consists of the following panes and tabs:

➤ **SQL pane.** Contains the SQL statements for the queries in the report.

➤ **Query Parameters tab.** Contains a list of parameters for the query.

➤ **Query Results tab.** Contains the results of tests of the query.

➤ **Entities pane.** Contains a list of Quality Center database fields and entities that you can add to the query. You can view fields and entities by their name, their database column name, or by both. To change the view, click the **Entities View** button and select a view.

2 In the SQL pane, type an SQL statement to define the data set you want to use for your report.

Notes:

➤ You must write the SQL statement using the version of SQL used by the project database. To view the database type used for your project database, click the **Database Type** button.

➤ The **@** and \ characters have a special meaning and are not read literally when running SQL statements on the project database. If you want these characters to be read literally, you should replace **@** by **@** and \ by \\. For example, if you want the statement
SELECT * FROM BUG WHERE BUG.BG_SUMMARY = '@parameter@'
to be run literally on the Quality Center database, type
SELECT * FROM BUG WHERE BUG.BG_SUMMARY = '\@parameter\@'.

3 You can add a project entity to your SQL statement. The following options are available:

➤ To add a project entity without a column alias, double-click an entity in the Entities pane, or select an entity and click the **Add Entity to Query** button.

➤ To add a project entity with the column alias defined by the entity title, select the entity you want to add. Click the **Add Entity to Query** arrow and choose **Add Entity to Query with Entity Title as Alias**.

The entity is added to your SQL statement at the current cursor location.

4 You can add a parameter to your SQL statement. For more information, see "Adding Parameters" on page 548.

5 You can test the query and view the results of the test in the Query Results tab. You can choose to view all the results of the query or only the first ten records:

➤ Click **Run Query** to view all the results of the query in the Query Results tab. If your query contains parameters, you are asked to type a value for each parameter, or confirm the default value.

➤ Click **Test Query** to display only the first ten records from the results of the query. If your query contains parameters, Quality Center uses the default values for the parameters.

6 You can search for text in your query. To search for text, type the string you want to search for in the **Find** box and click the **Find** button.

7 To add a new query, click the **Add Query** button. The query is added as a new tab to the SQL pane with the default name **Sheet<number>**. The results from each query will be displayed in a separate Excel worksheet.

8 You can rename a query. To rename a query, select the query and click the **Rename** button. In the Rename Sheet Name dialog box, type the new name and click **OK**. The Excel worksheet containing the data extracted by the query will have the same name as the query.

9 To delete a query, select the query and click the **Delete** button. Alternatively, right-click the query and choose **Delete**. Click **Yes** to confirm.

Creating a Post-processing Script

You can create a Visual Basic script to run after the data is exported to Excel. You use this script to manipulate the data in Excel. For example, you could present requirements data in Excel as a pivot table, you could perform calculations on defects data to calculate the average time an open defect takes to be fixed, or you could create a graph based on exported data.

To create a post-processing script:

1 In the Excel Reports tree, select a report. Click the **Post-processing** tab.

2 In the script editor box, type the Visual Basic script you want to run after the data defined in your query is imported to Excel. You should base this script on the template script already displayed in the Script Editor box. For further guidelines for creating a post-processing script, see "Guidelines for Creating a Post-Processing Script" on page 547.

3 To run the post-processing script after the data is exported to Excel, select **Run post-processing**. If you do not select this check box, the script is not run when you generate the report.

4 You can search for text in your post-processing script. To search for text, type the string you want to search for in the **Find** box and click the **Find** button.

Guidelines for Creating a Post-Processing Script

When writing the post-processing script, consider the following guidelines:

➤ Before you run a post-processing script, you must configure your Microsoft Excel security settings so that Excel can run the script. In Excel, choose **Tools** > **Macro** > **Security**. The Security dialog box opens. In the Security Level tab, select **Low**. In the Trusted Publishers tab, select **Trust access to Visual Basic Project**.

➤ Your post-processing script must contain a Sub procedure named **QC_PostProcessing**. This procedure serves as the entry point to your script. This procedure cannot return a value and cannot take any arguments.

➤ Before you can work with the report data in Excel, you must first define the range containing the report data. You define this range in two steps:

    ➤ You first define the worksheet containing the report data by creating a worksheet object containing the data. For example, if the worksheet is named Sheet1, you can use the statement Set MainWorksheet = ActiveWorkbook.Worksheets("Sheet1").

    ➤ After you define the worksheet containing the report data, you define the range containing the data by creating a range object containing the data. For example, you if defined the worksheet object with name MainWorksheet, you can use the statement Set DataRange = MainWorksheet.UsedRange.

After you define this range, you can manipulate the data contained in it using Visual Basic code.

➤ New Quality Center projects contain several default reports. You can use the scripts in these reports as a basis for developing your own scripts.

Adding Parameters

You can include parameters in the SQL query for a report. For each parameter, you can assign a default value. When you generate the report, you are prompted to enter the value of the parameter, or confirm the default value. Alternatively, you can choose to always use the default value, without the need to be prompted by Quality Center each time you generate the report.

For example, suppose you want to create a report that displays a graph of the number of requirements added to your project over a period of time. You might want to run the report several times, each time for a different period of time. You can avoid the need to create multiple reports by creating a single report with parameters for the start date and end date of the period. Each time you generate the report, you are prompted to enter the start and end dates for the period.

You first add parameters for each report to the Parameters list. You can add global parameters that are accessible to all queries in a report, or you can add parameters that can only be used in particular queries. After you have added parameters to the Parameters list, you can add parameters from the Parameters list to the queries in the report.

Adding Parameters to the Parameters List

Before you can add a parameter to a query, you must add it to the Parameters list.

To add a parameter to the Parameters list:

1 In the Excel Reports tree, select a report. Click the **Query** tab.

2 In the Query Parameters tab, click the **New Parameter** button. The **New Parameter** dialog box opens.

3 In the **Parameter Name** box, type a name for the parameter.

4 In the **Default Value** box, type a default value for the parameter. If you choose not to prompt for the parameter's value when generating the report, this value is used. It is also displayed as the default you if choose to prompt for the parameter's value.

5 In the **Description** box, type a description for the parameter.

6 Select the **Hide On Run** check box if you do not want Quality Center to prompt for the parameter's value when you generate the report.

7 Select the **Global Parameter** check box to make the parameter available in all queries in your report. If you do not select this check box, the parameter is only available in the current query.

8 Click **OK**. The parameter is added to the Parameters list.

9 To delete a parameter from the Parameters list, select the parameter and click **Delete**. Click **Yes** to confirm.

Note: If you delete a parameter that is in use in a report query, queries containing the parameter will not be valid. If you try to delete such a parameter from the Parameters list, a warning message displays.

---

10 To edit a parameter in the Parameters list, select the parameter and click **Edit Parameter**. In the Edit Parameter dialog box, edit the parameter settings and click **OK**.

Adding a Parameter to an SQL Query

After you have added a parameter to the Parameters list, you can add it to your SQL query.

To add a parameter to an SQL query:

1 In the Excel Reports tree, select a report. Click the **Query** tab.

2 In the SQL pane, located in the upper left of the Query tab, place the cursor in the location where you want to add the parameter.

3 In the Query Parameters tab, select a parameter from the Parameters list, and click the **Add Parameter to Query** button. The parameter is added to the query.

Note: For a parameter representing a text value, you must manually add single quotes (') around the parameter in the SQL pane. For example, if the SQL pane contains the phrase WHERE BUG.BG_DETECTED_BY = @name@, you must replace the text @name@ with '@name@'.

Generating Reports

After you have created your report, you can generate the report to extract the data you specified in the SQL queries from the project database and export it to Excel.

To generate a report:

1 In the Excel Reports tree, select a report. Click the **Generation Settings** tab.

| General | Query | Post-processing | Generation Settings |

☐ Open Report

   Specify whether to open the report with its associate program.

Save report as target file:

`C:\Documents and Settings\orits\My Documents\Mercury Interactive\Quality Center\Reports\status.xls` `...`
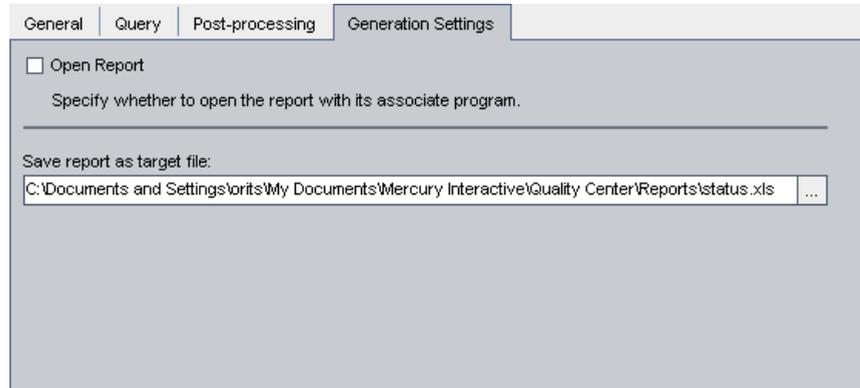
2 If you want Quality Center to open the report in Excel after it is generated, select the **Open Report** check box.

3 In the **Save report as target file** box, type the location and name of the Excel file to which you want the data to be exported. You can click the browse button to select a location from the Save Report dialog box.

4 Click the **Generate Excel Report** button to generate the report.

➤ If the status of the report is **Not Ready**, you are informed of this and asked if you want to generate the report anyway. Click **Yes** to generate the report.

➤ If the report query contains parameters, the Report Parameters dialog box opens. Type the parameter values in the **Value** column and click **OK**.

The report is saved in the location you defined. If you chose to open the report after it is generated, Excel opens and displays the report. If you did not choose to open the report after it is generated, a confirmation message displays.

Managing Excel Reports

After you have created an Excel report, you can delete, rename, or duplicate it. You can also export and import a report definition.

Deleting Excel Reports

You can delete an Excel report.

To delete an Excel report:

1 In the Excel Reports tree, select a report and click the **Delete** button. Alternatively, right-click the report and choose **Delete**.

2 Click **Yes** to confirm.

Renaming Excel Reports

You can rename an Excel report.

To rename an Excel report:

1 In the Excel Reports tree, select a report and click the report name.

2 Type the new name for the report and press ENTER.

Duplicating Excel Reports

You can duplicate an Excel report. This enables you to base a new Excel report on an existing report by duplicating the existing report and making the necessary modifications to the resulting copy.

To duplicate an Excel report

1 In the Excel Reports tree, select a report.

2 Click the **Duplicate Excel Report** button. Alternatively, right-click the report and choose **Duplicate Excel Report**. A copy of the report is created in the same location in the Excel Reports tree.

Exporting Excel Report Definitions

You can export the definition for an Excel report to an XML file. This enables you to transfer configuration settings for an Excel report between Quality Center projects, or to archive a definition for an Excel report for future use.

To export an Excel report definition:

1 In the Excel Reports tree, select a report and click the **Export Excel Report Definition** button. Alternatively, right-click the report and choose **Export Excel Report Definition**. The Export Excel Report Definition dialog box opens.

2 In the **Save in** box, choose a location for the XML file.

3 In the **File name** box, type a name for the XML file.

4 Click **Save**.

Importing Excel Report Definitions

You can import an Excel report definition that has previously been saved as an XML file.

To import an Excel report definition:

1 In the Excel Reports tree, select the folder to which you want the report to be imported and click the **Import Excel Report Definition** button. Alternatively, right-click the location to which you want the report to be imported and choose **Import Excel Report Definition**. The Import Excel Report Definition dialog box opens.

2 In the **File name** box, select the report definition XML file.

3 Click **Open**. The report definition is added to the Excel Reports tree in the location you specified.

Part VIII

Appendixes

A

Working with VAPI-XP

The VAPI-XP open test architecture API testing tool enables you to create new testing scripts, or edit existing scripts, and integrate them into your testing process.

This chapter describes:	On page:
About Working with VAPI-XP	558
Creating VAPI-XP Test Scripts	558
Editing VAPI-XP Test Scripts	568
Using the VAPI-XP API	573
Running VAPI-XP Tests in Debug Mode	578
Running VAPI-XP Tests in Test Mode	579
Debugging VAPI-XP Test Scripts	581

About Working with VAPI-XP

The VAPI-XP testing tool enables you to create new testing scripts using Microsoft VBScript, Microsoft JavaScript (JScript version), PerlScript, and PythonScript, and integrate these scripts into your testing process. Using VAPI-XP test scripts, you can test COM/DCOM servers, SOAP-based Web services, Java APIs (such as Java classes and EJBs), and console applications. You can also use VAPI-XP to create a LoadRunner virtual user.

In addition, VAPI-XP is fully integrated with Quality Center, enabling you to design your VAPI-XP test script to call any Quality Center test or test set, and execute it as part of your own script. This allows you to build a more advanced test set execution flow, in which you can filter tests in a test set during execution, based on the status or type of each test.

VAPI-XP is also fully integrated with the Quality Center Open Test Architecture API. All open test architecture API classes and methods can be referenced from the VAPI-XP user interface so that you can easily include them in your test script.

Creating VAPI-XP Test Scripts

You create a VAPI-XP test script from the test plan tree in the Test Plan module.

Note: You can also convert a manual test to a VAPI-XP test. In the **Design Steps** tab, click the **Generate Script** button and select **VAPI-XP-TEST**. Quality Center creates a VAPI-XP test script that includes code for the steps that you defined. It also includes code for called tests that were part of the original manual test. For more information on manual tests, see Chapter 19, "Building Tests."

To create a VAPI-XP test script:

1 Choose a subject folder in the test plan tree.

2 Click the **New Test** button or choose **Tests** > **New Test**. The Create New Test dialog box opens.

3 In the **Test Type** box, select **VAPI-XP-TEST**.
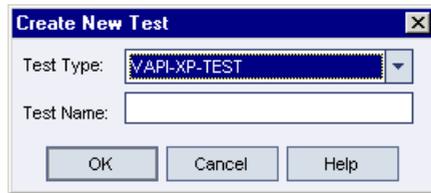
4 In the **Test Name** box, type a name for the test. Note that a test name cannot include the following characters: \ / : " **?** < > | *** %** '

Click **OK**.

Note: If required test fields were defined in the Project Customization window, the Required Test Fields dialog box opens. Select values for the required fields, and click **OK**.

The HP VAPI-XP Wizard opens.
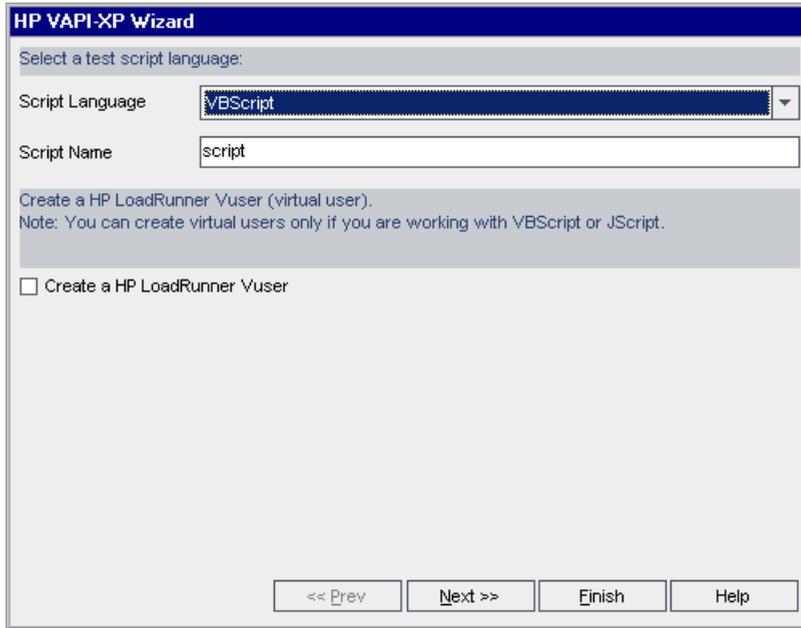
5 In the **Script Language** box, select a script language.

Note: To create a VAPI-XP test script using ActiveState's ActivePython or ActivePerl scripts, you must install the script language on your machine. From the **Help** menu in the Test Script tab, select **ActivePython Home Page** or **ActivePerl Home Page**, and follow the appropriate installation instructions.

Microsoft's VBScript and JScript are usually installed with Internet Explorer. If they are not installed on your machine, select **VBScript Home Page** or **JScript Home Page** from the **Help** menu in the Test Script tab, and follow the appropriate installation instructions.

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6 In the **Script Name** box, type a name for the VAPI-XP test script.

7 If you selected VBScript or JavaScript as your test scripting language, you can select **Create HP LoadRunner Vuser** to create a LoadRunner virtual user script that can be run in the LoadRunner Controller.

Note: To run this virtual user in the Controller, you must install the latest version of the HP Quality Center Connectivity Add-in on your LoadRunner client machine. This add-in is available from the HP Quality Center Add-ins page. For more information, refer to the *HP Quality Center Installation Guide*.

8 Click **Next** to continue creating the test script using the HP VAPI-XP Wizard. The following dialog box opens.
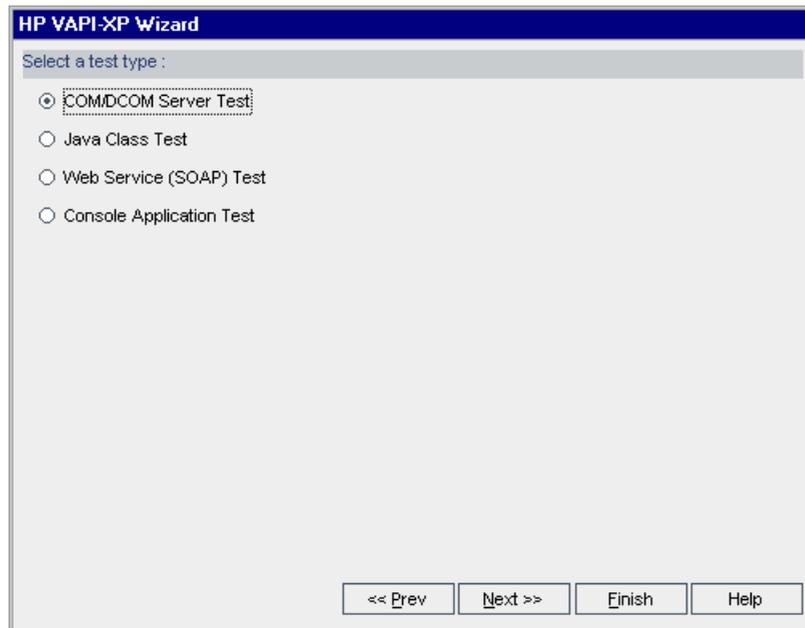
Note: In each dialog box, you can click **Finish** to close the Wizard and continue creating the test script in the Test Script tab.

9 Select the type of test you want to create.

10 Click **Next** to continue creating the test script using the HP VAPI-XP Wizard.

➤ If you selected **COM/DCOM Server Test**, choose the Program IDs of the COM/DCOM objects in your machine's registry that you want to test, and click the + button. Each selected COM/DCOM object and its description is displayed in the box below.
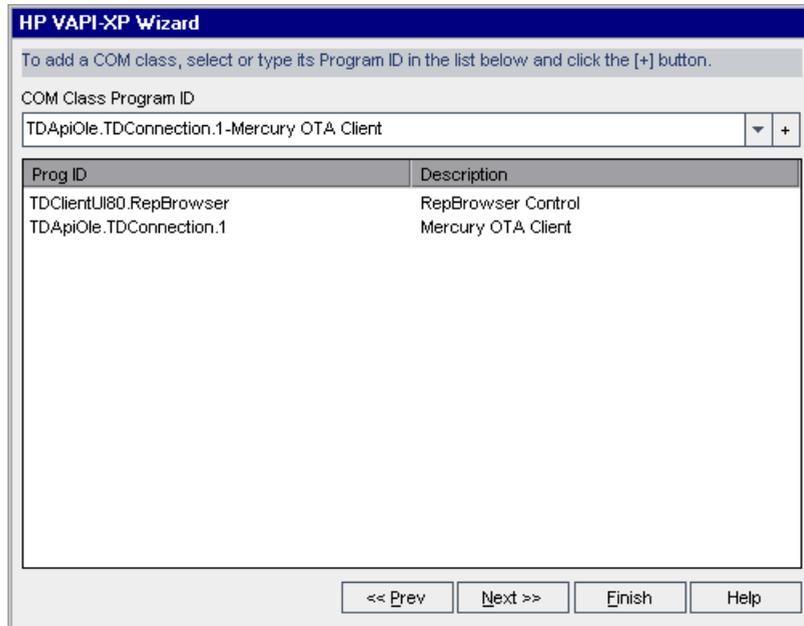
➤ If you selected **Java Class Test**, type the full name of the Java class that you want to test in the **Java Class Name** box, and click the + button. The Java class name you typed appears in the text box below.

Note: You can only use a Java class that has a public constructor that does not take arguments.

Under **Java Virtual Machine**, select **Other JVM** if you do not want to use the default Microsoft Java virtual machine, and specify the following:

➤ **JVM Runtime.** The Java virtual machine runtime executable file (usually **java.exe**).

➤ **Java Compiler.** The executable file that recompiles the bytecode at the execution platform (usually **javac.exe**).

➤ **Classpath.** A list of additional (non-standard) Java libraries, separated by semi-colons (**;**), required to run the specified Java application. Note that if you do not specify the Java classpath, Quality Center uses the environment variable **CLASSPATH**.

➤ **JVM Parameters.** The parameters for the Java virtual machine run-time executable file.

If the Microsoft Java virtual machine (required to support the debugging of your test script) is not installed on your machine, run the **msjavx86.exe** file located in the Redist directory on your HP Quality Center DVD.

To use other Java virtual machines, install the Bean Scripting Framework (BSF) Java package on the client machine. Unzip the **bsf-bin-22.zip** file located in the Redist directory on your HP Quality Center DVD. In the unzipped file, locate the path of the **bsf.jar** file and add it to the **CLASSPATH** field. Ensure that the **CLASSPATH** environment variable contains a dot (**.**) to specify the current directory.

When working with other Java virtual machines, add the location of the BSF DLLs to the system path, as follows: In the Control Panel, choose **System > System Properties**, and then click the **Advanced** tab. Click the **Environment Variables** button, and in the **System Variables** area, edit the **Path** parameter by adding the path of the following DLLs: **msvcp60.dll**, **bsfactivescriptengine.dll**, and **bsfactivescriptengine_g.dll**. Click **OK**.

➤ If you selected **Web Service (SOAP) Test**, choose the SOAP client library from the **SOAP Client Library** list, and type or select the URL you want to test in the **Web Service Definition** box. Click the + button. The URL you typed appears in the text box below.

Note: Two SOAP client libraries are supported: Microsoft SOAP SDK and PocketSOAP. Note that even if you choose to work with PocketSOAP, you must install Microsoft SOAP SDK to parse Web services. If Microsoft SOAP SDK is not already installed on your machine, run the **SoapToolkit30.exe** file located in the **Redist** directory on your HP Quality Center DVD.

➤ If you selected **Console Application Test**, type the name of the application file you want to test in the **Application Executable File** box, and its parameters in the **Command Line Parameters** box.

Clear the **Use VAPI-XP Output instead of Standard Output** box if you do not want to replace the standard output with the VAPI-XP output window.

In the **Application Timeout** box, type the time, in milliseconds, for Quality Center to wait for the application to finish running. Note that if the timeout is set to **-1**, Quality Center waits an infinite amount of time for the application to finish running.

Click the + button. The data you entered appears in the text box below.

HP VAPI-XP Wizard			
To add a console application, enter an application file name and parameters, and click the [+] button.			
Console Application			
Application Executable File			
ping.exe			
Command Line Parameters			
delta			
☐ Use Vapi-XP Output instead of Standard Output.			
Application Timeout (in milliseconds, -1 = INFINITE) -1			
Application	Arguments	Timeout	Use Output
ping.exe		-1	true

11 Click **Next** to continue creating the test script using the HP VAPI-XP Wizard. The following dialog box opens.
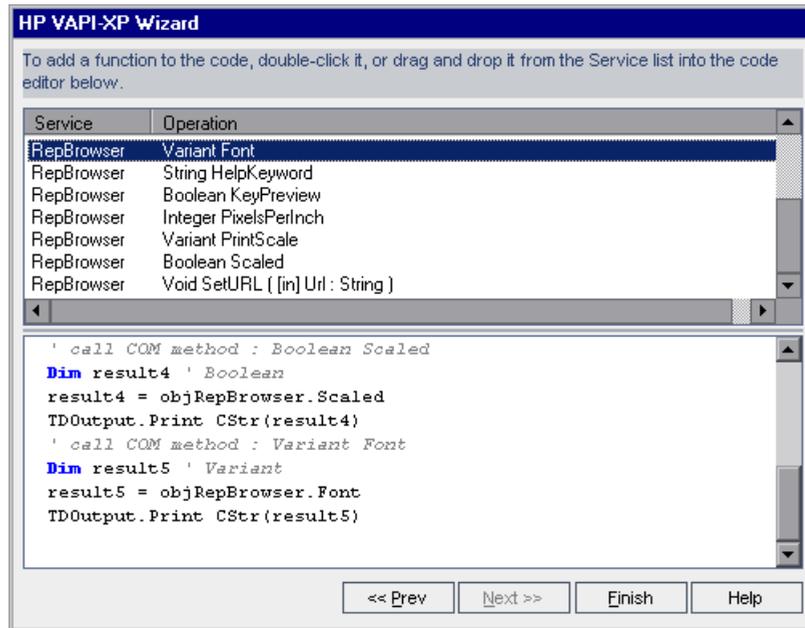
12 In the **Service** list, select the functions you want to add to your test script. Double-click each function, or drag and drop it, to add it to your script code. The function is added to the box below the Service list.

13 If required, enter additional parameters or add extra code to the script in the lower pane.

14 Click **Finish**. The new test appears in the test plan tree under the subject folder you selected.

Note: You can choose to add details and attachments to the VAPI-XP test you created, or define requirements coverage. For information, see Chapter 17, "Developing the Test Plan Tree."

Editing VAPI-XP Test Scripts

After you have created a VAPI-XP test script using the HP VAPI-XP Wizard, you can edit it in the Test Script tab.

Tip: You can display the Test Script tab in a separate window by selecting **View > Window Screen**, or clicking the **Window Screen** button.

To edit a VAPI-XP test script:

1 In the test plan tree, select a VAPI-XP test, and click the **Test Script** tab. The test script is displayed.

Note: To view or edit the properties of the test script you created, choose **Test > Properties**.

---

2 To view a list of object definitions, methods, and properties that you can add to your script, select one of the following options:

➤ **Test** > **References** > **COM Library References.** Opens the References dialog box in which you can choose the COM object definitions, methods, and properties you want to view.

➤ **Test** > **References** > **SOAP Web Service References.** Opens the Add Web Service Reference dialog box in which you can enter the Web service object definition or method you want to view.

➤ **Test** > **References** > **Java Class References.** Opens the Add Java Class Reference dialog box in which you can enter the Java class object definition or method you want to view.

3 Select **View** > **Browsers**, or click the **Show/Hide Browsers** button. The following tabs are displayed.
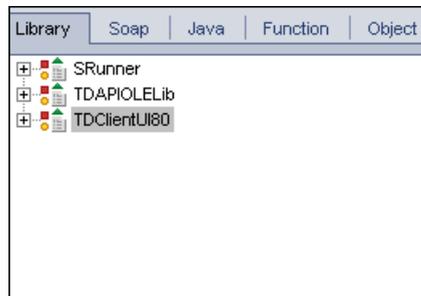
➤ **Library tab.** Displays a list of VAPI-XP (SRunner), Quality Center (TDAPIOLELib), and COM/DCOM object definitions, methods, and properties that you can add to your script. For an explanation of VAPI-XP object definitions, methods, and properties, see "Using the VAPI-XP API" on page 573. For an explanation of Quality Center object definitions, methods, and properties, refer to the *HP Quality Center Open Test Architecture API Reference*.

➤ **Soap tab.** Displays a list of Web service object definitions and methods that you can add to your script.

➤ **Java tab.** Displays a list of Java class object definitions and methods that you can add to your script.

➤ **Function tab.** Displays a list of functions contained in your script.

➤ **Object tab.** Displays a list of objects with defined names that you can add to your script.

Note: For a description of each object definition, method, or property, select **View > Output**, and click the **Help** tab.

---

4 To add an object definition, method, or property to the current function in your script, place the cursor in the appropriate place in your code, and double-click the object definition, method, or property in the Library, Soap, or Java tabs.
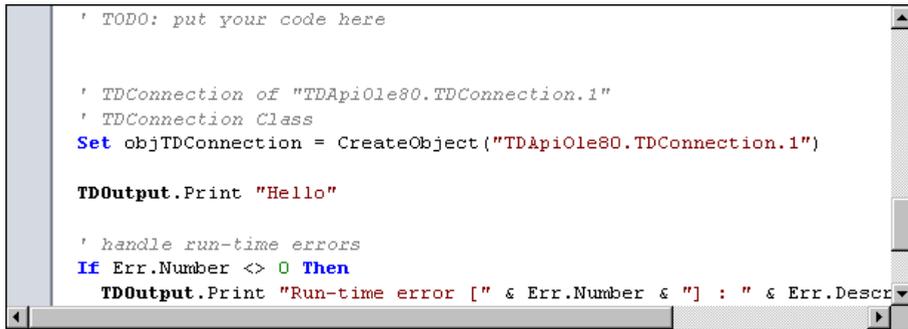
```
' TODO: put your code here


' TDConnection of "TDApiOle80.TDConnection.1"
' TDConnection Class
Set objTDConnection = CreateObject("TDApiOle80.TDConnection.1")

TDOutput.Print "Hello"

' handle run-time errors
If Err.Number <> 0 Then
  TDOutput.Print "Run-time error [" & Err.Number & "] : " & Err.Descr
```

5 To add an object with a defined name, select the object definition, method, or property in the Library, Soap, or Java tabs, and choose **Test > Add Object**. In the Add Object dialog box, type the name you want to assign to the object and click **OK**. The object is added to the Object tab.

Library	Soap	Java	Function	Object

Name	ProgID	
TDConnection	TDApiOle80.TDConnection	
TDHelper	SRunner.TDHelper	
TDInput	SRunner.TDInput	
TDOutput	SRunner.TDOutput	
ThisTest	TDApiOle80.Test	
XTools	SRunner.XTools	

To add the object to your script, double-click the object, or right-click it and select **Insert into Script**.

6 To check the syntax of your code, choose **Test > Check Syntax**, or click the **Syntax Check** button. Select **View > Output** to view the verification results in the **Output** tab.

Additional Editing Functions

You can also perform the following editing functions in the Test Script tab:

➤ To undo a previous action, click the **Undo** button. To restore an action that was undone, click the **Redo** button.

➤ To remove a section of code from one part of your script, and place it in another part of the script, select the section and click the **Cut** and **Paste** buttons.

➤ To copy a section of code from one part of your script, and place it in another part of the script, select the section and click the **Copy** and **Paste** buttons.

➤ To delete a section of code, select it and click the **Delete** button.

➤ To locate specific text within your script, click the **Find in Script** button. In the Find Text dialog box, type the text for which you want to search. Select the options, direction, scope, and origin for your search, and click **OK**.

To find another occurrence of the text within the script, choose **Search** > **Find Next**.

➤ To locate specific text within your script and replace it with different text, click the **Replace** button. In the Find Text dialog box, type the text you want to search for in the **Text to find** box. Type the text with which you want to replace this text in the **Replace with** box. Select the options, direction, scope, and origin for your search, and click **OK**. To replace all instances of the text in the script, click the **Replace All** button.

➤ To locate a specific line number within your script, choose **Search** > **Go to Line Number**. In the Go to Line Number dialog box, type the line number you want to find, and click **OK**.

➤ To change the editor options, such as the margins, fonts, and screen/text colors, click the **Editor** button. Set the properties you want in the Editor, Display, and Colors tabs, and click **OK**.

After you have finished editing your script, click the **Save** button to save the changes you made.

Using the VAPI-XP API

The VAPI-XP tool contains a built-in library of VAPI-XP object definitions that you can reference as you are creating your test script.

Using the TDHelper Object

The TDHelper object supplies the following functions that you can use to perform Quality Center-related tasks.

RunTestSet

Executes the selected test set and returns the accumulated test set execution status.

RunTestSet([Name = "default"], [Filter = ""], [Locally = FALSE], [Host = ""], [HostGroup = ""])

Name. Test set name. Optional. Default = "default"

Filter. Test filter. Defines tests to run. If empty, instructs Quality Center to run all the tests in a specified test set. Optional. Default = ""

Locally. If set to TRUE, instructs Quality Center to run test set locally. Optional. Default = FALSE

Host. Host on which test set will be run. Optional. Default = ""

HostGroup. Host group in which test set will be run. Optional. Default = ""

RunTest

Executes the selected test and returns the test execution status.

RunTest(Name, Instance, TestSet, [Locally = FALSE], [Host = ""], [HostGroup = ""])

Name. Test name.

Instance. Test instance.

TestSet. Test set name.

Locally. If set to TRUE, instructs Quality Center to run test set locally. Optional. Default = FALSE

Host. Host on which test set will be run. Optional. Default = ""

HostGroup. Host group in which test set will be run. Optional. Default = ""

AddDefect

Adds a new defect to the current test, if the test is being run in debug mode. If the test is being run in test mode, a new defect is added to the current run of the test instance in the current test set. Returns a created defect object.

AddDefect([Fields], [StepKey])

Fields. Two-dimensional array—the first dimension is for the field name, and the second for the field value. Optional.

StepKey. Step ID for step related to new defect. Optional.

AddDefectUI

Adds a new defect to the current test (in debug mode) or the current run (in test mode), using the Quality Center New Defect dialog box.

AddDefectUI([StepKey])

StepKey. Step ID for step related to new defect. Optional.

AddStepToRun

Adds a new step to the current run. Returns a created step object.

AddStepToRun(Name, [Desc], [Expected], [Actual], [Status])

Name. Step name.

Desc. Step description. Optional.

Expected. Expected step result. Optional.

Actual. Actual step result. Optional.

Status. Step status. Optional.

DownLoadAttachment

Downloads the attachment associated with a test object. Returns the local path to which the download was performed.

DownLoadAttachment(Name, item)

Name. The attachment name.

item. Reference to the object with the attachment.

UpLoadAttachment

Uploads an attachment and associates it with a test object.

UpLoadAttachment(path, item)

path. The local path (fully specified file name) of the item to upload.

item. Reference to the object to which to associate the attachment.

Using the TDInput Object

The TDInput object supplies the following function that you can use to obtain an input value from an end user.

GetInput

Displays the Input dialog box, enabling you to obtain an input value from an end user.

GetInput([Caption],[Name])

Caption. Dialog box caption. Optional.

Name. Name of the input value. Optional.

Using the TDOutput Object

The TDOutput object supplies the following functions that you can use to control the VAPI-XP Output tab.

Clear Method

Clears the Output tab.

Clear

Print Method

Prints the text message to a new line in the Output tab.

Print(Msg)

HookDebug Property

Sets or removes the hook for the OutputDebugString tab API function.

HookDebug

Text Property

Gets or sets the Output tab text.

String Text

Using the XTools Object

The XTools object supplies the following functions that you can use to perform general tasks.

run

Runs command line with passed attributes.

run(Command, [Args = ""], [Timeout = -1], [UseOutput = TRUE])

Command. Application executable file.

Args. Application arguments. Optional. Default = ""

Timeout. Timeout in milliseconds. If this is -1, Quality Center waits an infinite amount of time for the application to finish running.

UseOutput. If TRUE, Quality Center replaces the standard output with the VAPI-XP output window.

WrapArray

Creates an array of variants from an array of objects. For example, if a called object returns as a method result an array of strings, none of the supported script engines is able to read the array. Calling the WrapArray function and passing the returned array as a function parameter creates an array of variants that can be understood by the scripting engine.

WrapArray (array)

array. Array to wrap.

Sleep

Suspends script execution for a specified amount of time.

Sleep(interval)

interval. Time (in milliseconds) for script execution suspension

Running VAPI-XP Tests in Debug Mode

Once you have created and edited your VAPI-XP test script, you can run it in debug mode or test mode. Running a VAPI-XP test in debug mode enables you to execute the test without including it in a test set and without creating test run data in the Quality Center project. It is generally recommended that you use the debug mode while you are developing your test, and the test mode once you have completed creating your test.

To run a VAPI-XP test in debug mode:

1 In the Test Plan module, select a VAPI-XP test from the test plan tree, and click the **Test Script** tab.

2 Select **Test > Execute (Debug Mode)**, or click the **Execute Script** button. Quality Center begins executing the test script you selected.

3 Select **View > Output** to view the output generated by the test script.

➤ To clear the Output tab, click the **Clear Output** button.

➤ To copy the output text to the clipboard, select it and click the **Copy Selected Text to Clipboard** button.

➤ To view the test script output in a Web browser, click the **Open Output Text in Web Browser** button.

➤ To print the test script output, click the **Print Output** button.

4 To stop executing the VAPI-XP test before it finishes running, select **Test > Stop**, or click the **Stop** button.

Running VAPI-XP Tests in Test Mode

You can run your VAPI-XP test in test mode once you have added the test to a test set in the Test Lab module. For information on adding tests to test sets, see Chapter 24, "Creating Test Sets."

Note that when you run a VAPI-XP test in test mode, test run data is created in the Quality Center project.

You can run your VAPI-XP test in test mode from either the Test Plan or Test Lab module.

Note: To run VAPI-XP tests remotely, you must install the HP Quality Center Client Side Setup Add-in and the HP Quality Center Connectivity Add-in on the host machine on which the tests are executed. For more information on HP Quality Center add-ins, refer to the *HP Quality Center Installation Guide*.

To run a VAPI-XP test in test mode from the Test Plan module:

1 Select a VAPI-XP test from the test plan tree, and click the **Test Script** tab.

2 Select **Test > Execute (Test Mode)**. The Select Test Set dialog box opens.
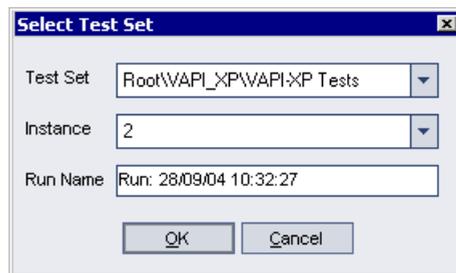
3 In the **Test Set** box, select the test set containing the current VAPI-XP test.

4 In the **Instance** box, select the test instance that you want to run.

5 In the **Run Name** box, type the name you want to assign to the test run.

6 Click **OK**. Quality Center begins executing the test you selected.

7 To view the output generated by the test script, select **View** > **Output**. For an explanation of the Output tab, see "Running VAPI-XP Tests in Debug Mode" on page 578.

8 To stop executing the VAPI-XP test before it finishes running, select **Test** > **Stop**, or click the **Stop** button.

To run a VAPI-XP test in test mode from the Test Lab module:

1 From the **Test Sets** list, select the test set containing the VAPI-XP test you want to run.

2 In the **Execution Grid**, select the test you want to run, and click the **Run** button. The Automatic Runner dialog box opens, displaying the selected test.
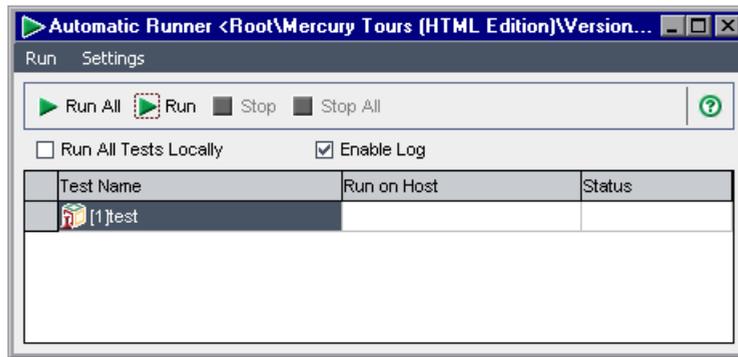
3 In the **Run on Host** column, select a host machine on which to run the VAPI-XP test, or choose **Run All Tests Locally** to run the test on your local machine.

4 Click the **Run** button. The VAPI-XP Test Script window opens as Quality Center begins executing the selected VAPI-XP test. When Quality Center finishes executing the test, the Automatic Runner dialog box displays the status of the test run.
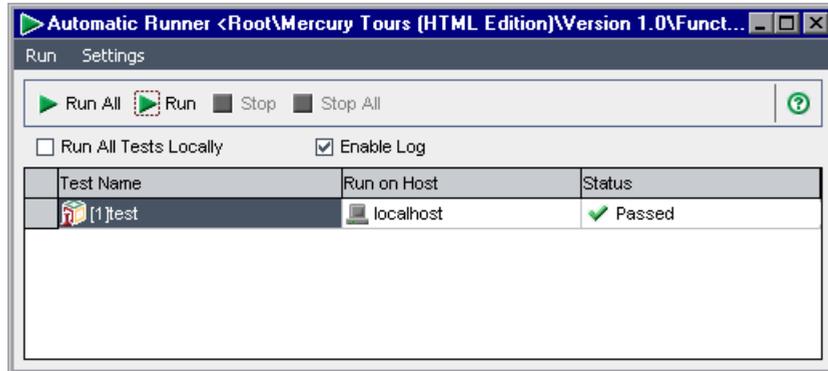
Debugging VAPI-XP Test Scripts

If your test run was not successfully completed, you can use VAPI-XP's Integrated Debugger to assist you in debugging your VAPI-XP test script.

Note: You cannot use the Integrated Debugger to debug PerlScript or PythonScript test scripts.

To debug a VAPI-XP test script:

1 In the **Test Script** tab of the Test Plan module, select **Debug > Integrated Debugger**. Additional buttons controlling the debugging process are displayed on the toolbar.

2 To set a breakpoint in a script, select the line in the script where you want to set the breakpoint, and choose **Debug > Toggle Breakpoint** or click the **Toggle Breakpoint** button. Alternatively, click the gray margin next to the line in the script. The line you selected is highlighted in red.

3 Click the **Execute Script** button. Quality Center begins executing the script, stopping at the defined breakpoint. The Output tab displays the following message.
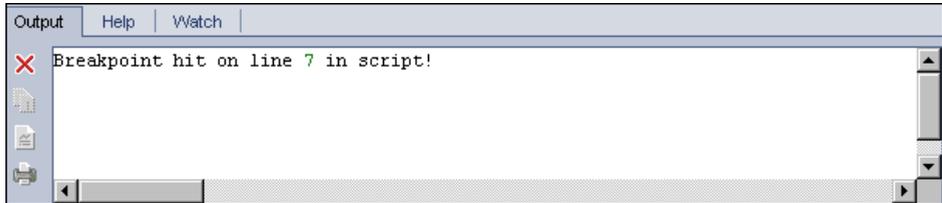
4 To instruct Quality Center to enter the script after the breakpoint, choose **Debug > Step Into** or click the **Step Into** button. The line in the script that follows the breakpoint is highlighted in blue.
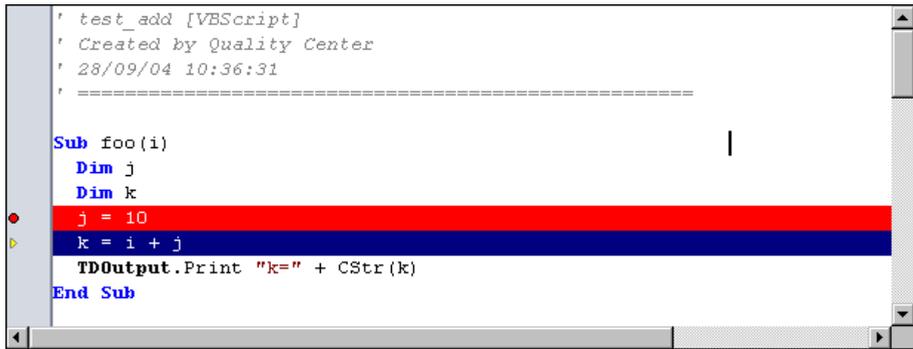
5 To instruct Quality Center to step over a line in the script, click the **Step Over** button or choose **Debug > Step Over.**

6 To instruct Quality Center to execute the script, choose **Debug** > **Step Out** or click the **Step Out** button. The output is displayed in the **Output** tab.

```
Output    Help    Watch

✕
      Breakpoint hit on line 8 in script!
      k=20
```
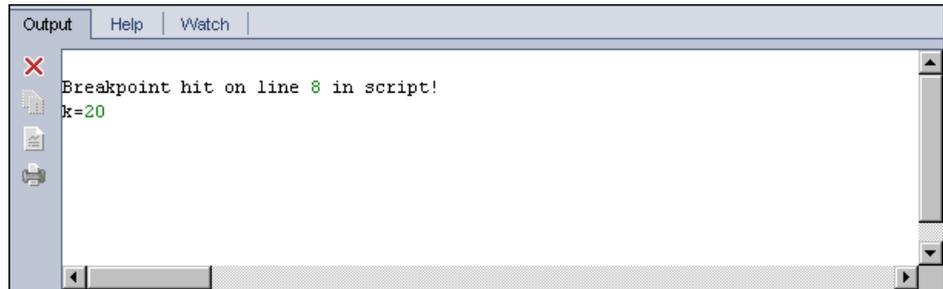
7 To view or edit the value of each variable in the script, choose **Debug** > **Variables** or click the **Show Variables** button. The Variables dialog box opens, displaying the variables available in the current script. Select a variable to view its properties.

```
Variables                                ✕

      k
      j
      i

Short Name :  i
Type :        Integer
Full Name :
Value :       10                    Update
```
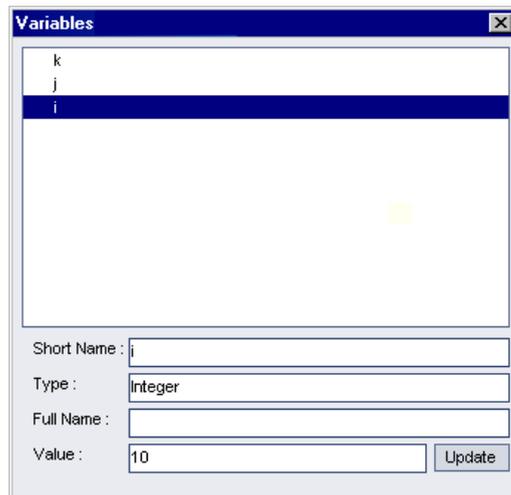
To change a variable's value, type the new value you want to assign to it in the **Value** box and click **Update**. Click **OK** to save your changes and close the Variables dialog box.

8 To view information about a specific variable while debugging, choose **Debug** > **Watch** or click the **Show Watch Window** button to display the Watch tab.

To add a variable to the Watch tab, click **+**, enter a variable name in the **Prompt** box, and click **OK**. The variable and its values are displayed in the Watch tab.

9 To instruct Quality Center to resume executing the script, choose **Debug > Resume Execution** or click the **Resume Execution** button.

10 Choose **Debug > Stop Debugging**, or click the **Stop Debugging** button to stop the Integrated Debugger from debugging your script.

B

Quality Center Keyboard Shortcuts

You can navigate Quality Center, and perform many Quality Center commands by using shortcut keys.

Switching Between Quality Center Modules

You can switch between the Quality Center modules using CTRL+SHIFT+<number> shortcut keys. The number represents the sequential order in which the module is displayed in the module sidebar. For example, if Requirements is the first module, press CTRL+SHIFT+1. If Business Components is the second module, press CTRL+SHIFT+2.

General Keyboard Shortcuts

You can navigate Quality Center, and perform common commands by pressing the following shortcut keys:

Shortcut Key	Function
DOWN ARROW or UP ARROW	Selects the previous and next item respectively.
LEFT ARROW or RIGHT ARROW	In the tree folders, collapses or expands the folders respectively. In the grid view, selects the previous and next grid column respectively.
TAB	Selects the next data box in a tab or dialog box.
SHIFT+TAB	Selects the previous data box in a tab or dialog box.
CTRL+SHIFT+<sequence number>	Switches between the sidebar views in the Requirement Details, Defect Details, and Test Instance Properties dialog boxes
CTRL+TAB	Moves forward through the tabs.
CTRL+SHIFT+TAB	Moves backward through the tabs.
F9 or ALT	Focuses on the module menu options. Press LEFT ARROW, RIGHT ARROW, DOWN ARROW or UP ARROW to navigate the menus.
ALT+DOWN	Opens the drop-down lists for list boxes. Press DOWN ARROW or UP ARROW to select a list value.
LEFT ARROW	Expands a folder that contains sub-folders in the tree view (if it is collapsed).
RIGHT ARROW	Collapses a folder that contains sub-folders in the tree view (if it is expanded).
ALT+G	Goes to the selected entity.
ALT+HOME/END	Displays the first or last entity respectively in the Requirement Details, Defect Details, or Test Instance Properties dialog box.

Shortcut Key	Function
ALT+LEFT/RIGHT ARROW	Displays the previous or next entity respectively in the Requirement Details, Defect Details, or Test Instance Properties dialog box.
F5	Refreshes all data in the selected tree, grid, or folder.
CTRL+F	Opens a Find dialog box that helps you search for specified text.
CTRL+C	Copies the selected item and puts it on the Clipboard.
CTRL+V	Pastes the contents of the Clipboard to the selected location.
CTRL+X	Cuts the selected item and puts it on the Clipboard.
CTRL+Z	Undoes the last action.
CTRL+A	Selects all items.
DELETE	Deletes the selection.
F1	Displays help for the selected dialog box.
F2	Renames an entity.
F7	Spell checks the selected word or text box.
SHIFT+F7, SHIFT+CTRL+F7	Opens the Thesaurus dialog box and displays a synonym, antonym, or related word for the selected word.
CTRL+ALT+T OR CTRL+T	Creates a tab (for memo fields)

Attachments Shortcuts

You can perform the following commands in the Attachments tab/dialog box by pressing the corresponding shortcut keys:

Shortcut Key	Function
CTRL+F	Attaches a file
CTRL+W	Attaches a URL
CTRL+P	Attaches a snapshot
CTRL+I	Attaches system information
CTRL+B	Attaches Clipboard content
SPACE	Opens an attachment
CTRL+U	Uploads an attachment
CTRL+S	Saves an attachment
CTRL+DELETE	Deletes an attachment

Send E-mail Dialog Box Shortcuts

You can perform the following commands in the Send E-mail dialog box by pressing the corresponding shortcut keys:

Shortcut Key	Function
ALT+C OR ALT+T	Opens the Select Recipients dialog box
ALT+S	Sends the e-mail
CTRL+ALT+O	Opens the Spelling Options dialog box

Releases Module Shortcuts

You can perform the following commands in the Releases module by pressing the corresponding shortcut keys:

Shortcut Key	Function
CTRL+N	Creates a new release folder
CTRL+R	Creates a new release
CTRL+Y	Creates a new cycle
CTRL+D	Creates a copy of a cycle
CTRL+DELETE	Deletes a release, release folder, or cycle

Requirements Module Shortcuts

You can perform the following commands in the Requirements module by pressing the corresponding shortcut keys:

Shortcut Key	Function
CTRL+ALT+N	Creates a new folder
ALT+N	Creates a new requirement
CTRL+I	Zooms in
CTRL+O	Zooms out one level
CTRL+A	Adds test to coverage
CTRL+M	Sends requirement by e-mail (from Requirement Details dialog box)

Business Components Module Shortcuts

You can perform the following commands in the Business Components module by pressing the corresponding shortcut keys:

Shortcut Key	Function
CTRL+N	Creates a new component
CTRL+ALT+N	Creates a new components folder
F8	Validates the selected component
ALT+S	Takes a snapshot of an image (from Snapshot tab)
ALT+L	Loads an image from a file (from Snapshot tab)
ALT+N	Creates a new input parameter (from Parameters tab)
ALT+D	Deletes an input parameter (from Parameters tab)
ALT+W	Creates a new output parameter (from Parameters tab)
ALT+L	Deletes an output parameter (from Parameters tab)
ALT+N	Creates a new step (from Design Steps tab)
ALT+E	Edits a step (from Design Steps tab)
CTRL+P	Selects a parameter (from Design Steps tab)
CTRL+R	Creates a parameter (from Design Steps tab)
CTRL+K	Completes the parameter name, based on the first character or characters of the parameter name that you have entered (from Design Steps tab)
CTRL+S	Saves a step (from Design Steps tab)
ALT+M	Adds comments (from Details tab)

Test Plan Module Shortcuts

You can perform the following commands in the Test Plan module by pressing the corresponding shortcut keys:

Shortcut Key	Function
ALT+N	Creates a new step (from Design Steps tab)
CTRL+P	Inserts a parameter (from Design Steps tab)
SHIFT+ALT+A	Adds attachments (from Design Steps tab)
CTRL+L	Adds a call to manual test (from Design Steps tab)
ALT+S	Selects a requirement (from Design Steps tab)
CTRL+S	Saves a step (from Design Steps tab)
ALT+S	Adds requirement to coverage (from Req Coverage tab)
ALT+R	Removes a requirement from coverage (from Req Coverage tab)

Test Lab Module Shortcuts

You can perform the following commands in the Test Lab module by pressing the corresponding shortcut keys:

Shortcut Key	Function
ALT+N	Creates a new test set
CTRL+A	Adds test to test set
CTRL+DELETE	Removes test from test set
CTRL+F9	Runs test
CTRL+ALT+F9	Runs test manually
CTRL+SHIFT+F9	Continues manual run
ALT+F9	Runs test set

You can perform the following commands in the Manual Runner dialog box by pressing the corresponding shortcut keys:

Shortcut Key	Function
CTRL+Q	Ends the run
CTRL+R	Begins the run
CTRL+K	Cancels the run
CTRL+U	Adds attachments to the test run
CTRL+B	Adds a new defect
CTRL+S	Adds attachments to the test step
CTRL+P	Passes the selected test run steps
CTRL+F	Fails the selected test run steps
CTRL+A	Passes all the test run steps
CTRL+G	Fails all the test run steps
CTRL+UP ARROW/ CTRL+DOWN ARROW	Selects the previous or next test step

Defects Module Shortcuts

You can perform the following commands in the Defects module by pressing the corresponding shortcut keys:

Shortcut Key	Function
ALT+N	Adds a new defect
CTRL+DELETE	Deletes the selected defect
CTRL+ALT+G	Finds similar defects
CTRL+ALT+F	Finds similar text
CTRL+L	Finds the next instance of the specified text
CTRL+M	Sends defect by e-mail (from Defect Details tab)
CTRL+N	Clears all fields in the New Defect dialog box

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