HP Application Lifecycle Management

Software Version: 11.00

Tutorial

Document Release Date: November 2010
Software Release Date: November 2010

Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Copyright Notices

Trademark Notices

Adobe® is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S registered trademarks of Microsoft Corporation.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates.

Acknowledgements

This product includes software developed by the Apache Software Foundation (**http://www.apache.org**).

This product includes software developed by the JDOM Project (**http://www.jdom.org**).

Documentation Updates

The title page of this document contains the following identifying information:

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

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

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

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

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

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

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

Support

Visit the HP Software Support web site at:

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

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

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

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

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

To find more information about access levels, go to:

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

Table of Contents

Welcome to This Tutorial

Welcome to HP Application Lifecycle Management (ALM). ALM empowers IT to manage the core application lifecycle, from requirements through deployment, granting application teams the crucial visibility and collaboration needed for predictable, repeatable, and adaptable delivery of modern applications.

This tutorial is a self-paced guide that instructs you how to use the ALM application to organize and manage all phases of the application lifecycle. To successfully complete this tutorial, you should perform the tutorial in the order in which the information is presented.

Note: To learn how to work with the HP ALM Performance Center Edition, refer to the *HP ALM Performance Center Quick Start*.

How This Tutorial Is Organized

This tutorial contains the following lessons:

Lesson 1 **Introducing HP ALM**

Introduces you to the application lifecycle management process, and familiarizes you with the ALM user interface and the sample Mercury Tours Web site.

Lesson 2 **Specifying Releases and Cycles**

Shows you how to define releases and cycles and monitor their progress and quality.

Lesson 3 **Specifying Requirements**

Shows you how to define requirements, view the requirements tree, and convert requirements to tests.

Lesson 4 **Planning Tests**

Shows you how to create a test plan tree, define test steps, define test configurations, link test configurations to requirements, and automate manual tests.

Lesson 5 **Running Tests**

Shows you how to define test sets, schedule test runs, and run manual and automated tests.

Lesson 6 **Adding and Tracking Defects**

Shows you how to add new defects, update defects, and manage defects.

Lesson 7 **Alerting on Changes**

Shows you how to keep track of changes made to your requirements, tests, and defects as you perform your project testing.

Lesson 8 Analyzing ALM Data

Shows you how to monitor the application lifecycle management process by creating reports and graphs.

Lesson 9 Creating Libraries and Baselines

Shows you how to create libraries and baselines, and how to compare baselines to track changes in your project.

Lesson 10 Customizing Projects

Shows you how to set up project users, and how to create project fields and lists.

Lesson 11 Conclusion

Summarizes the ALM application lifecycle management process and suggests the steps to consider for each phase.

Before You Begin

To work with this tutorial, consider the following specifications:

ALM Editions	HP ALM is also available in three editions which provide subsets of ALM functionality — HP Quality Center Starter Edition, HP Quality Center Enterprise Edition, and HP ALM Performance Center Edition. This tutorial assumes that you are working in HP ALM or HP Quality Center Enterprise Edition. Some of the lessons and exercises in this tutorial are not applicable if you are working in HP Quality Center Starter Edition. To determine which edition you are using, contact your ALM site administrator. **Note:** If you are working with the HP ALM Performance Center Edition, refer to the *HP ALM Performance Center Quick Start*.
ALM_Demo Project	➤ The demo project is available with the ALM Platform 11.00 installation DVD and is obtained by importing the **ALM_Demo.qcp** file using Site Administration. For more information, refer to the *HP Application Lifecycle Management Installation Guide*. ➤ To ensure that you get the same results as the ones specified in this tutorial, make sure that you work on a new copy of the **ALM_Demo** project. For more information, contact your ALM site administrator. ➤ By default, the demo project is version control enabled. This tutorial assumes that your demo project is version control enabled. For more information on version control, refer to the *HP Application Lifecycle Management User Guide*.
Mercury Tours	➤ The Mercury Tours is a sample application that simulates a Web-based site for reserving flights, hotel rooms, car rentals, cruises, and vacation deals. ➤ Mercury Tours is installed during the installation of ALM on a server machine. For more information, refer to the *HP Application Lifecycle Management Installation Guide*.

HP QuickTest Professional	➤ To run the automated tests in this tutorial, QuickTest Professional must be installed. ➤ To integrate ALM with QuickTest Professional, you must download and install the **HP QuickTest Professional add-in** and the **HP Quality Center Connectivity add-in** from the HP Application Lifecycle Management Add-ins page. For more information on ALM add-ins, refer to the *HP Application Lifecycle Management Installation Guide*.
HP Sprinter	➤ To run manual tests in this tutorial, you can use Manual Runner, HP Sprinter, or both. For enhanced functionality and a variety of tools to assist in the manual testing process, run manual tests with Sprinter. ➤ To run tests with Sprinter, download and install the **Sprinter add-in** from the HP Application Lifecycle Management Add-ins page. For more information on ALM add-ins, refer to the *HP Application Lifecycle Management Installation Guide*.

Documentation Library

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

➤ Click **Documentation Library** in the ALM 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 ALM 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).

Reference	Description
Using this Documentation Library	Explains how to use the Documentation Library and how it is organized.
What's New?	Describes the newest features in the latest version of ALM. To access, select **Help** > **What's New**.
Product Feature Movies	Short movies that demonstrate the main product features. To access, select **Help** > **Product Feature Movies**.
Readme	Provides last-minute news and information about ALM.

Application Lifecycle Management Guides

Guide	Description
HP ALM User Guide	Explains how to use ALM to organize and execute all phases of the application life cycle management process. It describes how to specify releases, define requirements, plan tests, run tests, and track defects.
HP ALM Administrator Guide	Explains how to create and maintain projects using Site Administration, and how to customize projects using Project Customization.
HP ALM Tutorial	A self-paced guide teaching you how to use ALM to manage the application life cycle management process.

Guide	Description
HP ALM Installation Guide	Describes the installation and configuration processes for setting up ALM Platform.
HP Business Process Testing User Guide	Explains how to use Business Process Testing to create business process tests.

ALM Performance Center Guides

Guide	Description
HP ALM Performance Center Quick Start	A self-paced guide giving the Performance Center user a high level overview of creating and running performance tests.
HP ALM Performance Center Guide	Explains to the Performance Center user how to create, schedule, run, and monitor performance tests. Explains to the Performance Center administrator how to use Lab Management for overall lab resource management, lab settings management, and system configuration.
HP ALM Performance Center Installation Guide	Describes the installation processes for setting up Performance Center Servers, Performance Center Hosts and other Performance Center components.
HP ALM Performance Center Troubleshooting Guide	Provides information for troubleshooting problems while working with HP ALM Performance Center.
HP Performance Center of Excellence Best Practices	Provides best practices for successfully building and operating Performance Centers of Excellence.
HP Performance Monitoring Best Practices	Provides best practices for monitoring the performance of applications under test.

ALM Best Practices

Guide	Description
HP ALM Database Best Practices Guide	Provides best practices for deploying ALM on database servers.
HP ALM Upgrade Best Practices Guide	Provides methodologies for preparing and planning your ALM upgrade.
HP ALM Business Models Module Best Practices Guide	Provides best practices for working with the Business Models module.

ALM API References

Guide	Description
HP ALM Project Database Reference	Provides a complete online reference for the project database tables and fields.
HP ALM Open Test Architecture API Reference	Provides a complete online reference for the ALM COM-based API. You can use the ALM open test architecture to integrate your own configuration management, defect tracking, and home-grown testing tools with an ALM project.
HP ALM 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 ALM users, projects, domains, connections, and site configuration parameters.
HP ALM REST API Reference	Provides an online reference for the ALM REST-based API. You can use the REST API to access and work with ALM data.
HP ALM Custom Test Type Guide	Provides a complete online guide for creating your own testing tool and integrating it into the ALM environment.

Additional Online Resources

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

Part	Description
Troubleshooting & Knowledge Base	Opens the Troubleshooting page on the HP Software Support Web site where you can search the Self-solve knowledge base. Choose **Help** > **Troubleshooting & Knowledge Base**. The URL for this Web site is http://h20230.www2.hp.com/troubleshooting.jsp.
HP Software Support	Opens the HP Software Support Web site. This site enables you to browse the Self-solve knowledge base. You can also post to and search user discussion forums, submit support requests, download patches and updated documentation, and more. Choose **Help** > **HP Software Support**. The URL for this Web site is www.hp.com/go/hpsoftwaresupport. Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To find more information about access levels, go to: http://h20230.www2.hp.com/new_access_levels.jsp To register for an HP Passport user ID, go to: http://h20229.www2.hp.com/passport-registration.html
HP Software Web site	Opens the HP Software Web site. This site provides you with the most up-to-date information on HP Software products. This includes new software releases, seminars and trade shows, customer support, and more. Choose **Help** > **HP Software Web site**. The URL for this Web site is www.hp.com/go/software.
Add-ins Page	Opens the HP Application Lifecycle Management Add-ins Page, which offers integration and synchronization solutions with HP and third-party tools.

1

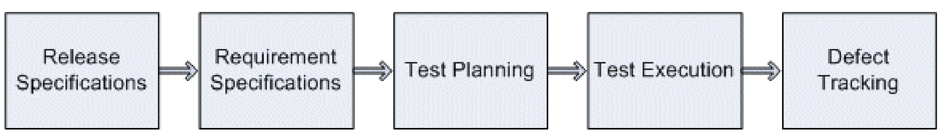
Introducing HP ALM

ALM helps you organize and manage all phases of the application lifecycle management process, including defining releases, specifying requirements, planning tests, executing tests, and tracking defects.

In this lesson, you will learn about:

The Application Lifecycle Management Process

The application lifecycle management process with ALM includes the following phases:



Phase	Description
Release Specifications	Develop a release-cycle management plan to help you manage application releases and cycles efficiently.
Requirement Specifications	Define requirements to meet your business and testing needs.

Phase	Description
Test Planning	Based on the project requirements, you can build test plans and design tests.
Test Execution	Create a subset of the tests in your project designed to achieve specific test goals. Execute scheduled tests to diagnose and resolve problems.
Defect Tracking	Submit defects and track their repair progress.

Throughout the process, you can generate reports and graphs to assist you in “go/no-go” decisions about your application readiness.

Starting ALM

Start ALM from your Web browser using the HP ALM URL.

To start ALM:

1 Verify tutorial prerequisites.

Before you begin the lessons in this tutorial, verify that you have the appropriate prerequisites. For more information, see "Before You Begin" on page 10.

2 Open the Application Lifecycle Management Options window.

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

The HP Application Lifecycle Management Options window opens.

3 Open ALM.

Click the **Application Lifecycle Management** link.

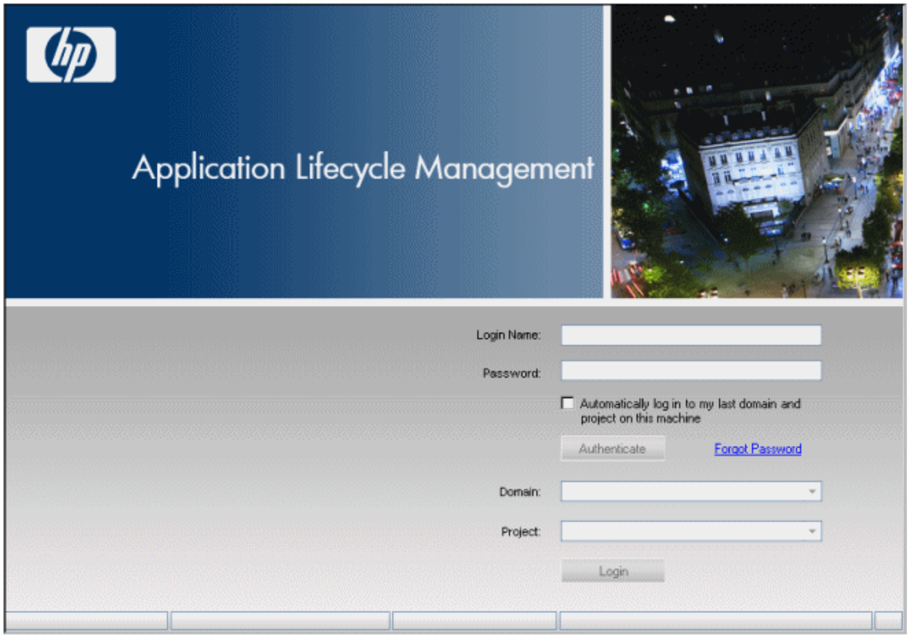
Each time ALM is run, it checks the version. If it detects a newer version, it downloads the necessary files to your machine.

Notes:

➤ **Windows Vista** and **7**: If you do not have administrator privileges on your machine, and a Security Warning displays, click **Don't Install**. You will be redirected to the Install screen.

➤ If file downloads are prohibited by your browser, you can install these files by using the **HP ALM Client MSI Generator Add-in** on the **More HP Application Lifecycle Management Add-ins** page. For more information on add-ins, refer to the *HP Application Lifecycle Management Installation Guide*.

The ALM Login window opens.



4 Type a user name and authenticate.

In the **Login Name** box, type **alex_alm**.

Skip the **Password** box. A password was not assigned.

Click the **Authenticate** button. ALM verifies your user name and password and determines which domains and projects you can access.

5 Log in to the project.

In the **Domain** list, select **DEFAULT**.

In the **Project** list, select **ALM_Demo.** If more than one **ALM_Demo** project is listed, contact your ALM site administrator to determine which project to use.

Click the **Login** button.

The first time you run ALM, the Welcome page opens. From the Welcome page, you can directly access the ALM documentation and feature movies.

When you log in to a project, the ALM main window opens and displays the module in which you were last working. In the upper-right corner of the window, the domain name, project name, and your user name are displayed.

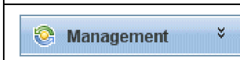
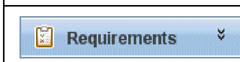
The ALM Window

In this exercise, you will explore the ALM modules and their common elements. You will also learn how to navigate the online help.

To explore the ALM window:

1 Explore the ALM modules.

Click the following sidebar buttons:

Button	Description
	Includes the following modules: ➤ **Analysis View.** Enables you to create graphs, reports, and Excel reports. ➤ **Dashboard View.** Enables you to create dashboard pages, in which you can view multiple graphs in a single display.
	Includes the following modules: ➤ **Releases.** Enables you to define releases and cycles for the application management process. ➤ **Libraries.** Enables you to define libraries to track changes in your project, reuse entities in a project, or share entities across multiple projects.
	Includes the following modules: ➤ **Requirements.** Enables you to manage requirements in a hierarchical tree-structure. Requirements can be linked to other requirements, tests, or defects. ➤ **Business Models.** Enables you to import business process models, and test the quality of the models and their components. Access to this module is dependent on your ALM license.

Button	Description
	Includes the following modules: ➤ **Test Resources.** Enables you to manage test resources in a hierarchical tree-structure. Test resources can be associated with tests. ➤ **Business Components**. Depending on your ALM 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 Guide*. ➤ **Test Plan.** Enables you to develop and manage tests in a hierarchical tree-structure. Tests can be linked to requirements and defects. ➤ **Test Lab.** Enables you to manage and run tests. After running tests, you can analyze the results.
	Enables you to add defects, determine repair priorities, repair open defects, and analyze the data.

2 Explore the common ALM elements.

All the ALM modules have common elements. For example, click the **Defects** sidebar button.

Each of the ALM modules contains the following key elements:

➤ **ALM common toolbar.** This toolbar is accessible from all modules and contains the following buttons:

Button	Description
< Back Forward >	Navigates to your previous/next view in ALM.
Tools ▾	Includes commands that you can run from each of the ALM modules.
Help ▾	Enables you to open the HP Application Lifecycle Management Documentation Library and other additional online resources. It also enables you to display version information for each ALM client component. For more information, see "Documentation Library" on page 11 and "Additional Online Resources" on page 15.
<**domain, project, user**>	Details of the current domain, project, and user.
Logout	Logs you out of your current project and returns you to the Application Lifecycle Management Login window.

➤ **Module menu bar.** Displays the menus from which you select commands in the current ALM module.

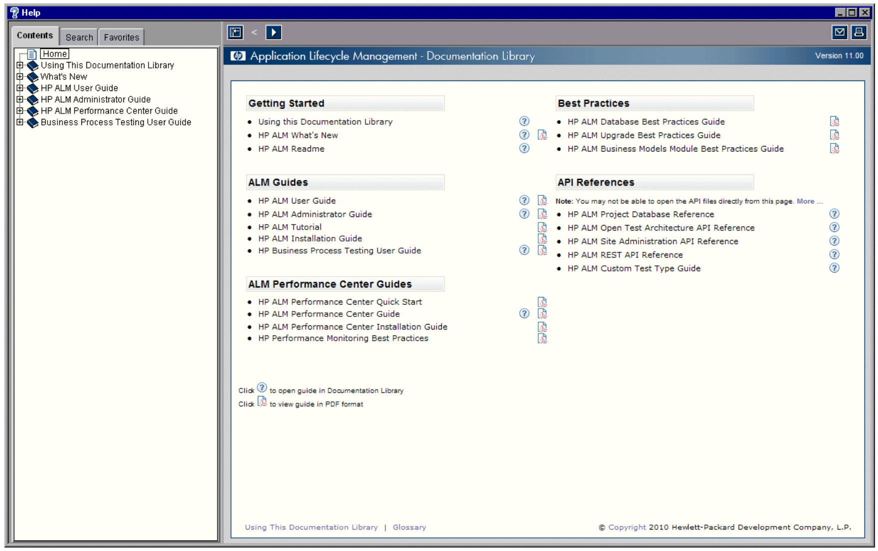
➤ **Module toolbar.** This is located below the menu bar. It contains buttons for frequently used commands in the current ALM module.

3 View ALM help topics.

a To view the help topic of the Defects module window, click the **Defects** sidebar button. The Defects module is displayed. Choose **Help** > **Help on this page**. The help topic opens in a separate window.

b To display the navigation pane, which includes the Contents, Search, and Favorites tabs, click the **Search and Navigate** button. The navigation pane is displayed on the left side of the page.

c To view the Application Lifecycle Management Documentation Library home page, in the **Contents** tab, click **Home**. The Documentation Library home page opens.



The Documentation Library consists of guides and references, available online, in PDF format, or both.

d Under the **Contents** tab, click the **Using This Documentation Library** link. The Using This Documentation Library section describes how to navigate, use, update and print the HP ALM guides. It also describes additional available resources.

e Click the **Close** button.

The Mercury Tours Sample Web Site

Mercury Tours is the sample Web application used in this tutorial. It simulates a Web-based application for reserving flights, hotel rooms, car rentals, cruises, and vacation deals. Before continuing with the tutorial, familiarize yourself with this application.

To explore Mercury Tours:

1 Open the Mercury Tours application.

Open a separate instance of your Web browser, and type this URL:
http://<ALM Platform server name>[<:port number>]/mtours

The Mercury Tours home page opens.

2 Register with Mercury Tours.

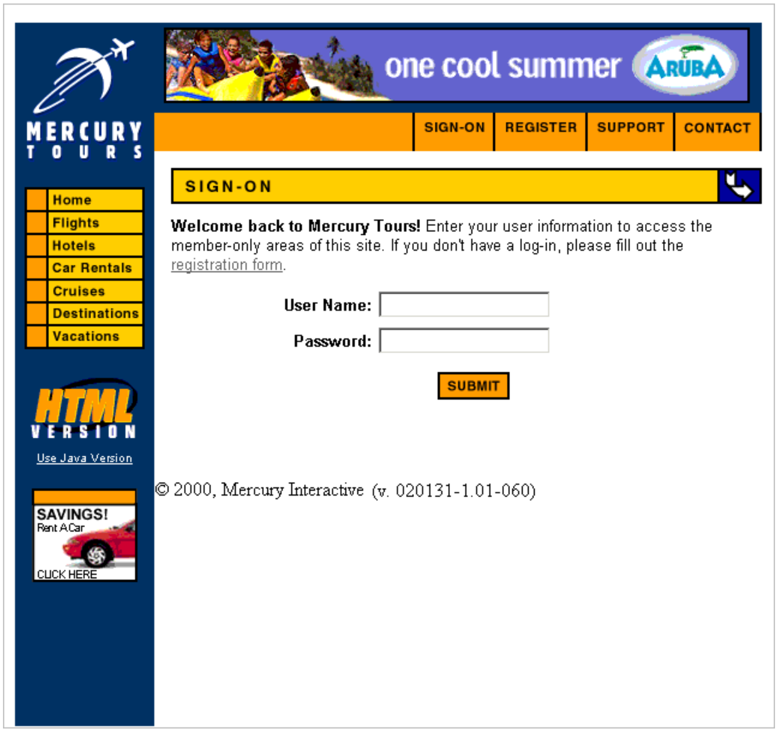
a Click **Register**. The Register page opens.

b Under **User Information**, enter any user name and password, and confirm your password. (Other information is not required.)

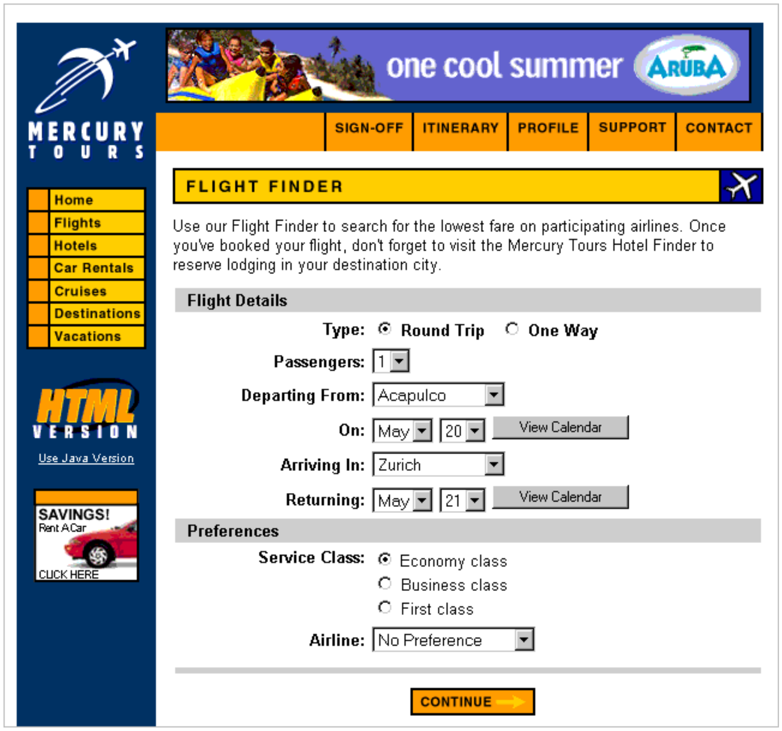
c Click **Submit**. Mercury Tours confirms your registration.

3 Log on to Mercury Tours.

a Click **Sign-on**. The Sign-on page opens.



b Type your registered user name and password. Click **Submit**. The Flight Finder page opens.



4 Reserve a flight.

Follow the on-screen instructions to reserve a flight.

5 End your Mercury Tours session.

Click **Sign-off**.

2

Specifying Releases and Cycles

You begin the application lifecycle management process by specifying 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. The releases and cycles have defined start and end dates.

You can organize and track your upcoming releases by defining a hierarchical release tree containing releases and cycles. In this lesson, you will add a release to an existing release tree, and then add cycles to the release.

ALM Editions: This lesson is not available for Quality Center Starter Edition.

In this lesson, you will learn about:

Defining Releases and Cycles

In this exercise, you will define a release and then add cycles to the release. Releases and cycles each have start dates and end dates. The date range for a cycle must be contained within the date range of the release.

To define a release and its cycles:

1 Open the ALM_Demo project.

If the **ALM_Demo** project is not already open, log in to the project. For more information, see "Starting ALM" on page 18.

2 Display the Releases module.

On the ALM sidebar, under **Management**, select **Releases**.

3 Create a new release folder.

a In the releases tree, select the root **Releases** folder. Click the **New Release Folder** button. The New Release Folder dialog box opens.

b In the **Release Folder Name** box, type Service Packs.

c Click **OK**. The Service Packs release folder is added to the releases tree.

d In the **Description** box in the right pane, type the following description for the release folder: This folder contains service pack releases.

4 Add a release.

a In the releases tree, make sure that the new **Service Packs** release folder is selected.

b Click the **New Release** button. The New Release dialog box opens.

c In the **Name** box, type Service Pack 1.

d In the **Start Date** box, click the down arrow and select yesterday's date. In the **End Date** box, click the down arrow and select the date two months from today's date.

e In the **Description** box, type the following description for the release: This release is the first service pack release.

f Click **OK**. The **Service Pack 1** release is added to the **Service Packs** release folder.

5 Add a cycle to the release.

a In the releases tree, make sure that the **Service Pack 1** release is selected.

b Click the **New Cycle** button. The New Cycle dialog box opens.

c In the **Name** box, type Cycle 1 - New Features.

d In the **Start Date** box, click the down arrow and select yesterday's date. In the **End Date** box, click the down arrow and select the date a month from today's date.

e In the **Description** box, type the following description for the cycle: This cycle tests new features added for this service pack.

f Click **OK**. The **Cycle 1 - New Features** cycle is added to the **Service Pack 1** release.

6 Add a second cycle to the release.

a In the releases tree, right-click the **Service Pack 1** release and choose **New Cycle**. The New Cycle dialog box opens.

b In the **Name** box, type Cycle 2 - Full.

c In the **Start Date** box, click the down arrow and select the date one month and a day from today's date. In the **End Date** box, click the down arrow and select the date two months from today's date.

d In the **Description** box, type the following description for the cycle: This cycle fully tests all application features.

e Click **OK**. The **Cycle 2 - Full** cycle is added to the **Service Pack 1** release.

Viewing Releases and Cycles

You can view the status of your releases and cycles. ALM shows a high-level overview of the progress of the currently selected release or cycle. It also shows the number of defects opened over the course of the currently selected release or cycle. You can also view the number of outstanding defects.

In this exercise you will learn how to display the progress and graphs of a selected release and cycle.

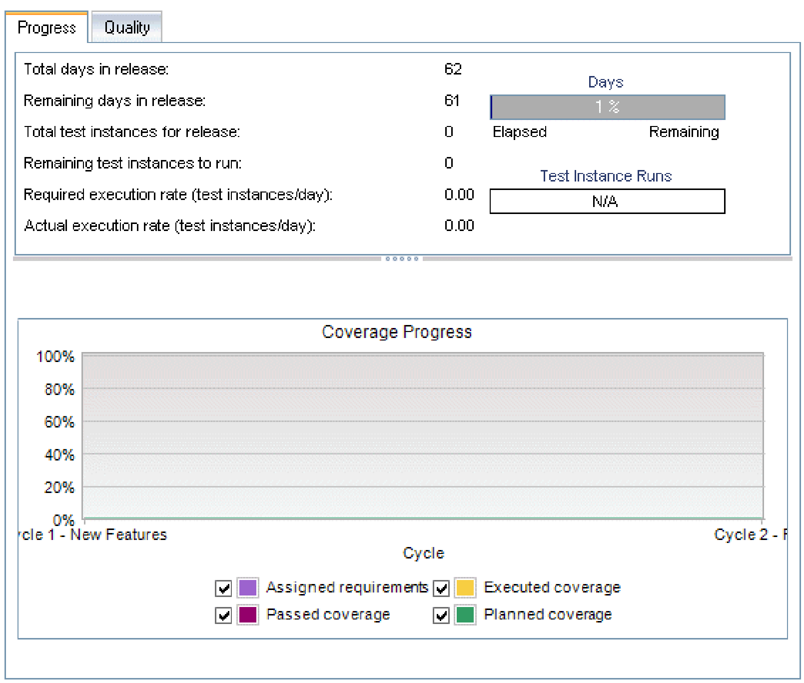
To view releases and cycles:

1 Make sure the Releases module is displayed.

On the ALM sidebar, under **Management**, select **Releases**.

2 Display the Progress graph for the Service Pack 1 release.

In the releases tree, select the **Service Pack 1** release, located in the **Service Packs** release folder. In the right pane, click the **Status** tab. The Progress tab is displayed by default.



The Progress tab displays the progress of the release based on requirement coverage, elapsed and remaining time, and actual and remaining test instances to run. As you have not yet created requirements or tests, the information in the Coverage Progress graph indicates 0% progress.

3 Display the Progress graph for a cycle.

In the releases tree, select the **Cycle 1 - New Features** cycle, located in the **Service Pack 1** release.

In the right pane, click the **Progress** tab. You can see that the information available is similar to that available for the release, but at the cycle level. As in the case of the release, you have not yet created requirements and tests, therefore the information in the Coverage Progress graph indicates 0% progress.

3

Specifying Requirements

Requirements describe in detail what needs to be solved or achieved to meet the objectives of your application under development.

You define the requirements in ALM by creating a requirements tree in the Requirements module. This is a hierarchically graphical representation of your requirements. You can group and sort requirements in the tree, monitor the progress in meeting requirements, and generate detailed reports and graphs.

In this lesson, you will create requirements in an existing requirements tree. You will then assign the requirements to a cycle in the releases tree. You will also learn how to convert requirements to tests.

In this lesson, you will learn about:

Defining Requirements

In this exercise, you will define requirements for testing the functionality of reserving cruises in Mercury Tours.

ALM Editions: If you are using Quality Center Starter Edition, multiple requirement types are not supported. In addition, fields and commands related to cycles and releases are not available.

To define a requirement:

1 Open the ALM_Demo project.

If the **ALM_Demo** project is not already open, log in to the project. For more information, see "Starting ALM" on page 18.

2 Display the Requirements module.

a On the ALM sidebar, under **Requirements**, select **Requirements**.

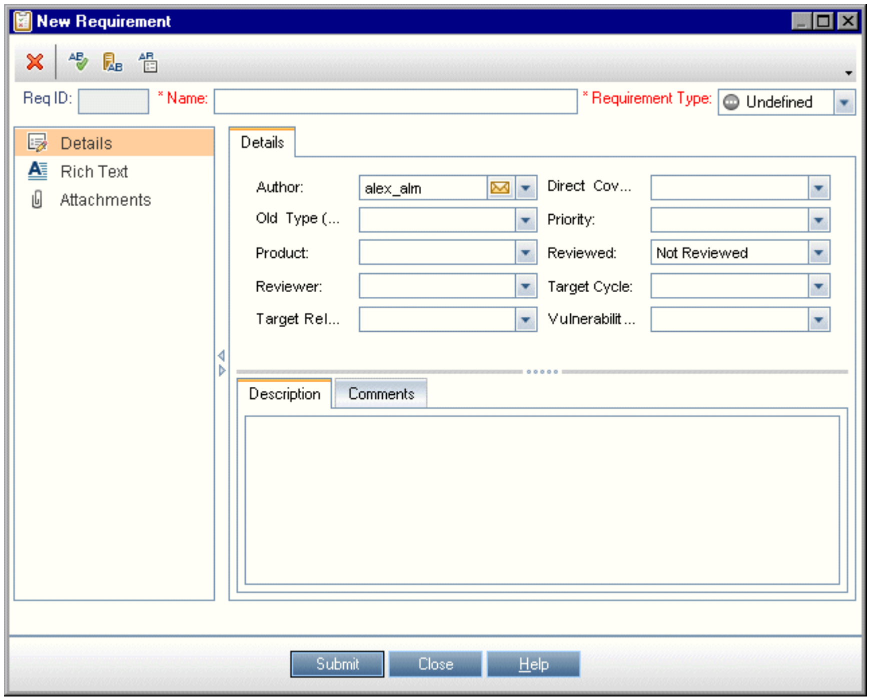
b Choose **View** > **Requirements Tree** to display requirements in a tree.

3 Select the Mercury Tours Application requirement.

Expand the **Requirements** root requirement and select the **Mercury Tours Application** requirement.

4 Create a new requirement.

a Click the **New Requirement** button. The New Requirement dialog box opens.



b In the **Requirement Name** box, type Cruise Reservation.

c In the **Requirement Type** box, select **Functional**. Each requirement belongs to a requirement type. The requirement type to which a requirement belongs determines which fields are available for the requirement. Your project administrator can modify existing types and add new types.

ALM Editions: If you are using Quality Center Starter Edition, ignore this step.

---

d In the Details tab, type or select the following:

Priority: 4-Very High

Product: Mercury Tours Web Site

e Click **Submit**.

f Click **Close** to close the New Requirement dialog box. The **Cruise Reservation** requirement is added to the requirements tree under the **Mercury Tours Application** requirement.

5 Add the Cruise Search child requirement.

a In the requirements tree, make sure that the new **Cruise Reservation** requirement is selected.

b Click the **New Requirement** button to add a requirement below **Cruise Reservation**. The New Requirement dialog box opens.

c In the **Requirement Name** box, type Cruise Search.

d In the **Requirement Type** box, select **Functional**.

ALM Editions: If you are using Quality Center Starter Edition, ignore this step.

---

e In the Details tab, type or select the following:

Priority: 4-Very High

Product: Mercury Tours Web Site

f Click **Submit**.

g Click **Close** to close the New Requirement dialog box. The **Cruise Search** requirement is added as a child of the **Cruise Reservation** requirement.

6 Add the Cruise Booking child requirement.

a In the requirements tree, make sure that the **Cruise Reservation** requirement is selected.

b Click the **New Requirement** button to add a requirement below **Cruise Reservation**. The New Requirement dialog box opens.

c In the **Requirement Name** box, type Cruise Booking.

d In the **Requirement Type** box, select **Functional**.

ALM Editions: If you are using Quality Center Starter Edition, ignore this step.

---

e In the Details tab, type or select the following:

Priority: 4-Very High

Product: Mercury Tours Web Site

f Click **Submit**.

g Click **Close** to close the New Requirement dialog box. The **Cruise Booking** requirement is added as a child of the **Cruise Reservation** requirement.

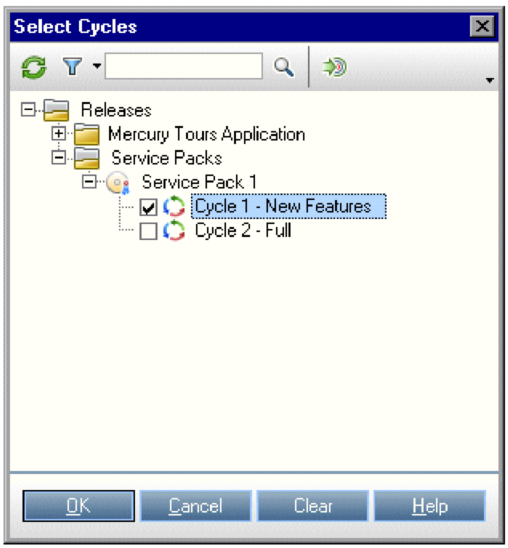
7 Assign the requirements to a cycle.

ALM Editions: If you are using Quality Center Starter Edition, ignore this step.

---

a In the requirements tree, select **Cruise Reservation**.

b Choose **Requirements** > **Assign to Cycle**. The Select Cycles dialog box opens.



c Locate the **Service Packs** releases folder. Under **Service Pack 1**, select the check box for the **Cycle 1 - New Features** cycle.

d Click **OK** to close the releases tree.

e Click **Yes** to assign the cycle to the requirement and its sub-requirements.

8 Assign additional requirements to a cycle.

ALM Editions: If you are using Quality Center Starter Edition, ignore this step.

---

a In the requirements tree, under **Mercury Tours Application,** select **Online Travel Booking Services**.

b Choose **Requirements** > **Assign to Cycle**. In the Select Cycles dialog box, locate the **Service Packs** releases folder. Under **Service Pack 1**, select the check box for the **Cycle 1 - New Features** cycle. Click **OK**.

c **Version Control:** If the Check Out dialog box opens, click **OK**.

d Click **Yes** to assign the cycle to the requirement and its sub-requirements.

Viewing Requirements

You can change the way requirements are displayed. In this exercise, you will learn how to zoom in and out of the requirements tree, rearrange the requirement order, and display and filter requirements in the requirements grid.

To view requirements:

1 Make sure the Requirements module is displayed.

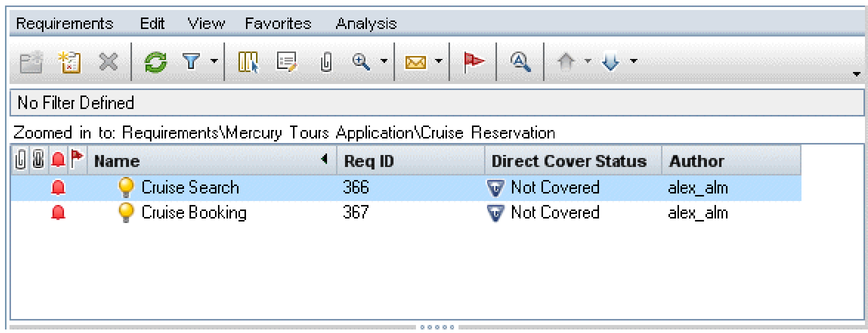
a If the Requirements module is not displayed, on the ALM sidebar, under **Requirements**, select **Requirements**.

b Choose **View** > **Requirements Tree** to display requirements in a tree.

2 Zoom in and out of the requirements tree.

a Select **Cruise Reservation** in the requirements tree.

b To zoom in, click the **Zoom** arrow and choose **Zoom In**. The requirements tree displays only the child requirements of **Cruise Reservation**.



c To reverse the zoom-in action and display the entire requirements tree, click the **Zoom** arrow and choose **Zoom Out To Root**.

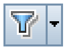
3 Rearrange the order of requirements in the requirements tree.

ALM adds requirements to the requirements tree in order of creation. To rearrange the order, select the **Cruise Search** requirement and click the **Move Down** button. The Cruise Search requirement moves down below the Cruise Booking requirement.

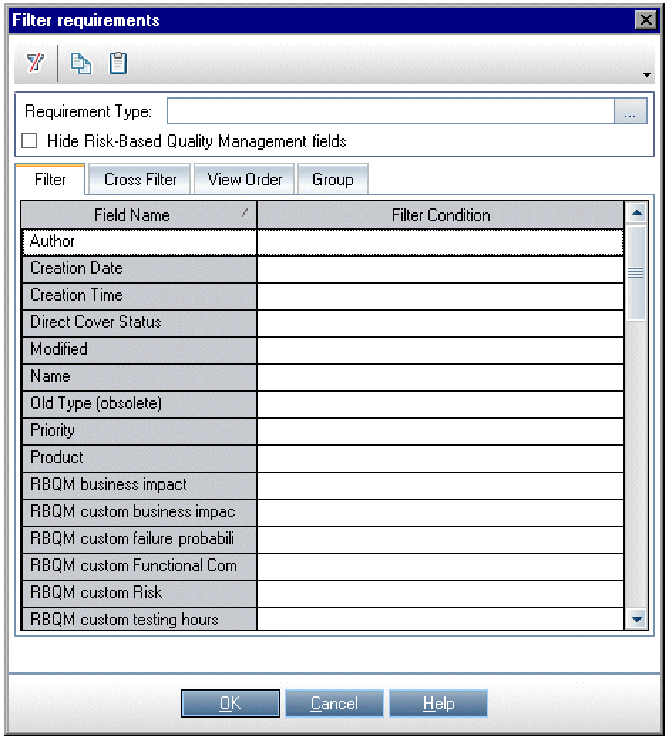
4 View requirements in the requirements grid.

Choose **View** > **Requirements Grid** to display requirements in a flat non-hierarchical view. Each line in the grid displays a separate requirement.

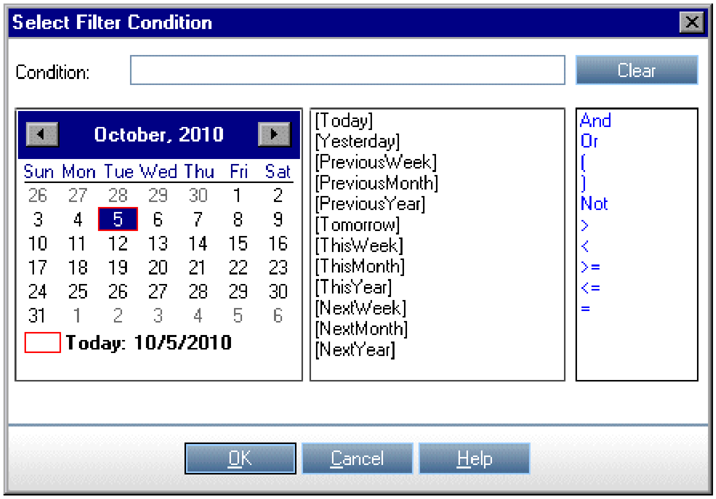
5 Define a filter to view requirements created on a specific date.



a Click the **Filter** button. The Filter dialog box opens.



b For the **Creation Date** field, click the **Filter Condition** box. Click the down arrow button. The Select Filter Condition dialog box opens, displaying today's date in the calendar.

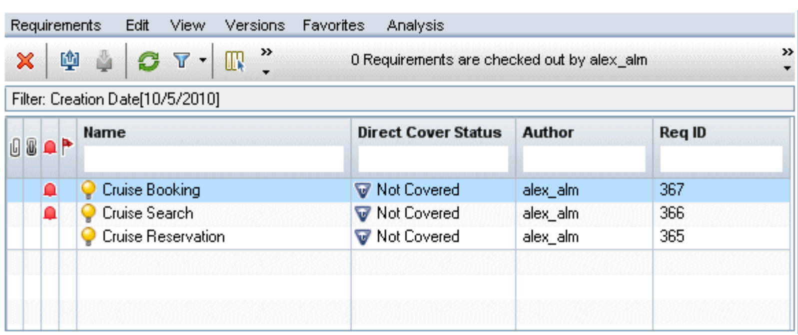


c Select the date on which you added requirements.

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

e Click **OK** to apply your chosen filter.

f The Requirements Grid displays the requirements you added.



Converting Requirements to Tests

After you create the requirements tree, you can use the requirements as a basis for defining your test plan tree in the Test Plan module.

You can use the Convert to Tests wizard to assist you when designing your test plan tree. The wizard enables you to convert selected requirements or all requirements in the requirements tree to subjects or tests in the test plan tree.

In this exercise, you will convert the **Cruise Reservation** requirement to a subject in the test plan tree, and the child requirements of **Cruise Reservation** to tests in the Cruise Reservation subject folder.

To convert a requirement to test:

1 Make sure the Requirements module is displayed.

If the Requirements module is not displayed, on the ALM sidebar, under **Requirements**, select **Requirements**.

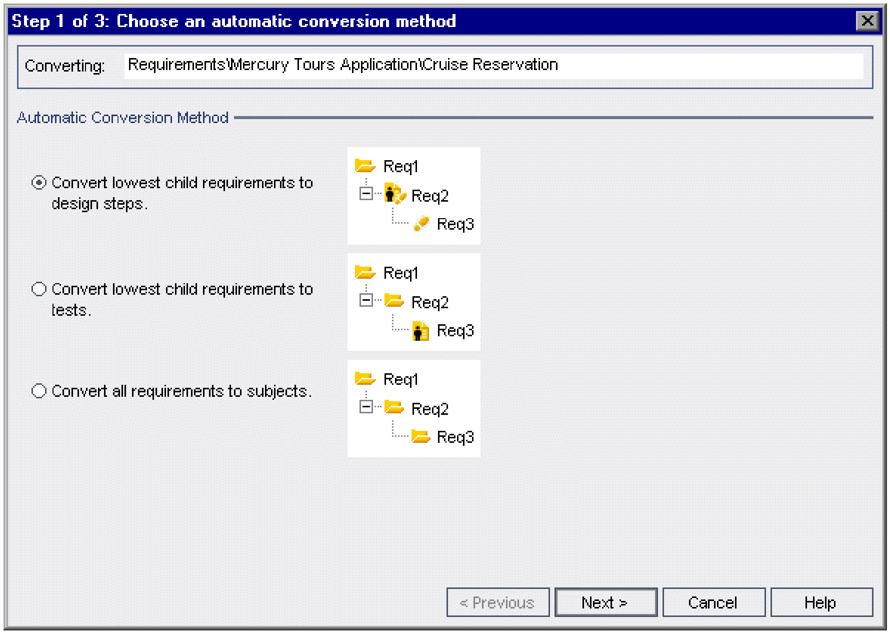
2 Select a requirement.

a Choose **View** > **Requirements Tree** to display requirements in a tree.

b In the requirements tree, select **Cruise Reservation**.

3 Open the Convert to Tests wizard.

Choose **Requirements** > **Convert to Tests**. The Step 1 dialog box opens.

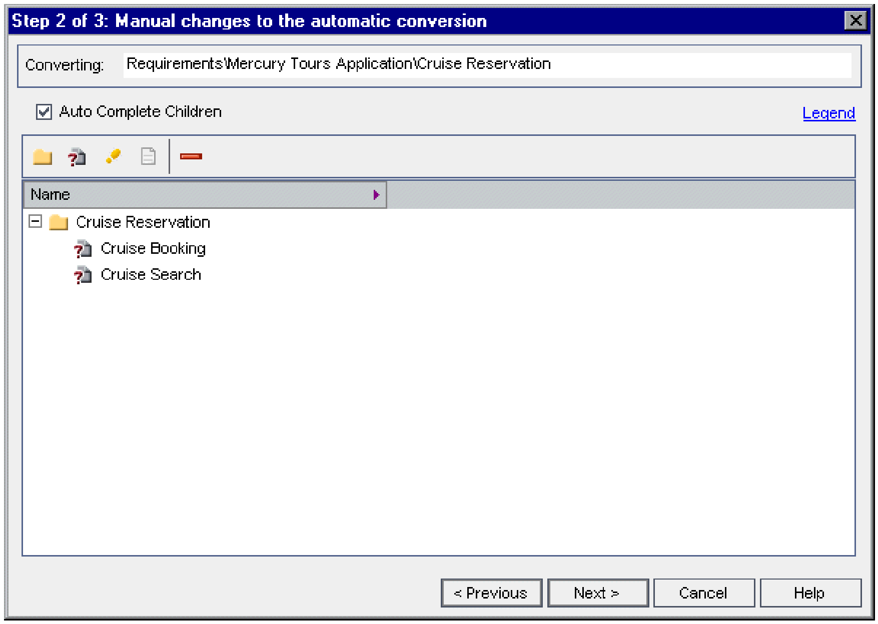


4 Choose an automatic conversion method.

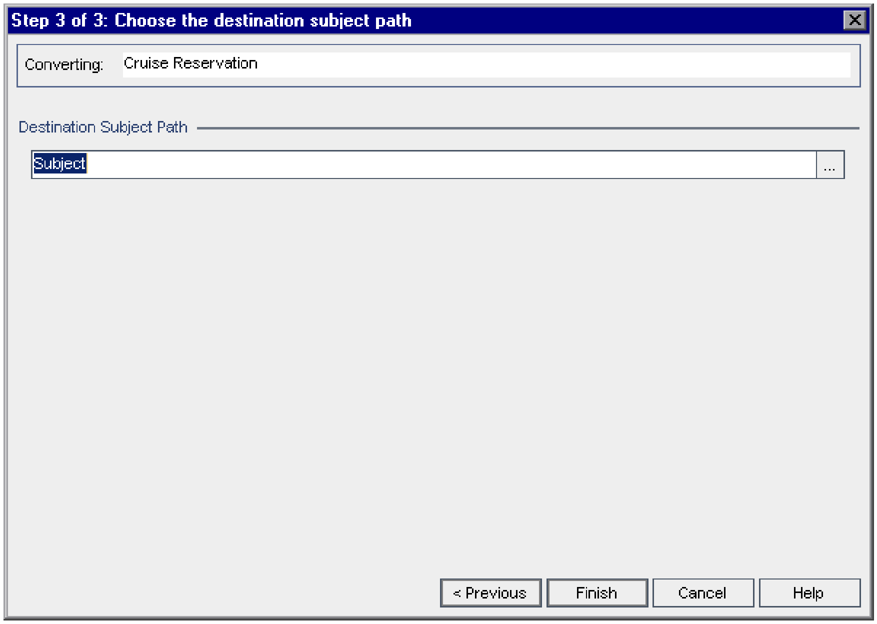
Select the second option, **Convert lowest child requirements to tests**, to convert the selected requirement to a subject folder, and its sub-requirements to tests.

5 Start the conversion process.

a Click **Next** to begin converting the requirements. When the conversion process is complete, the results are displayed in the Step 2 dialog box.



b Click **Next**. The Step 3 dialog box opens.

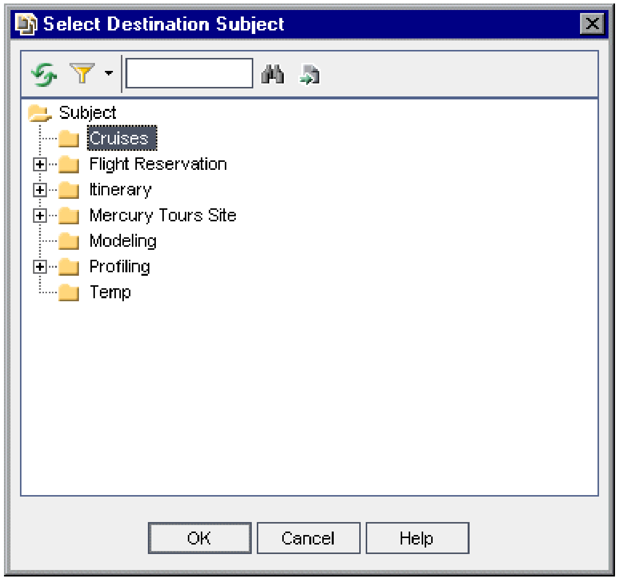


6 Choose the destination subject path.

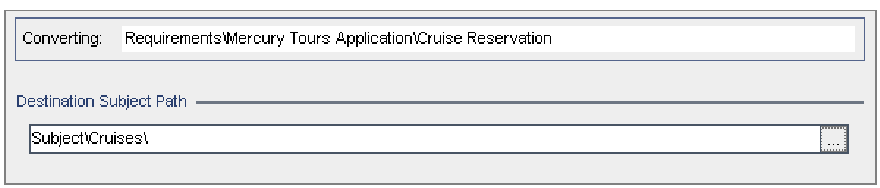
a In the **Destination Subject Path** box, click the browse button. The Select Destination Subject dialog box opens.

b If any filters are applied, click the **Set Filter/Sort** arrow and choose **Clear Filter/Sort**. Click **OK** to confirm.

c In the test plan tree, select the **Cruises** subject.



d Click **OK** to close the Select Destination Subject dialog box. The **Destination Subject Path** box now indicates this path:



7 Finalize the conversion process.

Click **Finish**. The Required Test Fields dialog box opens and displays the missing required fields of the Cruise Booking test.

8 Specify the required test fields.

a Select the following:

Level: Basic

Priority: 4-Very High

Reviewed: Reviewed

b Click **OK**. The Required Test Fields dialog box reopens and displays the missing required fields of the Cruise Search test.

c Select the same values entered for the Cruise Booking test. Click **OK**.

d Click **OK** to close Convert to Tests wizard.

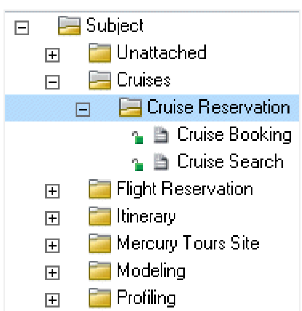
9 View the tests in the test plan tree.

a On the ALM sidebar, under **Testing**, select **Test Plan**.

b Choose **View** > **Test Plan Tree** to display the test plan tree.

c Expand **Cruises**. The test plan tree displays **Cruise Reservation** under **Cruises**.

d Expand **Cruise Reservation**. The test plan tree displays the **Cruise Booking** and **Cruise Search** tests.



4

Planning Tests

After you define your requirements, you need to determine your testing goal and outline the strategy for achieving your goal.

After you determine your testing goal, you build a test plan tree, which hierarchically divides your application into testing units, or subjects. For each subject in the test plan tree, you define tests that contain steps. For each test step, you specify the actions to be performed on your application and the expected result.

ALM enables you to use the same test to test different use-cases, each with its own test configuration. Each test configuration uses a different set of data. You define the data by adding test parameter values for each test configuration. A test parameter is a variable that can be assigned a value.

When you create a test, a single test configuration with the same name as the test is created simultaneously. You can create as many additional test configurations as needed.

It is essential that the tests in your test plan comply with your requirements. To help ensure compliance throughout the application lifecycle management process, add coverage between tests and requirements. For finer granularity, you add coverage between test configurations and requirements.

In this lesson, you will learn about:

Developing a 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**. The test plan tree 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.

In this exercise, you will add a subject and a test to the test plan tree in the Test Plan module.

To develop a test plan tree:

1 Open the ALM_Demo project.

If the **ALM_Demo** project is not already open, log in to the project. For more information, see "Starting ALM" on page 18.

2 Display the Test Plan module.

On the ALM sidebar, under **Testing**, select **Test Plan**.

3 Add a subject folder to the test plan tree.

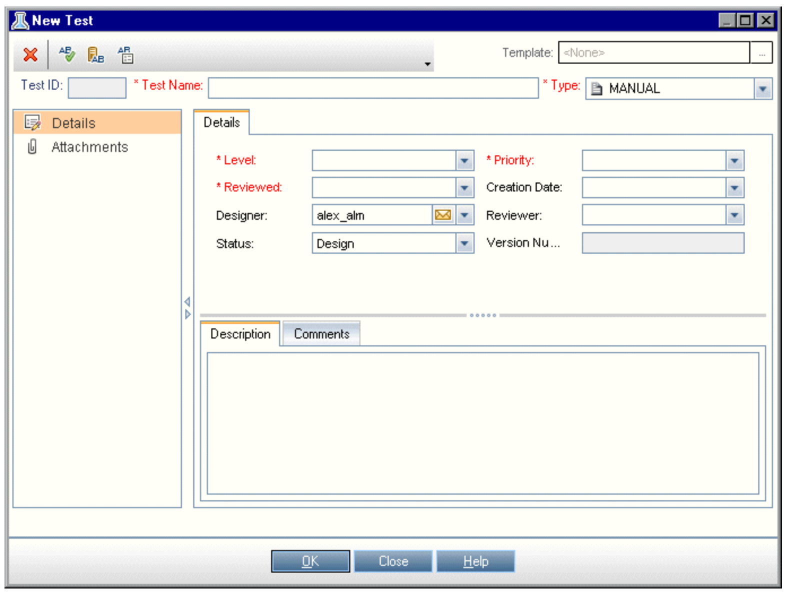
a Select the **Subject** folder and click the **New Folder** button. The New Folder dialog box opens.

b In the **Folder Name** box, type Payment Methods. Click **OK**. The new folder is added to the test plan tree.

c In the **Description** tab in the right pane, type a description of the subject: This folder contains tests that verify the payment methods.

4 Add a test to the subject folder.

a Select the Payment Methods folder and click the **New Test** button. The New Test dialog box opens.



b In the **Test Name** box, type a name for the test: Credit Cards.

c In the **Test Type** box, select **MANUAL** to create a manual test.

d In the Details tab, select the following:

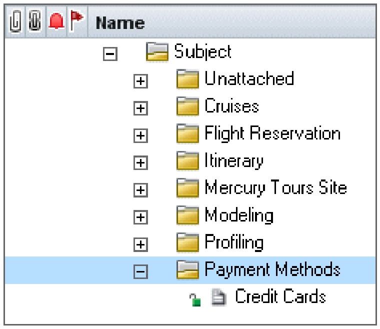
Level: Basic

Reviewed: Not Reviewed

Priority: 4-Very High

e In the **Description** tab, type a description for the test: The test verifies credit card types.

f Click **OK**. The new test is added to the test plan tree under the **Payment Method** folder.



Designing Test Steps

After you add a test to the test plan tree and define basic test information, you define test steps—detailed, step-by-step instructions that specify how to execute the test. A step includes the actions to be performed on your application and the expected results.

You can create test steps for both manual and automated tests. For manual tests, you complete test planning by designing the test steps. Using your plan, you can begin test execution immediately. For automated tests, you create automated test scripts using HP testing tools, custom testing tools, or third-party testing tools.

In this exercise, you add test steps to the **Credit Cards** test. This test verifies the credit card type used to book a flight.

To design a test step:

1 Make sure the Test Plan module is displayed.

If the Test Plan module is not displayed, on the ALM sidebar, under **Testing**, select **Test Plan**.

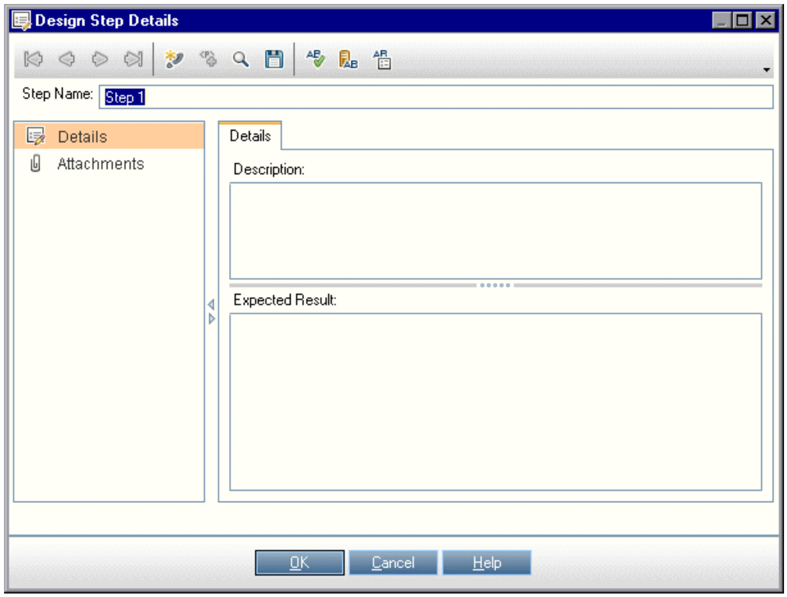
2 Display the Credit Cards test.

Expand the **Payment Methods** folder, and select the **Credit Cards** test.

3 Open the Design Step Details dialog box.

a Click the **Design Steps** tab.

b Click the **New Step** button. The Design Step Details dialog box opens.



In the **Step Name** box, a step name is displayed. The default name is the sequential number of the test step.

4 Define the first test step.

In the Design Step Details dialog box, type the following:

Step Name: Step 1: Log in to Mercury Tours.

Description:

1. Enter URL.

2. Log in.

Expected Result: User is logged in to Mercury Tours.

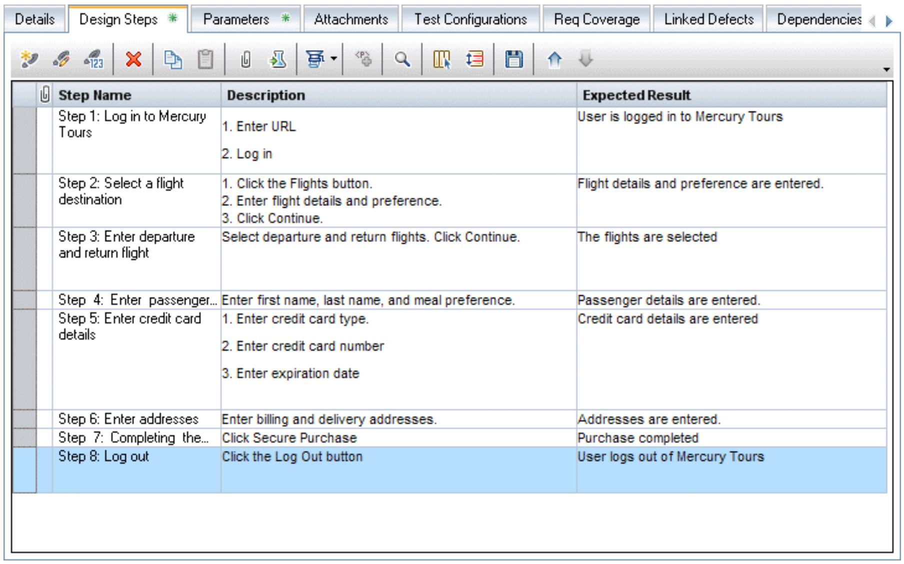
5 Add the remaining test steps.

Click the **New Step** button to open the Design Step Details dialog box and type the following test steps:

Step Name	Description	Expected Result
Step 2: Select a flight destination.	**1** Click the Flights button. **2** Enter flight details and preference. **3** Click Continue.	Flight details and preference are entered.
Step 3: Enter departure and return flight.	Select departure and return flights. Click Continue.	The flights are selected.
Step Name: Step 4: Enter passenger details.	Enter first name, last name, and meal preference.	Passenger details are entered.
Step 5: Enter credit card details.	**1** Enter credit card type. **2** Enter credit card number. **3** Enter expiration date.	Credit card details are entered.
Step 6: Enter addresses.	Enter billing and delivery addresses.	Addresses are entered.
Step 7: Completing the purchase.	Click Secure Purchase.	Purchase completed.
Step 8: Log out.	Click the Log Out button.	User logs out of Mercury Tours.

6 Close the Design Step Details dialog box.

Click **OK**. The Design Steps tab displays the design steps.



Defining Test Parameters

To increase the flexibility of your tests, you can add parameters to your tests. This enables you to run the same test repeatedly with different data each time.

When working with a manual test, you can add parameters to the design steps from within the test or you can add parameters by calling them from other tests. This is useful if you have common steps you often want to perform as part of other tests.

When working with an automated test, you can define parameters for a test script from within the test or you can load parameters from a shared test resource file.

When defining a test configuration, you define data by setting test parameter values for each test configuration.

In "Designing Test Steps" on page 54, you defined steps for the **Credit Cards** test. In this exercise, you will add parameters to enhance this test.

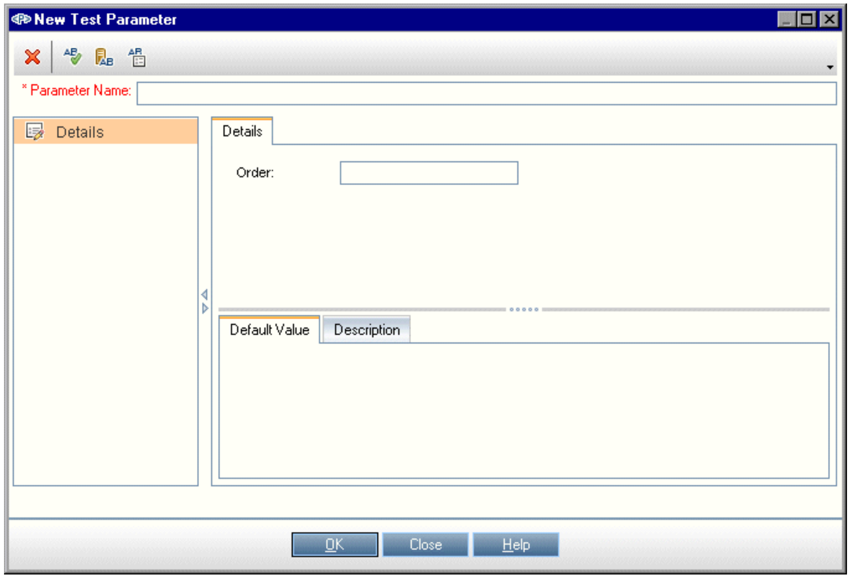
To define test parameters:

1 Display the Parameters tab for the Credit Cards test.

- **a** In the test plan tree, expand the **Payment Methods** folder, and select the **Credit Cards** test.
- **b** Click the **Parameters** tab.

2 Add a parameter.

a Click the **New Parameter** button. The New Test Parameter dialog box opens.



b Type the following:

Parameter Name: Credit card type.

Default Value: American Express, Visa, or MasterCard.

c Click **OK** to close the New Test Parameter dialog box. The parameter is added to the Parameters tab.

3 Add an additional parameter.

a Click the **New Parameter** button. The New Test Parameter dialog box opens.

b Type the following:

Parameter Name: Credit card number.

Default Value: XXXX-XXXX-XXXX

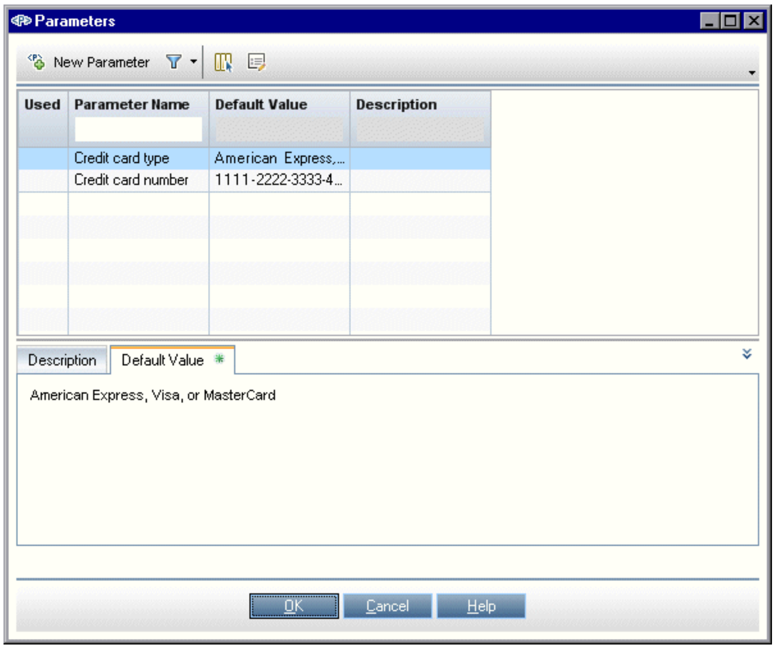
c Click **OK** to close the New Test Parameter dialog box. The parameter is added to the Parameters tab.

4 Assign parameters to the test steps.

a Click the **Design Steps** tab.

b Click the **Description** box of Step 5.

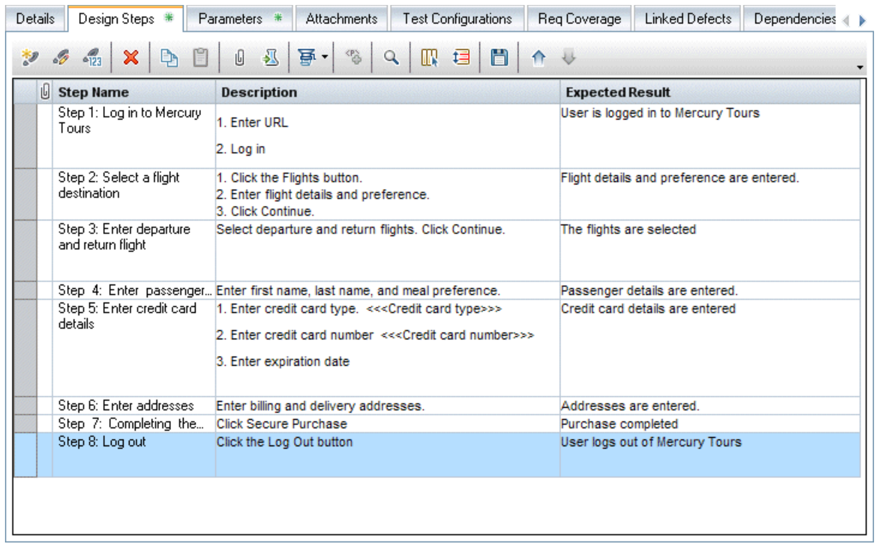
c Place the cursor after 1. Enter credit card type and click the **Insert Parameter** button. The Parameters dialog box opens.



d Select the **Credit card type** parameter. Click **OK**.

e Place the cursor after 2. Enter credit card number and click the **Insert Parameter** button. The Parameters dialog box opens. Select the **Credit card number** parameter. Click **OK**.

The parameters are added to your design step.



Step Name	Description	Expected Result
Step 1: Log in to Mercury Tours	1. Enter URL 2. Log in	User is logged in to Mercury Tours
Step 2: Select a flight destination	1. Click the Flights button. 2. Enter flight details and preference. 3. Click Continue.	Flight details and preference are entered.
Step 3: Enter departure and return flight	Select departure and return flights. Click Continue.	The flights are selected
Step 4: Enter passenger...	Enter first name, last name, and meal preference.	Passenger details are entered.
Step 5: Enter credit card details	1. Enter credit card type. <<<Credit card type>>> 2. Enter credit card number <<<Credit card number>>> 3. Enter expiration date	Credit card details are entered
Step 6: Enter addresses	Enter billing and delivery addresses.	Addresses are entered.
Step 7: Completing the...	Click Secure Purchase	Purchase completed
Step 8: Log out	Click the Log Out button	User logs out of Mercury Tours

Defining Test Configurations

You can reuse a test to test different use-cases. For each use-case you create a test configuration that uses a different data set. When working with a manual test, the data set of a test configuration contains values for your defined test parameters. When working with a QuickTest Professional or a business process test, the data set can use an external test resource file.

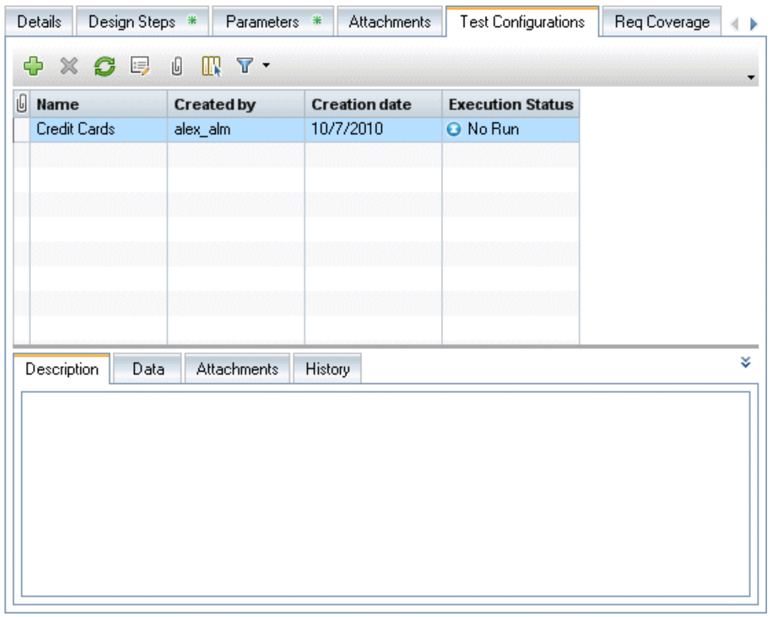
In the following exercise, you will create a test configuration for each of the following credit cards: American Express, Visa, and MasterCard. You will then define the actual parameter values to be used when running these instances.

To define test configurations:

1 Display the Test Configurations tab for the Credit Cards test.

a In the test plan tree, expand the **Payment Methods** folder, and select the **Credit Cards** test.

b Click the **Test Configurations** tab.



By default, ALM created the Credit Cards test configuration.

2 Rename the test configuration name to American Express.

a Under **Name**, click **Credit Card**. Type **American Express.**

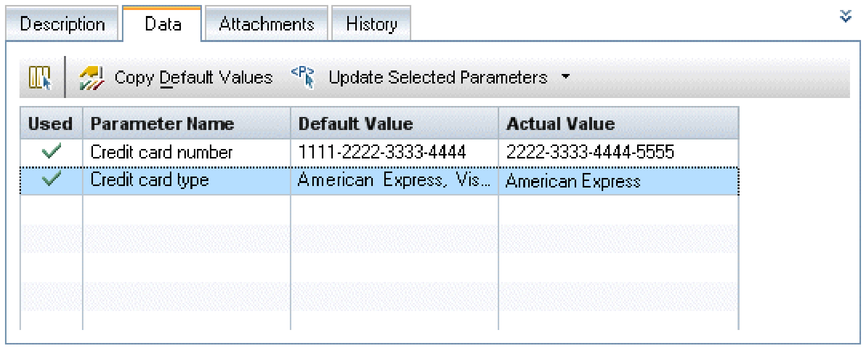
b Under **Description**, type: Test configuration for American Express.

3 Assign data to the test configuration.

a Click the **Data** tab.

b Under **Actual Value**, click the top cell. Click the arrow and click in the box. Type: 2222-2222-3333-4444. Click **OK**.

c Under **Actual Value**, click the second cell. Click the arrow and click in the box. Type: American Express. Click **OK**.



4 Add a new test configuration for Visa.

a Click the **New Test Configuration** button. The New Test Configuration dialog box opens.

b Type the following:

Name: Visa

Description: Test configuration for Visa.

c Click **OK**. The test configuration is added to the Test Configuration tab.

d Make sure the Visa test configuration is selected.

e Click the **Data** tab. Under **Actual Value**, click the top cell. Click the arrow and click in the box. Type: 3333-4444-5555-6666. Click **OK**.

f Under **Actual Value**, click the second cell. Click the arrow and click in the box. Type: Visa. Click **OK**.

5 Add a new test configuration for MasterCard.

a Click the **New Test Configuration** button. The New Test Configuration dialog box opens.

b Type the following:

Name: MasterCard

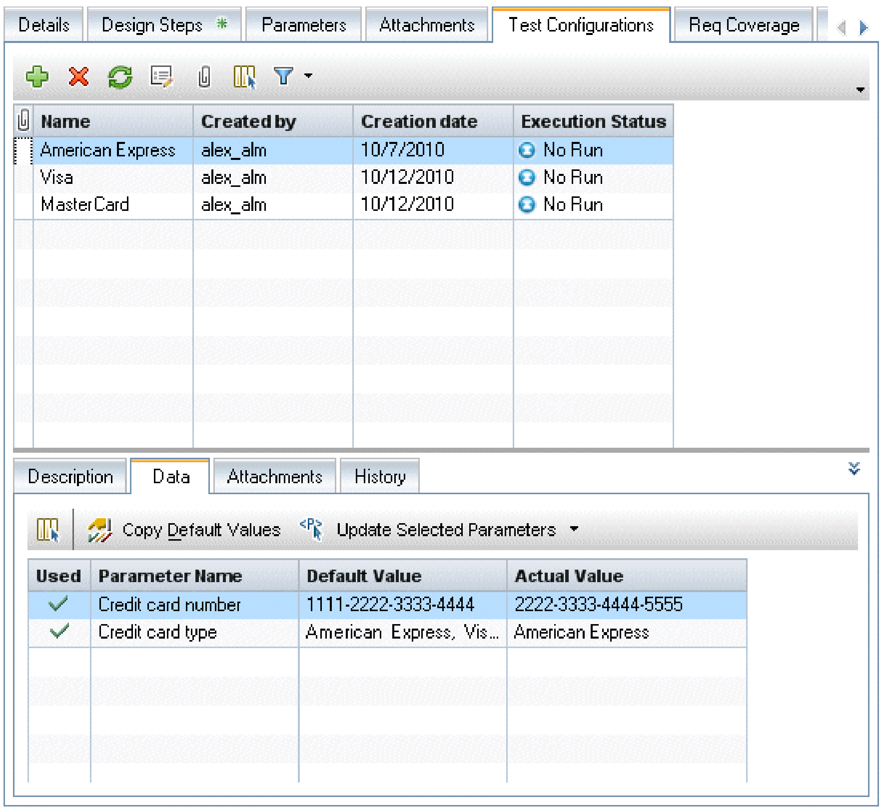
Description: Test configuration for MasterCard.

c Click **OK**. The test configuration is added to the Test Configuration tab.

d Make sure the MasterCard test configuration is selected.

e Click the **Data** tab. Under **Actual Value**, click the top cell. Click the arrow and click in the box. Type: 4444-5555-6666-7777. Click **OK**.

f Under **Actual Value**, click the second cell. Click the arrow and click in the box. Type: MasterCard. Click **OK**.



6 Version Control: Check in the test configurations.

Check in the test and its test configurations. In the test plan tree, right-click the **Credit Card** test, and select **Versions** > **Check In**. Click **OK** to confirm.

Creating and Viewing Coverage

It is essential that the tests in your test plan comply with your requirements. To help ensure compliance throughout the application lifecycle management process, you can add coverage between your tests and requirements. You can also add coverage between test configurations and requirements.

You can create coverage from the Test Plan module and the Requirements module. A test or a test configuration can cover more than one requirement, and a requirement can be covered by more than one test or test configuration.

In these exercises, you will learn about the following:

➤ "Creating Coverage" on page 65

➤ "Analyzing Coverage" on page 69

Creating Coverage

In this exercise, you will create the **Credit Cards** requirement and then create coverage by associating it to the **Credit Cards** test.

To create coverage:

1 Display the Requirements module.

a On the ALM sidebar, under **Requirements**, select **Requirements**.

b Choose **View** > **Requirement Details**. The Requirement Details view is displayed.

2 Create the Credit Card requirement.

a Select the **Mercury Tours Application** folder.

b Click the **New Folder** button. In the New Requirement Folder dialog box, type: Payments. Click **OK**.

c Select the **Payments** folder and click the **New Requirement** button. The New Requirement dialog box opens.

d In the **Requirement Name** box, type Credit Cards.

e In the **Requirement Type** box, select **Functional**.

ALM Editions: If you are using Quality Center Starter Edition, ignore this step.

---

f Click **Submit**. Click **Close**. The new requirement is added to the requirements tree.

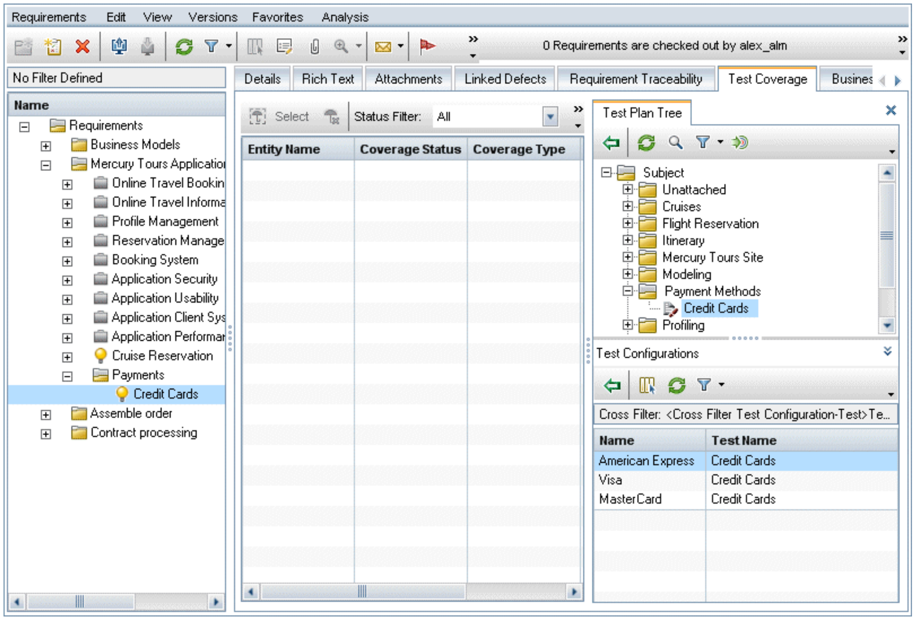
3 Display the Test Coverage tab.

a In the requirements tree, make sure that the **Credit Cards** requirement is selected.

b In the right pane, click the **Test Coverage** tab.

4 Display the Test Plan Tree pane.

Click the **Select Tests** button to show the test plan tree on the right.



5 Select the Credit Cards test in the test plan tree.

a In the Test Plan Tree pane, expand the **Payment Methods** folder, and select the **Credit Cards** test.

b If the Test Configurations pane is not displayed, click the **Show** button on the bottom of the pane. Under the Test Configurations pane, you can see that the test contains three test configurations.

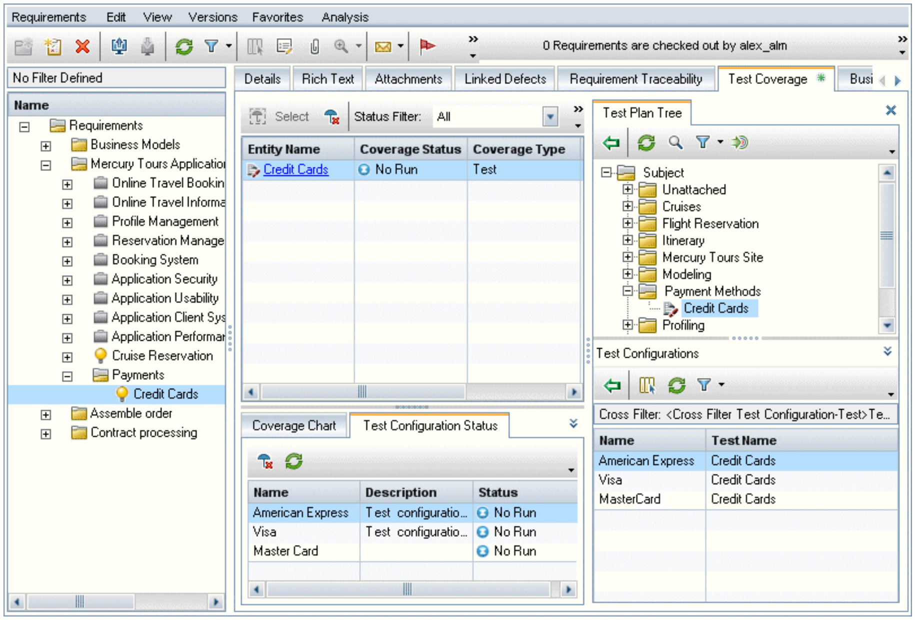
6 Add the test to the coverage grid.

In the Test Plan Tree pane, click the **Add to Coverage** button. The **Credit Cards** test is added to the coverage grid.

7 Display the Test Configuration Status tab.

Click the **Test Configuration Status** tab.

The Test Configuration Status tab shows the associated test configurations and their status.



Tip: To add selected configurations of a test to the requirement's test coverage, add coverage from the Test Configurations pane.

---

8 Hide the test plan tree.

Click the **Close** button above the tests plan tree.

9 Version Control: Check in the Payments folder and the Credit Card requirement.

a In the test plan tree, right-click the **Payments** folder, and select **Versions** > **Check In**. Click **OK** to confirm.

b Right-click the **Credit Cards** requirement, and select **Versions** > **Check In**. Click **OK** to confirm.

Analyzing Coverage

After you create test coverage, you can use the Coverage Analysis view in the Requirements module to analyze the breakdown of child requirements according to test coverage.

In this exercise, you will analyze the **Application Client System** requirement.

To analyze test coverage:

1 Make sure that the Requirements module is displayed.

If the Requirements module is not displayed, on the ALM sidebar, under **Requirements**, select **Requirements**.

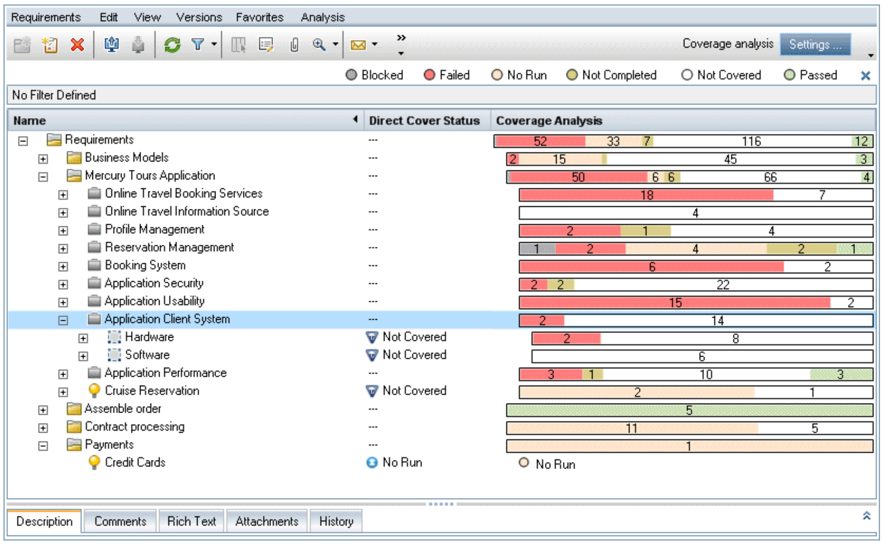
2 Display the requirements tree in Coverage Analysis view.

Choose **View** > **Coverage Analysis**. The Coverage Analysis view is displayed.

3 Display the Application Client System requirement in Coverage Analysis view.

a If any filters are applied, click the **Filter** arrow and choose **Clear Filter/Sort**. Click **Yes** to confirm.

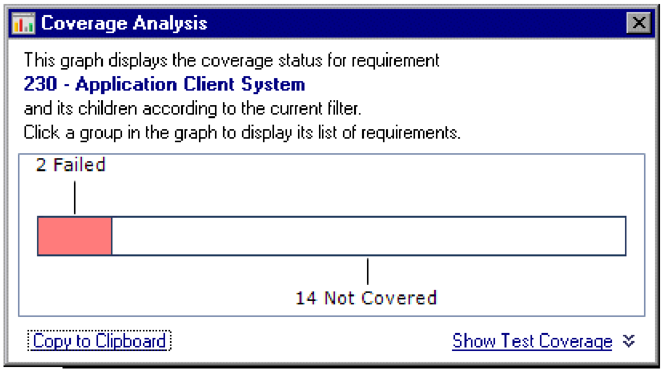
b Under the **Mercury Tours Application** requirement, expand the **Application Client System** requirement and its children.



In the Coverage Analysis column, you can see graphically the number of child requirements that have a direct cover status and those that are not yet covered.

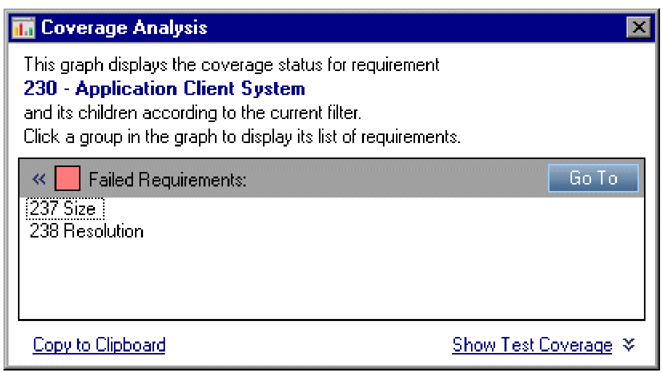
4 Display coverage analysis for the Application Client System requirement.

Right-click the **Application Client System** requirement, and choose **Coverage Analysis**. The Coverage Analysis dialog box opens.



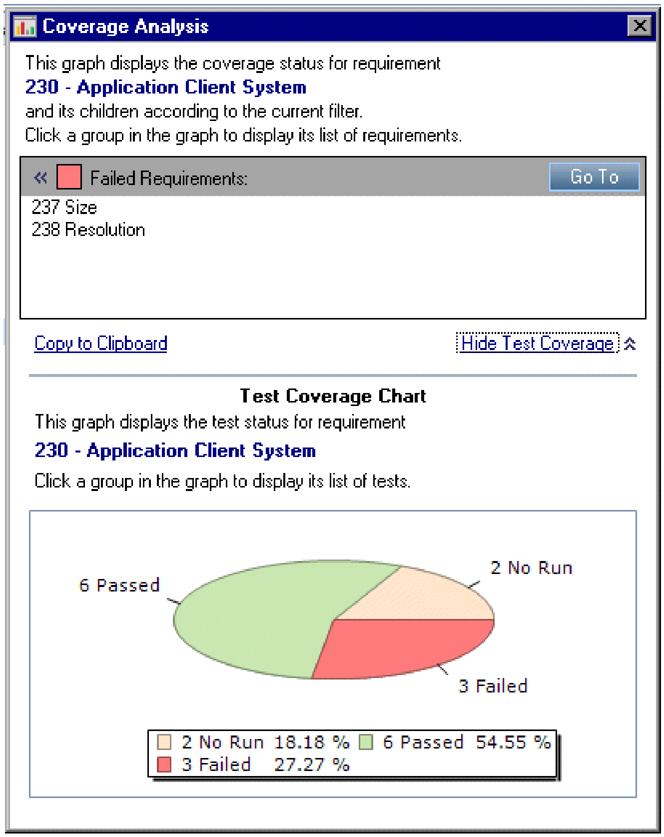
5 Display the child requirements with a "Failed" status.

Click the red **Failed** area of the graph. The child requirements with a "Failed" status are listed.



6 Display test coverage for the requirement.

a Click the **Show Test Coverage** link to extend the Coverage Analysis dialog box and display the Test Coverage Chart.



This pie chart graphically displays the full test coverage for the requirement, grouped according to test status.

b Click the **Passed** section of the chart to open the Tests Coverage dialog box and display the list of tests with the selected status. Close the Test Coverage dialog box.

7 Close the Coverage Analysis dialog box.

Click the **Close** button.

Copying Test Steps

You can copy steps from another test in the same project or from a different project. In this exercise, you will copy the test steps from the **HTML Page Layout** test and paste them into a newly created test.

To copy a test step:

1 Display the Test Plan module.

a On the ALM sidebar, under **Testing**, select **Test Plan**.

b If the test plan tree view is not displayed, select **View** > **Test Plan Tree**.

2 Create a new test.

a In the test plan tree, expand the **Mercury Tours Site** folder.

b Select the **HTML Pages** folder and click the **New Test** button. The New Test dialog box opens.

c In the **Test Name** box, type a name for the test: New HTML Page Layout.

d In the **Test Type** box, select **MANUAL** to create a manual test.

e In the Details tab, select the following:

Level: Basic

Reviewed: Not Reviewed

Priority: 4-Very High

f Click **OK**. The new test is added to the test plan tree under the **HTML Pages** folder.

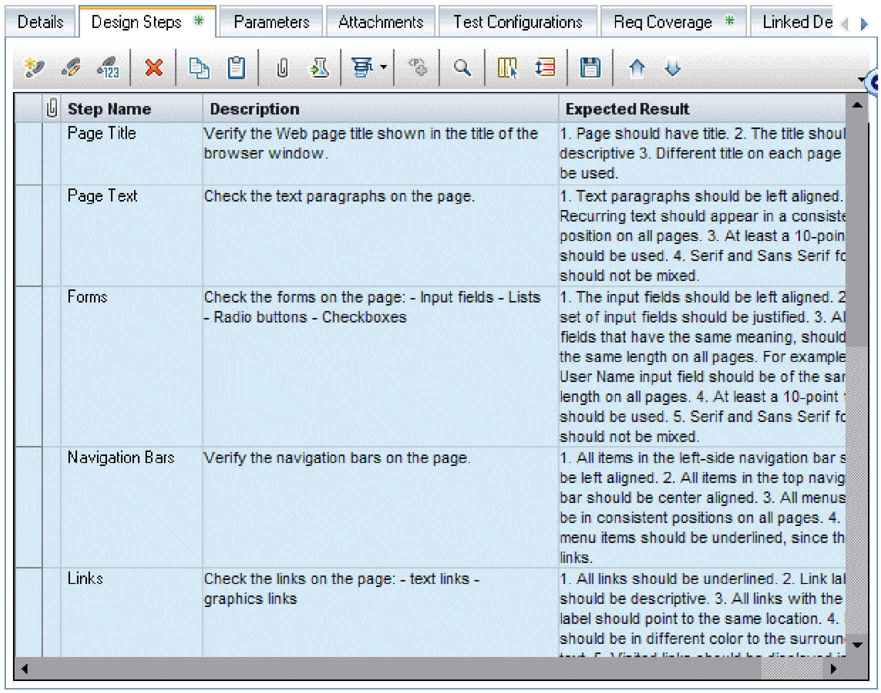
3 Display the Design Steps tab for the HTML Page Layout test.

a In the **HTML Pages** folder, select the **HTML Page Layout** test.

b Click the **Design Steps** tab.

4 Select the steps that you want to copy.

Position the mouse pointer in the gray sidebar on the left. The mouse pointer changes to a pointing hand. Select all rows.



5 Copy the selected steps.

Click the **Copy Steps** button.

6 Paste the steps into the New HTML Page Layout test.

a In the test plan tree, select the **New HTML Page Layout** test.

b In the **Design Steps** tab, click the **Paste Steps** button. The test steps are copied to the Design Steps tab.

Generating Automated Test Scripts

Test planning involves deciding which tests to automate. If you choose to execute tests manually, the tests are ready for execution as soon as you define the test steps. If you choose to automate tests, you can generate test scripts and complete them using other HP testing tools (for example, QuickTest Professional).

Consider these issues when deciding whether to automate a test.

Do automate:	➤ Tests that run with each new version of your application to check the stability of basic functionality across the entire application (regression tests). ➤ Tests that use multiple data values for the same operation (data-driven tests). ➤ Tests that are run many times (stress tests) and tests that check a multi-user client/server system (load tests).
Do not automate:	➤ Tests that are executed only once. ➤ Tests that require immediate execution. ➤ Tests that check how easy the application is to use (usability tests). ➤ Tests that do not have predictable results.

In this exercise, you will generate a QuickTest Professional test script for the **Address Options** test.

Note: For prerequisites to working with a QuickTest Professional test, see "Before You Begin" on page 10.

To generate an automated test script:

1 Make sure the test plan tree view is displayed.

If the test plan tree view is not displayed, select **View** > **Test Plan Tree**.

2 Locate the Address Options manual test.

a Select the **Subject** folder at the root of the test plan tree and choose **Edit** > **Find**. The Find dialog box opens.

b In **Value To Find,** type Book.

c In the **Search for**, select **Folders**.

d Click **Find**. The Search Results dialog box opens and displays a list of possible matches.

e Double-click the **Flight Reservation****Book Flight** folder to highlight the folder in the test plan tree. Click **Close** to close the Search Results dialog box.

f In the test plan tree, expand the **Book Flight** folder and select the **Address Options** test.

3 Display the Design Steps tab.

In the right pane, click the **Design Steps** tab.

4 Generate a test script.

a Click the **Generate Script** button.

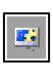
b Choose **QUICKTEST_TEST** to generate a QuickTest Professional test.

c **Version Control:** If a check out message box opens, click **OK**.

The steps in the **Address Options** test are used to create the automated test script.

5 View the test script.

a Click the **Test Script** tab.



b To display and modify your test script in QuickTest Professional, click the **Launch QuickTest Professional** button.

5

Running Tests

Throughout the application lifecycle management process, you can run manual and automated tests to locate defects and assess the quality of your application.

You start by creating **test sets** and choosing which tests to include in each set. A test set contains a subset of the tests in an ALM project designed to achieve specific test goals. ALM enables you to control the execution of tests in a test set by setting conditions and scheduling the date and time for executing your tests.

After you define test sets, you can begin to execute your tests. You can then use ALM to view and analyze the results of your tests.

When you run a test manually, you execute the test steps you defined in test planning. You pass or fail each step, depending on whether the actual results match the expected output. When you run a test automatically, ALM opens the selected testing tool, which runs the test, and imports the test results to ALM.

In this lesson, you will learn about:

Defining 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 needs by grouping **test sets** in folders and organizing them in different hierarchical levels in the Test Lab module. You assign each test set folder to a cycle. This enables you to group together test sets that will be run during the same cycle and analyze the progress of the cycle as you run your tests.

When defining a test set, ALM adds instances of your selected tests to the test set. Each test instance contains a defined test configuration. Test sets can include instances from both manual and automated tests. 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 decide which test sets to create, consider the goals you defined at the beginning of the application lifecycle management 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 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.

Test Set	Description
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.

In this exercise, you will define the **Mercury Tours Site** test set. You will also set failure rules for the test set to instruct ALM how to proceed in the event that an automated test in the test set fails.

ALM Editions: If you are using Quality Center Starter Edition, fields and commands related to cycles and releases are not available.

To define a test set:

1 Display the Test Lab module.

On the ALM sidebar, under **Testing**, select **Test Lab**. By default, the Test Sets tab is displayed.

2 Add a folder to the test sets tree.

a In the test sets tree in the left pane, select the **Root** folder.

b Click the **New Folder** button. The New Test Set Folder dialog box opens.

c In the **Folder Name** box, type Service Pack 1 and click **OK**.

3 Create subfolders for the test set folder.

Select the Service Pack 1 folder you created and repeat the previous step to create two subfolders, named Cycle 1 - New Features, and Cycle 2 - Full.

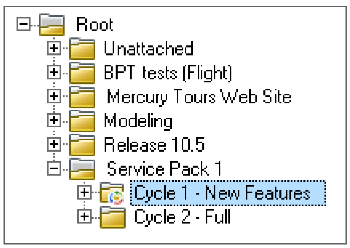
4 Assign the test set folders to a cycle.

ALM Editions: If you are using Quality Center Starter Edition, proceed to Step 5.

a Right-click the **Cycle 1 - New Features** test set folder and select the **Assign to Cycle** button. The Select Cycles dialog box opens.

b Expand the **Service Packs** releases folder. In the **Service Pack 1** release, select the **Cycle 1 - New Features** cycle (created in Lesson 2, "Specifying Releases and Cycles").

c Click **OK**. The icon for the folder in the test sets tree changes to show that the folder has been assigned to a cycle.

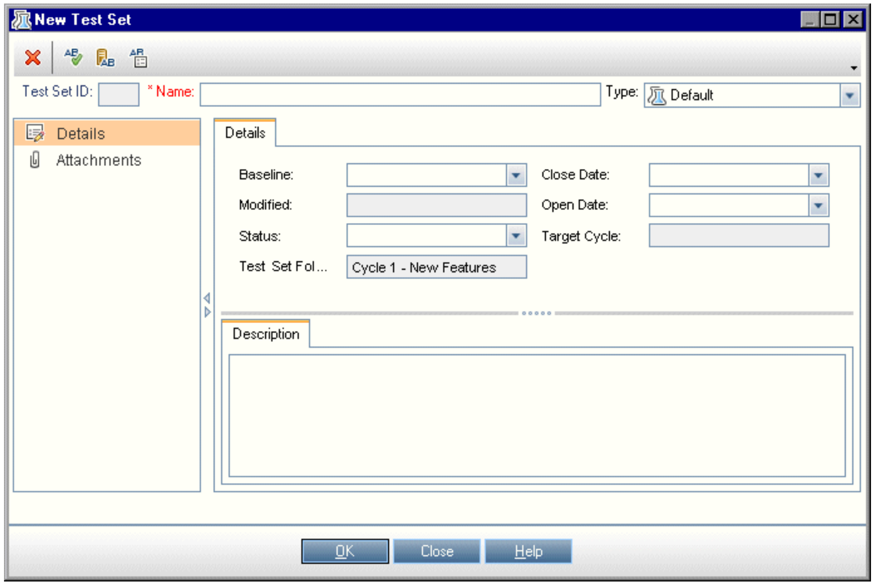


d Right-click the **Cycle 2 - Full** test sets folder and choose **Assign to Cycle**. Assign the folder to the **Cycle 2 - Full** cycle, located in the **Service Pack 1** release in the releases tree.

5 Add a test set to the Cycle 1 - New Features test set folder.

a In the test sets tree, select **Cycle 1- New Features**.

b Click the **New Test Set** button. The New Test Set dialog box opens.



c Type the following:

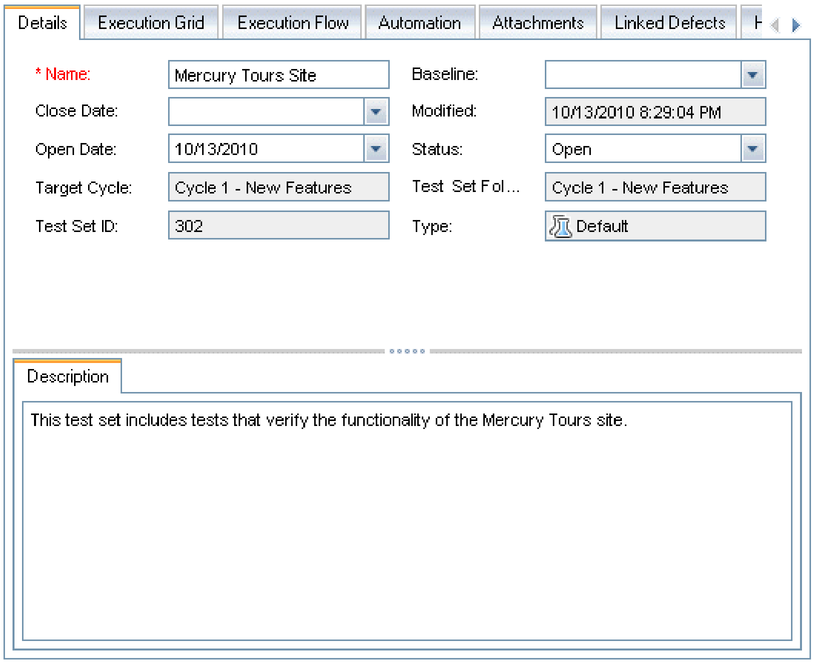
Name: Mercury Tours Site

Description: This test set includes tests that verify the functionality of the Mercury Tours site.

d Click **OK**. The **Mercury Tours Site** test set is added to the test sets tree in the left pane.

6 Define the test set details.

a Click the test set in the test sets tree. The Details tab is displayed.



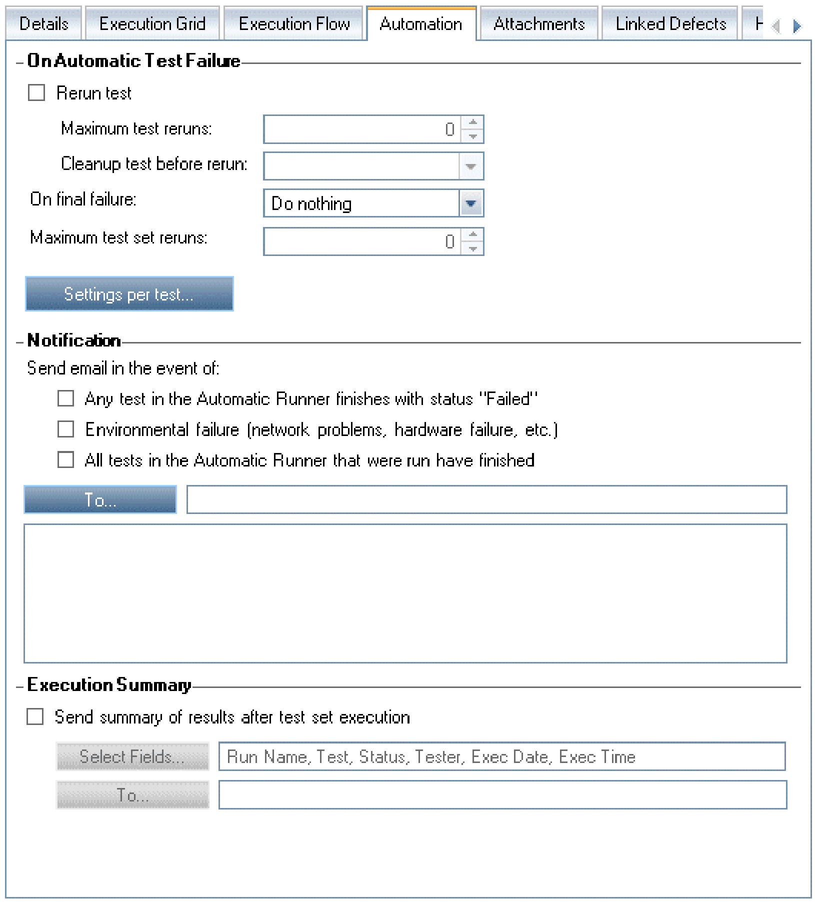
b Perform the following:

Open Date: Select a date from the calendar for the planned opening date for the test set. Today's date is selected by default.

Close Date: Select the planned closing date for the test set.

7 Set rules for the automated tests in the test set in the event of a test failure.

a Click the **Automation** tab.



b Perform the following:

On Automatic Test Failure: Select the **Rerun test** check box. In **Maximum test reruns**, set to **1**.

On final failure: Make sure that the **Do nothing** option is selected.

8 Instruct ALM to send email to specified users if certain events occur.

Under **Notification**, perform the following:

Send email in the event of: Select the first check box to send email notification if any test in the test set fails.

To: Type your email address.

Message: Type the following:
This test failed. Please review the test results and submit a defect.

Adding Tests to a Test Set

After you define a test set, select tests for inclusion in the test set. ALM adds instances of the selected tests to the test set. Each instance contains a defined test configuration.

In this exercise, you will add test instances to the **Mercury Tours Site** test set.

To add a test to a test set:

1 Display the Execution Grid tab.

a If the Test Lab module is not displayed, on the ALM sidebar, under **Testing**, select **Test Lab**. By default, the Test Sets tab is displayed.

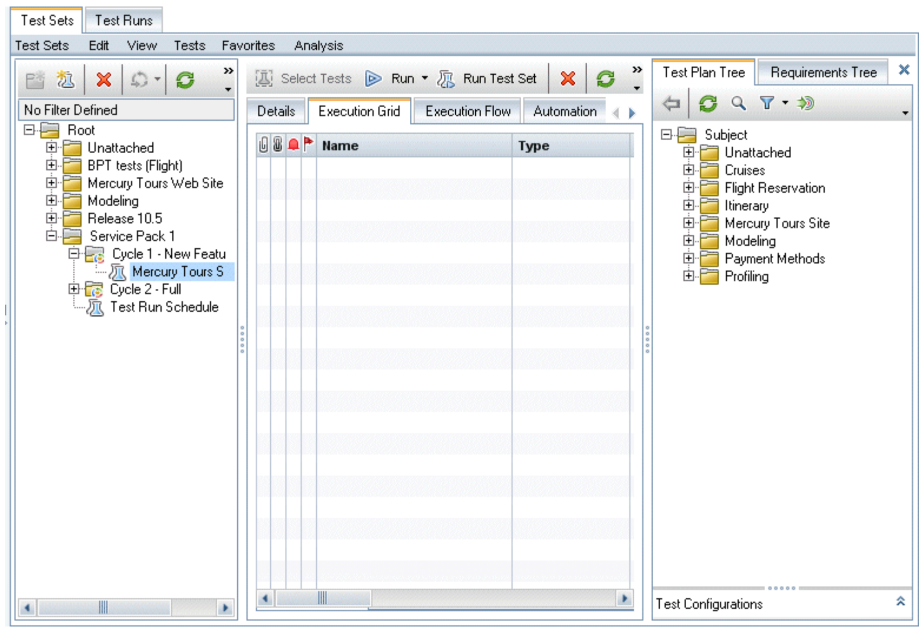
b Click the **Execution Grid** tab.

2 Select the Mercury Tours Site test set.

In the test sets tree, expand the **Cycle 1 - New Features** test set folder under **Service Pack 1**. Select the **Mercury Tours Site** test set.

3 Display the right pane if it is not already displayed.

Click the **Select Tests** button. The right pane displays the Test Plan Tree and Requirements Tree tabs.

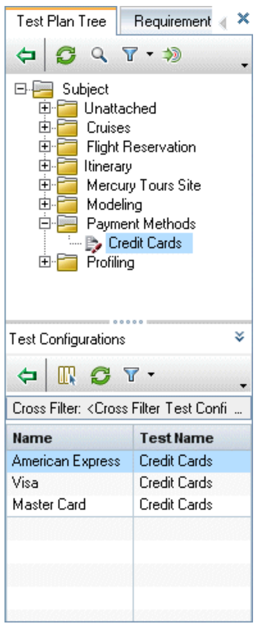


The **Test Plan Tree** tab enables you to select tests from the test plan tree to add to the test set. The **Requirements Tree** tab enables you to select tests covering requirements to add to the test set.

4 Add the Credit Card test to the test set.

a In the **Test Plan Tree** tab, expand the **Payment Methods** folder and select the **Credit Cards** test.

b If the Test Configurations pane is not displayed, click the **Show** button on the bottom of the pane. Under the Test Configurations pane, you can see the three test configurations for the selected test.



c To include all test configurations, in the Test Plan Tree tab, click the **Add Tests to Test Set** button. The instances are added to the test set.

5 Add several tests from the Book Flight folder to the test set.

a Under the **Flight Reservation** folder, expand the **Book Flight** folder.

b Select the **Passenger Name** test.

c Press the CTRL key and select the following tests: **Credit Card Number**, **Credit Card Expiration Date**, **Credit Card Owner**, and **Billing And Delivery Address**. Click the **Add Tests to Test Set** button. The instances are added to the test set.

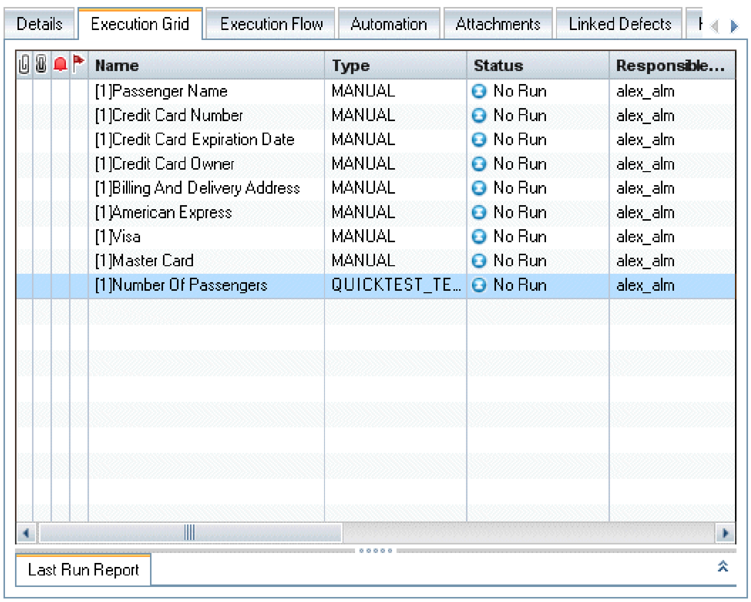
6 Add the Number of Passengers test to the test set.

a Under the **Flight Reservation** folder, expand the **Flight Finder** folder.

b Drag the **Number of Passengers** test from the test plan tree to the Execution Grid to add it to the test set.

7 Close the right pane.

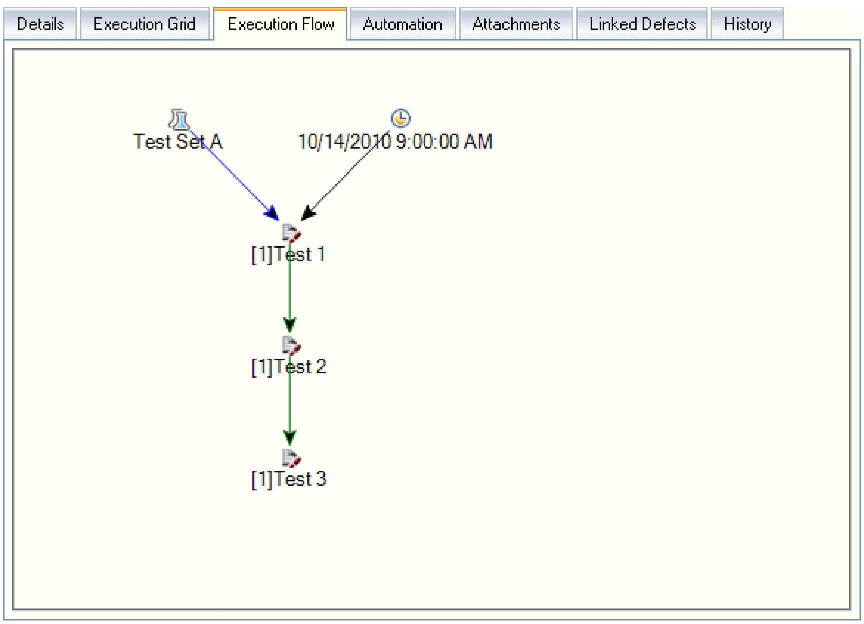
Click the close button.



Scheduling Test Runs

The Execution Flow tab enables you to specify a date and time to execute a test instance and set conditions for it. A **condition** is based on the results of another specified test instance in the Execution Flow. By setting conditions, you can postpone the execution of a test instance until another specified test instance finishes running or passes. You can also set the sequence in which to execute the test instances.

For example, you can determine that Test 2 will run only if Test 1 passed, and Test 3 will run only if Test 2 passed. Test 1 is scheduled to run at 9:00 AM on a specified date. The Execution Flow displays the tests and their conditions in a diagram.



A blue line arrow indicates that the test instance is to be executed after the previous test instance, with no conditions. A green line arrow indicates that the test instance is to be executed only if the previous test instance has status **Passed**. A black line arrow indicates that the test instance is to be executed only if the previous test instance has finished running. When a test instance is time-dependent, a Time Dependency icon is added to the diagram.

In this exercise, you will create a new test set and add to it three test instances that verify the login procedure on the Sign-On page of the Mercury Tours site. Then, you will set the conditions for each instance and specify when each one is to be run.

To schedule a test run:

1 Make sure the Test Lab module is displayed.

On the ALM sidebar, under **Testing**, select **Test Lab**. By default, the Test Sets tab is displayed.

2 Create a new test set.

- **a** In the test sets tree, choose the **Service Pack 1** folder and click the **New Test Set** button. The New Test Set dialog box opens.
- **b** Type the following:

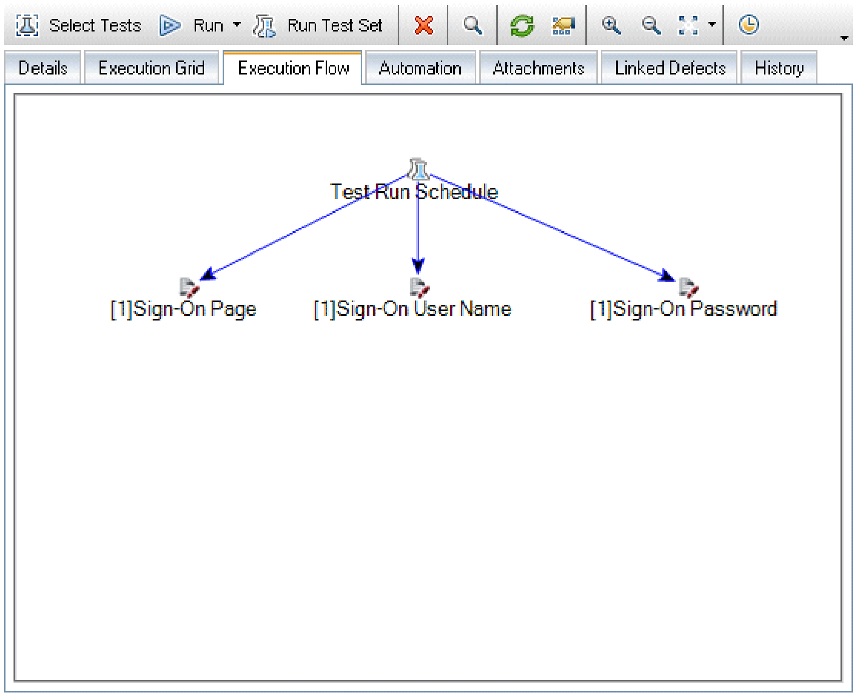
  Test Set Name: Test Run Schedule

  Description: This test set is used to explain how to schedule a test run.
- **c** Click **OK**. The **Test Run Schedule** test set is added to the test sets tree in the left pane.

3 Add tests from the Sign-On/Sign-Off folder to the Test Run Schedule test set.

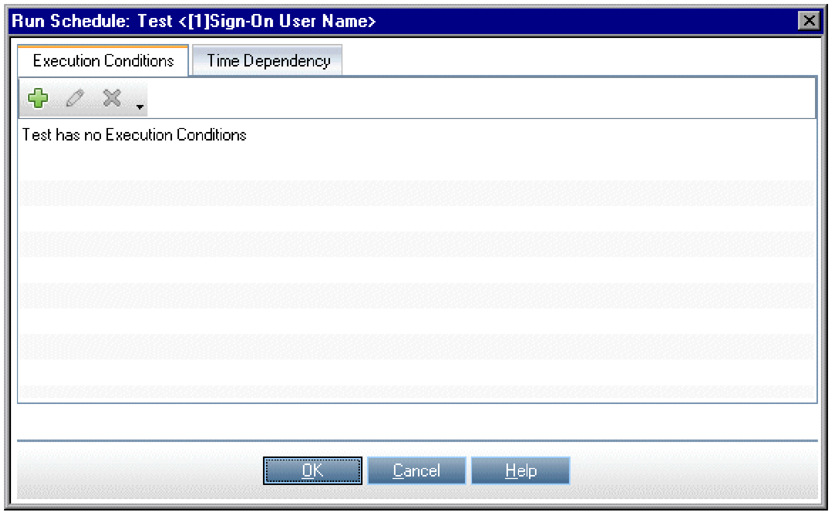
- **a** Click the **Execution Flow** tab. If the right pane is not already displayed, click the **Select Tests** button. The Test Plan Tree tab and the Requirements Tree tab are displayed.
- **b** In the Test Plan Tree tab, under the **Profiling** folder, expand the **Sign-On/Sign-Off** folder.

c Press the CTRL key and select the following tests: **Sign-On Page**, **Sign-On User Name**, and **Sign-On Password**. Click the **Add Tests to Test Set** button. The test instances are added to the test set.

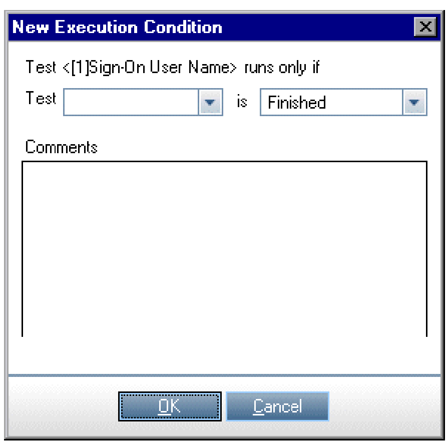


4 Add an execution condition to the Sign-On User Name test.

a In the Execution Flow tab diagram, right-click the **Sign-On User Name** test instance and choose **Test Run Schedule**. The Run Schedule dialog box opens and displays the Execution Conditions tab.



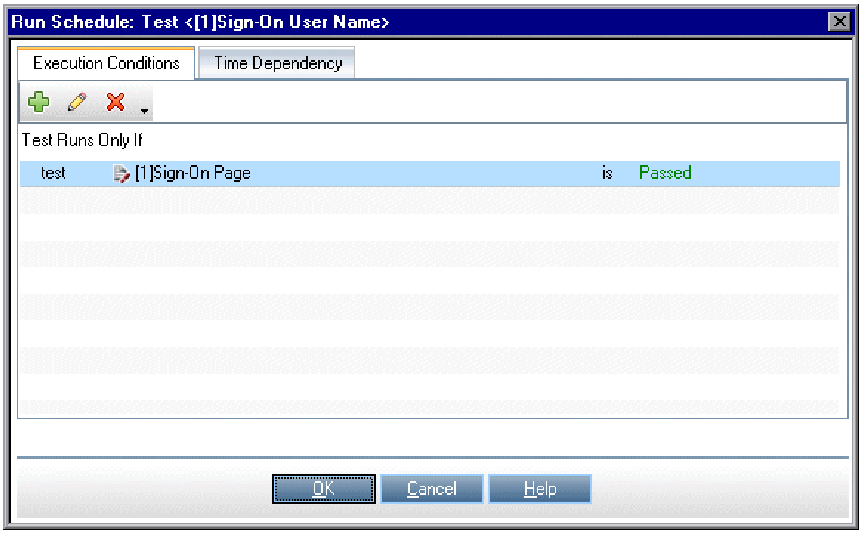
b Click **New Execution Condition**. The New Execution Condition dialog box opens.



c In the **Test** box, select <**[1]Sign-On Page**>.

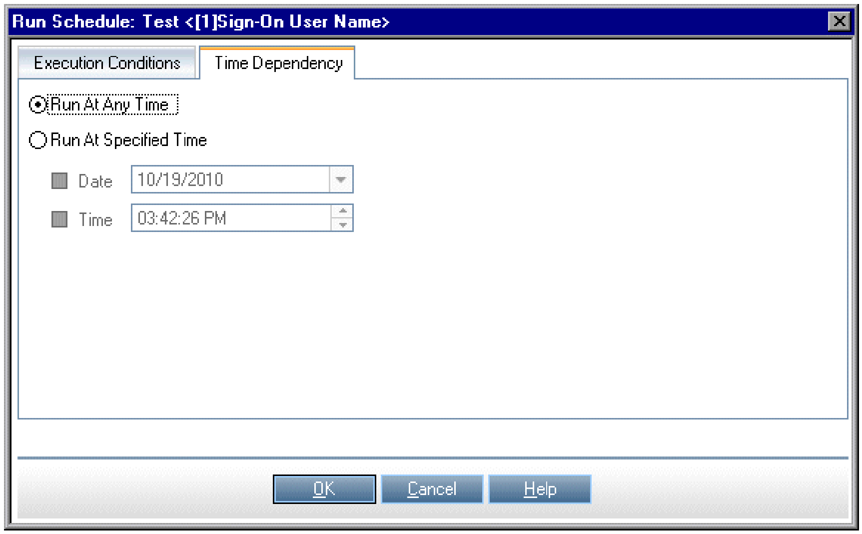
d Select **Passed** from the list on the right to instruct ALM to execute the **Sign-On User Name** test instance only if the **Sign-On Page** test instance finishes executing and passes.

e Click **OK**. The condition is added to the Run Schedule dialog box.



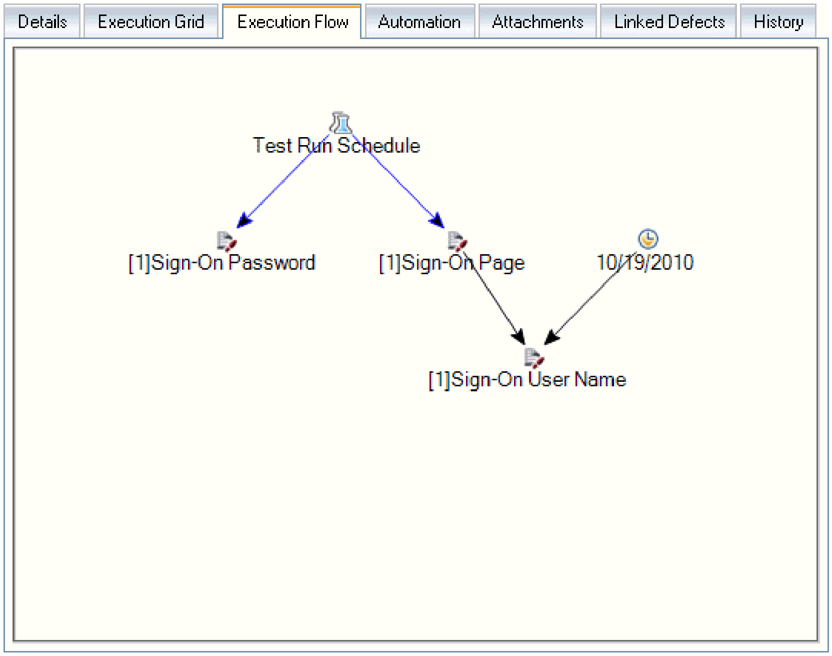
5 Add a time dependency condition to the Sign-On User Name test instance.

a Click the **Time Dependency** tab.



b Click **Run At Specified Time**. Select the **Date** check box and select tomorrow's date.

c Click **OK** to close the Run Schedule dialog box. Your conditions are displayed in the Execution Flow diagram.



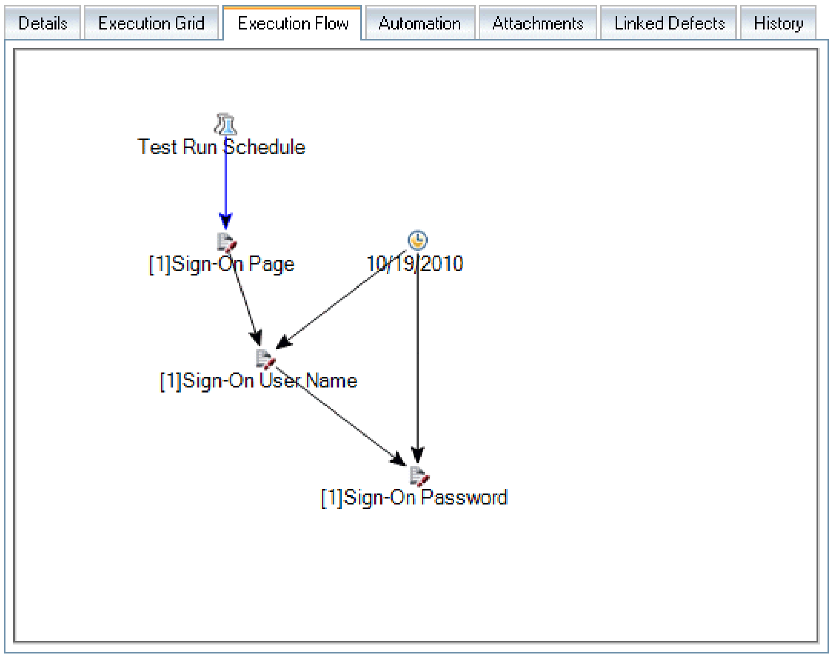
6 Add an execution condition to the Sign-On Password test.

Add the same execution condition as described in Step 4 on page 91 for the **Sign-On Password** test. This time select **Sign-On User Name** from the **Test** box in the New Execution Condition dialog box.

7 Add a time dependency condition to the Sign-On Password test.

a Add the same time dependency condition as described in Step 5 on page 93 for the **Sign-On Password** test.

b Click **OK** to close the Run Schedule dialog box. Your conditions are displayed in the Execution flow diagram.



Running Tests Manually

When you run a test manually, you follow the test steps and perform operations on your application. Then, you compare the expected results with the actual outcome and record the results. You can execute a manual test as many times as needed. The results are stored separately for each run.

You can run both manual and automated tests manually. You can also choose to run a single test or to run an entire test set.

You run tests in ALM using HP Sprinter, HP's solution for manual testing. If you are not working with Sprinter, you run tests manually using Manual Runner.

In these exercises, you will learn about the following:

➤ Running with Sprinter on page 96

➤ Running with Manual Runner on page 102

Running with Sprinter

Sprinter provides advanced functionality and tools to assist you in the manual testing process. Sprinter is fully integrated with ALM, enabling you to get the maximum benefit from both solutions.

Note:

➤ **ALM Editions:** Sprinter functionality is not available with Quality Center Starter Edition or Performance Center Edition.

➤ For information on installing Sprinter, see "Before You Begin" on page 10.

In this exercise, you will run the **Credit Cards** test. This test contains three test configurations. For the purpose of this exercise, you will perform the steps without testing them against the Mercury Tours application.

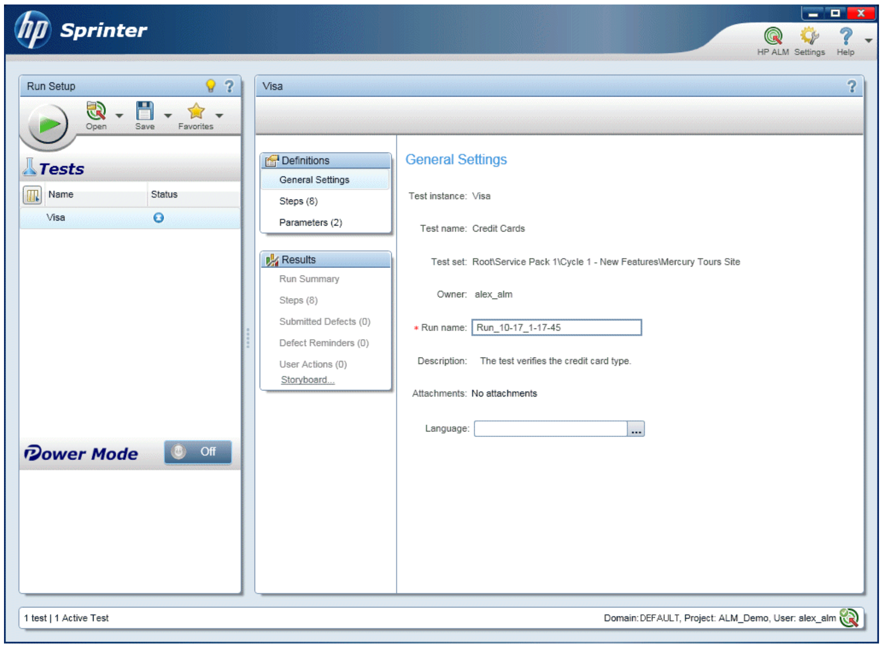
To run a test using Sprinter:

1 Open Sprinter.

a If the Test Lab module is not displayed, on the ALM sidebar, under **Testing**, select **Test Lab**. By default, the Test Sets tab is displayed.

b Click the **Execution Grid** tab.

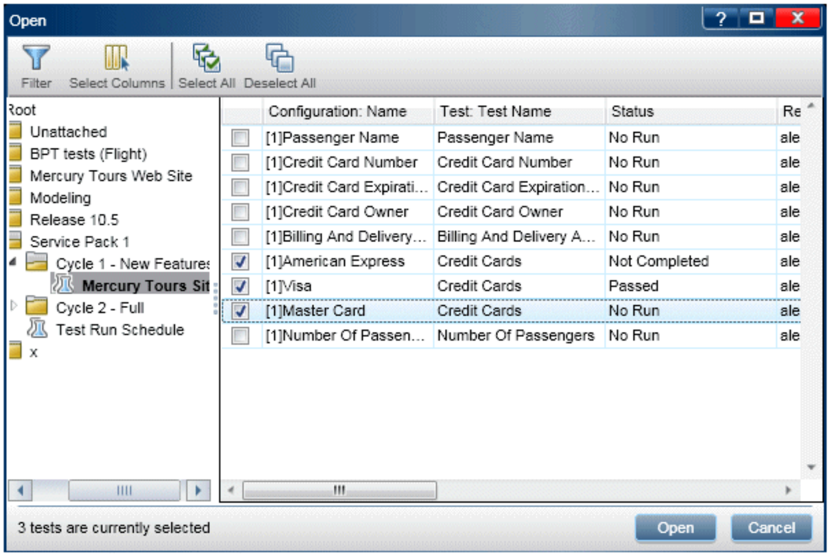
c Click the **Run** arrow and select **Run with Sprinter**. HP Sprinter opens.



2 Select the instances to run from the test set.

a Click the **Open HP ALM Tests** button. The Open dialog box opens.

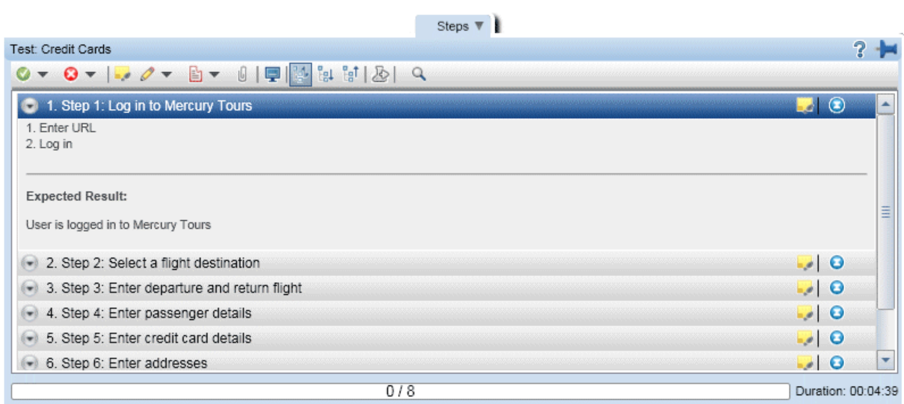
b In the left pane, expand the **Root** folder. Under **Service Pack 1**, expand **Cycle 1 - New Features**. Select the **Mercury Tours Site** test set. The test set is displayed.



c Select **American Express**, **Visa**, and **MasterCard** check boxes. Click **Open**.

3 Display the test steps to run the American Express instance.

Click the **Run the Active Test** button. The Steps pane is displayed.



4 Perform the first step.

a Click the **Actual Result** button. In the Actual Result dialog box, type: The Mercury Tours site opens. Click **OK**.

b Click the **Passed Selected Step** button.

5 Perform the second step.

a Click the **Actual Result** button. In the Actual Result dialog box, type: Flight details and preference are entered. Click **OK**.

b Click the **Passed Selected Step** button.

6 Pass the remaining steps.

Click the **Passed Selected Step** arrow and select **Pass All**.

7 Continue on to the Visa instance.

Click **Next Test**. Sprinter advances to the next instance in the test list.

8 Pass all steps of the Visa instance.

Click the **Passed Selected Step** arrow and select **Pass Al**l.

9 Continue on to the MasterCard instance.

Click **Next Test**. Sprinter advances to the next instance in the test list.

10 Pass all steps of the MasterCard instance.

Click the **Passed Selected Step** arrow and select **Pass Al**l.

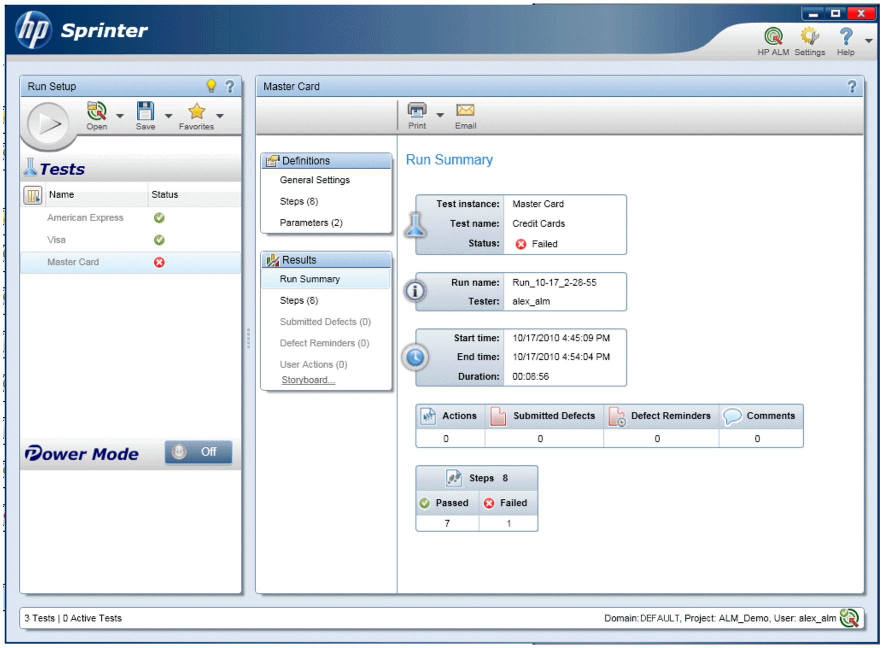
11 Fail the last step on the MasterCard instance.

Select **Step 8** and click the **Fail Selected Step** button.

12 End the run and view run results.

a In the upper-right side of your screen, click **Run Control**. The Run Control pane opens.

b Click the **End Run** button.

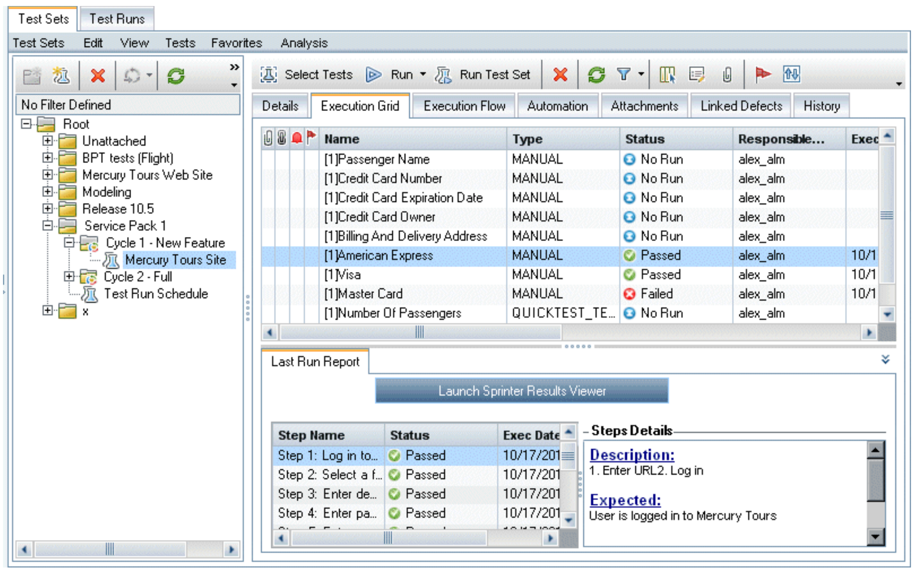


c Under **Tests**, you view the run results.

13 View results in the Execution Grid tab.

Close **Sprinter**.

The test run results are displayed in the execution grid. The Last Run Report pane displays run results of each test step.



Running with Manual Runner

If Sprinter is not installed you can run tests manually using Manual Runner.

In this exercise, you will run the **Credit Cards** test. This test contains three test configurations. For the purpose of this exercise, you will perform the steps without testing them against the Mercury Tours application.

To run a test using Manual Runner:

1 Make sure the Cycle 1 - New Features test set folder is displayed in the Execution Grid.

a If the Test Lab module is not displayed, on the ALM sidebar, under **Testing**, select **Test Lab**.

b In the test set tree, expand the **Cycle 1 - New Features** test set folder under **Service Pack 1**. Select the **Mercury Tours Site** test set.

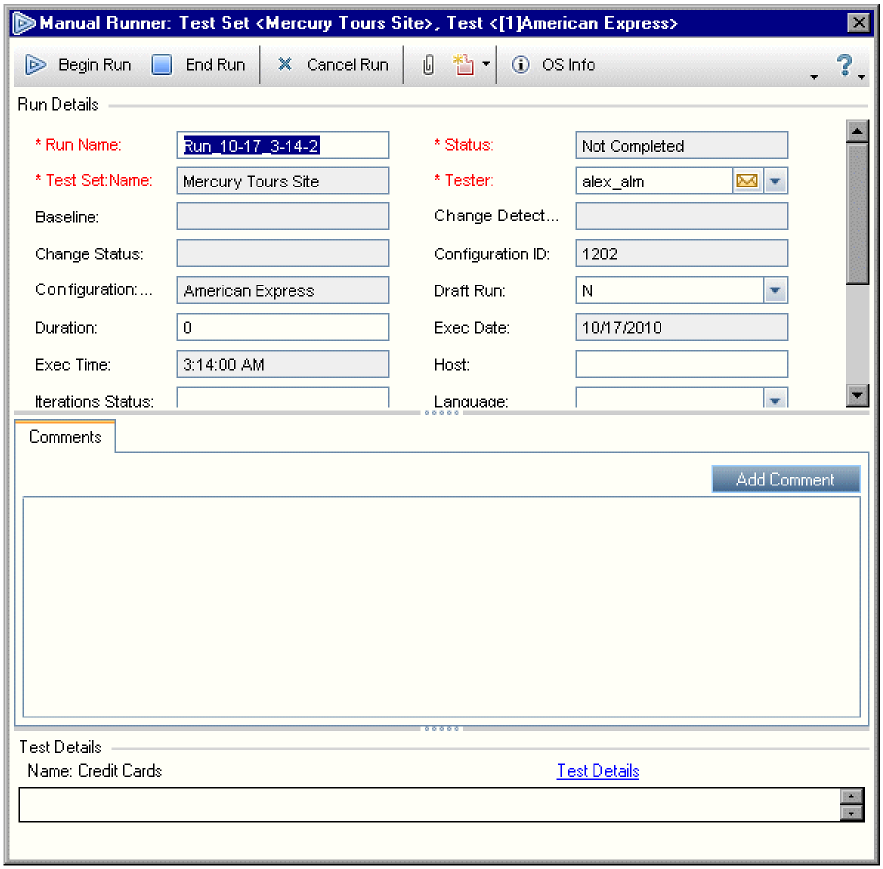
c Click the **Execution Grid** tab.

2 Select the instances to run from the test set.

Press the CTRL key and select the following instances in the Execution Grid: **American Express**, **Visa**, **and MasterCard**.

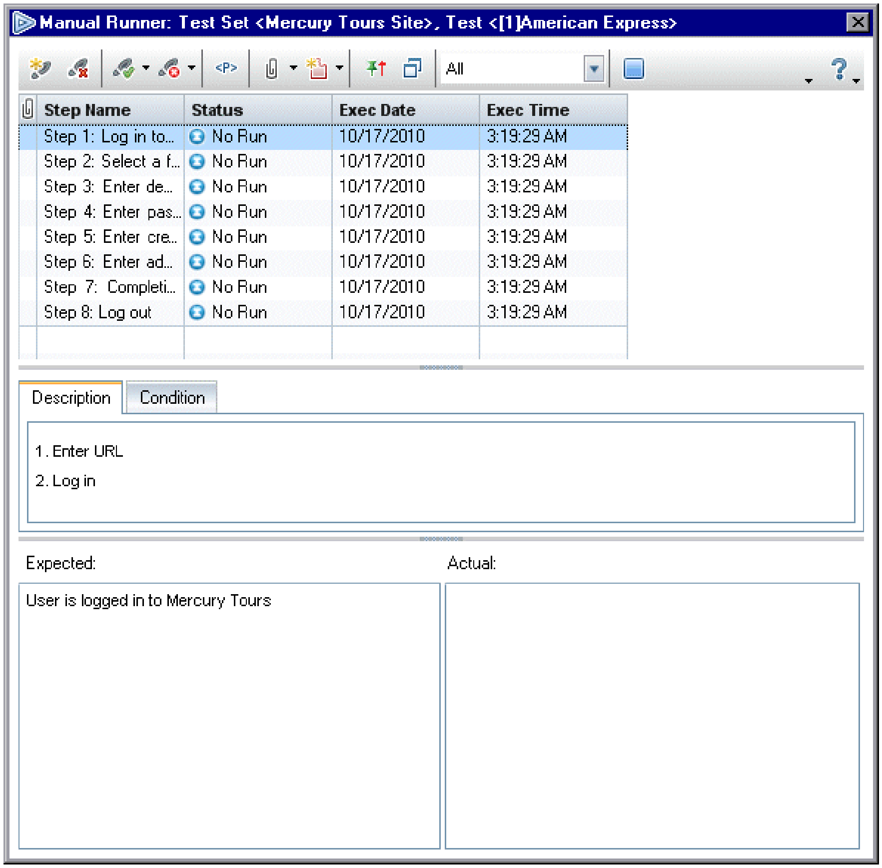
3 Open Manual Runner.

Click the **Run** arrow and select **Run with Manual Runner**. The Manual Runner dialog box opens.



4 Start the test run.

Click the **Begin Run** button. The Manual Runner dialog box opens.



5 Perform the first step.

a In the **Actual** box, type: The Mercury Tours site opens.

b Click the **Pass Selected** button. Step 2 is displayed.

6 Perform the second step.

a In the **Actual** box, type: Flight details and preference are entered.

b Click the **Pass Selected** button. Step 3 is displayed.

7 Pass the remaining steps.

Click the **Passed Selected** arrow and select **Pass All**.

8 End the run.

Click the **End Run** button to end your test run.

9 Continue on to the Visa instance.

Click the **Begin Run** button. The Manual Runner dialog box opens. Note the name of the instance in title bar.

10 Pass all steps of the Visa instance.

Click the **Passed Selected** arrow and select **Pass Al**l.

11 End the run.

Click the **End Run** button to end your test run.

12 Continue on to the MasterCard instance.

Click the **Begin Run** button. The Manual Runner dialog box opens. Note the name of the instance in title bar

13 Fail all steps of the MasterCard instance.

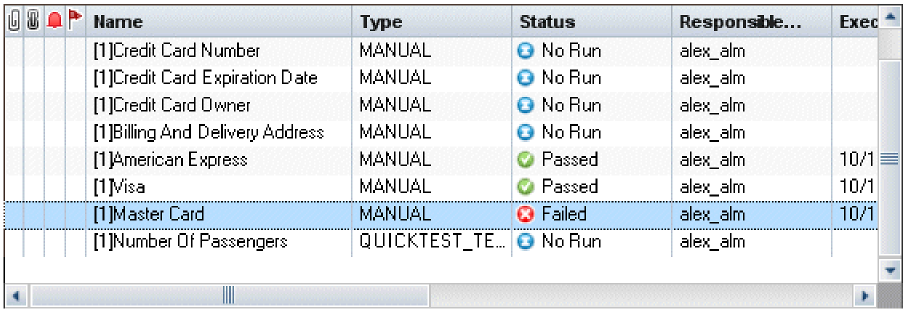
Click the **Fail Selected** arrow and select **Fail Al**l.

14 End the run.

Click the **End Run** button to end your test run.

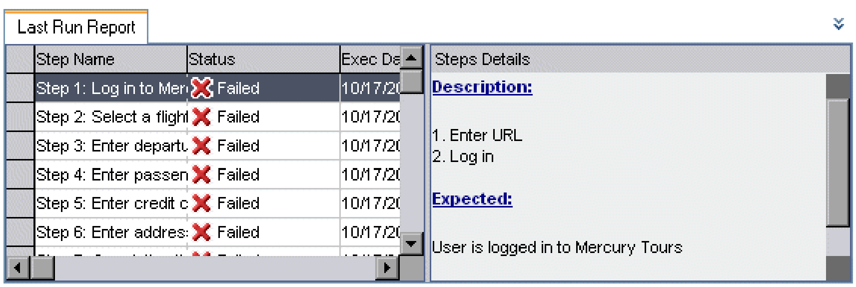
15 View the run results in the Execution Grid.

Following the execution of your tests, you can view the run results of your last run in the Execution Grid.



16 View the results of each test step in the Last Run Report pane.

a Select one of the recently run instances. If the Last Run Report pane is not displayed, click the **Show** button on the bottom of the pane. The Last Run Report pane is displayed below the Execution Grid.



b Click each step to view its description, as well as the expected and actual results.

Viewing and Analyzing Test Results

ALM provides a number of features that enable you to view and analyze the results of your tests.

This section includes:

➤ Viewing Test Results on page 107
➤ Viewing Test Coverage on page 109
➤ Viewing Coverage Progress on page 113

You can also use ALM reports and graphs to further analyze your test results. For more information, see "Analyzing ALM Data" on page 141.

Viewing Test Results

You can view results for a test in the Test Instance Properties dialog box. This includes details of a test's runs, attachments, linked defects, and history.

In this exercise, you will learn how to view test run information in the Test Instance Properties dialog box.

To view test results:

1 Make sure the Test Lab module is displayed.

On the ALM sidebar, under **Testing**, select **Test Lab**. By default, the Test Sets tab is displayed.

2 Make sure the Cycle 1 - New Features test set folder is displayed.

a In the test set tree, expand the **Cycle 1 - New Features** test set folder under **Service Pack 1**. Select the **Mercury Tours Site** test set.

b Click the **Execution Grid** tab.

3 Select American Express in the Execution Grid.

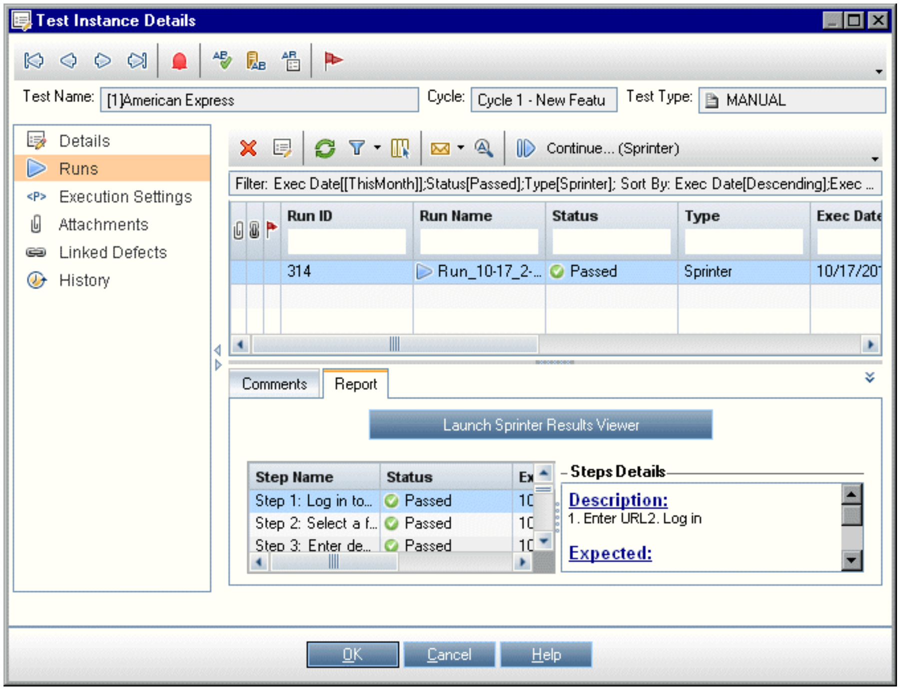
In the Execution Grid tab, select **American Express**.

4 View detailed test results from the Test Instance Details dialog box.

Click the **Test Instance Details** button. The Test Instance Details dialog box opens.

5 View test run information.

Click **Runs**. The run details are displayed.



6 View other test run information in the Test Instance Details dialog box.

a Click **Execution Settings** to view parameters used to run the instance. Note that any changes that you make are implemented in the next test run.

b Click **Linked Defects**. This view lists the defects linked to the currently selected test instance. You can view, add, and remove defect links.

c Click **History** to view a list of changes made to the test run fields.

7 Close the Test Instance Details dialog box.

Click the **Close** button.

Viewing Test Coverage

You previously saw how you can use the Coverage Analysis view to analyze the breakdown of child requirements according to their tests coverage (see "Analyzing Coverage" on page 69).

In this exercise, you will learn how to filter the tests included in the coverage analysis by cycle.

ALM Editions: This exercise is not available for Quality Center Starter Edition.

To view test coverage:

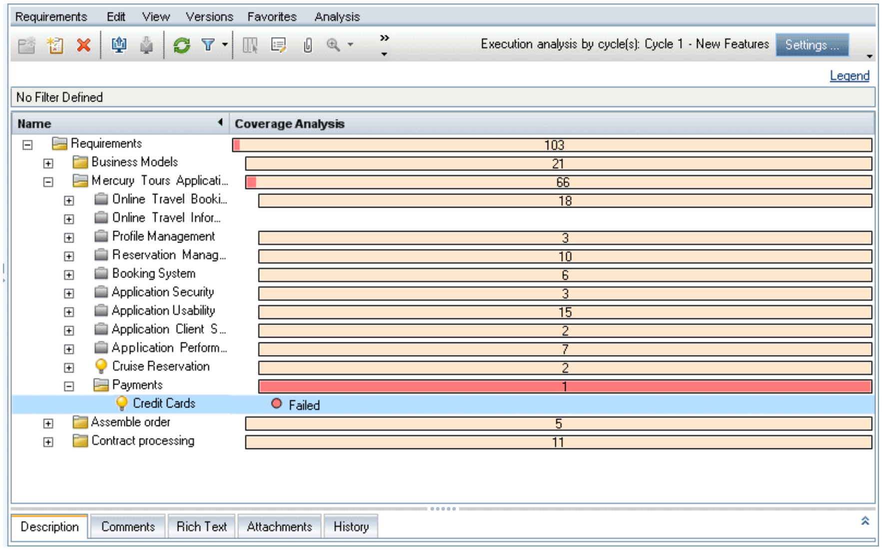
1 Display the Coverage Analysis view in the Requirements module.

- **a** On the ALM sidebar, under **Requirements**, select **Requirements**.
- **b** Choose **View** > **Coverage Analysis**. The Coverage Analysis view is displayed.

2 Filter the coverage analysis by cycle.

- **a** On the upper-right side of the window, click the **Settings** button. The Analysis Settings dialog box opens.
- **b** Select **Execution Analysis**. Click the arrow. In the releases tree, expand the release folder **Service Packs** and the release **Service Pack 1.** Select the **Cycle 1 - New Features** check box and click **OK**.
- **c** Click **OK** to close the Analysis Settings dialog box.

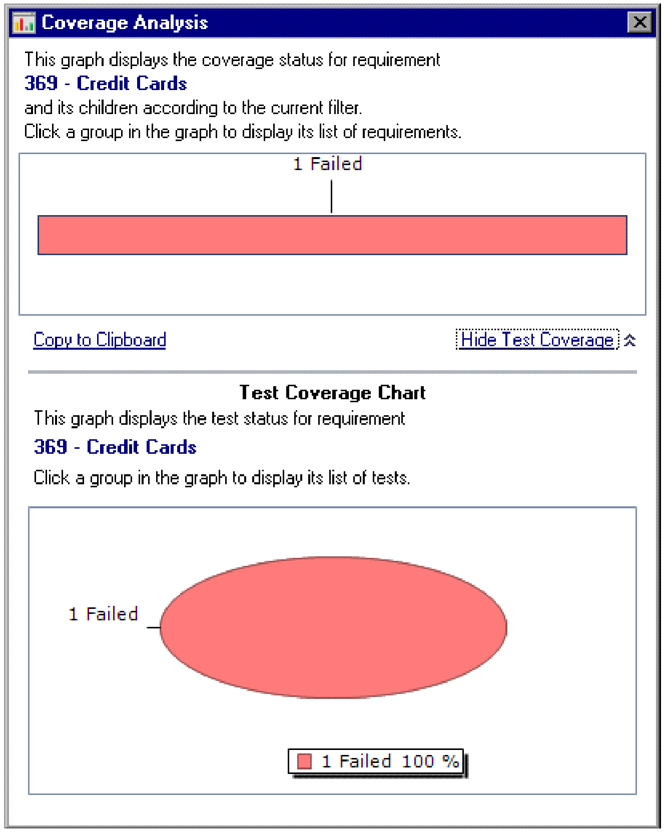
d Expand the **Payments** requirement. In the Coverage Analysis column, you can see that the requirement has failed. This is because the Credit Cards test which covers the requirement failed.



3 Display test coverage details for the Credit Cards requirement.

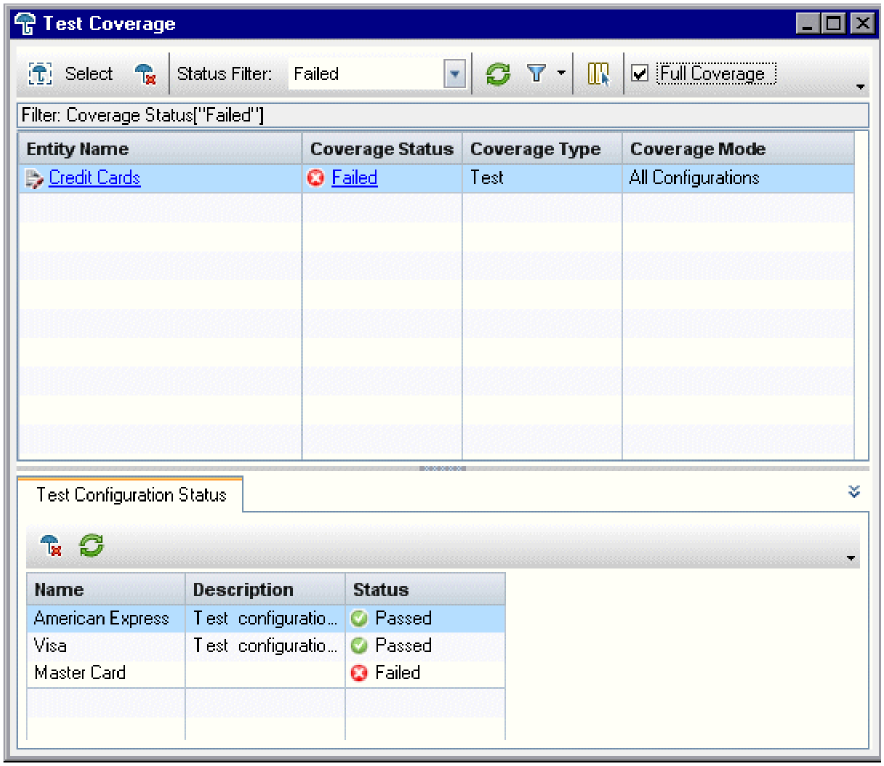
a Right-click the **Credit Cards** requirement, and choose **Coverage Analysis**. The Coverage Analysis dialog box opens.

b Click the **Show Test Coverage** link to extend the Coverage Analysis dialog box and display the Test Coverage Chart.



c This pie chart graphically displays the full test coverage for the requirement, grouped according to test status.

d Click the pie chart to open the Tests Coverage dialog box.



The dialog box shows the failed test together with the test run status of each test configuration.

e Close the Test Coverage dialog box.

4 Close the Coverage Analysis dialog box.

Click the **Close** button.

Viewing Coverage Progress

You were previously introduced to the Progress tab in the Releases module (see "Viewing Releases and Cycles" on page 32). In this exercise, you will view the graphs and statistics that now reflect the results of tests you ran in previous exercises.

ALM Editions: This exercise is not available for Quality Center Starter Edition.

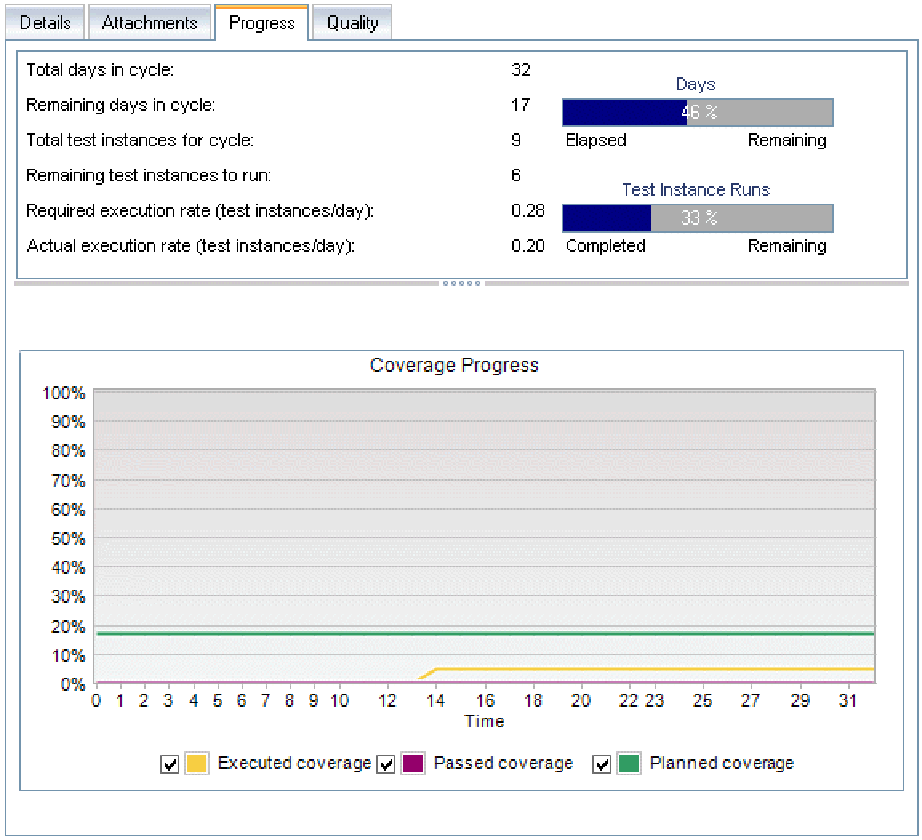
To view coverage progress:

1 Display the Releases module.

On the ALM sidebar, under **Management**, select **Releases**.

2 View the effect of your test runs on the Progress tab.

In the releases tree, expand the release folder **Service Packs** and the release **Service Pack 1**. Select **Cycle 1 - New Features** and click the **Progress** tab.



The top pane shows information such as the total and remaining days in the cycle, total test instances for the cycle, and actual and remaining test instances to run.

The bottom pane displays the Coverage Progress graph. **Planned coverage** indicates the percentage of tests planned to be run each day within a cycle. **Executed coverage** indicates the percentage of tests that ran each day within a cycle. **Passed coverage** indicates the percentage of tests that ran successfully each day within a cycle.

Running Tests Automatically

When you run an automated test, ALM automatically opens the selected testing tool, which runs the test on your local machine or on remote hosts, and imports the results to ALM.

You can run all tests in a test set or run specific tests. You can run tests from the Execution Grid tab or the Execution Flow tab.

In this exercise, you will run a QuickTest Professional test.

Note: For prerequisites to running a QuickTest Professional test, see "Before You Begin" on page 10.

To run a test automatically:

1 Make sure the Test Lab module is displayed.

On the ALM sidebar, under **Testing**, select **Test Lab**. By default, the Test Sets tab is displayed.

2 Select the Number of Passengers test.

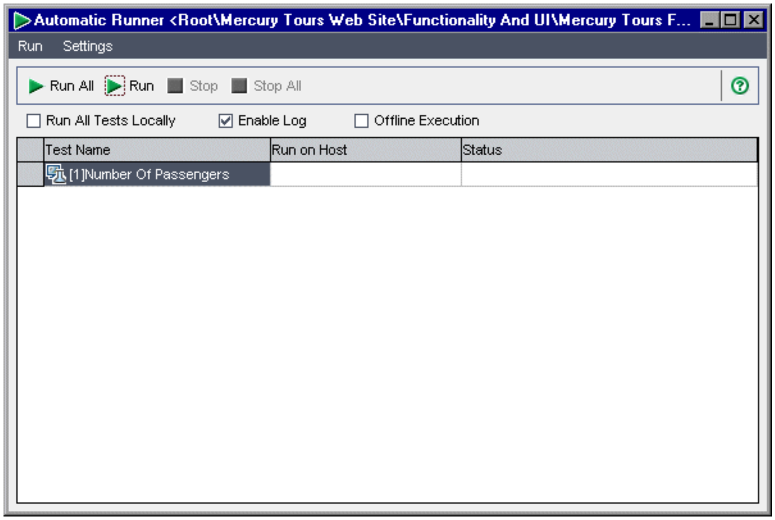
a In the test sets tree, expand the **Mercury Tours Web Site** test set folder. Under **Functionality And UI**, select the **Mercury Tours Functionality** test set.

b Click the **Execution Grid** tab.

c Select the **Number of Passengers** test.

3 Open the Automatic Runner dialog box.

Click the **Run** button. The Automatic Runner dialog box opens and displays the selected test.



4 Set the test run settings.

Select the **Run All Tests Locally** check box to run the test on your local computer.

5 Run the test.

Click the **Run** button. ALM opens the selected testing tool automatically and runs the test. You view the test execution progress in the **Status** column.

6 Close the Automatic Runner dialog box.

After the test run is complete, choose **Run** > **Exit**.

7 View a summary of test results in the Execution Grid.

The Execution Grid displays the updated status for the test run. Results for each test step appear in the Last Run Report pane.

8 Close QuickTest Professional.

In QuickTest Professional, choose **File** > **Exit**.

6

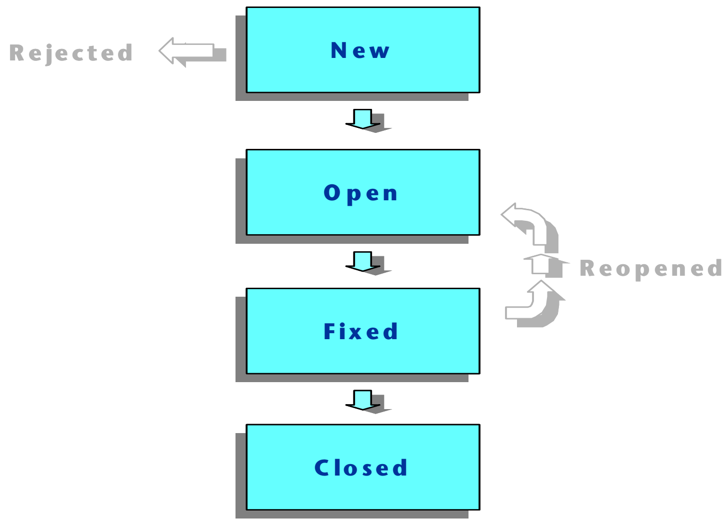
Adding and Tracking Defects

Locating and repairing defects is an essential phase in application development. Defects can be detected and submitted by users in all stages of the application lifecycle management process. Using HP Application Lifecycle Management (ALM), you can submit defects detected in the application and track them until they have been repaired and retested.

In this lesson, you will learn about:

How to Track Defects

When you submit a defect to an ALM project, it is tracked through these stages: New, Open, Fixed, and Closed. A defect may also be Rejected or it may be Reopened after it is fixed.



When you initially report the defect to an ALM project, it is assigned the status **New**, by default. A quality assurance or project manager reviews the defect and determines whether or not to consider the defect for repair. If the defect is denied, it is assigned the status **Rejected**. If the defect is accepted, the quality assurance or project manager 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 then retest the application, making sure that the defect does not recur.

If the defect recurs, the quality assurance or project manager assigns it the status **Reopened**. If the defect is repaired, the quality assurance or project manager assigns it the status **Closed**.

Adding New Defects

You can add a new defect to an ALM project at any stage of the application lifecycle management process. In this exercise, you will submit a defect connected to the **Flight Confirmation** test.

To add a new defect:

1 Open the ALM_Demo project.

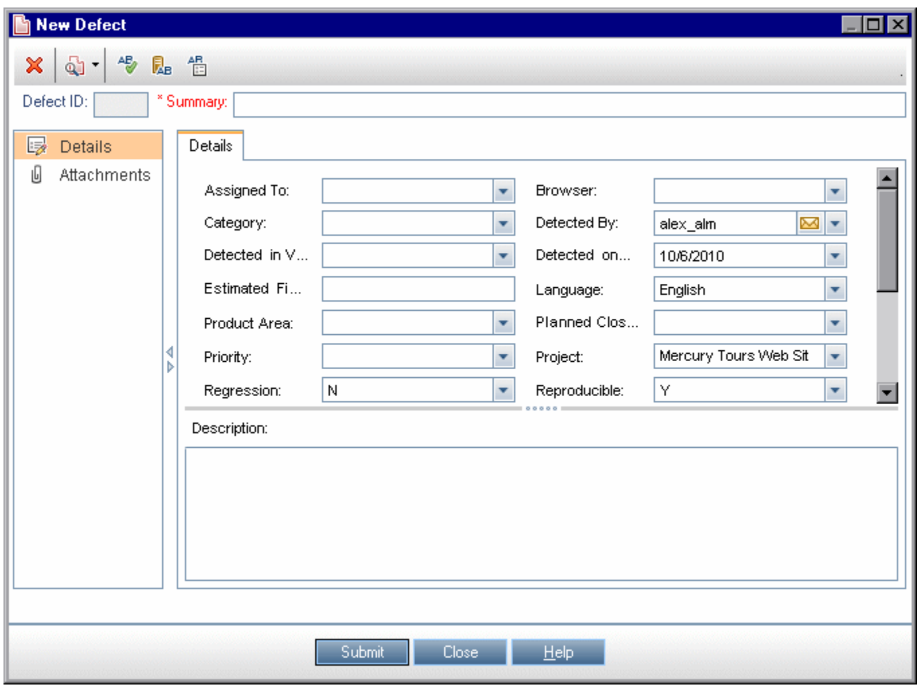
If the **ALM_Demo** project is not already open, log in to the project. For more information, see "Starting ALM" on page 18.

2 Display the Defects module.

On the ALM sidebar, select **Defects**. The Defects Grid displays defect data in a grid. Each row in the grid displays a separate defect record.

3 Open the New Defect dialog box.

Click the **New Defect** button. The New Defect dialog box opens.



4 Describe the defect.

Enter the following data in the specified fields. Scroll down the dialog box as necessary.

Summary: Missing information on Flight Confirmation page.

Category: Defect

Severity: 2-Medium

Subject: Flight Reservation > Flight Confirmation

Description: The defect was detected on the Flight Confirmation page. Passenger details and meal preferences are not displayed.

5 Determine the cycle in which the defect was detected.

Quality Center Starter Edition: If you are using Quality Center Starter Edition, proceed to Step 6.

- **a** In the **Detected in Cycle** box, click the arrow. The releases tree opens. Expand the tree. In the **Mercury Tours Application** releases folder, in the **Release 10.5** release, select the **Cycle 1 - New Features** cycle.
- **b** Click **OK** to close the releases tree.
- **c** You can see that ALM automatically assigns the value **Release 10.5** to the **Detected in Release** field. This is because **Cycle 1 - New Features** is part of the **Release 10.5** release.

6 Attach the URL address for the Mercury Tours page where the defect was detected.

- **a** On the New Defect dialog box sidebar, click **Attachments**. The Attachment page opens.

- **b** Click the **URL** button. The Attach Uniform Resource Locator (URL) dialog box opens.
- **c** Type the URL address of the Mercury Tours page: http://<ALM Platform server name>/mtours

d Click **OK**. A link to the Mercury Tours page is displayed above the **Description** box.

7 Add the defect to the ALM project.

a Click the **Submit** button. The defect is added to the Defects Grid.

b Click **Close** to close the New Defect dialog box.

Matching Defects

Identifying matching defects enables you to eliminate duplicate or similar defects in your project. Each time you add a new defect, ALM 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 must be more than two characters long, and letter case does not affect your results.

In this exercise, you will match defects by comparing a selected defect with all other existing defects in the **ALM_Demo** project.

To match defects:

1 Make sure that the Defects module is displayed.

If the Defects module is not displayed, on the ALM sidebar, select **Defects**.

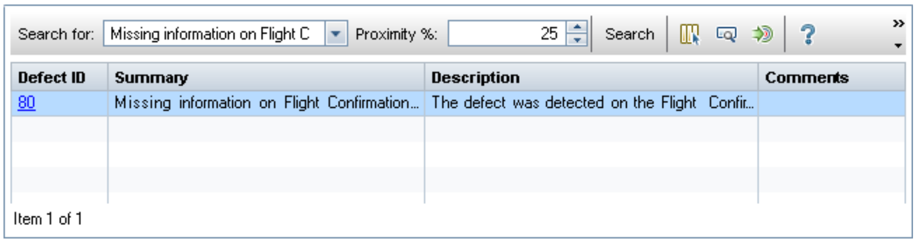
2 Select Defect ID 80.

a If a filter is applied to the grid, click the **Set Filter/Sort** arrow and choose **Clear Filter/Sort** to clear the filter.

b In the Defects Grid, select **Defect ID** 80.

3 Find similar defects.

Click the **Find Similar Defects** button. The results are displayed in the Similar Defects pane at the bottom of the window, sorted by the percentage of detected similarity. Note that there are no duplicate defects in the project for the selected defect.



Close the Similar Defects pane.

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. The ability to update some defect fields depends on your permission settings. After you have updated defects, you can view the quality status of your release in the Releases module.

In this exercise, you will update your defect information by changing the severity of a defect, assigning the defect to a cycle, and adding a comment. You will then see how updating defects is reflected in the Quality tab of the Releases module.

In addition, you will practice updating multiple records simultaneously.

Quality Center Starter Edition: If you are using Quality Center Starter Edition, fields and commands related to cycles and releases are not available.

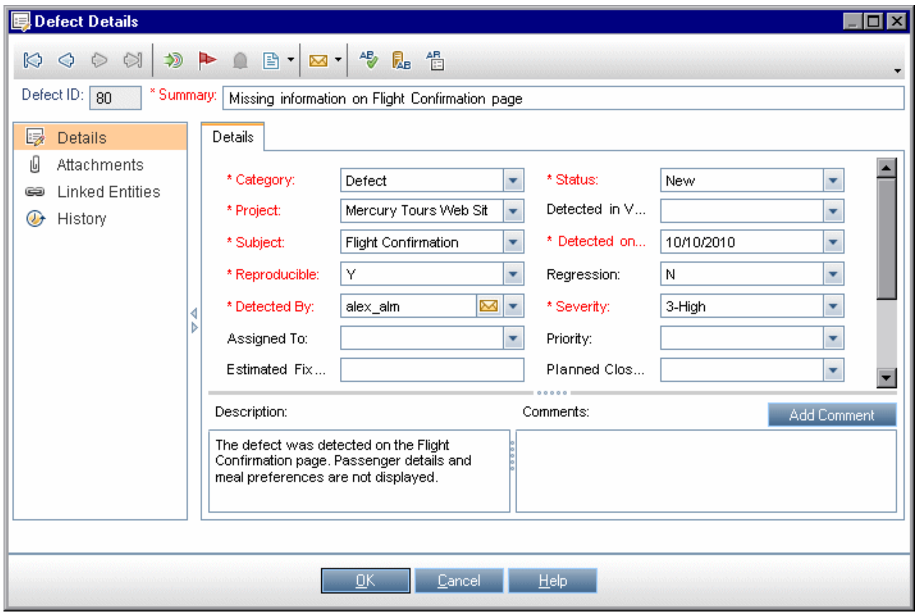
To update defects:

1 Make sure that the Defects module is displayed.

If the Defects module is not displayed, on the ALM sidebar, select **Defects**.

2 Open the Defect Details dialog box.

In the Defects Grid, select the defect you added in "Adding New Defects" on page 119. Click the **Defect Details** button. The Defect Details dialog box opens.



3 Change the severity level of the defect.

In the **Severity** box, select **5-Urgent**.

4 Determine the cycle in which the defect will be fixed.

Quality Center Starter Edition: If you are using Quality Center Starter Edition, proceed to Step 5.

---

a In the **Target Cycle** box, click the arrow. The releases tree opens. Expand the tree. In the **Mercury Tours Application** releases folder, in the **Release 10.5** release, select the **Cycle 4 a - Full** cycle.

b Click **OK** to close the releases tree.

c You can see that ALM automatically assigns the value **Release 10.5** to the **Target Release** field. This is because the **Cycle 4 a - Full** cycle is part of the **Release 10.5** release.

5 Add a new comment to explain the change in the severity level.

a Click the **Add Comment** button. A new section is added to the **Comments** box, displaying your user name and the current date.

b Type: This defect should be fixed in the next service pack.

6 View the Attachments.

Click **Attachments** on the sidebar. Note that the URL attachment is listed.

7 View Linked Entities.

Click **Linked Entities** on the sidebar to view entities that have been linked to the defect. Linked entities can include requirements, tests, test sets, test instances, runs, run steps, and other defects. There are currently no linked entities. You will learn how to link a defect to a test in "Linking Defects to Tests" on page 127.

8 View the History.

Click **History** on the sidebar to view the history of changes made to the defect. 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.

9 Close the Defect Details dialog box.

Click **OK** to exit the dialog box.

10 Update defects directly in the Defects Grid.

Quality Center Starter Edition: If you are using Quality Center Starter Edition, ignore this step.

---

a In the Defects Grid, select defect ID 23.

b Click the **Detected in Cycle** box and click the arrow. In the releases tree, expand the release folder **Mercury Tours Application** and the release **Release 10.5**. Select the **Cycle 1 - New Features** cycle and click **OK**.

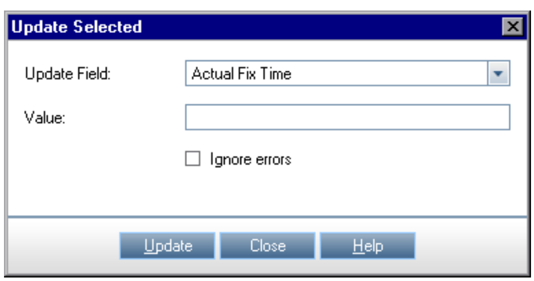
c Drag the horizontal scroll bar to the right until the **Target Cycle** column comes into view. Click the **Target Cycle** box for defect ID 23, and click the arrow. In the releases tree, expand the release folder **Mercury Tours Application** and the release **Release 10.5**. Select the **Cycle 1 - New Features** cycle and click **OK**.

11 Update multiple records simultaneously.

a In the Defects Grid, select defect 35.

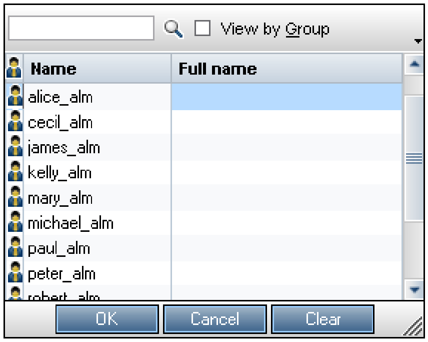
b Hold down the CTRL key, and select defect 36. Now both defects 35 and 36 are selected.

c Select **Edit** > **Update Selected**. The Update Selected dialog box opens.



d Click the arrow adjacent to the **Update Field** box, and select **Assigned To**. Notice that the **Value** box displays the **Assigned To** value of the defect you selected last.

e Click the arrow adjacent to the **Value** box. The users list opens.



f In the users list, select **michael_alm**, and click **OK**.

g In the Update Selected dialog box, click **Update**.

h After the update completes, an Information dialog box displays a summary of the update. Click **OK**, then close the Update Selected dialog box.

12 View the number of defects opened in Cycle 1 - New Features on the Quality tab.

Quality Center Starter Edition: If you are using Quality Center Starter Edition, ignore this step.

---

a On the ALM sidebar, under **Management**, select **Releases**. On the Releases tree, expand the release folder **Mercury Tours Application** and the release **Release 10.5**, and select the cycle **Cycle 1 - New Features**. Click the **Quality** tab.

b In the **Defect Opening Rate** graph, you can see the defects detected in **Cycle 1 - New Features** according to defect severity.

c In the **Outstanding Defects** graph, you can see the outstanding defects in **Cycle 1 - New Features** according to defect status.

Linking Defects to Tests

You can link a test in your test plan to a specific defect in the Defects Grid. This is useful, for example, when a new test is created specifically for a known defect. By creating linkage, you can determine if the test should be run based on the status of the defect. Note that you can also link the defect to other entities, such as requirements.

A defect can be linked directly or indirectly to an entity. When you add a defect link to an entity, ALM adds a direct link to this entity and indirect links to other related entities.

The following diagram illustrates the flow of indirect linkage:

For instance, when you link a defect to a run step, it 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.

In this exercise, you will link your defect to the **Flight Confirmation** test in the Test Plan module, and view the linked test in the Defects Grid.

To link a defect to a test:

1 Display the Test Plan module.

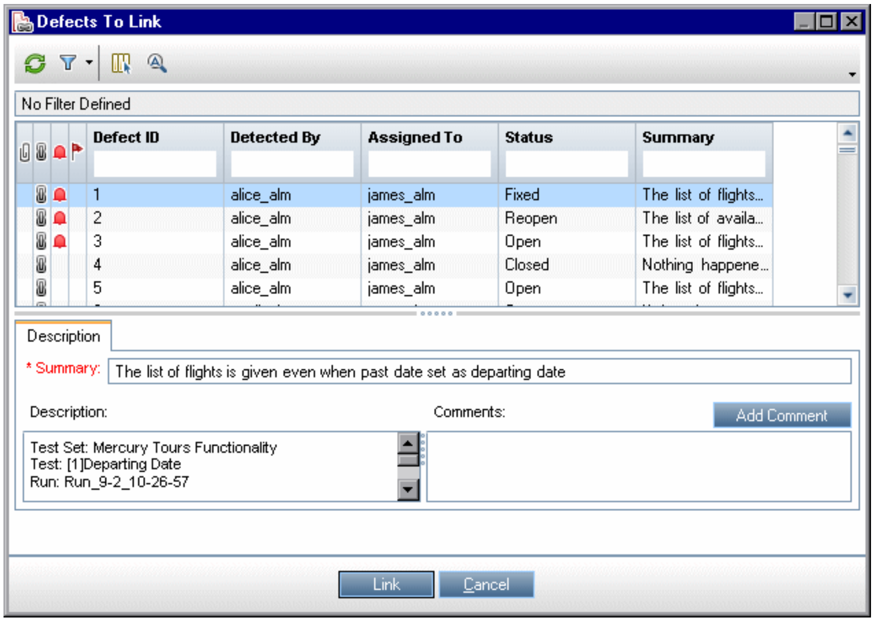
On the ALM sidebar, under Testing, select **Test Plan**.

2 Select the Flight Confirmation test.

In the test plan tree, under **Flight Reservation**, expand the **Flight Confirmation** test subject, and select the **Flight Confirmation** test. Click the **Linked Defects** tab.

3 Add a linked defect.

a In the Linked Defects tab, click the **Link Existing Defect** arrow and choose **Select**. The Defects to Link dialog box opens.



b Select the defect you added in "Adding New Defects" on page 119 and click the **Link** button. Your defect is added to the Linked Defects grid.

Tip: If you cannot find your defect in the Defects to Link dialog box, click the **Set Filter/Sort** arrow and choose **Clear Filter/Sort** to clear the filter that is applied to the grid.

4 View the linked test in the Defects Grid.

a On the ALM sidebar, select **Defects**.

b Double-click defect ID 80 in the Defects Grid. The Defect Details dialog box opens.

c Click **Linked Entities** on the sidebar, and select the **Others** tab. The **Flight Confirmation** test is linked to your defect.

d Click **OK** to close the Defect Details dialog box.

Creating Favorite Views

A **favorite view** is a view of an ALM window configured with the settings you applied to it. For example, in the Defects Grid, you may want to apply a filter to display only the defects that were detected by you, are assigned to you, or have the status “Not Closed”.

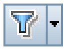
In this exercise, you will create a favorite view in the Defects Grid.

To create a favorite view:

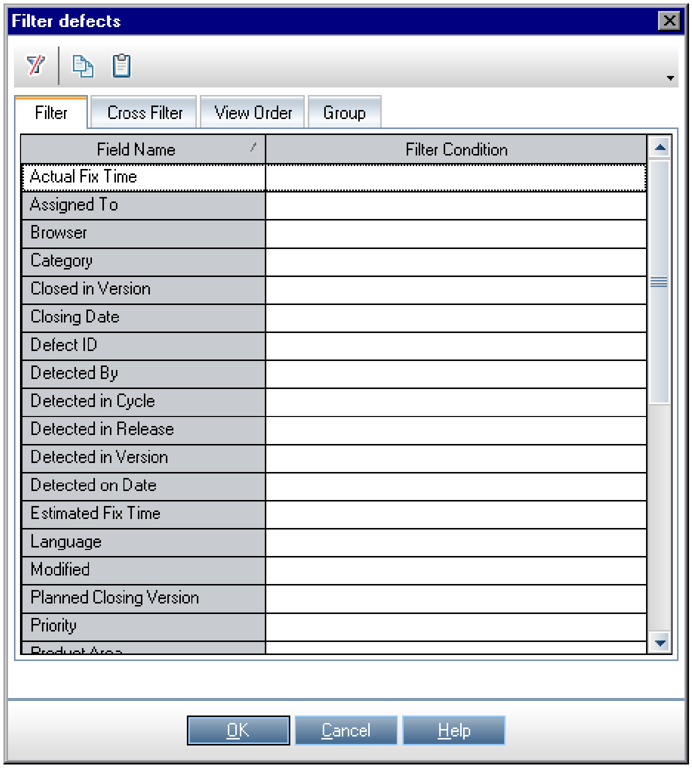
1 Make sure that the Defects module is displayed.

If the Defects module is not displayed, on the ALM sidebar, select **Defects**.

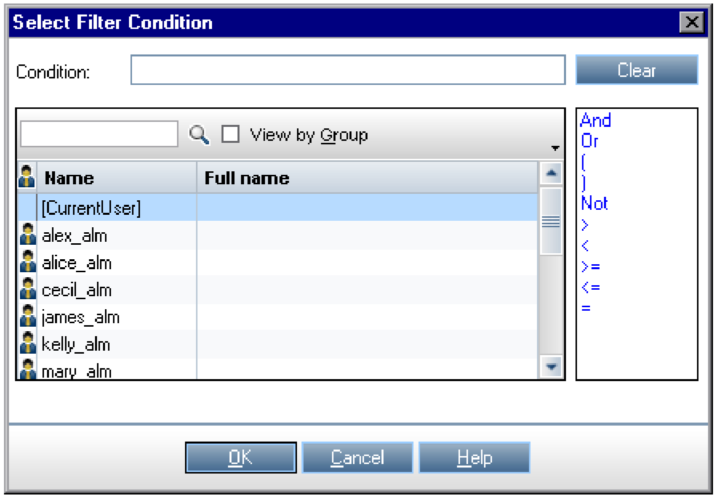
2 Define a filter to view defects you detected that are not closed.



a Click the **Set Filter/Sort** button. The Filter defects dialog box opens.



b For the **Detected By** field, click the **Filter Condition** box. Click the arrow. The Select Filter Condition dialog box opens.

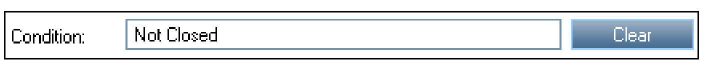


c Under **Name**, select the **[CurrentUser]** variable, or select your ALM login name from the list. Click **OK** to close the Select Filter Condition dialog box.

d For the **Status** field, click the **Filter Condition** box. Click the arrow. The Select Filter Condition dialog box opens.

e In the right pane, click the logical expression **Not**.

f In the left pane, select **Closed**.

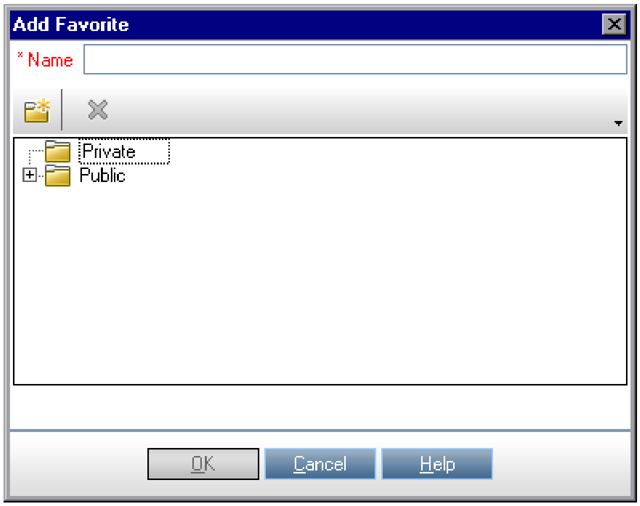


g Click **OK** to close the Select Filter Condition dialog box.

h Click **OK** to apply your chosen filter. The Defects Grid displays the defects you detected that are not closed.

3 Add a favorite view.

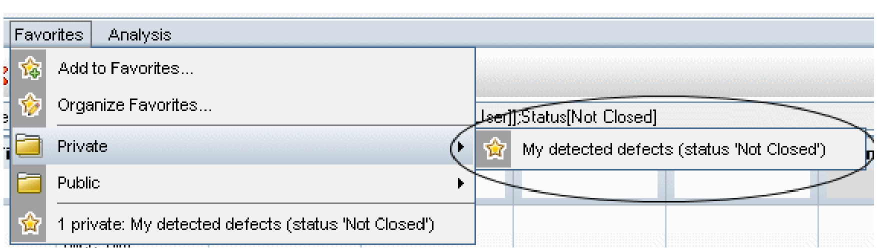
a In the **Favorites** menu, select **Add to Favorites**. The Add Favorite dialog box opens.



b In the **Name** box, type: My detected defects (status ‘Not Closed’)

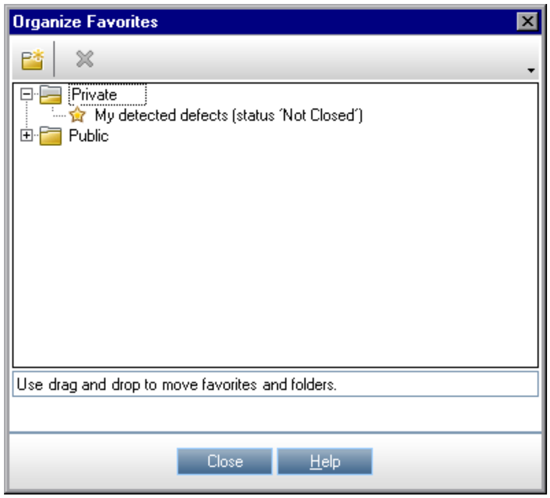
c You can add a favorite view to either a **public** folder or a **private** folder. Views in the public folder are accessible to all users. Views in the private folder are accessible only to the person who created them. Select **Private**.

d Click **OK**. The new favorite view is added to your private folder, and is displayed in the list of recently used favorite views, located under the Private and Public folders.



4 Organize favorites.

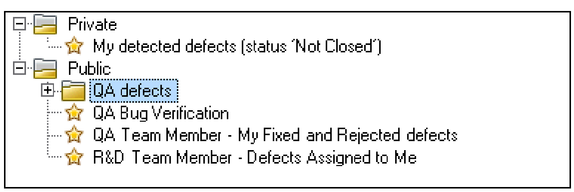
a In the **Favorites** menu, select **Organize Favorites**. The Organize Favorites dialog box opens.



b Double-click the **Public** folder.

c Click the **New Folder** button. The New Favorite Folder dialog box opens.

d In the Favorite Folder Name box, type QA defects, and click **OK**. The **QA defects** folder is added as a sub-folder to the **Public** folder.



e Drag the following favorites into the **QA defects** folder:

- **QA Bug Verification**
- **QA Team Member - My Fixed and Rejected defects**

f Click **Yes** to confirm, and close the Organize Favorites dialog box.

7

Alerting on Changes

You can instruct HP Application Lifecycle Management (ALM) to create alerts automatically and send emails to notify those responsible when certain changes occur in your project that may impact the application lifecycle management process. You can also add your own follow-up alerts.

To generate automatic notification alerts, your ALM project administrator must activate alert rules in Project Customization. Alert rules are based on associations you make in ALM between requirements, tests, and defects. When an entity in your project changes, ALM alerts any associated entities that may be impacted by the change. The alerts can be seen by all users. ALM 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.

ALM also enables you to add your own follow-up flag to a specific requirement, test, test instance, or defect to remind you to follow up on an issue. When the follow-up date arrives, ALM sends you an email reminder.

In this lesson, you will learn about:

Triggering an Alert

When a requirement, test, test instance, or defect in your project changes, ALM can notify those responsible for any associated entities. You can associate tests with requirements (see "Defining Test Configurations" on page 61) and defects with other ALM entities (see "Linking Defects to Tests" on page 127). In addition, you can create traceability links between requirements. For more information on creating traceability links between requirements, see the *HP Application Lifecycle Management User Guide*.

ALM can generate alerts for these changes:

What changed?	Which associated entities are flagged?	Who is notified?
Requirement (excluding change of **Direct Cover Status** and risk-based quality management fields)	Tests	Test designers
	Requirements	Requirement authors
Defect status changed to **Fixed**	Test instances	Responsible testers
Test ran successfully	Defects	Users assigned to defects

In this exercise, you will trigger alerts for tests by changing the associated requirement. You will modify the **View Reservations** requirement and then you will view the flagged tests.

To trigger an alert:

1 Display the requirements tree.

- **a** On the ALM sidebar, under **Requirements**, select **Requirements**.
- **b** In the Requirements module, select **View** > **Requirement Details**.

2 Select the requirement that you want to change.

Under **Reservation Management**, select the **View Reservations** requirement.

3 View the associated tests.

To view the tests that will be impacted by the change, click the **Test Coverage** tab. The tab displays the associated tests.

4 Change the priority of the Cruise Booking requirement.

a Click the **Details** tab.

b Click the down arrow adjacent to the **Priority** box and select **5-Urgent**.

Version Control: If you are prompted to check out the requirement, click **OK**.

This change causes ALM to generate alerts for the tests associated with the requirement. ALM also sends email notification to the designers of the associated tests.

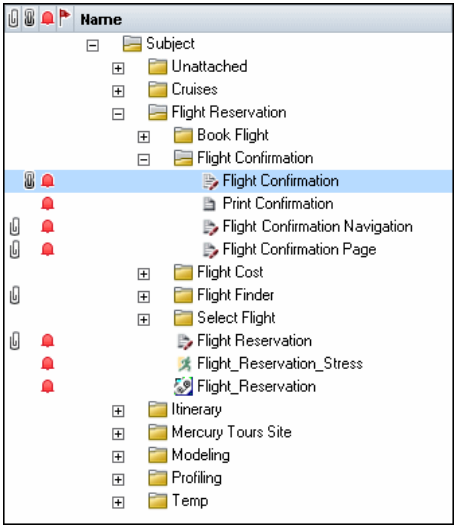
Version Control: Check in the new version of the requirement. Right-click the requirement, and select **Versions** > **Check In**. Click **OK** to confirm.

---

5 View the alert for the Flight Confirmation test.

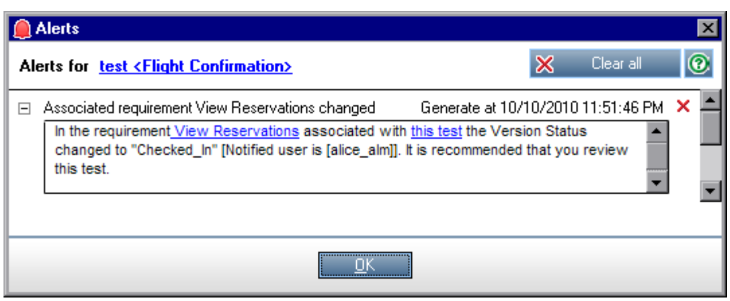
a In the **Test Coverage** tab, click the link to the **Flight Confirmation** test. The test is highlighted in the test plan tree.

b Click the **Refresh All** button.



The **Flight Confirmation** test has an alert flag  , indicating that a change was made to an associated requirement.

c Click the **Alerts** flag for the **Flight Confirmation** test. The Alerts dialog box opens.



The alert indicates the requirement and the change that triggered the alert. It also indicates the name of the person to whom ALM sends email notification of this change.

Version Control: The alert states that the version status has changed to **Checked In**. It does not indicate which fields have been modified. You can then compare the new version with the previous version.

---

d Click **OK**.

6 View the alerts of the other associated tests.

In the test plan tree, view the alerts of the following tests: **Itinerary** > **Itinerary Page** and **Itinerary** > **View Reservations** > **Review Reservations**.

Creating Follow Up Alerts

ALM enables you to add your own alerts to remind you to follow up on outstanding issues. In this exercise, you will add a follow-up flag to a defect whose status you want to check one week from today.

When you add a follow-up flag, ALM also adds an information bar that reminds you about the follow-up alert. When the follow-up date arrives, ALM sends you an email reminder, and changes the flag icon from gray to red.

Follow-up flags are specific to your user name, meaning that only you can see your follow-up alerts.

To create a follow up alert:

1 Display the Defects module.

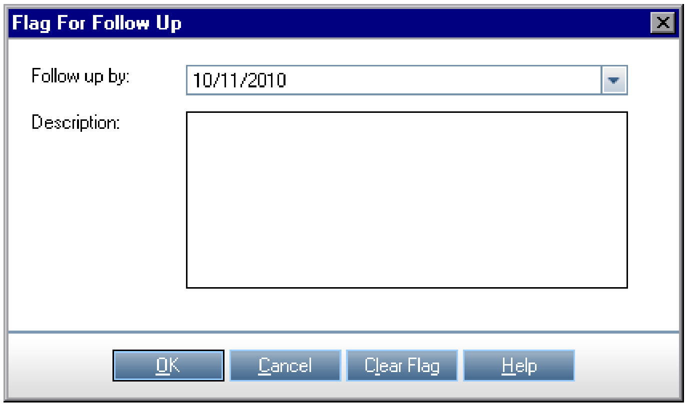
On the ALM sidebar, select **Defects**.

2 Select the defect that you want to flag with a follow up reminder.

In the Defects Grid, select a defect.

3 Create the follow up alert.

a Click the **Flag for Follow Up** button. The Flag For Follow Up dialog box opens.

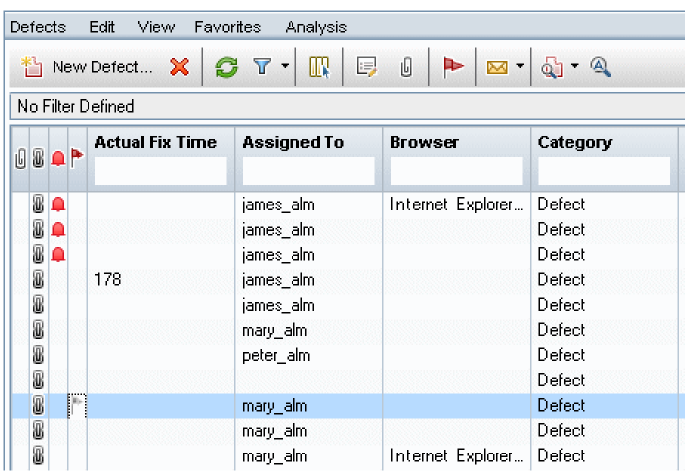


b Perform the following:

Follow up by: Select the date one week from today.

Description: Type: Remind me about this defect on this date.

c Click **OK**. The flag icon is added to the defect record.



8

Analyzing ALM Data

HP Application Lifecycle Management (ALM) reports and graphs help you assess your application lifecycle management process. You can generate reports and graphs at any time during the process.

You can create project reports in the Analysis View module that enable you to design and generate versatile reports containing information from the ALM project.

You can create graphs either in the Analysis View module, or during your work in the Requirements, Test Plan, Test Lab, Business Components, or Defects modules. In either case, you can save the graphs in the Analysis View module for future reference.

Using the Dashboard View module, you can also create dashboard pages that display multiple graphs side-by-side.

In this lesson, you will learn about:

Generating Project Reports

Project reports enable you to compile versatile reports of project data.

In a project report, you define sections and sub-sections, each listing records of a specified ALM entity.

To each report section, you assign a template that determines the fields and layout of the section. You also assign document and style templates that determine the overall report appearance.

In this exercise, you will create a report of tests with their linked defects.

To generate a project report:

1 Open the ALM_Demo project.

If the **ALM_Demo** project is not already open, log in to the project. For more information, see "Starting ALM" on page 18.

2 Display the Analysis View module.

On the ALM sidebar, under **Dashboard**, select **Analysis View**.

3 Add a folder to the Private root folder.

a In the tree, select the **Private** folder.

b Click the **New Folder** button. The New Folder dialog box opens.

c Under **Folder Name**, type My_Analysis_Items.

d Click **OK**. The new folder is added as a sub-folder of the Private folder. The Details tab displays the folder name and the user that created the folder.

e In the **Description** tab, type This folder includes my demo analysis items.

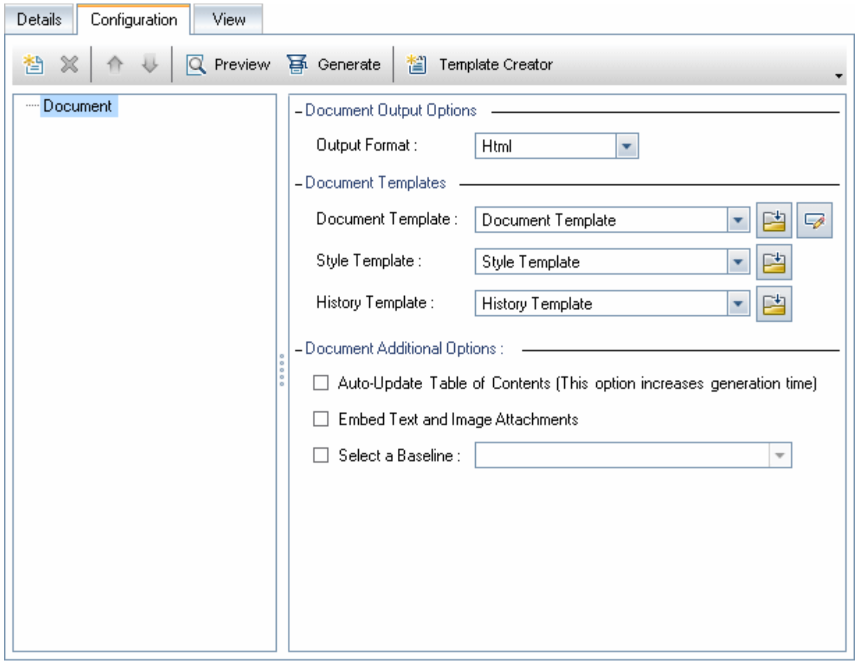
4 Create a project report.

a Click the **New Item** button and select **New Project Report**. The New Project Report dialog box opens.

b In the Project Report Name box, type Reviewed tests and linked defects.

c Click **OK**. A new project report is added to the folder you created. Notice that the  icon represents a project report.

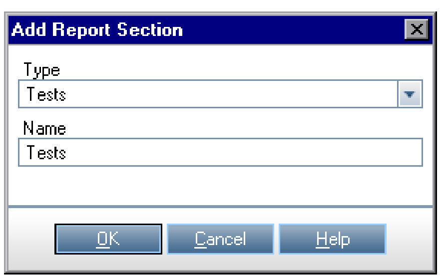
The Configuration tab is selected.



5 Add a main section to report.

a Click the **Add Report Section** button. The Add Report Section dialog box opens.

b Under **Type**, select **Tests**. The default section name **Tests** displays in the **Name** field.



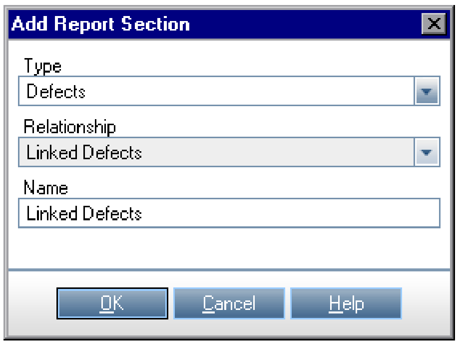
c Click **OK**. The **Tests** section is added to the report tree, under the **Document** root folder.

6 Add a sub-section to the report.

a In the report tree, right-click the **Tests** section, and select **Add Report Section**.

In the Add Report Section dialog box, you can select an entity related to the main section.

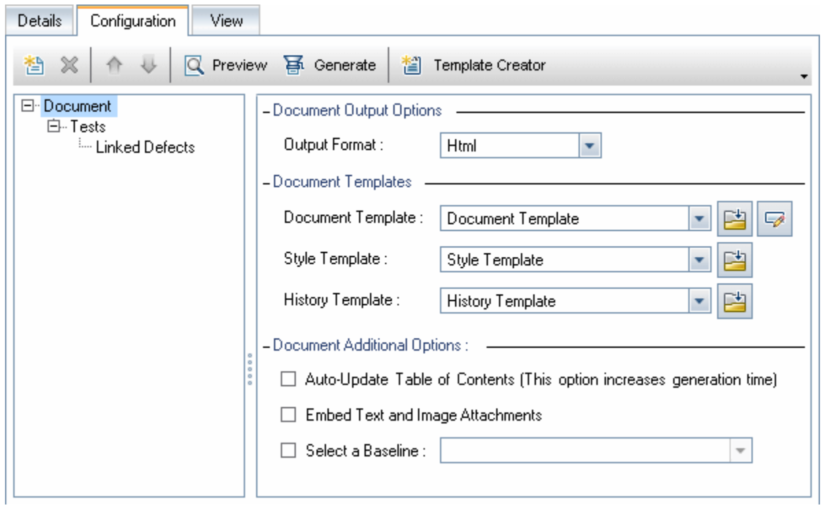
b Under **Type**, select **Defects**. The **Relationship** field describes the nature of the relationship between the tests and defects. The default section name Linked Defects displays in the **Name** field.



c Click **OK**. The **Linked Defects** section is added to the report tree, under the **Tests** section.

7 Configure document settings.

a In the report tree, select the **Document** root node.



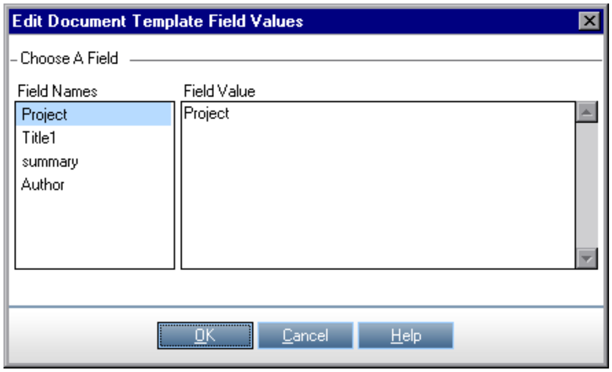
b In the right pane, in the **Output Format** field, select **PDF**.

c Under **Document Templates**, you assign templates that affect different areas of the report.

Template Type	Description
Document Template	Defines fields on the title page, headers and footers, page orientation, and other document layout settings.
Style Template	Defines formatting of report elements. For example, tables, headings, and paragraphs.
History Template	Defines the style in which history information is displayed in report sections.

Default templates are assigned to the different template types. Additional templates can be designed by the project administrator in Project Customization.

d Click the **Edit Document Field Values** button alongside the Document Template field. The Edit Document Template Field Values dialog box opens.



The dialog box enables you to type values for fields in areas such as the title page, headers and footers, as defined in the document template.

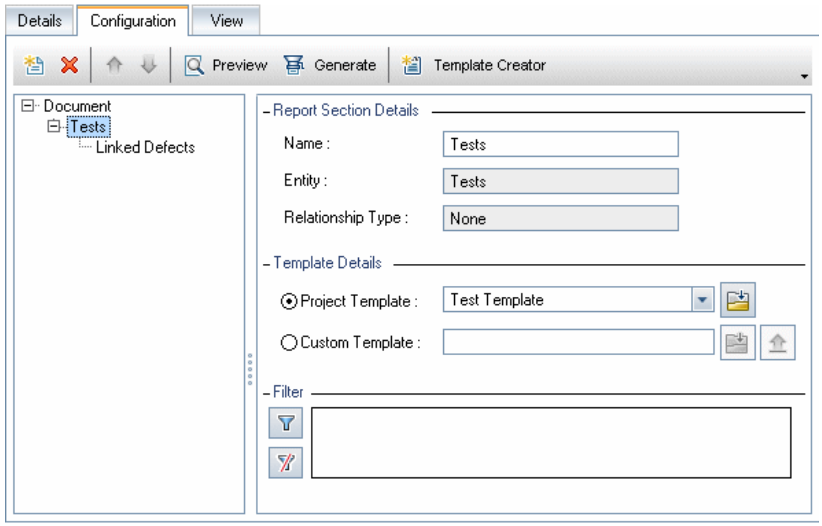
e For each field name, type the following values:

Field Name	Field Value
Project	ALM Demo Project
Title1	Interim Report
summary	An interim report of reviewed tests and their linked defects.
Author	Alex ALM

f Click **OK**.

8 Configure the Tests report section.

a In the report tree, select the **Tests** section.



b Under **Report Section Details**, in the **Name** field, rename the section Reviewed Tests. The section name is used as the section title in the report.

c Under **Template Details**, make sure **Project Template** is selected.

d Click the arrow, and select **Test Template created by Alice**. The template you assign to the section determines the section format, and the entity fields displayed in the section.

e Under Filter, click the **Set Filter/Sort** button. The Filter Tests dialog box opens.

f Click the arrow adjacent to the **Reviewed** field.

g In the Select Filter Condition dialog box, select **Reviewed**, and click **OK**.

h Click **OK** to close the Filter Tests dialog box.

9 Configure the Linked Tests report section.

a Select the **Linked Defects** section.

b Click the arrow alongside **Project Template**, and select **Defect Tabular Template**. Tabular templates display records in rows of a table.

10 Generate the report.

Click **Generate**. A dialog box opens, displaying the progress of the report generation.

When the report is ready, a PDF reader opens, displaying the report results.

Generating Predefined Standard Reports

Predefined standard reports enable you to generate reports of your data in the Requirements, Test Plan, Test Lab, Business Components, and Defects modules, while working in those modules. You can either choose from a list of predefined reports, or you can create reports on selected records for immediate display.

You can use predefined reports for one-time reference, or save them in the Analysis View module, where you can continue to configure their data and appearance.

In this exercise, you will generate a standard report from the Requirements module and save it in the Analysis View module.

To generate a predefined standard report:

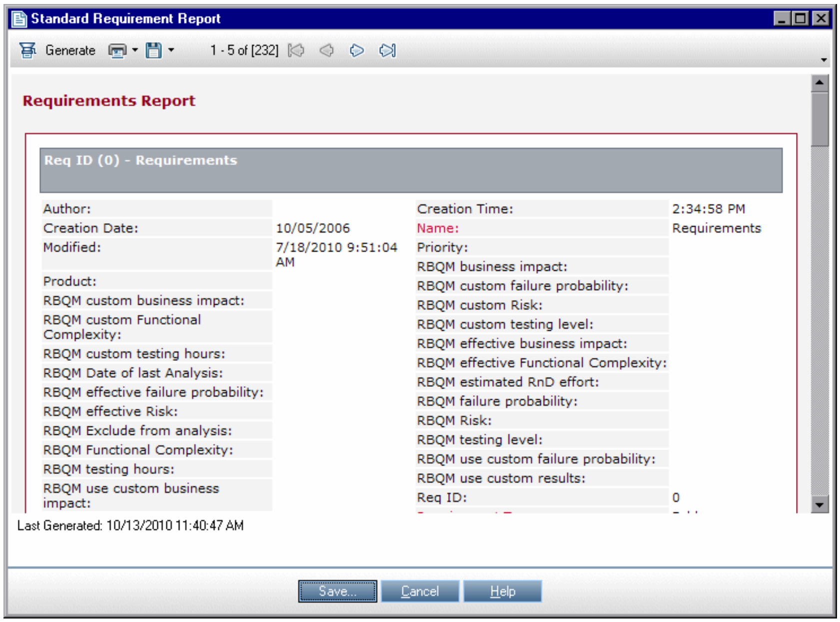
1 Display the Requirements module.

a On the ALM sidebar, under **Requirements**, select **Requirements**.

b If the Requirements Tree view is not already displayed, choose **View** > **Requirements Tree**.

2 Generate a report.

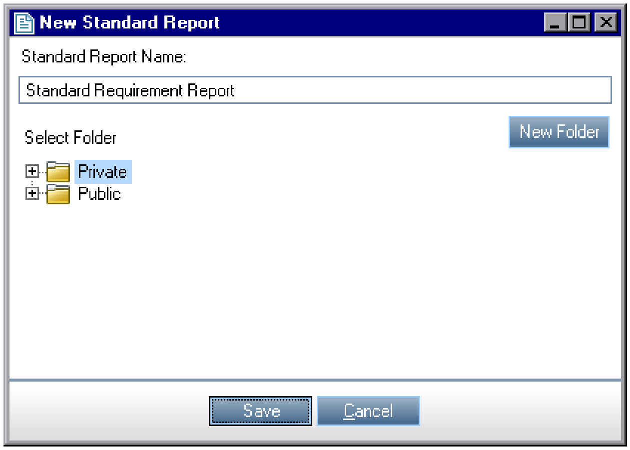
Choose **Analysis** > **Reports** > **Standard Requirement Report**. The Standard Requirement Report dialog box opens.



This report lists the requirements that appear in the current requirements view.

3 Save the report in the Analysis View module.

a Click **Save**. The New Standard Report dialog box opens.



b Under **Select Folder**, expand the **Private** folder, and select **My_Analysis_Items**. Click **Save**.

The Analysis View module opens, and the report displays under the View tab.

Generating Graphs

You can create graphs in the Analysis View module, that display data from the Requirements, Test Plan, Test Lab, Business Components, and Defects modules. You can also create predefined graphs directly from the Requirements, Test Plan, Test Lab, Business Components, and Defects modules. In either case, you can use a graph wizard to guide you through the stages of creating a graph.

After creating a graph, you can share the graph for viewing in a Web browser outside ALM.

This section includes:

- Generating Graphs in the Analysis View Module
- Generating Predefined Graphs
- Sharing Graphs

Generating Graphs in the Analysis View Module

In the Analysis View module, you can create graphs and configure them according to your specifications. You can also create a graph using the graph wizard. The graph wizard takes you through the steps involved in creating a graph and defining its settings.

You create graphs in either a public folder or a private folder. Graphs in a **public** folder are accessible to all users. Graphs in a **private** folder are accessible only to the user who created them.

In this exercise, you will use the graph wizard to generate a graph that summarizes the defects by status and priority level.

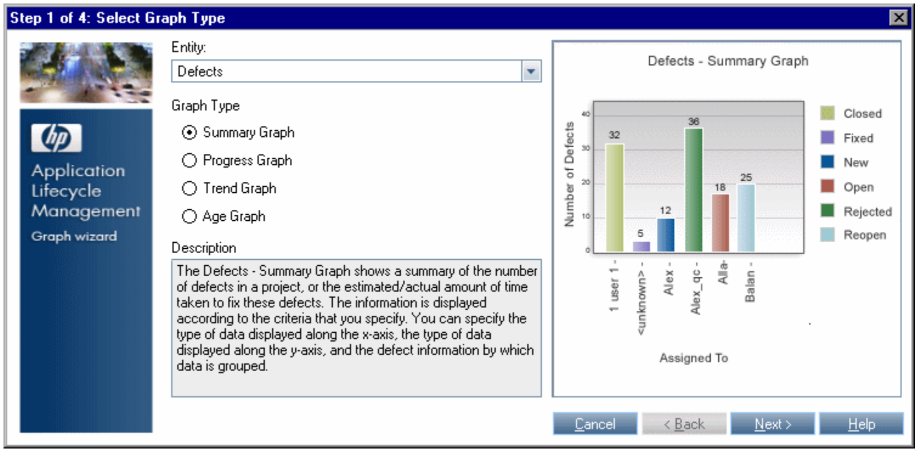
To generate a graph in the Analysis View module:

1 Make sure the Analysis View module is displayed.

If the Analysis View module is not displayed, on the ALM sidebar, under **Dashboard**, select **Analysis View**.

2 Open the graph wizard.

Click the **New Item** button and select **Graph Wizard**. The graph wizard opens on the Select Graph Type dialog box.



3 Select the graph type.

a Under **Entity**, select **Defects**.

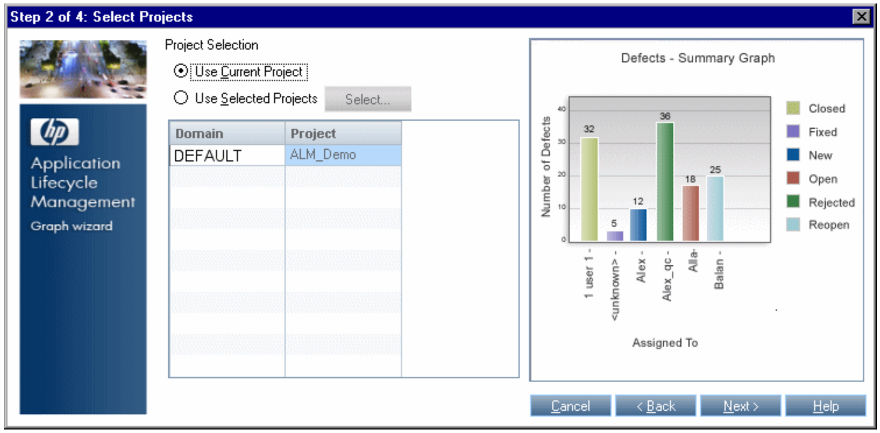
b Under **Graph Type**, make sure **Summary Graph** is selected.

4 Select the projects to include.

Quality Center Starter Edition: If you are using Quality Center Starter Edition, ignore this step.

---

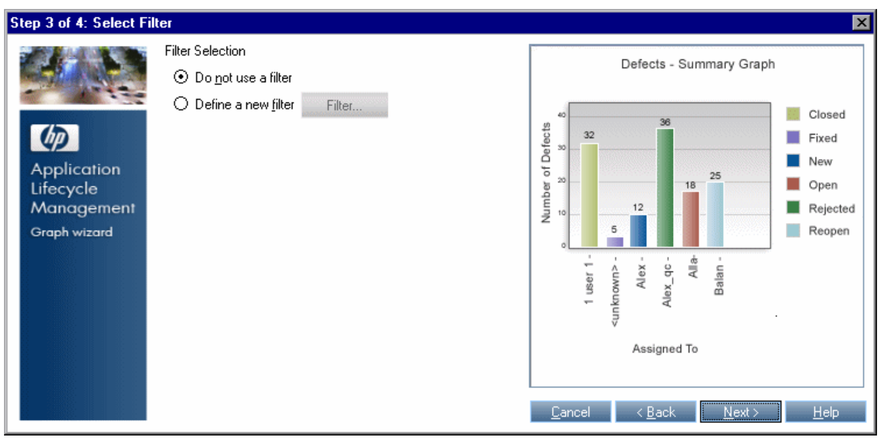
a Click **Next**. The Select Projects dialog box opens.



b You can include data from multiple projects in the graph. For this exercise, we will use only the current project. Make sure **Use Current Project** is selected.

5 Define a filter to view defects with high to urgent priority.

a Click **Next**. The Select Filter dialog box opens.



b Under **Filter Selection**, select **Define a new filter**. Click the **Filter** button. The Filter defects dialog box opens.

c Click the browse button adjacent to the **Priority** field. The Select Filter Condition dialog box opens.

d In the right pane, select the logical expression >=.

e In the left pane, select **3-High**.

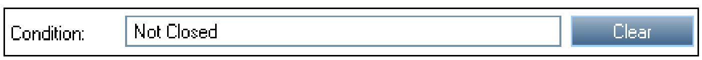
f Click **OK** to close the Select Filter Condition dialog box.

6 Define a filter to view defects that are not closed.

a Click the browse button adjacent to the **Status** field. The Select Filter Condition dialog box opens.

b In the right pane, select the logical expression **Not.**

c In the left pane, select **Closed**.

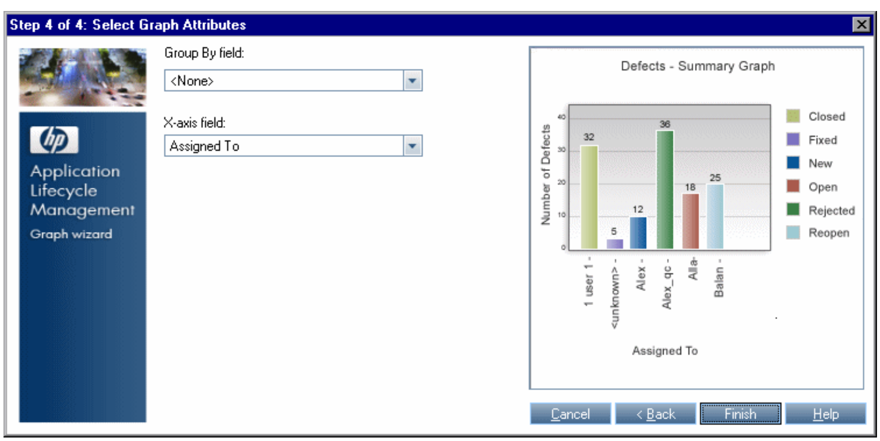


d Click **OK** to close the Select Filter Condition dialog box.

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

7 Set the graph attributes.

a Click **Next**. The Select Graph Attributes dialog box opens.

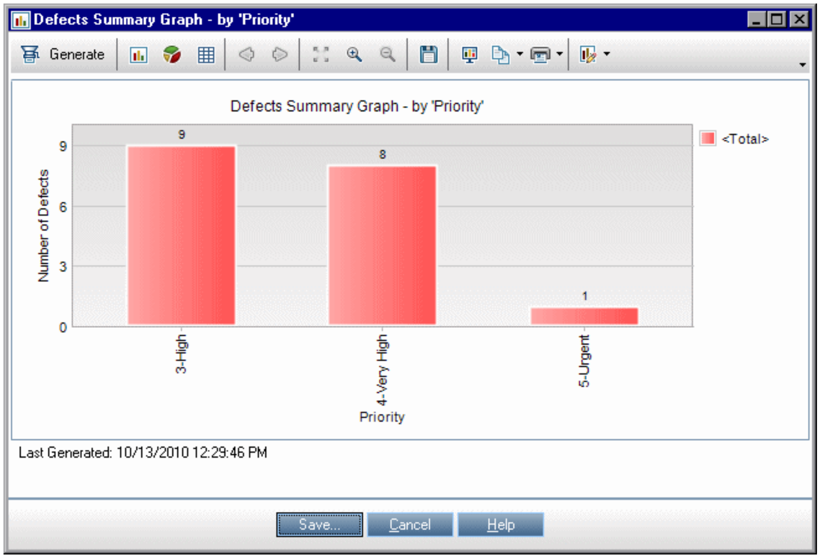


b Under **Group By field**, make sure that it is set to <**None**>.

c Under **X-axis field**, select **Priority** to view the number of defects by priority.

8 Generate the Graph.

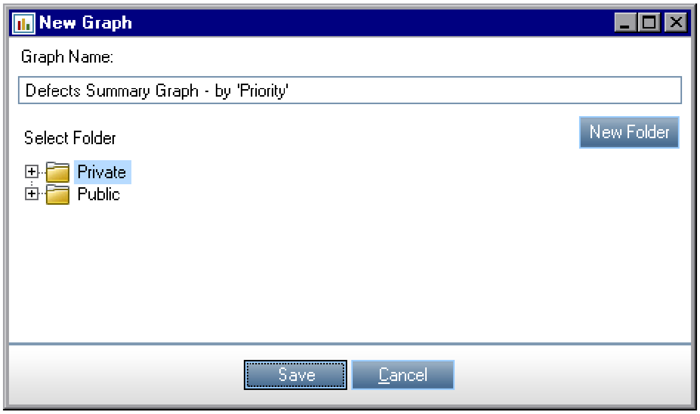
Click **Finish**. The graph is displayed in the graph window.



The graph shows a summary of defects with **High** to **Urgent** priority, whose status is not **Closed**.

9 Save the graph in the Analysis View module.

a Click **Save**. The New Graph dialog box opens.

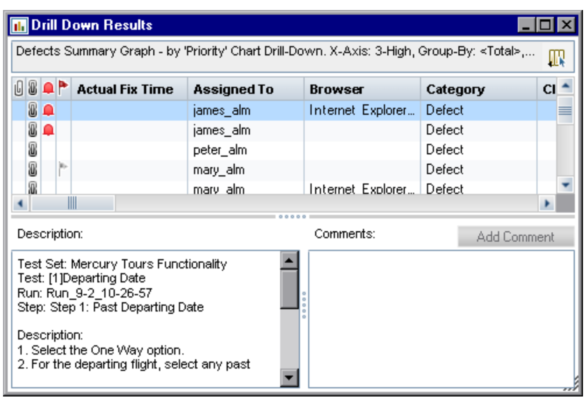


b Expand the **Private** folder, and select **My_Analysis_Items**.

c Click **Save**. The Defects Summary graph is saved in the analysis tree, and displayed in the View tab.

10 Display additional defect details.

a Click a bar in the graph. The Drill Down Results dialog box opens and displays the defects that belong to the bar.



b Close the Drill Down Results dialog box.

11 Display other graph views.

a Click the **Pie Chart** button to display the graph as a pie chart.

b Click the **Data Grid** button to display the data as a grid.

Generating Predefined Graphs

You can create predefined graphs during your work in the Requirements, Test Plan, Test Lab, Business Components, and Defects modules. Predefined graphs enable you to create several types of graphs in each module, using the existing module filter. You can use predefined graphs for one-time reference, or save them in the Analysis View module, where you can continue to configure their data and appearance.

In this exercise, you will generate a summary graph from the Defects module.

To generate a predefined graph:

1 Display the Defects module.

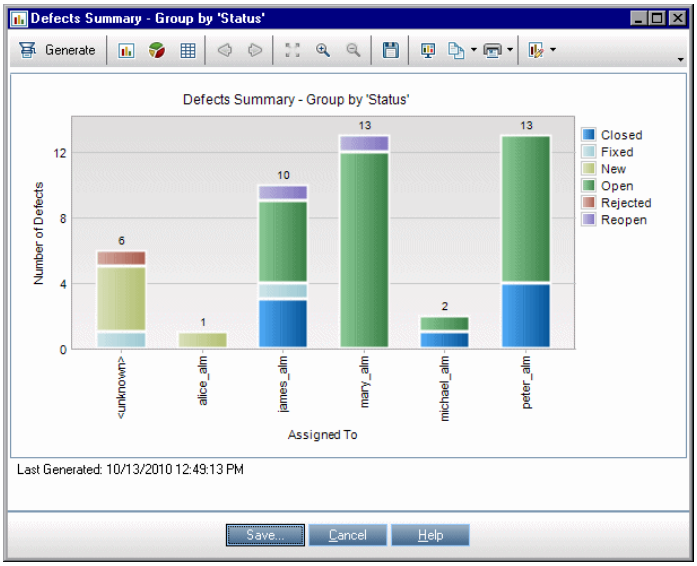
On the ALM sidebar, select **Defects**.

2 Clear the Defects grid filter.

Click the **Set Filter/Sort** arrow, and choose **Clear Filter/Sort** to clear the filter that is applied to the grid.

3 Generate a report.

Choose **Analysis** > **Graphs** > **Defects Summary - Group by Status**. The graph window opens, displaying the selected graph.



The graph shows the number of defects that exist in your project, according to the people to whom they are assigned. Defects in the graph's columns are grouped according to their status.

4 Close the graph window.

Click the **Cancel** button.

Sharing Graphs

You can allow ALM users or others to view read-only versions of graphs outside ALM. Each time you access the graph outside ALM, it displays the most up-to-date information.

In this exercise, you will share the Defects Summary graph you created in the Generating Graphs in the Analysis View Module exercise.

To share a graph:

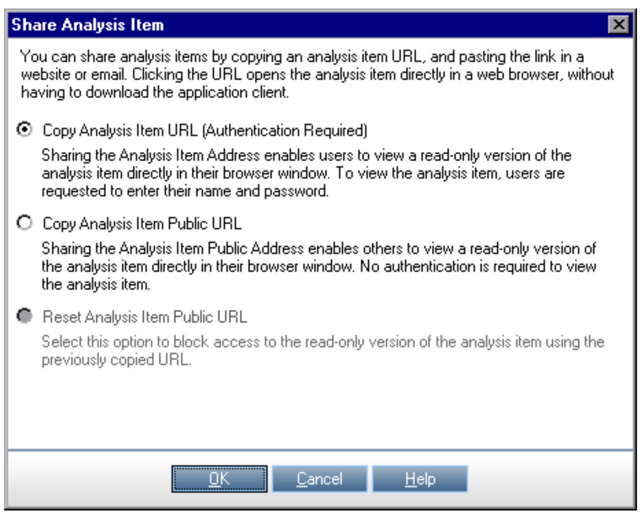
1 Display the Analysis View module.

On the ALM sidebar, under **Dashboard**, select **Analysis View**.

2 Share the Defects Summary graph.

a In the **Private** folder, under **My_Analysis_Items**, select **Defects Summary Graph - by 'Priority'**.

b Right-click the graph, and select **Share Analysis Item**. The Share Analysis Item dialog box opens.



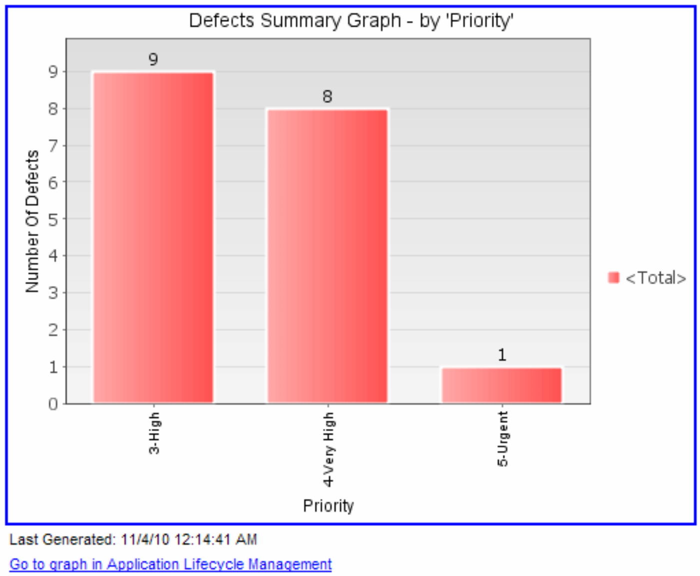
c Select **Copy Analysis Item Public URL**. This option allows others to view the graph without entering ALM user credentials.

d Click **OK**. A URL of the graph is saved to the clipboard.

3 View the graph outside ALM.

a Open a Web browser window.

b In the address bar, paste the clipboard content, and press ENTER. The graph is displayed in the Web browser.



Below the graph, the **Last Generated** date and time is displayed, and a link to the item in ALM.

Generating Dashboard Pages

Using the Dashboard module, you can arrange and view multiple graphs on a single dashboard page. You select the graphs to include in the dashboard page from the graphs in the analysis tree. You can arrange and resize the graphs on the page.

You create dashboard pages in either a public folder or a private folder. Dashboard pages in a **public** folder are accessible to all users. Dashboard pages in a **private** folder are accessible only to the user who created them.

In this exercise, you will create a dashboard page for the defect graphs in the public folder.

To generate a dashboard page:

1 Display the Dashboard View module.

On the ALM sidebar, under **Dashboard**, select **Dashboard View**.

2 Add a page to the Public folder.

a In the tree, select the **Public** folder.

b Click the **New Page** button. The New Dashboard Page dialog box opens.

c In the **Dashboard Page Name** field, type Summary of Defects page.

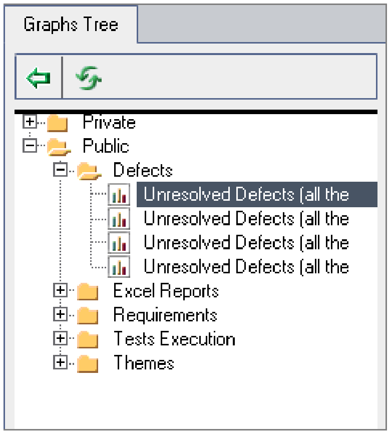
d Click **OK**. A dashboard page is added to the dashboard tree under the Public folder.

3 Select the graphs that you want to include in the dashboard page.

a Click the **Configuration** tab.

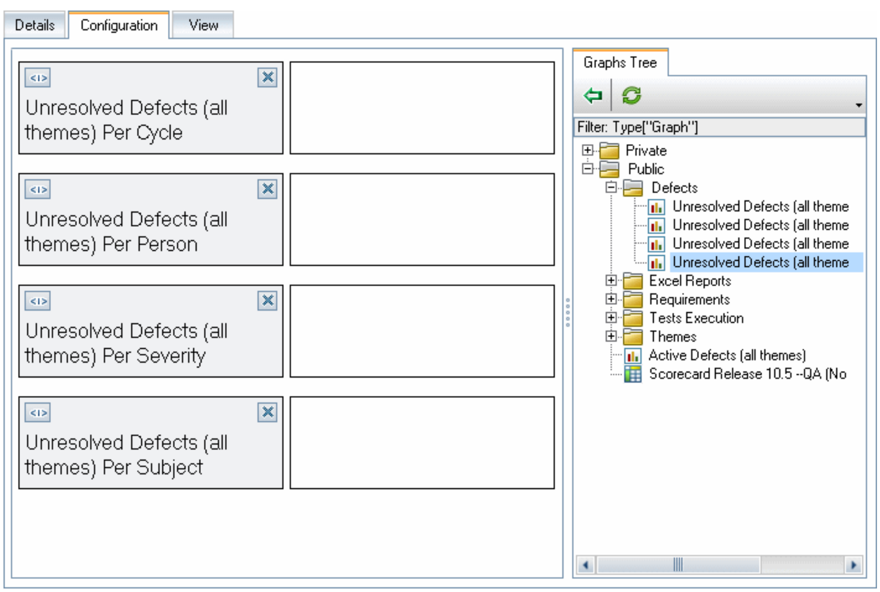
b In the Graphs Tree pane, expand the **Public** folder.

c Expand the **Defects** folder. The folder includes four graphs.



d Double-click the first graph. A placeholder for the graph is created in the Configuration tab displaying the graph's title.

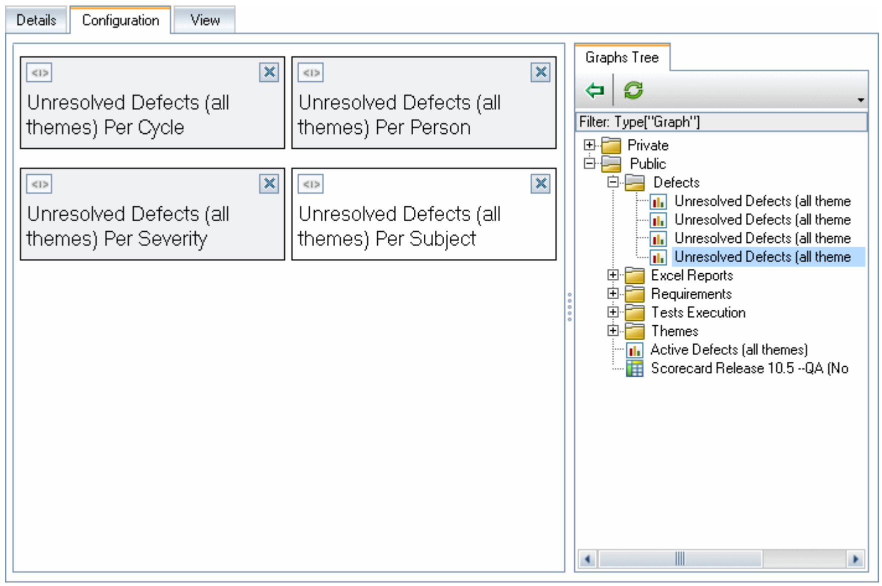
e Add the other three graphs to the dashboard page.



4 Rearrange the dashboard page.

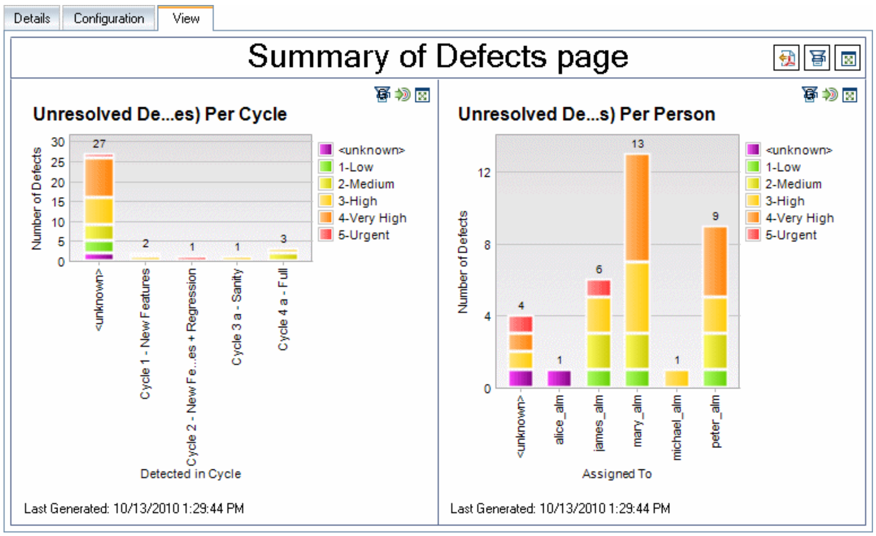
a Select the second placeholder and drag it upwards so that it is alongside the first placeholder.

b Select the fourth placeholder and drag it upwards so that it is alongside the third placeholder.



5 View the dashboard page.

a Click the **View** tab. ALM generates and displays the graphs in the View tab.



The dashboard page displays the unresolved defects per cycle, per person, per severity, and per subject.

b To view the dashboard page in full-screen mode, click the **View Page in Full Screen** button, located in the upper-right corner of the page.

c To return to the standard view, click the close button, located in the upper-right corner of the page.

9

Creating Libraries and Baselines

A **library** represents a set of entities in a project and the relationships between them. The entities in a library can include requirements, tests, test resources, and business components. A **baseline** is a snapshot of the library at a specific point in time. Baselines enable you to keep track of changes made to your project over time.

You create libraries in the Libraries module.

You can compare baselines at all stages of the application lifecycle management process. For example, you can compare two baselines in a library to review changes made to tests in the library over time. You can also compare a baseline to the current entities in the library.

In this lesson, you will create a library of tests and requirements. You will then compare two baselines in the library to review changes made to tests in the library over time.

Quality Center Starter Edition: This lesson is not available for Quality Center Starter Edition.

In this lesson, you will learn about:

Creating Libraries

In this exercise, you will add a library of tests and requirements to ALM. To perform this exercise you must log in as alex_alm.

To create a library:

1 Make sure to log in to ALM_Demo as alex_alm.

Open the HP ALM Login window. In the **Login Name** box, type **alex_alm**. Skip the **Password** box.

For more information, see "Starting ALM" on page 18.

2 Display the Libraries module.

On the ALM sidebar, under **Management**, select **Libraries**.

3 Create a library folder.

a In the libraries tree, select the root **Libraries** folder. Click the **New Folder** button. The New Library Folder dialog box opens.

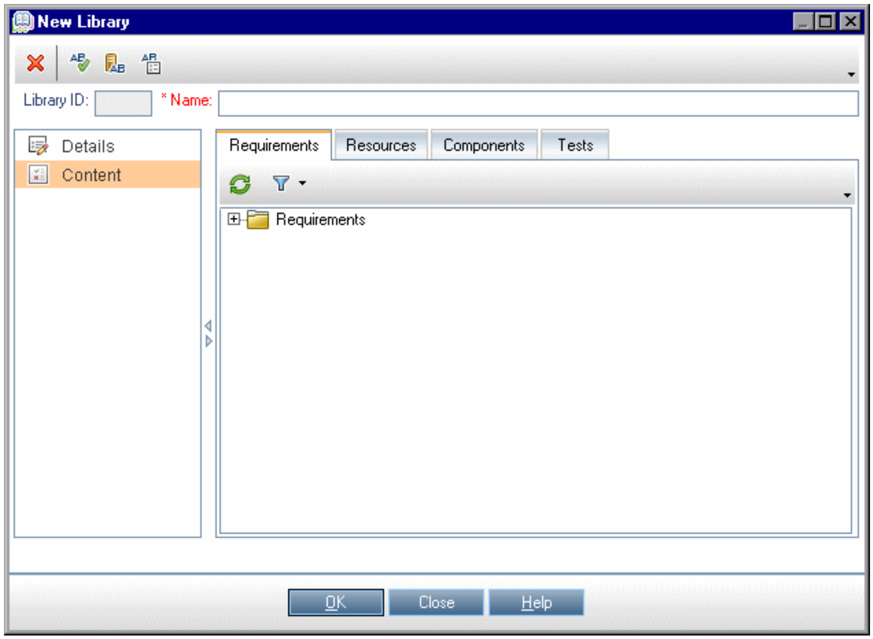
b In the **Library Folder Name** box, type Folder1.

c Click **OK**. The **Folder1** folder is added to the libraries tree.

d In the **Description** box in the right pane, type the following description for the library folder: This folder contains a library of tests and requirements.

4 Add a library to your library folder.

a Click the **Create Library** button. The New Library dialog box opens on the Content page.



b In the **Name** box, type Library1.

c In the **Requirements** tab, expand the **Requirements** root folder. Select the check box adjacent to the **Mercury Tours Application** folder, to include the folder in the library.

d Click the **Tests** tab. Make sure the **Tests in selected folders** option is selected. Expand the **Subject** root folder, and select the **Mercury Tours Site** folder to include in the library.

e Click **Details** on the sidebar. In the **Description** box, type This library includes tests and requirements.

f Click **OK**. The new library is added to the libraries tree.

Creating Baselines

A baseline is a snapshot of your library at a specific point in time. You can use a baseline to mark any significant milestone in the application lifecycle management process. A baseline includes all the entities defined in the library, including requirements, tests, test resources, and business components. Baselines also include the relationships between the entities in the library, such as traceability and coverage. Baselines enable you to keep track of changes made to your project over time.

In the following exercise, you will create an initial baseline that will later be compared to another baseline to evaluate the impact of changes.

To create a baseline:

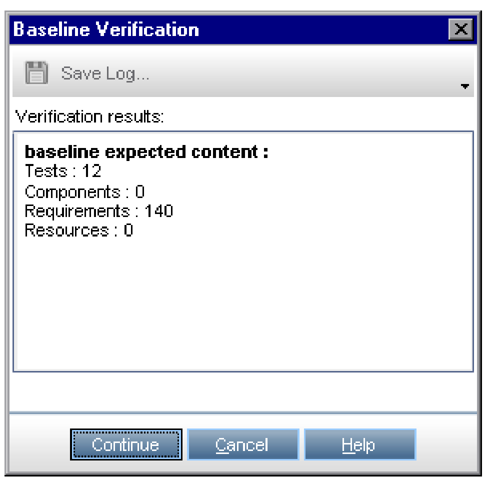
1 Make sure the Libraries module is displayed.

If the Libraries module is not displayed, on the ALM sidebar, under **Management**, select **Libraries**.

2 Add a baseline to your library.

a In the libraries tree, select the **Library1** library.

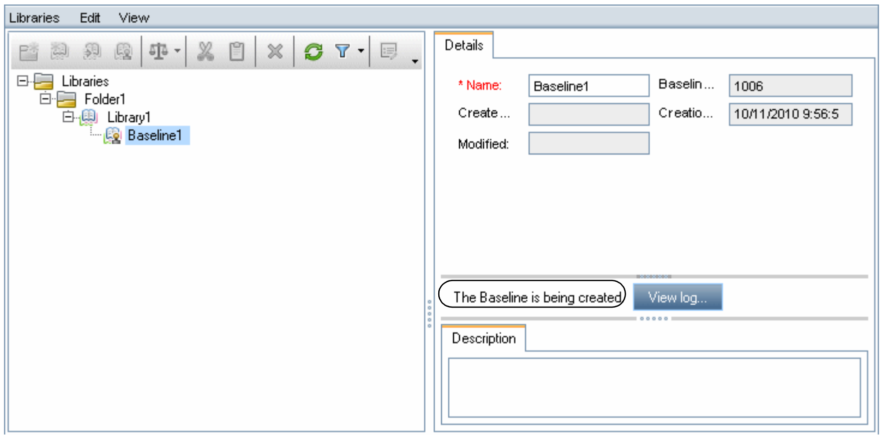
b Click the **Create Baseline** button. The Baseline Verification dialog box opens, and a verification process begins.



The Verification results window displays the results of the library size verification. The process checks that the size of the library does not exceed the limit defined in Site Administration.

c Click **Continue**. The New Baseline dialog box opens.

d In the **Baseline Name** field, type Baseline1. Click **OK**. The baseline is added to the libraries tree, and the creation process begins.



The baseline is created in a background process, and may take some time. You can continue working in ALM during the baseline creation process.

e In the Details tab, click the **Description** pane and type Baseline of tests and requirements.

3 View the baseline log file.

In the Details tab, click the **View Log** button. The Log: Create Baseline dialog box opens and displays progress. Click **Close** to close the dialog box.

The **View Log** button is no longer displayed.

Comparing Baselines

You can compare two baselines in a library. For example, you can compare baselines at different stages of development to assess the impact of changes made to requirements in your project. You can then update the relevant tests in your project accordingly.

You can also compare a baseline to the current entities in the library. For example, suppose you create a baseline at the start of a new release. Over time, changes are made to requirements in the library. To determine whether product development is proceeding as planned, you can compare requirements in the initial baseline with the current requirements in the library.

In the following exercise, you will add test coverage to a requirement and then create another baseline. You will then compare your two baselines to evaluate the impact of the changes.

To compare baselines:

1 Modify a requirement.

a On the ALM sidebar, under **Requirements**, select **Requirements**.

b Select **View** > **Requirement Details**.

c In the requirements tree, under **Mercury Tours Application**, expand **Application Usability**. Select **Keyboard Support**.

d Click the **Test Coverage** tab. The Test Coverage tab displays coverage for this requirement.

e If the Test Plan Tree tab on the right is not displayed, click the **Select Tests** button.

f In the Test Plan Tree tab, expand the **Mercury Tours Site** and **HTML Pages** subject folders.

g Double-click the **HTML Page Source** test. The test is added to the coverage grid.

2 Create a new baseline.

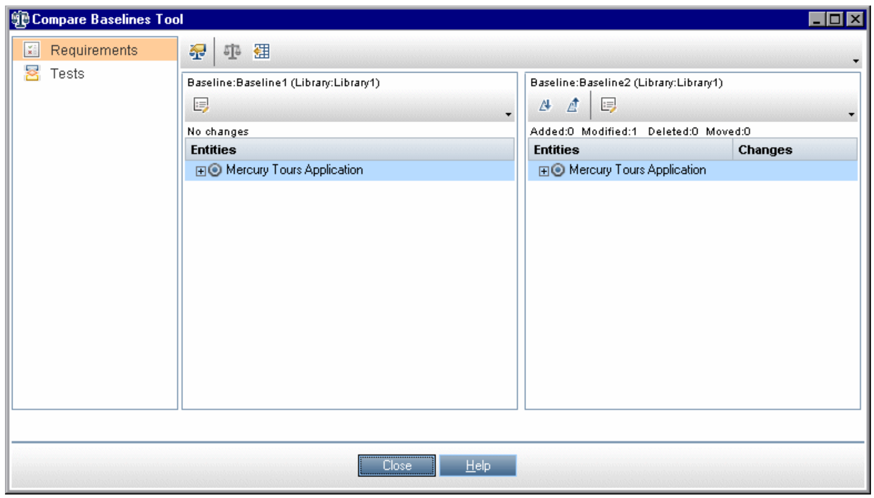
Repeat Steps 1 and 2 on page 168. Name your new baseline Baseline2.

3 Select a baseline with which to compare.

a In the libraries tree, select **Baseline1**. Click the **Compare To** button, and select **Select Baseline** to compare the baseline with another baseline. The Select Baseline dialog box opens.

b Click the arrow and select **Baseline2** from the list. Click **OK**.

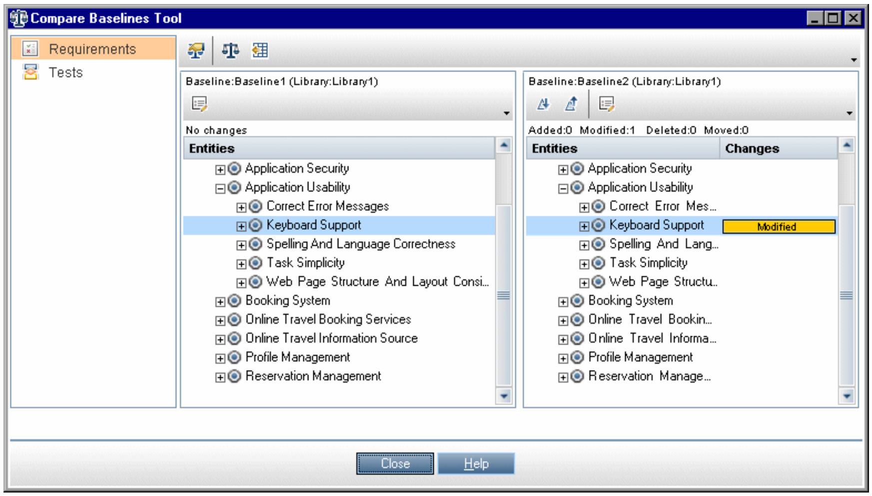
c Click **OK** to close the Select Baseline dialog box. Click **Yes** to close the Warning dialog box. The Compare Baselines Tool dialog box opens.



The baselines are displayed in separate panes, with the more recently created baseline displayed in the right pane. In each pane, the library's entities are displayed in the same hierarchical tree structure as defined in the specific module.

4 View requirement changes between the baselines.

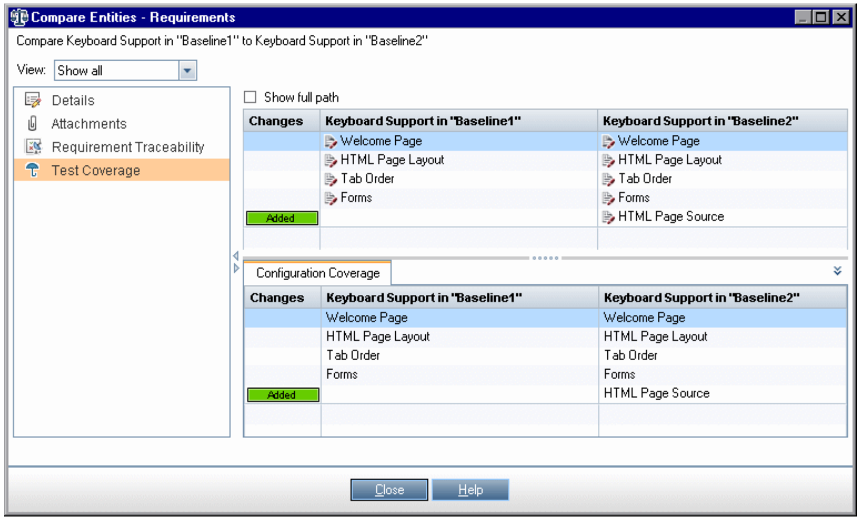
a Click the **Go To Next Change** button in the right pane to view the change.



Differences between the two baselines are indicated in the **Changes** column. The tool indicates that there is a difference in the **Keyboard Support** requirement between the baselines.

b To compare the modified requirement between baselines, select **Keyboard Support** and click the **Compare Entities** button on the toolbar. The Compare Entities dialog box opens.

c Click the **Test Coverage** button on the sidebar.



The Test Coverage view displays details of the entity in each baseline.

d Click **Close**.

10

Customizing Projects

In the previous lessons, you learned how to use HP Application Lifecycle Management (ALM) to help you manage all phases of the application lifecycle management process, including specifying releases and cycles, specifying requirements, planning tests, running tests, and tracking defects.

In this lesson, you will learn how to customize your ALM project to meet the needs of your team. You can control access to a project by defining the users who can access the project and by specifying the types of tasks each user can perform. When new members are added to your team, you assign them to the projects that they will be using, and specify the tasks that they can perform.

You can also customize your ALM project by modifying system fields or by adding user-defined fields. **System fields** are ALM default fields. You cannot add or delete system fields, you can only modify them. **User fields** are fields that you can define. You can add, modify, and delete user-defined fields.

Fields can be associated with system and user-defined lists. A list contains the values that the user can enter in a field. For example, if you are running tests on two different database servers, you can add a **Database** field to your project. You can then create a selection list containing the values **Oracle** and **Microsoft SQL**, and associate the list with the **Database** field.

In this lesson, you will learn about:

Starting Project Customization

You customize your ALM projects using the Project Customization window. In this exercise, you will log in to the Project Customization window with project administrator privileges.

To start project customization:

1 Open the HP ALM Login window.

Make sure that the ALM Login window is open. For more information, see "Starting ALM" on page 18.

2 Type a user name with project administrator privileges and authenticate.

a In the **Login Name** box, type **alex_alm**.

b Skip the **Password** box. A password was not assigned to this user name.

c Click the **Authenticate** button. ALM verifies your user name and password and determines which domains and projects you can access.

3 Log in to the project.

a In the **Domain** list, select **Default**.

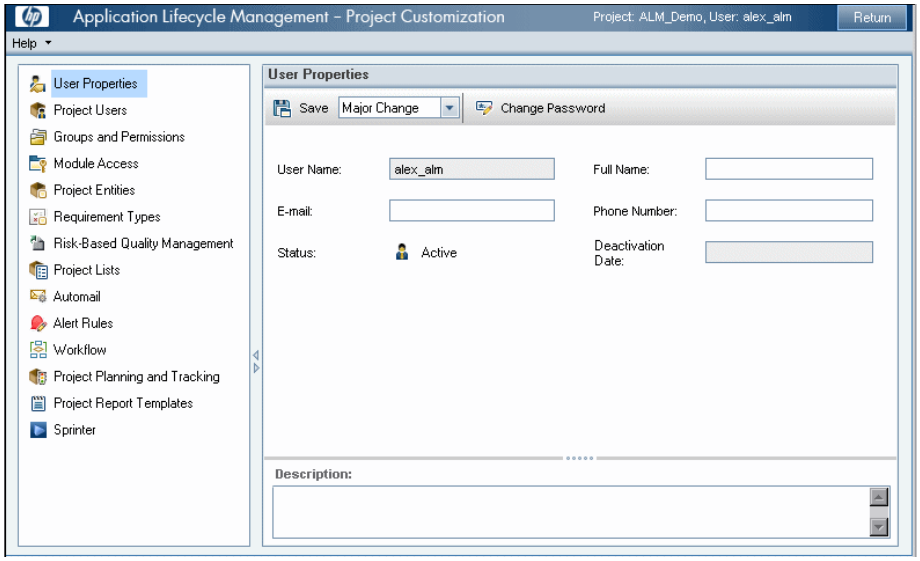
b In the **Project** list, select **ALM_Demo**.

c Click the **Login** button.

The ALM main window opens and displays the module in which you were last working.

4 Open the Project Customization window.

Choose **Tools** > **Customize** on the ALM masthead. The Project Customization window opens.



By default, the Project Customization window contains the following links:

Option	Description
User Properties	Enables you to change your user properties. For example, you can change your email address. You can also change your password.
Project Users	Enables you to add and remove users from an ALM project. You can also assign users to user groups to restrict user access privileges.
Groups and Permissions	Enables you to assign privileges to user groups by specifying permission settings.
Module Access	Enables you to control the modules that each user group can access. By preventing users from accessing unnecessary modules, you can better utilize your ALM licenses.

Option	Description
Project Entities	Enables you to modify the behavior of ALM system fields or define user-defined fields that are unique to your project. For example, if you are running tests on several builds of an application, you can add a **Detected in Build** user-defined field to the New Defect dialog box. You can then associate it with a selection list containing the values for this field.
Requirement Types	Enables you to customize the definitions for requirement types. **Quality Center Starter Edition:** This option is not available for Quality Center Starter Edition.
Risk-Based Quality Management	Enables you to customize settings for risk-based quality management. **Quality Center Starter Edition:** This option is not available for Quality Center Starter Edition.
Project Lists	Enables you to add customized lists to a project. A list contains values that the user can enter in system or user-defined fields. For example, for the **Detected in Build** field, you can create a selection list containing the values **Build1**, **Build2**, and **Build3**.
Automail	Enables you to set up automatic mail notification rules to inform users via email each time changes are made to specified defects.
Alert Rules	Enables you to activate alert rules for your project. This instructs ALM to create alerts and send emails when changes occur in the project.
Workflow	Enables you to generate scripts that perform commonly needed customizations on dialog box fields in the Defects module. In addition, you can write scripts to customize dialog boxes in other modules, and control the actions that users can perform.

Option	Description
Project Planning and Tracking	Enables you to create and customize the project planning and tracking (PPT) KPIs. **ALM Editions:** The Project Planning and Tracking link in Project Customization is not available for Quality Center Starter Edition and Quality Center Enterprise Edition.
Project Report Templates	Enables you to create and customize report templates that project users can assign to template based reports.
Sprinter	Enables you to configure settings for working with HP Sprinter for manual testing in ALM. **ALM Editions:** The Sprinter link in Project Customization is not available for Quality Center Starter Edition and Performance Center Edition.

Adding a New Project User

You can control access to an ALM project by defining the users who can log in to the project, and by specifying the types of tasks each user may perform.

For each project, you select project users from the ALM site users list. This list is created in Site Administration.

From Project Customization, you add users to a project and assign them to user groups. Each user group has access to certain ALM tasks.

In this exercise, you will add a new project user to the **ALM_Demo** project.

Note: For the purpose of the exercise, we will first remove a user from the project, and then add the user to the project again.

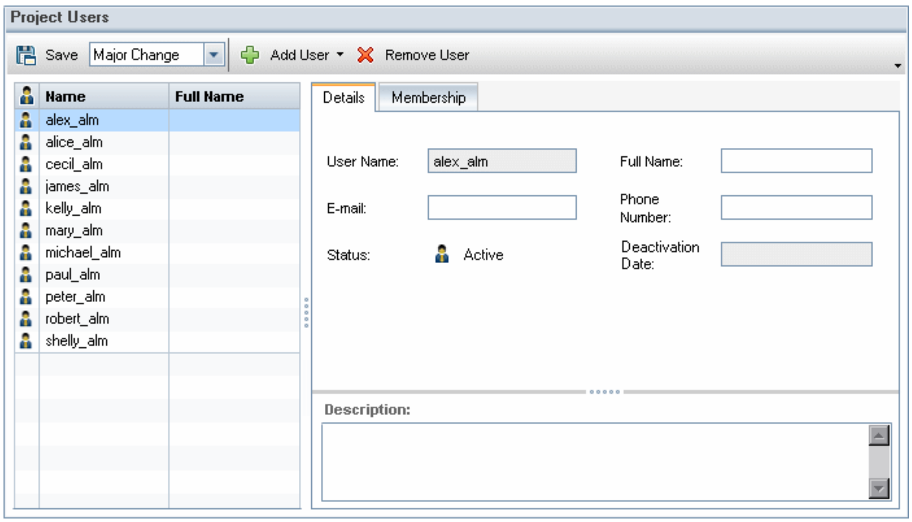
To add a new project user:

1 Make sure that you are logged in to ALM as a project administrator.

For more information on how to open the Project Customization window, see "Starting Project Customization" on page 176.

2 Open the Project Users page.

In the Project Customization window, click the **Project Users** link. The Project Users page opens and displays a list of users that have been assigned to the project.



3 Remove a user.

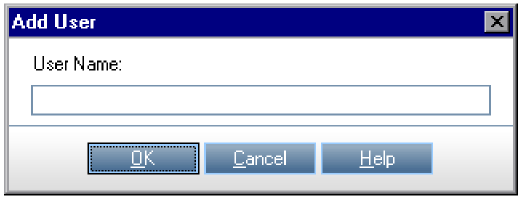
In the Project Users list, select **cecil_alm**, and click **Remove User**. Click **Yes** to confirm.

4 Add a new user name.

a Click the **Add User** arrow.

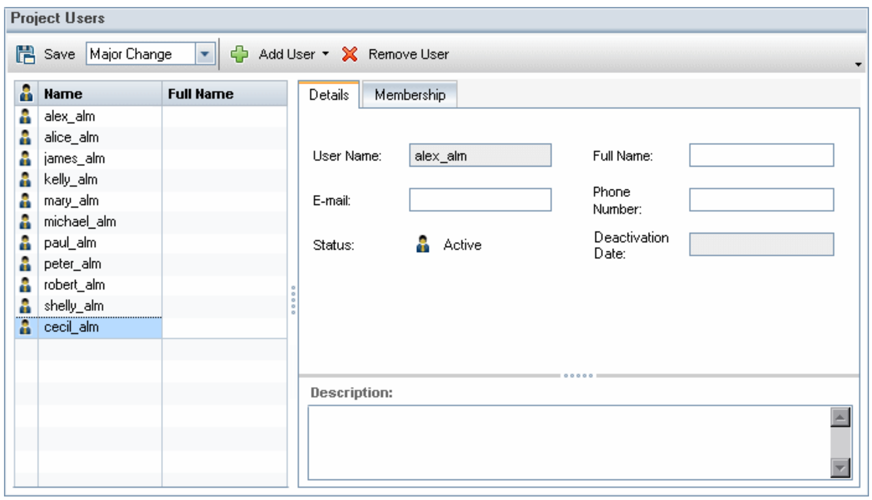
You can add an existing user from the list of site users by typing the user's name or by selecting the user from the list of site users. You can also create a new user and add the new user to the project.

b Select **Add User by Name**. The Add User dialog box opens.



c In the **User Name** box, type **cecil_alm** and click **OK**.

The new user is added to the Project Users list and the user properties are displayed in the Details tab. User personal settings are defined in Site Administration.



Assigning a User to a User Group

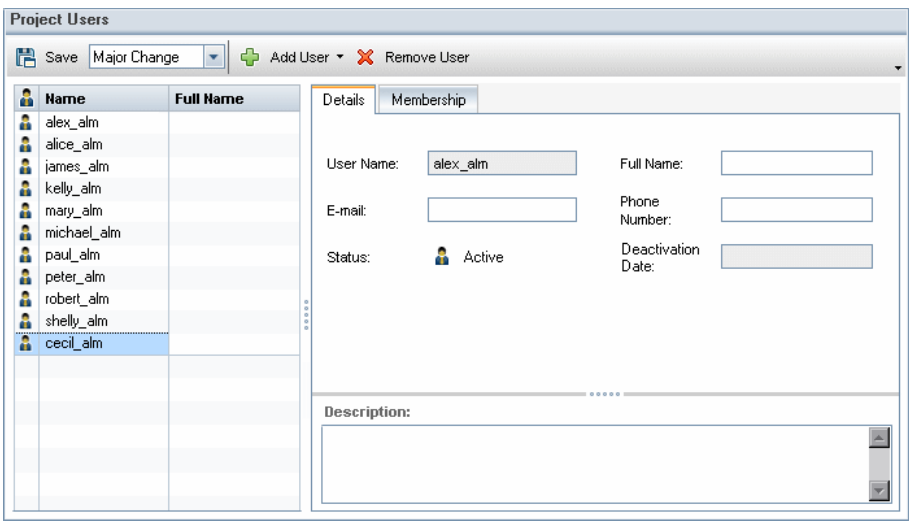
To enable users to do their job, and to protect a project from unauthorized access, ALM enables you to assign each user to a specific user group. Each group has access to certain ALM tasks. You can use the predefined user groups with their default permissions or you can customize your own user groups with unique sets of permissions.

In this exercise, you will assign the new user **cecil_alm** to the **QATester** user group.

To assign a user to a user group:

1 Make sure that the Project Users page is displayed.

If the Project Users page is not already open, click the **Project Users** link in the Project Customization window.

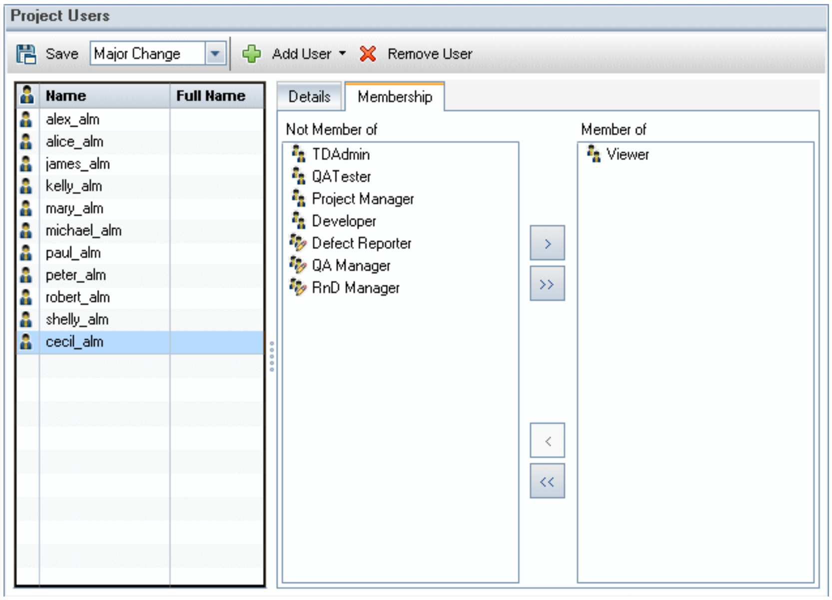


2 Select cecil_alm from the Project Users list.

In the **Project Users** list, select **cecil_alm**.

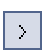
3 Display user's membership in user groups.

Click the **Membership** tab. The user groups that cecil_alm belongs to and does not belong to are displayed.



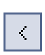
By default, a new user is assigned to the **Viewer** user group.

4 Assign cecil_alm to the QATester group.



Under **Not Member of**, select **QATester** and click the right arrow button to move the group to **Member of**.

5 Remove cecil_alm from the Viewer group.



a Under **Member of**, select **Viewer** and click the left arrow button to move the group to **Not Member Of**.

b Click **Save** to save the changes to the Project Users page. Click **OK**.

Defining a User-Defined Field

You can define user-defined fields that are unique to your project, or modify the behavior of ALM system fields.

The fields are stored in ALM project entities. For example, the Defect entity contains data entered in the Defects module.

In the following exercise, you will add the **Database** user-defined field to the **Defect** entity. This field indicates the server database in use when testing an application.

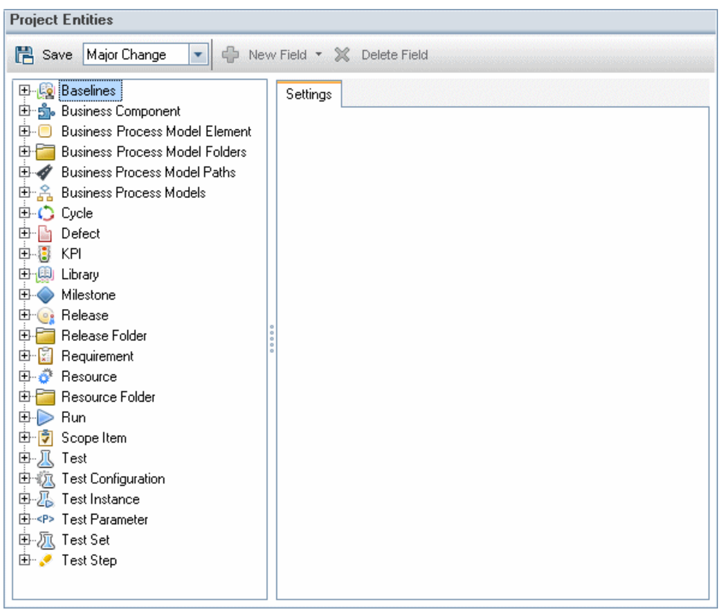
To add a user-defined field:

1 Make sure that the Project Customization window is displayed.

For more information on how to open the Project Customization window, see "Starting Project Customization" on page 176.

2 Open the Project Entities page.

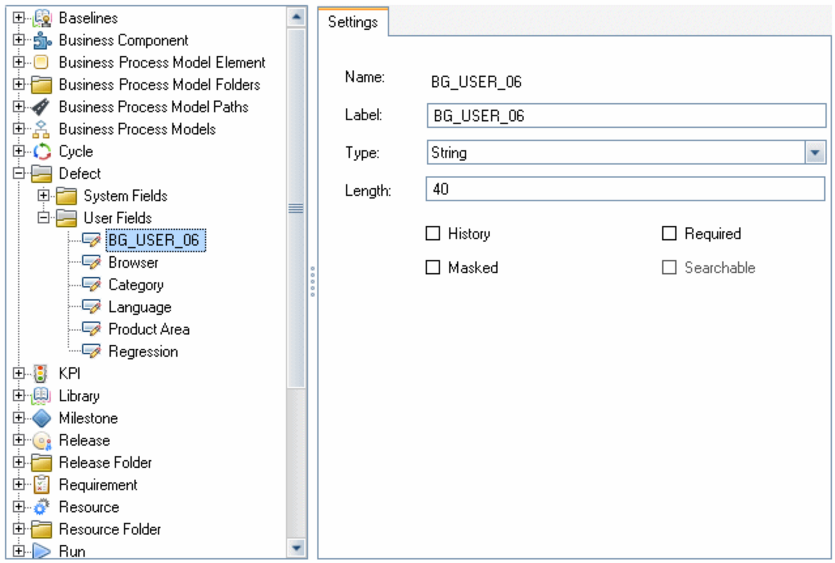
In the Project Customization window, click the **Project Entities** link. The Project Entities page opens.



3 Add a new user-defined field to the Defect entity.

a Under **Project Entities**, expand **Defect**.

b Click the **User Fields** folder and click the **New Field** button. A new field is added under the User Fields folder.



BG_USER_nn indicates a user-defined field under the Defect entity.

4 Rename the default field name.

a In the **Label** box, instead of the default name, type Database.

b Click **Save**.

c Click **OK**.

Creating a Project List

You can associate fields with system and user-defined lists. A list contains values that the user can enter in a field.

In the previous exercise you added the Database field. In the following exercise you will create a list and assign it to the Database field. You will then open the New Defect dialog box to view the new field.

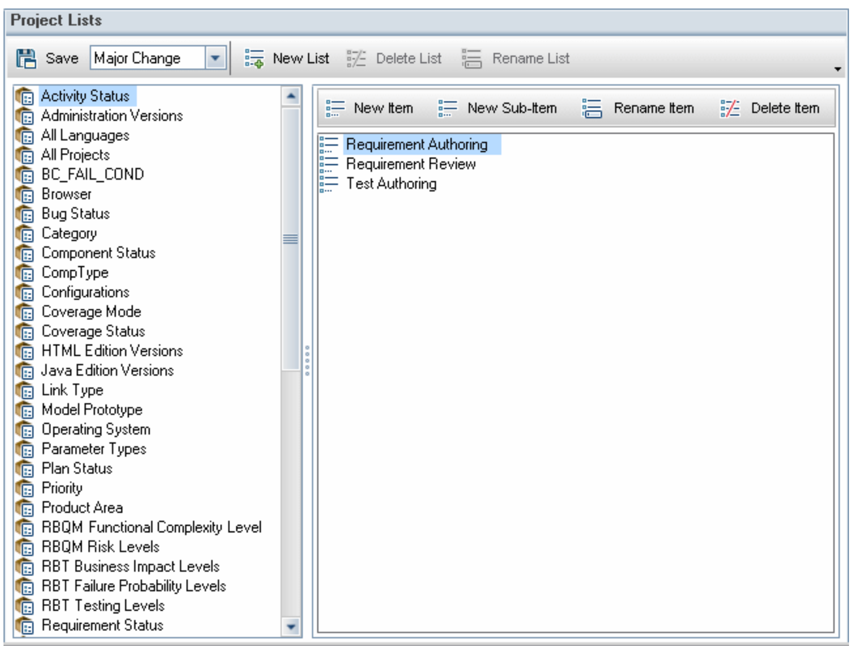
To create a project list:

1 Make sure that the Project Customization window is displayed.

For more information on how to open the Project Customization window, see "Starting Project Customization" on page 176.

2 Open the Project Lists page.

In the Project Customization window, select the **Project Lists** link. The Project Lists page opens.



3 Create a new list.

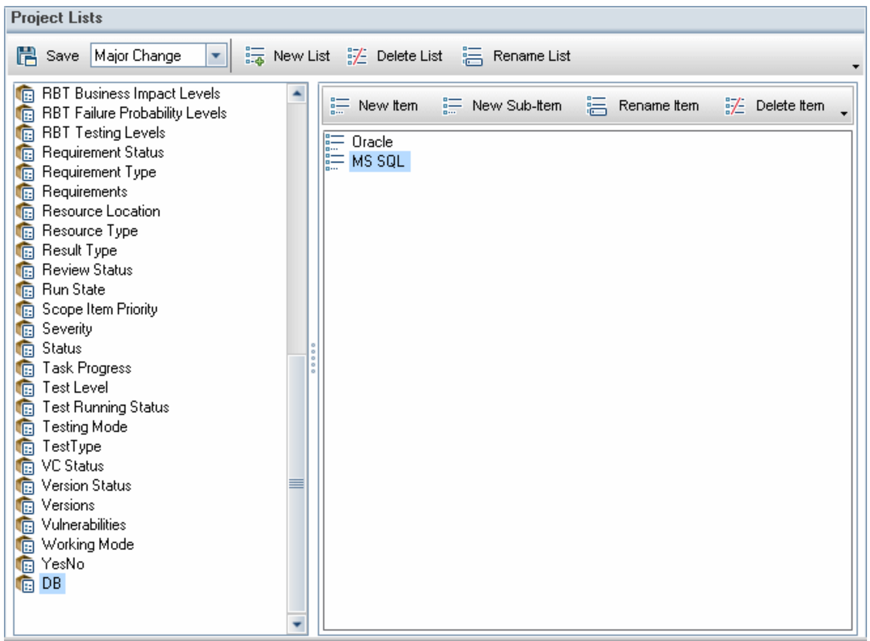
a Click **New List**. The New List dialog box opens.

b In the **List Name** box, type DB. Click **OK** to close the New List dialog box.

4 Add Items to your list.

a Click **New Item**. The New Item dialog box opens. Type Oracle and click **OK**.

b Repeat the same procedure and add **MS SQL** to the DB list.



c Click **Save** to save the changes to the Project Lists page. Click **OK**.

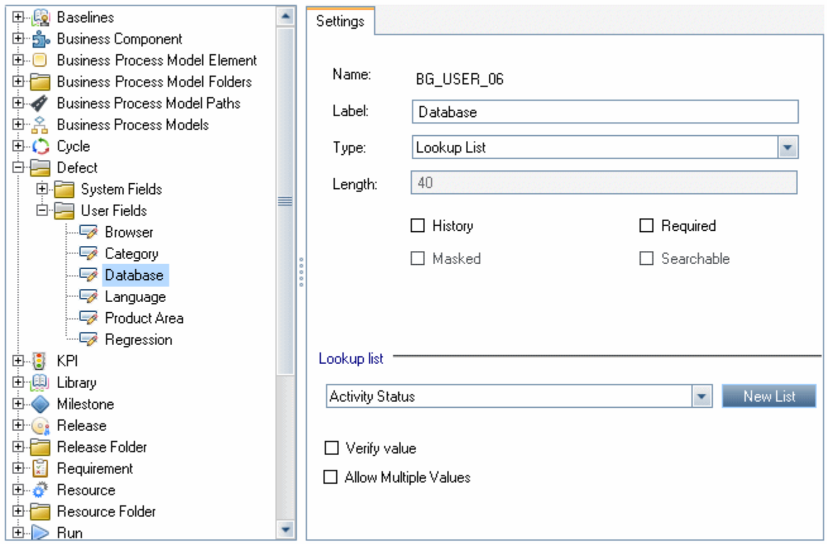
5 Assign the list to the Database field.

a In the Project Customization window, click the **Project Entities** link. The Project Entities page opens.

b Under **Project Entities**, expand **Defect**.

c Expand the **User Fields** folder and select **Database**.

d Under **Settings**, in the **Type** list, select **Lookup List** to set the field type as a drop-down list. The **Lookup list** section is displayed below the field settings.



e Under **Lookup List**, select the **DB** list.

f Click **Save** to save the changes to the Project Entities page. Click **OK**.

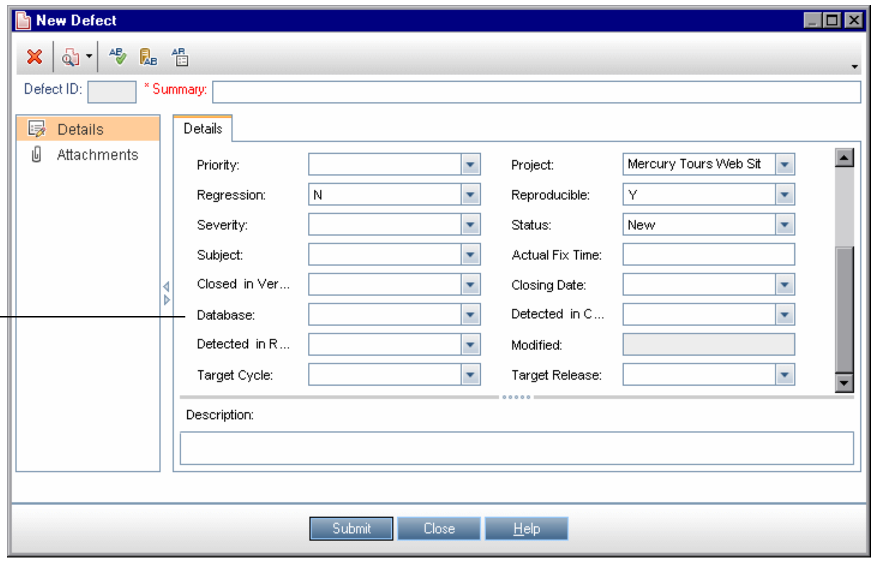
6 View the new user-defined field in the New Defect dialog box.

a Click the **Return** button located on the upper-right corner of the window.

b In the Customization Changes dialog box, select **Major Change**, and click **OK**. The Project Customization window closes, and you return to your ALM project.

c In the Defects module, click the **New Defect** button. The New Defect dialog box opens.

New user-defined field



The **Database** field is displayed in the New Defect dialog box. You may need to drag the scroll bar down to display the field.

d Click the down arrow and view the database types you defined. Click **Close**.

11

Conclusion

ALM helps you organize and manage all phases of the application lifecycle management process, including defining releases, specifying requirements, planning tests, executing tests, and tracking defects. Throughout each phase, you can analyze data by generating detailed reports and graphs.

Phase	Description
Release Specifications	Develop a release-cycle management plan to help you manage application releases and cycles more efficiently. You can track the progress of an application release against your plan to determine whether your release is on track.
Requirement Specifications	Define requirements to meet your business and testing needs. You can manage the requirements and conduct multi-dimensional traceability between requirements, tests and defects, across multiple releases and cycles. ALM provides real-time visibility of requirements coverage and associated defects to evaluate quality and business risk.
Test Planning	Based on the project requirements, you can build test plans and design tests. ALM provides a repository for both manual and automated tests.

Phase	Description
Test Execution	Create a subset of the tests in your project designed to achieve specific test goals. ALM supports sanity, functional, regression, and advanced testing. Execute scheduled tests to diagnose and resolve problems.
Defect Tracking	Submit defects and track their repair progress. Analyzing defects and defect trends helps you make effective “go/no-go” decisions. ALM supports the entire defect lifecycle—from initial problem detection through fixing the defect and verifying the fix.