



Using Quality Center 9.2 Exercises

Lesson 2 - Creating a Release Tree

The software development team of your organization has developed release 4.0 of the Flight Reservation application. You now need to test the application to verify the new features, existing functionality, sanity, and performance of the Create Order business process. Each of these metrics is tested within a separate testing cycle. The total available testing time is 90 days.

To test the application, you define the following testing cycles:

1. Cycle 1 - New Features: This cycle tests the new features in release 4.0 of the Flight Reservation application. The duration of this cycle is 30 days.
2. Cycle 2 - Defect Fix Verification + Regression: This cycle ensures that all defects logged in the first testing cycle are verified and that no new defects are introduced. The duration of this cycle is 20 days.
3. Cycle 3 - Regression Defect Fix Verification + Sanity: This cycle ensures that all defects logged during regression testing are verified. In addition, the cycle tests the functionality of the Flight Reservation application. The duration of this cycle is 20 days.
4. Cycle 4 - Performance: This cycle ensures that the Create Order business process executes within 5 seconds. The duration of this cycle is 20 days.

In this exercise, you perform the following tasks:

Part 1: Create a release.

Part 2: Create cycles within a release.

Part 3: Specify cycle details.

Part 1: Create a Release

To create a release tree:

1. Log on to the FLIGHTAPPLICATION Quality Center project in the TRAINING domain using **training** as the user name and **welcome** as the password.
2. On the Quality Center sidebar, click the **RELEASES** module.
3. On the toolbar, click the **NEW RELEASE FOLDER** button. The NEW RELEASE FOLDER dialog box appears.

4. In the **RELEASE FOLDER NAME** field, type **SOFTWARE DEVELOPMENT** and click **OK** to create the LoB.
5. On the toolbar, click the **NEW RELEASE FOLDER** button. The **NEW RELEASE FOLDER** dialog box appears.
6. In the **RELEASE FOLDER NAME** field, type **FLIGHT RESERVATION** and click **OK** to create the application folder.
7. On the toolbar, click the **NEW RELEASE** button. The **NEW RELEASE** dialog box appears.
8. In the **NEW RELEASE** dialog box, in the **RELEASE NAME** field, type **RELEASE 4.0**.
9. Click **OK** to close the **NEW RELEASE** dialog box. The new release appears in the release tree under the **RELEASES** folder.

Note: After creating a release, you define requirements in the **REQUIREMENTS** module. After defining requirements, you navigate to the **RELEASES** module and create cycles to test requirements. However, for the purpose of this exercise, we create cycles before defining requirements.

Part 2: Create Cycles Within a Release

To create cycles within a release:

1. On the toolbar, click the **NEW CYCLE** button. The **NEW CYCLE** dialog box appears.
2. In the **NEW CYCLE** dialog box, in the **CYCLE NAME** field, type **CYCLE 1 - NEW FEATURES**.
3. Click **OK** to close the **NEW CYCLE** dialog box.
4. From the release tree, select **RELEASE 4.0**.
5. On the toolbar, click the **NEW CYCLE** button. The **NEW CYCLE** dialog box appears.
6. In the **NEW CYCLE** dialog box, in the **CYCLE NAME** field, type **CYCLE 2 - DEFECT FIX VERIFICATION + REGRESSION**.
7. Click **OK** to close the **NEW CYCLE** dialog box.
8. Repeat steps 4 through 7 to add the **CYCLE 3 - REGRESSION DEFECT FIX VERIFICATION + SANITY** and **CYCLE 4 - PERFORMANCE** cycles to the release tree.
9. Compare your release tree with the release tree shown in [Figure 2-5](#).

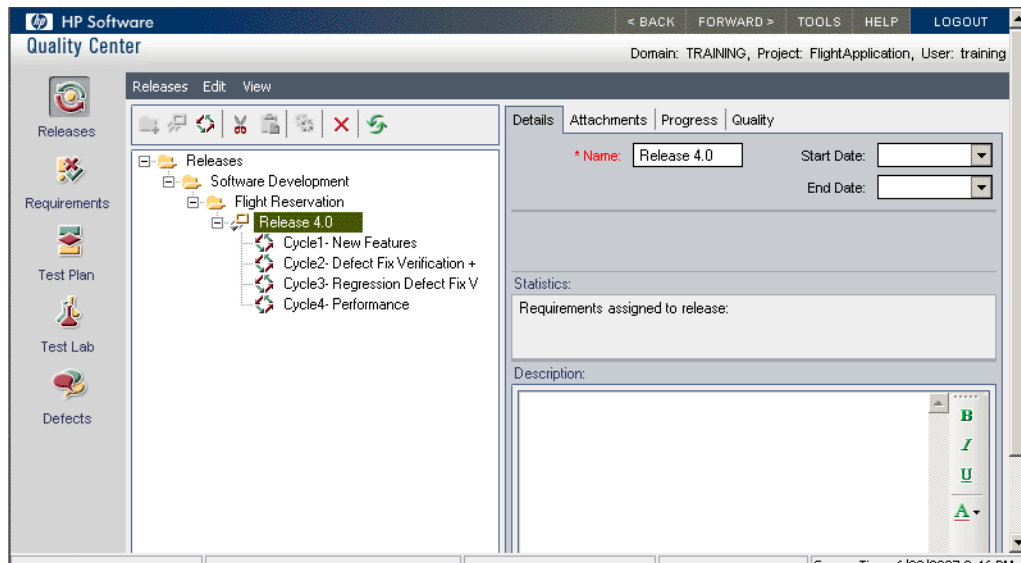


Figure 2-5 Release Tree for the Flight Reservation Application

Part 3: Specify Cycle Details

After creating cycles within a release, you specify details for a cycle such as its start date, end date, and description.

You specify details for the four cycles in RELEASE 4.0 of the Flight Reservation application.

To specify the cycle details:

1. From the release tree, under RELEASE 4.0, select **CYCLE 1 - NEW FEATURES**.
2. In the right pane of the RELEASES module, under the DETAILS tab, from the START DATE list, select today's date.
3. From the END DATE list, select a date that is 30 days from now. Include only weekdays while calculating the dates.
4. In the DESCRIPTION field, type **TEST OF NEW 4.0 FEATURES**
5. From the release tree, under RELEASE 4.0, select **CYCLE 2 - DEFECT FIX VERIFICATION + REGRESSION**.
6. In the right pane of the RELEASES module, under the DETAILS tab, from the START DATE list, select a date that is one day after the end date of the first cycle. This

implies that cycle 2 starts one day after cycle 1 ends. Include only weekdays while calculating the dates.

7. From the END DATE list, select a date that is 20 days from start date.
8. In the DESCRIPTION field, type **DEFECT FIX VERIFICATION AND REGRESSION TEST**
9. Log off from Quality Center.

Lesson 3 - Building the Requirements Tree

You have already created the testing cycles that you will use to test the Create Order business process of the Flight Reservation application. Now you need to identify the business and testing requirements based on which you will test your business processes.

You have gathered the following requirements from your QA manager and other stakeholders involved in developing release 4.0 the Flight Reservation application:

- Orders: Includes the business processes of the Flight Reservation application
 - Create Order: Checks the functionality of the Create Order business process
 - Passenger Name: Checks that valid passenger name is entered
 - Price of Tickets: Checks whether the price of tickets is a product of the number of tickets and the price of one ticket
 - Flight Search: Checks whether the flights are listed according to the source and destination
 - Update Order: Checks the functionality of the Update Order business process and is linked to the Create Order business process
 - Delete Order: Checks the functionality of the Update Order business process and is linked to the Create Order business process
 - Create New Order: Checks whether a user is able to create an order within 5 seconds

In this exercise, you perform the following tasks:

Part 1: Create test requirements.

Part 2: Assign the requirements to a release.

Part 1: Create Test Requirements

1. To create the business requirement:
 - a) Log on to the FLIGHTAPPLICATION Quality Center project in the TRAINING domain using **training** as the user name and **welcome** as the password.
 - b) On the Quality Center sidebar, click the **REQUIREMENTS** module.
 - c) From the menu bar, select **VIEW → REQUIREMENT DETAILS**.

- d) From the requirements tree, expand the **FUNCTIONAL** folder and select **ORDERS**.
 - e) Under the **DETAILS** tab, in the **DESCRIPTION** field, type **THE CHANGES TO ENHANCE FUNCTION PERFORMANCE MUST NOT HAVE DISRUPTED EXISTING FUNCTIONALITY**.
2. To create a description for the **CREATE NEW ORDER** requirement:
- a) From the requirements tree, select **CREATE NEW ORDER**.
 - b) Under the **DETAILS** tab, in the **DESCRIPTION** field, type **WITH VALID DATA ENTERED AND THE ORDER SUBMITTED, A NEW ORDER NUMBER MUST BE DISPLAYED, AND “INSERT DONE” SHOULD BE DISPLAYED IN STATUS BAR**.
3. To create the children of the **CREATE NEW ORDER** requirement:
- a) From the requirements tree, select **CREATE NEW ORDER**.
 - b) On the toolbar, click the **NEW REQUIREMENT** button. The **CREATE NEW REQUIREMENT** dialog box appears.
 - c) From the **REQUIREMENT TYPE** list, select **FUNCTIONAL**.
 - d) In the **REQUIREMENT NAME** field, type **PASSENGER NAME** and click **OK**. The **NEW REQUIREMENT** dialog box appears.
 - e) In the **NEW REQUIREMENT** dialog box, from the **PRIORITY** list, select **4-VERY HIGH**.
 - f) In the **DESCRIPTION** field, type **THE PASSENGER NAME FIELD MUST ONLY ACCEPT TWO TO 16 CHARACTERS. NUMBERS, SYMBOLS, OR AN INVALID LENGTH MUST CAUSE AN ERROR**.
 - g) Click **SUBMIT**.
 - h) In the **NAME** field, type **PRICE OF TICKETS**.
 - i) In the **REQUIREMENT TYPE** list, ensure that **FUNCTIONAL** is selected.
 - j) In the **NEW REQUIREMENT** dialog box, from the **DIRECT COVER STATUS** and **PRIORITY** lists, select **NO RUN** and **4-VERY HIGH**, respectively.
 - k) In the **DESCRIPTION** field, type **THE PRICE OF TICKETS FIELD MUST DISPLAY THE PRODUCT OF THE NUMBER OF TICKETS AND THE PRICE OF ONE TICKET**.
 - l) Click **SUBMIT**.

- m) In the NAME field, type **FLIGHT SEARCH**.
 - n) In the REQUIREMENT TYPE list, ensure that FUNCTIONAL is selected.
 - o) In the NEW REQUIREMENT dialog box, from the PRIORITY list, select **4-VERY HIGH**.
 - p) In the DESCRIPTION field, type **FLIGHTS MUST BE DISPLAYED BASED ON THE SOURCE AND DESTINATION. THE SAME SOURCE AND DESTINATION CANNOT BE USED**.
 - q) Click **SUBMIT**.
 - r) Click **CLOSE**.
4. To create the description for the UPDATE ORDER and DELETE ORDER requirements:
- a) From the requirements tree, select **UPDATE ORDER**.
 - b) Under the DETAILS tab, in the DESCRIPTION field, type **UPON ALTERING AN EXISTING ORDER WITH VALID DATA AND SUBMITTING, THE STATUS BAR SHOULD SHOW "UPDATE DONE."**
 - c) From the requirements tree, select **DELETE ORDER**.
 - d) Under the DETAILS tab, in the DESCRIPTION field, type **WHEN A USER CLICKS THE DELETE ORDER BUTTON AND CONFIRMS THE CHOICE, ALL FIELDS IN THE FLIGHT RESERVATION WINDOW SHOULD BE RESET TO DEFAULT AND STATUS BAR SHOULD DISPLAY "DELETE DONE."**
5. To create the performance requirement:
- a) From the requirements tree, select **REQUIREMENTS**.
 - b) On the toolbar, click the **NEW FOLDER** button. The CREATE NEW REQUIREMENT FOLDER dialog box appears.
 - c) In the CREATE NEW REQUIREMENT FOLDER dialog box, in the FOLDER NAME field, type **PERFORMANCE**.
 - d) Click **OK** to close the CREATE NEW REQUIREMENT FOLDER dialog box.
 - e) On the toolbar, click the **REFRESH ALL** button.
 - f) From the requirements tree, select **PERFORMANCE**.
 - g) On the toolbar, click the **NEW REQUIREMENT** button. The CREATE NEW REQUIREMENT dialog box appears.

- h) In the CREATE NEW REQUIREMENT dialog box, from the REQUIREMENT TYPE list, select **TESTING**.
- i) In the REQUIREMENT NAME field, type **CREATE NEW ORDER**.
- j) Click **OK**. The NEW REQUIREMENT dialog box appears.
- k) In the NEW REQUIREMENT dialog box, from the PRIORITY list, select **4-VERY HIGH**.
- l) In the DESCRIPTION field, type **AFTER THE USER CLICKS THE INSERT ORDER BUTTON, THE ORDER NUMBER MUST BE DISPLAYED WITH 5 SECONDS**.
- m) Click **SUBMIT**.
- n) Click **CLOSE** to close the NEW REQUIREMENT dialog box.

Compare your screen with [Figure 3-12](#).

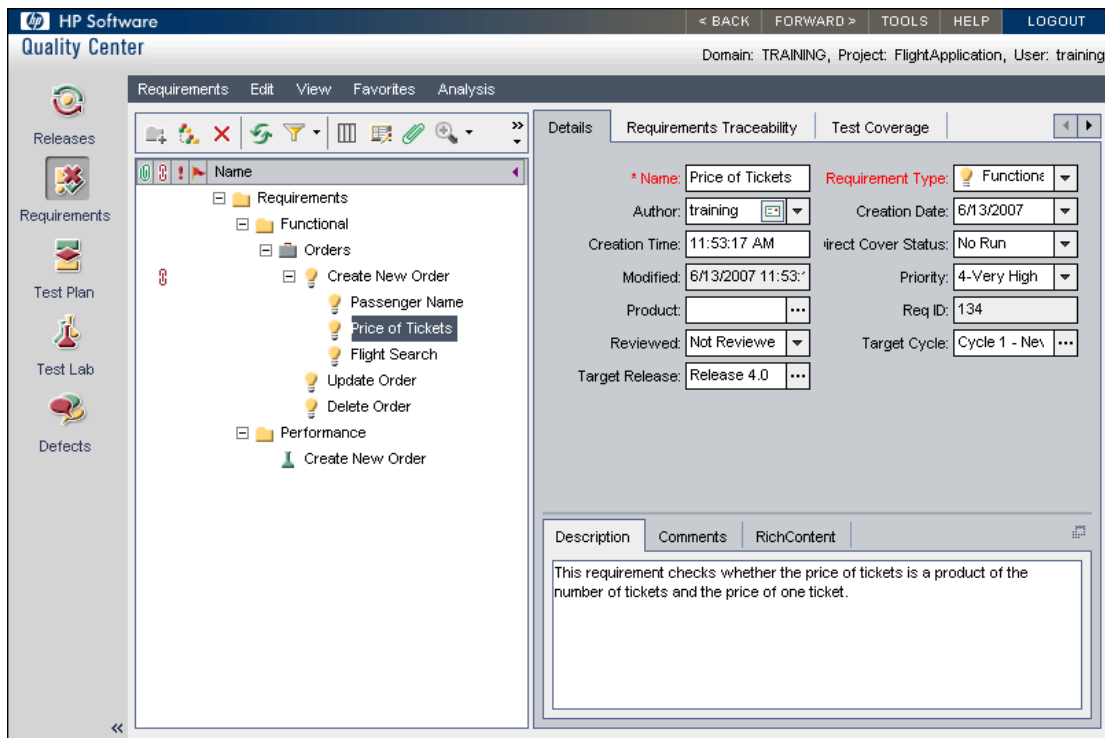


Figure 3-12 Completed Requirements Tree

Part 2: Assign the Requirements to a Release

After creating the requirements tree, you need to assign the requirements to testing cycles within release 4.0 in the RELEASES module. The association between requirements and releases enables you to specify the testing cycle within which each requirement is tested. You need to assign the functional requirements to the Cycle 1 - New Features, Cycle 2 - Defect Fix Verification + Regression, and Cycle 3 - Regression Defect Fix Verification + Sanity cycles because the functionality of the Flight Reservation application is tested in the three cycles.

You need to assign the performance requirement to Cycle 4 - Performance because the performance of the Create Order business process is tested in this cycle.

To assign a requirement to a release:

1. From the menu bar, select **VIEW → REQUIREMENTS TREE**.
2. In the REQUIREMENTS TREE view, from the requirements tree, right-click **FUNCTIONAL** and select **ASSIGN TO CYCLE**. The ASSIGN TO CYCLE dialog box appears.
3. In the ASSIGN TO CYCLE dialog box, expand **RELEASE 4.0**.
4. Check the **CYCLE 1 - NEW FEATURES**, **CYCLE 2 - DEFECT FIX VERIFICATION + REGRESSION**, and **CYCLE 3 - REGRESSION DEFECT FIX VERIFICATION** check boxes.
5. Click **OK**. The CONFIRM message box appears.
6. Click **YES**.
7. From the requirements tree, right-click **PERFORMANCE** and select **ASSIGN TO CYCLE**. The ASSIGN TO CYCLE dialog box appears.
8. In the ASSIGN TO CYCLE dialog box, expand **RELEASE 4.0**, and check the **CYCLE 4 - PERFORMANCE** check box.
9. Click **OK**. The CONFIRM message box appears.
10. Click **YES** to assign all subrequirements of the PERFORMANCE requirement to CYCLE 4 - PERFORMANCE.
11. On the toolbar, click the **SELECT COLUMNS** button. The SELECT COLUMNS dialog box appears.
12. In the SELECT COLUMNS dialog box, move **TARGET RELEASE** to the VISIBLE COLUMNS list.

13. To move **TARGET RELEASE** up in the **VISIBLE COLUMN** list, drag-and-drop **TARGET RELEASE** to the third entry in the **VISIBLE COLUMNS** list.
14. Repeat steps 12 and 13 to display **TARGET CYCLE** as the third column in the **REQUIREMENTS TREE** view.

Compare your screen with figure [Figure 3-13](#).

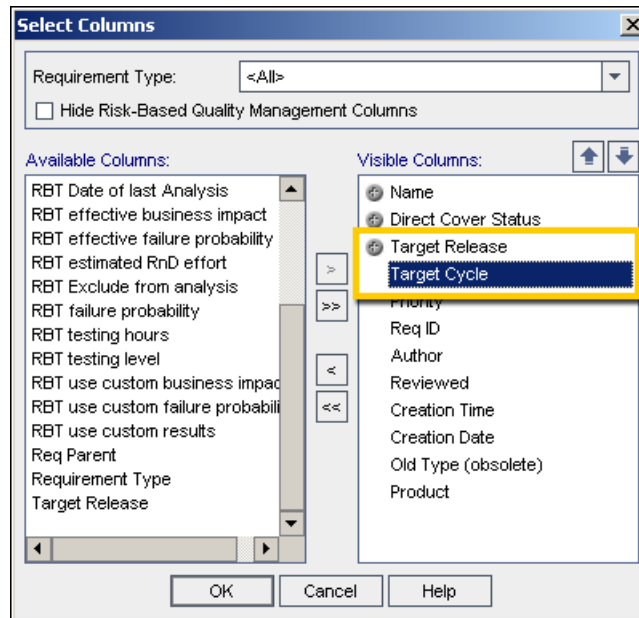


Figure 3-13 The Select Columns Dialog Box

15. Click **OK** to close the SELECT COLUMNS dialog box.
16. On the toolbar, click the **REFRESH ALL** button. In the requirements tree, **RELEASE 4.0** is listed under the **TARGET RELEASE** column. In addition, for the **PERFORMANCE** requirement and its subrequirements, **CYCLE 4 - PERFORMANCE** is listed under the **TARGET CYCLE** field.

Compare your requirements tree with [Figure 3-14](#).

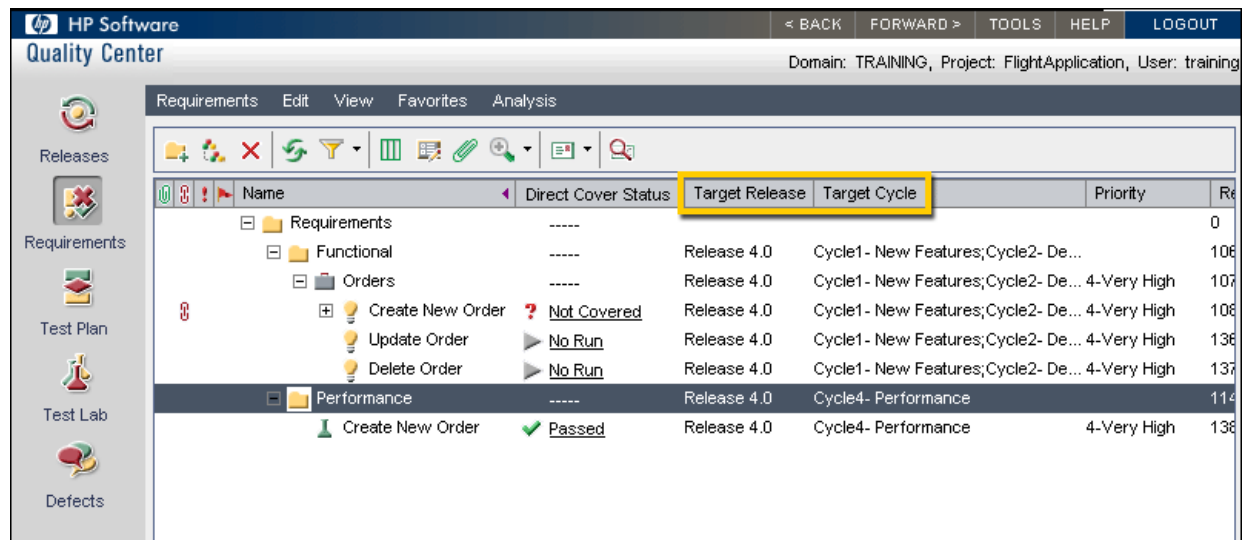


Figure 3-14 Requirements Assigned to a Release

17. Log off from Quality Center.

Lesson 4 - Analyze Requirement Risks

After assigning the various requirements to testing cycles, you add traceability links between requirements to establish the interdependencies between requirements and identify the risks associated with the requirements.

You add the following traceability links between requirements:

- The PASSENGER NAME, PRICE OF TICKETS, and FLIGHT SEARCH requirements affect the CREATE NEW ORDER requirement.
- The CREATE NEW ORDER requirement affects the UPDATE ORDER and DELETE ORDER requirements.

After adding the traceability links between requirements, you calculate the risk associated with the ORDERS business requirement by establishing the business criticality and failure probability for the CREATE NEW ORDER, UPDATE ORDER, and DELETE ORDER requirements.

In this exercise, you perform the following tasks:

Part 1: Add traceability links between the requirements.

Part 2: Analyze the risks associated with requirements.

Part 1: Add Traceability Links Between the Requirements

To establish traceability links between requirements:

1. Log on to the FLIGHTAPPLICATION Quality Center project by using the **training** username and the **welcome** password.
1. In the REQUIREMENTS module, from the menu bar, select **VIEW → REQUIREMENT DETAILS**. The REQUIREMENT DETAILS view appears.
2. In the REQUIREMENT DETAILS view, from the requirements tree, expand **FUNCTIONAL** and **ORDERS**, and select **CREATE NEW ORDER**.
3. In the right pane of the REQUIREMENT DETAILS view, click the **REQUIREMENTS TRACEABILITY** tab. The REQUIREMENTS TRACEABILITY page appears and the RELATIONSHIPS tab is selected by default.
4. Click **ADD REQUIREMENT TRACEABILITY**. The requirements tree appears in the right pane of the REQUIREMENTS TRACEABILITY page.
5. In the requirements tree, expand **REQUIREMENTS**.

6. Expand **FUNCTIONAL** till the lowest level.
7. Select **PASSENGER NAME**.
8. On the toolbar, click the **ADD TO TRACEABILITY** arrow and select **ADD TO TRACEABILITY (TRACE FROM)**. The PASSENGER NAME requirement appears in the TRACE FROM section of the RELATIONSHIPS tab.
9. Repeat steps 7 and 8 for the PRICE OF TICKETS and FLIGHT SEARCH requirements.
10. Repeat steps 7 and 8 to add the UPDATE ORDER and DELETE ORDER requirements to the TRACE TO section of the CREATE NEW ORDER requirement.

Compare your screen with [Figure 4-13](#).

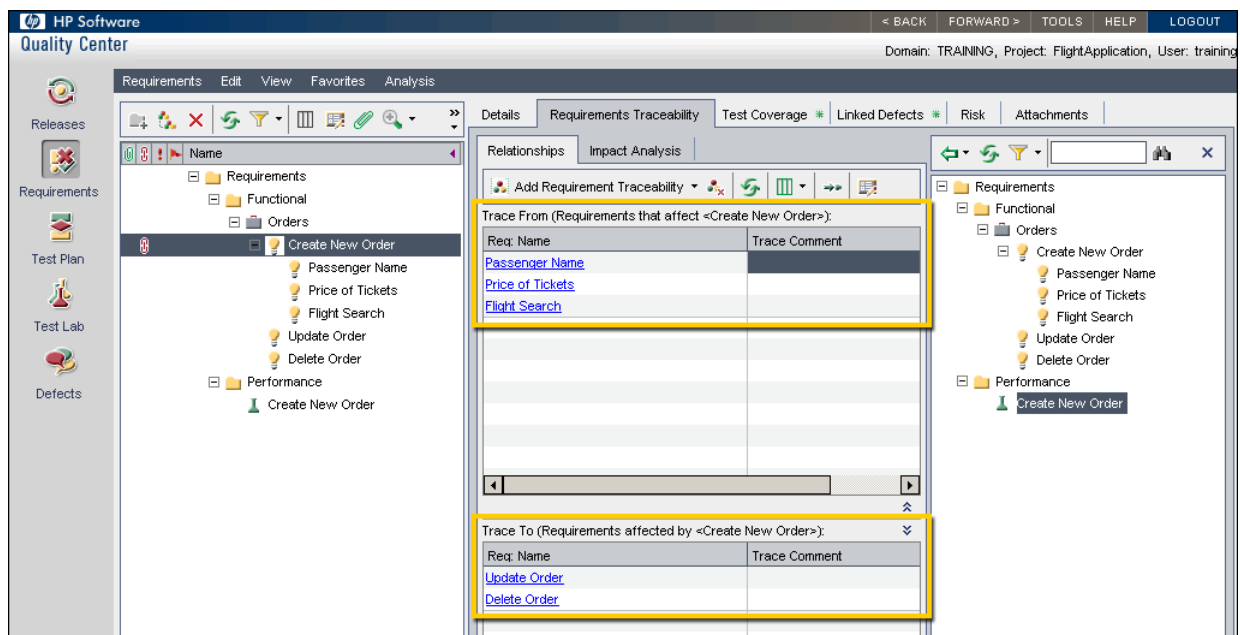


Figure 4-13 The Requirements Traceability Tab

Part 2: Analyze the Risks Associated with Requirements

After establishing traceability links between requirements, you need to perform a risk analysis to analyze the risks associated with the requirements.

To perform risk analysis:

1. In the REQUIREMENT DETAILS view, from the requirements tree, under FUNCTIONAL, ensure that ORDERS is selected.
2. In the right pane of the REQUIREMENT DETAILS view, click the **RISK** tab. The RISK page appears and the BUSINESS CRITICALITY tab is selected by default.
3. From the CRITERION column, select **TYPE OF PROCESS** and from the corresponding row in the VALUE column, select **CALCULATION/VALIDATION**.
4. From the CRITERION column, select **IMPACT OF FAILURE** and from the corresponding row in the VALUE column, select **WRONG INFORMATION** to signify that if the ORDERS requirement fails, users will not be able to use the Flight Reservation application at all.
5. From the CRITERION column, select **FREQUENCY OF USE** and from the corresponding row in the VALUE column, select **VERY OFTEN**.
6. From the CRITERION column, select **NUMBER/SIGNIFICANCE OF AFFECTED USERS** and from the corresponding row in the VALUE column, select **MANY/HIGH**.
7. Repeat steps 3 through 6 to assign values for the BUSINESS CRITICALITY criterion fields for the CREATE NEW ORDER, UPDATE ORDER, and DELETE ORDER requirements. Use [Table 4-1](#) as your reference.

Requirement Name	Criterion	Value
CREATE NEW ORDER	TYPE OF PROCESS	CALCULATION/VALIDATION
	IMPACT OF FAILURE	WRONG INFORMATION
	FREQUENCY OF USE	VERY OFTEN
	NUMBER/SIGNIFICANCE OF AFFECTED USERS	MANY/HIGH
UPDATE ORDER	TYPE OF PROCESS	DATA CHANGE
	IMPACT OF FAILURE	WRONG INFORMATION
	FREQUENCY OF USE	OFTEN
	NUMBER/SIGNIFICANCE OF AFFECTED USERS	SOME/MEDIUM

Table 4-1. Business Criticality Field Values

Requirement Name	Criterion	Value
DELETE ORDER	TYPE OF PROCESS	CALCULATION/VALIDATION
	IMPACT OF FAILURE	WRONG INFORMATION
	FREQUENCY OF USE	RARE
	NUMBER/SIGNIFICANCE OF AFFECTED USERS	FEW/LOW

Table 4-1. Business Criticality Field Values

8. On the RISK page, click the **FAILURE PROBABILITY** tab.
9. From the requirements tree, under FUNCTIONAL, select **ORDERS**.
10. From the CRITERIA column, select **CHANGE TYPE**, and from the corresponding row in the VALUE column, select **CHANGED FEATURE** to signify that the ORDERS requirement has changed in release 4.0 of the Flight Reservation application.
11. From the CRITERIA column, select **SOFTWARE MATURITY**, and from the corresponding row in the VALUE column, select **IMMATURE**.
12. From the CRITERIA column, select **DEFECTS RATE**, and from the corresponding row in the VALUE column, select **HIGH**.
13. From the CRITERION column, select **NUMBER OF AFFECTED SCREENS/ENTITIES**, and from the corresponding row in the VALUE column, select **MORE THAN 4** to signify that the ORDERS requirement affects more than four screens in the Flight Reservation application.
14. Repeat steps 10 through 13 to assign values for the BUSINESS CRITICALITY criterion fields for the CREATE NEW ORDER, UPDATE ORDER, and DELETE ORDER requirements. Use [Table 4-2](#) as your reference.

Requirement Name	Criterion	Value
CREATE NEW ORDER	CHANGE TYPE	CHANGED FEATURE
	SOFTWARE MATURITY	IMMATURE
	DEFECTS RATE	HIGH
	NUMBER OF AFFECTED SCREENS/ENTITIES	MORE THAN 4

Table 4-2. Failure Probability Field Values

Requirement Name	Criterion	Value
UPDATE ORDER	CHANGE TYPE	CHANGED FEATURE
	SOFTWARE MATURITY	INTERMEDIATE
	DEFECTS RATE	MEDIUM
	NUMBER OF AFFECTED SCREENS/ENTITIES	LESS THAN 2
DELETE ORDER	CHANGE TYPE	UNCHANGED FEATURE
	SOFTWARE MATURITY	MATURE
	DEFECTS RATE	LOW
	NUMBER OF AFFECTED SCREENS/ENTITIES	LESS THAN 2

Table 4-2. Failure Probability Field Values

15. From the requirements tree, select **FUNCTIONAL**.
16. In the right pane, on the **RISK** page, in the **TOTAL ALLOCATED TESTING TIME** field, type **60**.
17. Click **PERFORM RISK ANALYSIS**. The updated graphs and fields appear on the **RISK** page. Compare your **RISK** page with [Figure 4-14](#).

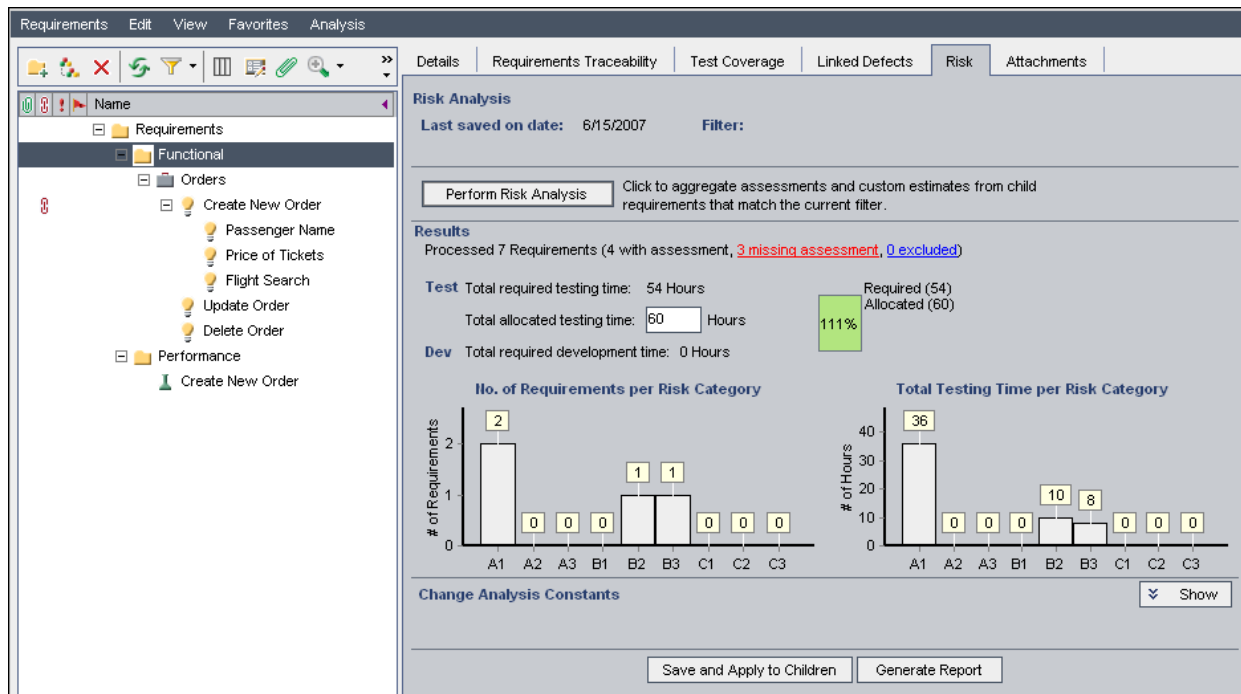


Figure 4-14 Risk Analysis

18. Click **SAVE AND APPLY TO CHILDREN**. The INFORMATION message box informs you that data was successfully propagated.
19. Click **OK** to close the INFORMATION message box.
20. Log off from Quality Center.

Lesson 5 - Building a Test

After adding traceability links between requirements and analyzing the risks associated with requirements, you need to create tests to verify whether requirements have been met.

You decide to create the following tests for the Flight Reservation application:

- **PASSENGER NAME:** A manual test that validates whether the Flight Reservation application responds correctly to a valid name or an invalid name. The passenger name should consist of 1 to 20 characters. The Flight Reservation application should not allow you to enter more than 20 characters for the NAME field.
- **BOOK FLIGHT:** A QuickTest Professional test that verifies the Create New Order functionality.
- **BOOK FLIGHT SCENARIO:** A LoadRunner test that verifies whether or not the Create Order business process completes within 5 seconds.

After creating the tests, you link the tests to the corresponding requirements to establish whether the requirements have been met.

In this exercise, you perform the following tasks:

Part 1: Add automated and manual tests to the test plan tree.

Part 2: Add steps to the manual test.

Part 3: Link requirements to tests.

Part 1: Add Automated and Manual Tests to the Test Plan Tree

You create a test set folder in the test plan tree and add manual and automated tests within the folder.

1. To create a test set folder:
 - a) Log on to the FLIGHTAPPLICATION Quality Center project using **training** as the user name and **welcome** as the password.
 - b) On the Quality Center sidebar, click **TEST PLAN**.
 - c) From the test plan tree, select the **SUBJECT** folder.
 - d) On the Quality Center toolbar, click the **NEW FOLDER** button. The NEW FOLDER dialog box appears.

- e) In the NEW FOLDER dialog box, in the FOLDER NAME field, type **FLIGHT RESERVATION**.
 - f) Click **OK** to close the NEW FOLDER dialog box. The FLIGHT RESERVATION folder appears in the test plan tree.
2. To add existing automated tests to the FLIGHT RESERVATION folder:
- a) From the test plan tree, expand the **AUTOMATED TESTS** folder.
 - b) Right-click **BOOK FLIGHT** and select **COPY**. The BOOK FLIGHT test was made with QuickTest Professional and saved to Quality Center.
 - c) Right-click the **FLIGHT RESERVATION** folder and select **PASTE**. The BOOK FLIGHT test appears under the FLIGHT RESERVATION folder in the test plan tree. The BOOK FLIGHT test will check the functionality of the CREATE NEW ORDER process by using a QuickTest Professional script.
 - d) From the AUTOMATED TESTS folder, right-click **BOOK FLIGHT SCENARIO** and select **COPY**.
 - e) Right-click the **FLIGHT RESERVATION** folder and select **PASTE**. The BOOK FLIGHT SCENARIO test appears under the FLIGHT RESERVATION folder in the test plan tree. The BOOK FLIGHT SCENARIO test will use a LoadRunner script to check whether an order is created within 5 seconds.
3. To create a manual test to check whether the passenger name is valid:
- a) From the test plan tree, select the **FLIGHT RESERVATION** folder.
 - b) On the Quality Center toolbar, click the **NEW TEST** button. The CREATE NEW TEST dialog box appears.
 - c) In the CREATE NEW TEST dialog box, from the TEST TYPE list, select **MANUAL**.
 - d) In the TEST NAME field, type **PASSENGER NAME**.
 - e) Click **OK** to close the CREATE NEW TEST dialog box. The PASSENGER NAME test appears in the test plan tree.

Compare your test plan tree with [Figure 5-22](#).

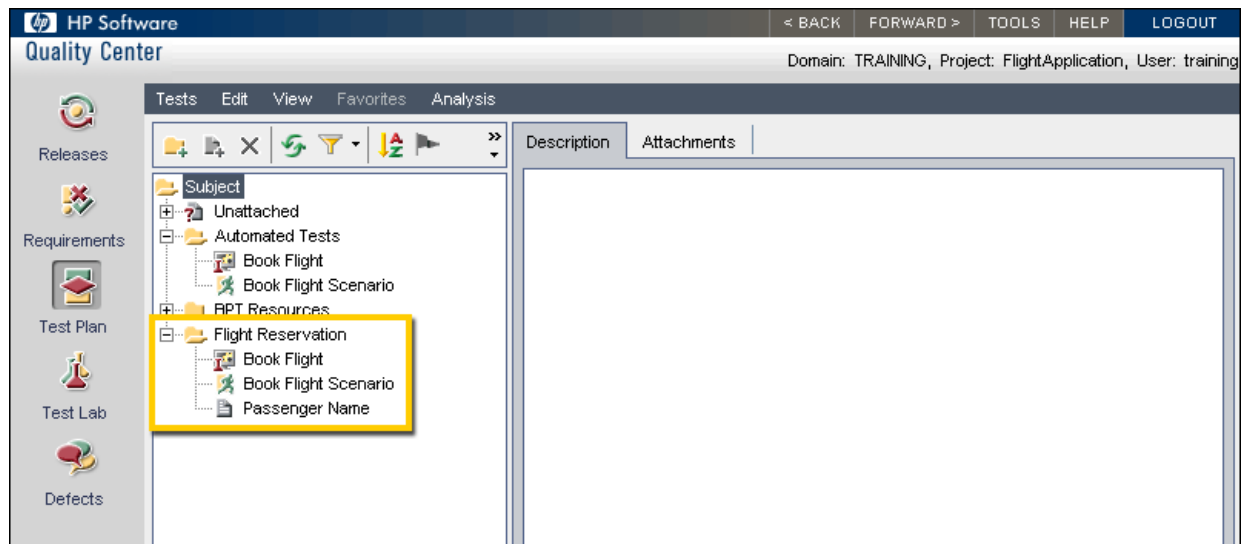


Figure 5-22 Test Plan Tree

Part 2: Add Steps to the Manual Test

After adding a manual test to the test plan tree, you add steps to the manual test. The steps that you add enable you to execute the tests in the TEST LAB module.

To add steps to the PASSENGER NAME test:

1. In the test plan tree, ensure that the FLIGHT RESERVATION folder is expanded to the lowest level and select the **PASSENGER NAME** test.
2. On the DESIGN STEPS page toolbar, click the **NEW STEP** button. The DESIGN STEP EDITOR dialog box appears.
3. In the DESIGN STEP EDITOR dialog box, in the STEP NAME field, type **VALID NAME**.
4. In the DESCRIPTION field, type **TYPE A NAME THAT CONSISTS OF 1 TO 20 CHARACTERS (LETTERS ONLY) AND CLICK IN THE TICKETS FIELD**.
5. In the EXPECTED RESULT field, type **NO ERROR MESSAGE APPEARS**.
6. Click **OK** to close the DESIGN STEP EDITOR dialog box.
7. On the DESIGN STEPS page toolbar, click the **NEW STEP** button. The DESIGN STEP EDITOR dialog box appears.

8. In the DESIGN STEP EDITOR dialog box, in the STEP NAME field, type **INVALID NAME**.
9. In the DESCRIPTION field, type **TYPE A NAME THAT CONSISTS OF MORE THAN 20 CHARACTERS**.
10. In the EXPECTED RESULT field, type **THE FLIGHT RESERVATION APPLICATION SHOULD NOT ALLOW YOU TO ENTER MORE THAN 20 CHARACTERS**.
11. Click **OK** to close the DESIGN STEP EDITOR dialog box.

Compare your screen with [Figure 5-23](#).

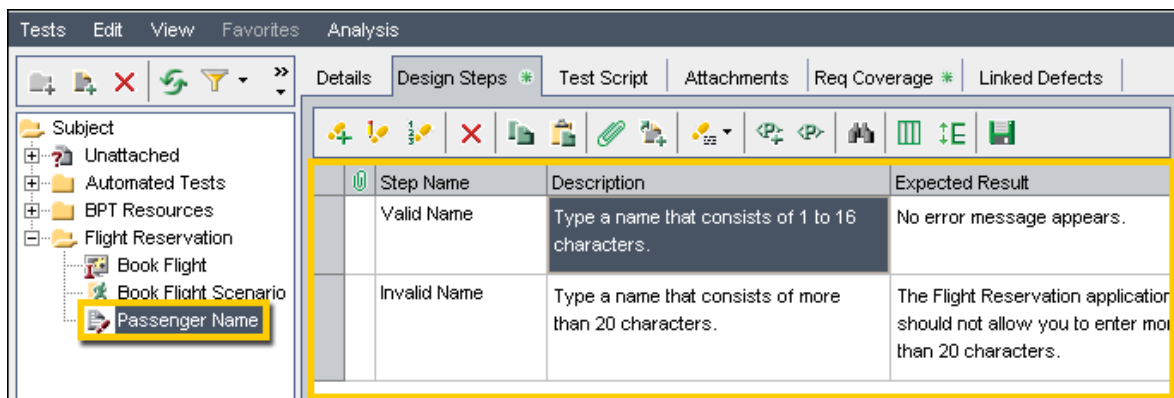


Figure 5-23 The Passenger Name Test

Part 3: Link Requirements to Tests

After creating the manual and automated tests, you link the tests to requirements. You create the following links between tests and requirements:

- The PASSENGER NAME test links to the PASSENGER NAME requirement. As the PASSENGER NAME requirement is a child of the CREATE NEW ORDER functional requirement, an indirect linkage exists between the CREATE NEW ORDER functional requirement and the PASSENGER NAME test.
- The BOOK FLIGHT test links to the CREATE NEW ORDER functional requirement.
- The BOOK FLIGHT SCENARIO test links to the CREATE NEW ORDER performance requirement.

To link a requirement to a test:

1. From the test plan tree, under FLIGHT RESERVATION, select the **BOOK FLIGHT** test.
2. In the right pane, click the **REQ COVERAGE** tab.
3. On the REQ COVERAGE page toolbar, click **SELECT REQ.** The requirements tree appears in the right pane of the REQ COVERAGE page.
4. From the requirements tree, expand the **REQUIREMENTS** folder and the **FUNCTIONAL** subfolder.
5. Expand **ORDERS**.
6. Select **CREATE NEW ORDER**.
7. Click the **ADD TO COVERAGE (INCLUDE CHILDREN)** button. The CONFIRM message box appears.
8. Click **YES** to add the CREATE NEW ORDER requirement and its children to the coverage. The CREATE NEW ORDER requirement appears under the ENTITY NAME column.

Compare your screen with [Figure 5-24](#).

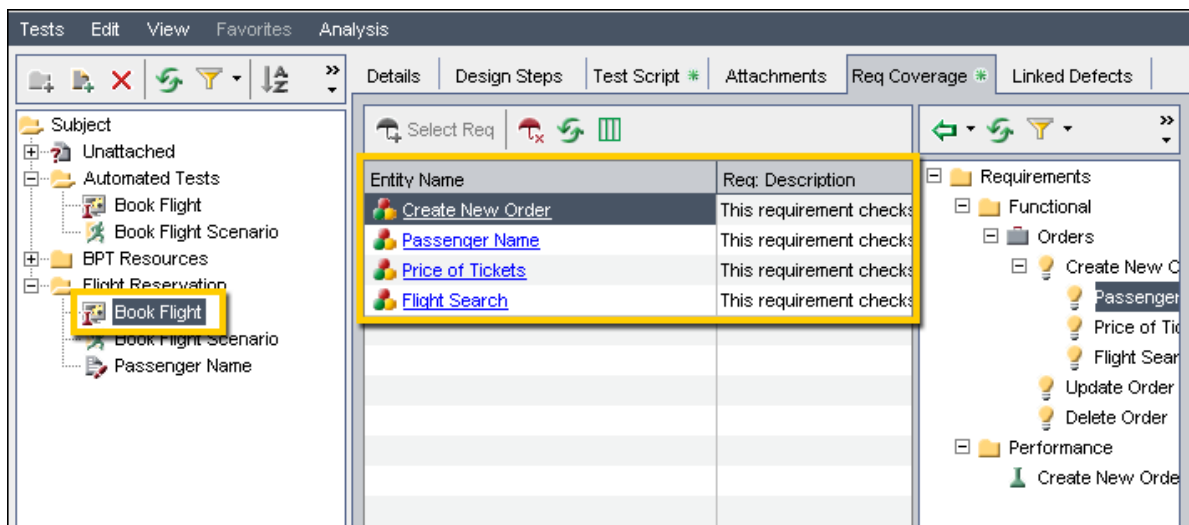


Figure 5-24 Link Requirements to a Test

9. From the test plan tree, select the **BOOK FLIGHT SCENARIO** test.
10. In the right pane of the REQ COVERAGE page, from the requirements tree, expand **PERFORMANCE** and select **CREATE NEW ORDER**.

11. On the toolbar, click the **ADD TO COVERAGE (WITHOUT CHILDREN)** button.
12. From the test plan tree, select the **PASSENGER NAME** test.
13. In the right pane of the REQ COVERAGE page, from the requirements tree, expand **CREATE NEW ORDER** and select **PASSENGER NAME**.
14. On the toolbar, click the **ADD TO COVERAGE (WITHOUT CHILDREN)** button. The PASSENGER NAME requirement appears under the ENTITY NAME column.
15. Log off from Quality Center.

Lesson 6 - Building and Executing a Test Set

After creating the test plan tree, you create a test set to group the PASSENGER NAME, BOOK FLIGHT, and BOOK FLIGHT SCENARIO tests.

You plan to use the following execution conditions for the tests:

- The Passenger Name test should be the first test to execute.
- The Book Flight test should execute only if the Passenger Name test passes.
- The Book Flight Scenario test should execute after the Book Flight test irrespective of its result.

In this exercise, you perform the following tasks:

Part 1: Build a new test set.

Part 2: Execute tests.

Part 1: Build a New Test Set

1. To create a test set:
 - a) Log on to the FLIGHTAPPLICATION Quality Center project by using the **training** username and **welcome** password.
 - b) On the Quality Center sidebar, click the **TEST LAB** icon.
 - c) From the test sets tree, select the **ROOT** folder, and on the Quality Center toolbar, click the **NEW FOLDER** button. The NEW FOLDER dialog box appears.
 - d) In the NEW FOLDER dialog box, in the FOLDER NAME field, type **FLIGHT RESERVATION**.
 - e) Click **OK** to close the NEW FOLDER dialog box.
 - f) To add a test set to this new folder, from the test sets tree, select **FLIGHT RESERVATION** and on the Quality Center toolbar, click the **NEW TEST SET** button. The NEW TEST SET dialog box appears.
 - g) In the NEW TEST SET dialog box, in the TEST SET NAME field, type **ORDER ENTRY**.
 - h) In the DESCRIPTION field, type **THIS TEST SET WILL RUN ALL TESTS RELATED TO ORDER ENTRY FUNCTIONALITY AND PERFORMANCE**.

- i) Click **OK** to close the NEW TEST SET dialog box. The new test set appears in the test sets tree.
- j) In the right pane, ensure that the EXECUTION GRID tab is selected.
- k) On the right, under the TEST PLAN TREE tab, expand the **FLIGHTRESERVATION** folder.
- l) Select the **PASSENGER NAME** test and on the toolbar, click the **ADD TESTS TO TEST SET** button.
- m) Repeat step l to add the **BOOK FLIGHT** and **BOOK FLIGHT SCENARIO** tests to the **TESTING** test set.

Compare your screen with the EXECUTION GRID tab shown in [Figure 6-20](#).

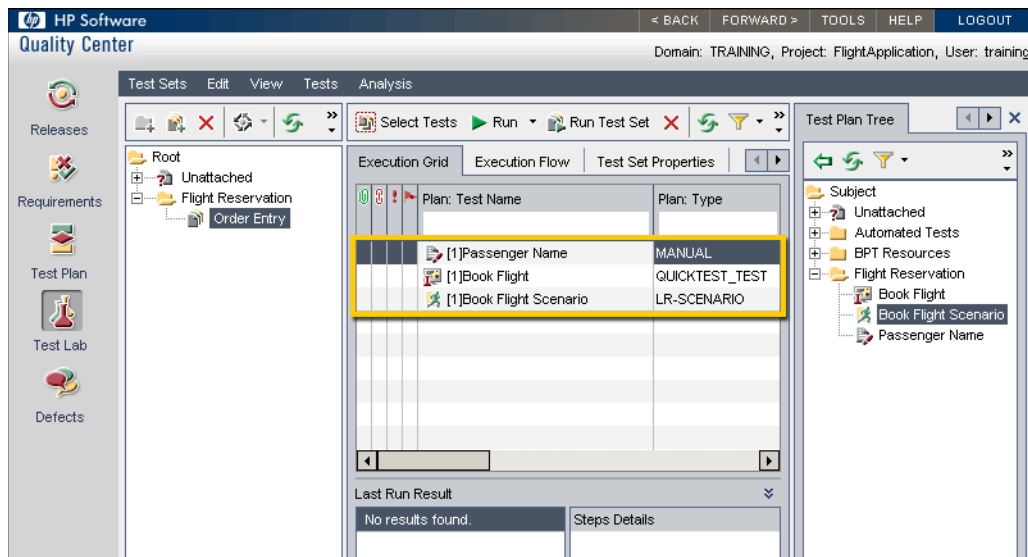


Figure 6-20 Execution Grid for the Test Set

2. To define the execution flow for tests:
 - a) From the test sets tree, select **ORDER ENTRY**.
 - b) In the right pane, click the **EXECUTION FLOW** tab.
 - c) Hold down **CTRL**, and select the **PASSENGER NAME**, **BOOK FLIGHT**, and **BOOK FLIGHT SCENARIO** tests.

- d) Right-click the **PASSENGER NAME** test and select **ORDER TESTS**. The ORDER TESTS window appears and the PASSENGER NAME, BOOK FLIGHT, and BOOK FLIGHT SCENARIO tests are listed in sequence.
- e) Click **OK** to close the ORDER TESTS window.
- f) Double-click the blue arrow joining the PASSENGER NAME and BOOK FLIGHT tests. The EXECUTION CONDITION window appears.
- g) Set the execution condition to **PASSED** and click **OK**.
- h) On the toolbar, click the **REFRESH FLOW** button.

Compare your EXECUTION FLOW tab with [Figure 6-21](#).

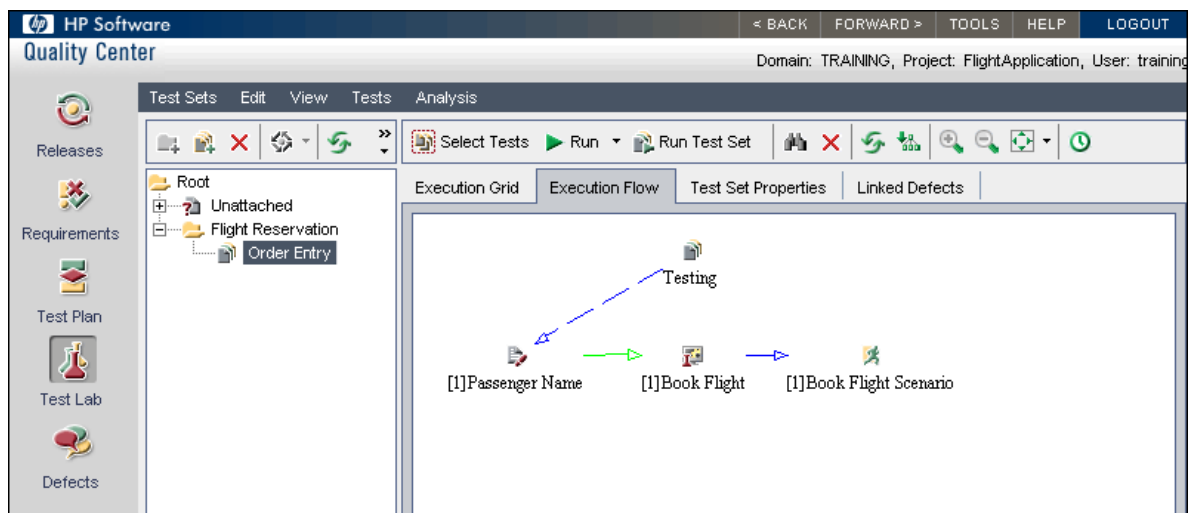


Figure 6-21 Completed Execution Flow

Part 2: Execute Tests

To execute the tests in the ORDER ENTRY test set:


1. In the TEST LAB module, from the test sets tree, ensure that the ORDER ENTRY test set under the FLIGHTRESERVATION folder is selected.
2. In the right pane, click the **EXECUTION GRID** tab.
3. In the RESPONSIBLE TESTER column for all of the three tests, select **TRAINING**.
4. On the toolbar, click **RUN TEST SET**. Since the first test is a manual test, the AUTOMATIC RUNNER dialog box appears.

5. Click **RUN ALL**. The MANUAL RUNNER: TEST SET dialog box appears.
6. Click **BEGIN RUN**.
7. Select **START → PROGRAMS → QUICKTEST PROFESSIONAL → SAMPLE APPLICATIONS → FLIGHT RESERVATION**. The LOG ON window appears.
8. In the AGENT NAME field, type your first name.
9. In the PASSWORD field, type **MERCURY**, and click **OK**. The FLIGHT RESERVATION window appears.
10. To execute the VALID NAME test step:
 - a) From the DATE OF FLIGHT list, select the last date of the current month.
 - b) From the FLY FROM and FLY TO lists, select **DENVER** and **FRANKFURT**, respectively.
 - c) Click **FLIGHTS**. The FLIGHTS TABLE window appears.
 - d) Select the first flight and click **OK**.
 - e) In the NAME field, type a name that consists of only two characters. Use only alphabetical characters, no symbols or numbers. This will test the lower limit of the acceptable range for the length of a name.
 - f) Click **INSERT ORDER** to create an order.
 - g) On the FLIGHT RESERVATION window toolbar, click the **NEW ORDER** button.
 - h) Repeat steps 10a through 10e, but instead of using a two character name, type a name that consists of 20 characters. This will test the upper limit of the acceptable range for the length of a name.
 - i) Click **INSERT ORDER** to create an order.

The VALID NAME test step passed. Therefore, on the toolbar of the MANUAL RUNNER dialog box, click the **PASS SELECTED**  button.

11. To execute the INVALID NAME test step:
 - a) On the FLIGHT RESERVATION window toolbar, click the **NEW ORDER** button.
 - b) In the NAME field, try to type a name that consists of 21 characters. The application will not allow you to enter the name. This is the expected result, so even though the action could not be completed, the expected result happened, so the test is considered successful.

c) Close the FLIGHT RESERVATION window.

Since the INVALID NAME test step passed, click the **PASS SELECTED**  button on the toolbar of the Manual Runner dialog box.

With that test complete, Quality Center now automatically invokes the QuickTest Professional application and executes the BOOK FLIGHT test.

After QuickTest Professional completes the execution of the BOOK FLIGHT test, Quality Center invokes the LoadRunner application and executes the BOOK FLIGHT SCENARIO test.

12. Close the QuickTest Professional and LoadRunner applications.

13. Close the AUTOMATIC RUNNER dialog box.

Compare your EXECUTION GRID tab with [Figure 6-22](#).

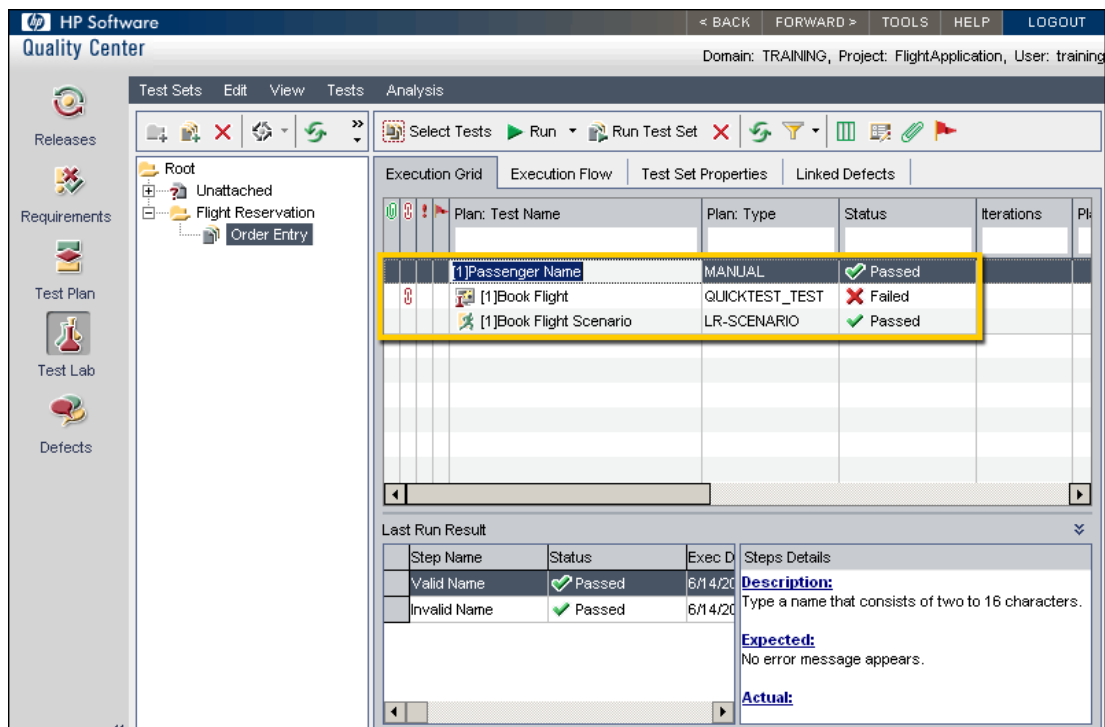


Figure 6-22 Execution Results

14. Log off from Quality Center.

The BOOK FLIGHT test failed its execution because a new order number was not generated after the Create Order process completed.

The BOOK FLIGHT SCENARIO test passed its execution because the INSERT ORDER process was completed in 4 seconds.

In the next lesson, you will log defects for the failing BOOK FLIGHT test and also associate the defect to the CREATE NEW ORDER functional requirement.

Lesson 7 - Logging Defects

While executing tests in the TEST LAB module, the BOOK FLIGHT test failed. To report this error, you log a defect in the DEFECTS module. The defect data will help you to track the quality of the Flight Reservation application by generating reports.

You associate this defect with the:

- Test run of the BOOK FLIGHT test. This defect-test run association indicates that a single test run of the BOOK FLIGHT test failed.
- CREATE NEW ORDER functional requirement. This defect-requirement association indicates that the CREATE NEW ORDER functional requirement has not been met.

In this exercise, you perform the following tasks:

Part 1: Create a defect based on a test run.

Part 2: Associate a defect with a requirement.

Part 1: Create a Defect Based on a Test Run

To create a defect:

1. Log on to the FLIGHTAPPLICATION Quality Center project in the TRAINING domain using **training** as the username and **welcome** as the password.
2. On the Quality Center sidebar, click the **TEST LAB** icon.
3. From the test sets tree, expand the FLIGHTRESERVATION folder and select the **ORDER ENTRY** test set.
4. In the middle pane, ensure that the **EXECUTION GRID** tab is selected.
5. On the EXECUTION GRID page, right-click **BOOK FLIGHT** and select **TEST INSTANCE PROPERTIES**. The TEST INSTANCE PROPERTIES dialog box appears.
6. In the TEST INSTANCE PROPERTIES dialog box, click the **LINKED DEFECTS** button. The LINKED DEFECTS page appears.
7. On the LINKED DEFECTS page, click the **ADD AND LINK DEFECT** button. The NEW DEFECT dialog box appears.
8. In the NEW DEFECT dialog box, in the SUMMARY field, type **THE BOOK FLIGHT TEST FAILED**.

9. Failures in the book flight functionality affect other processes through the Web site and the impact of this defect would be very high. Therefore, from the SEVERITY list, select **4-VERY HIGH**.
10. This functionality needs to be fixed right away otherwise it will hold up the testing process. Therefore, from the PRIORITY list, select **4-VERY HIGH**.
11. In the DESCRIPTION field, type **THE BOOK FLIGHT TEST FAILED BECAUSE A NEW ORDER NUMBER WAS NOT GENERATED AFTER THE CREATE ORDER PROCESS COMPLETED.**
12. Click **SUBMIT** to close the NEW DEFECT dialog box.

Compare your TEST INSTANCE PROPERTIES dialog box with [Figure 7-14](#).

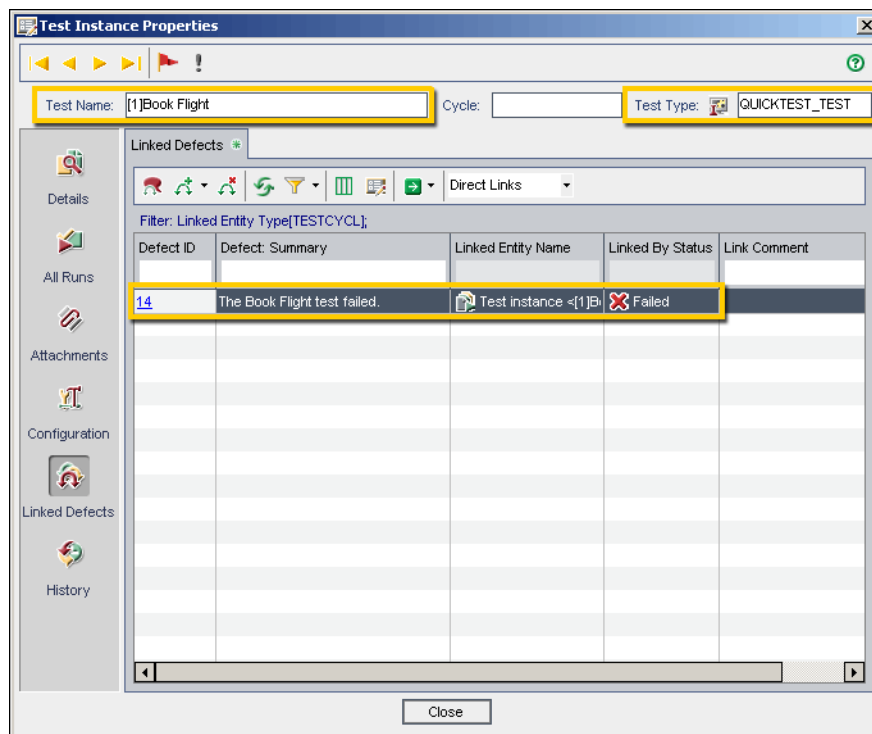


Figure 7-14 The Test Instance Properties Dialog Box

13. Write down the DEFECT ID number.
-
14. Click **CLOSE** to close the TEST INSTANCE PROPERTIES dialog box.

Part 2: Associate a Defect with a Requirement

The BOOK FLIGHT test, which tests against the CREATE NEW ORDER requirement, failed. Therefore, you should associate the defect that you created in part 1 with the CREATE NEW ORDER requirement. This association helps you to track the status of the CREATE NEW ORDER requirement when the defect is fixed by the development team.

Use the following steps to associate a defect to a requirement:

1. On the Quality Center sidebar, click the **REQUIREMENTS** icon.
2. From the Quality Center menu bar, select **VIEW → REQUIREMENTS DETAILS**.
3. Expand the **FUNCTIONAL** folder and select the **CREATE NEW ORDER** requirement.
4. In the right pane, click the **LINKED DEFECTS** tab.
5. On the LINKED DEFECTS page, click the **LINK EXISTING DEFECT** arrow and select **BY ID**. The LINK EXISTING DEFECT dialog box appears.
6. In the Defect ID field, type the defect ID of the defect that you created in part 1.
7. Click **LINK** to link the Create New Order requirement to the defect. The linked defect appears under the LINKED DEFECTS tab.

Compare your screen with [Figure 7-15](#).

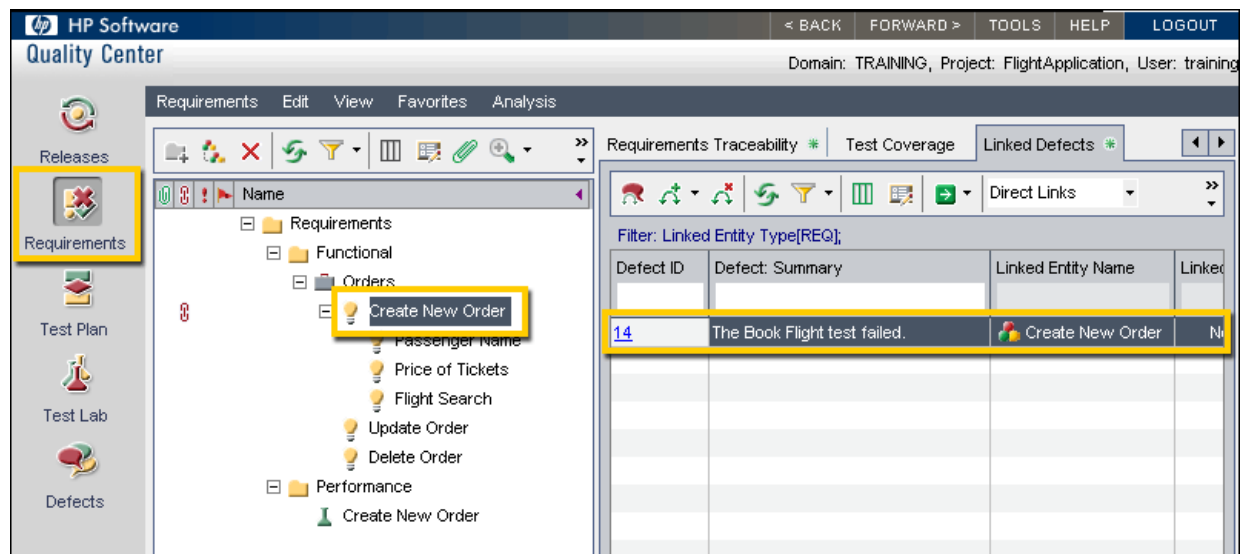


Figure 7-15 Defect-Requirement Association

8. Log off from Quality Center.

Lesson 8 - Reporting

After you complete the testing of the Flight Reservation application, you need to generate various reports and graphs to analyze the following:

- The total number of requirements that you created for the project
- The number of requirements that you reviewed
- The status of the tests that you created
- The current status of the project
- The requirements coverage data

In this exercise, you perform the following tasks:

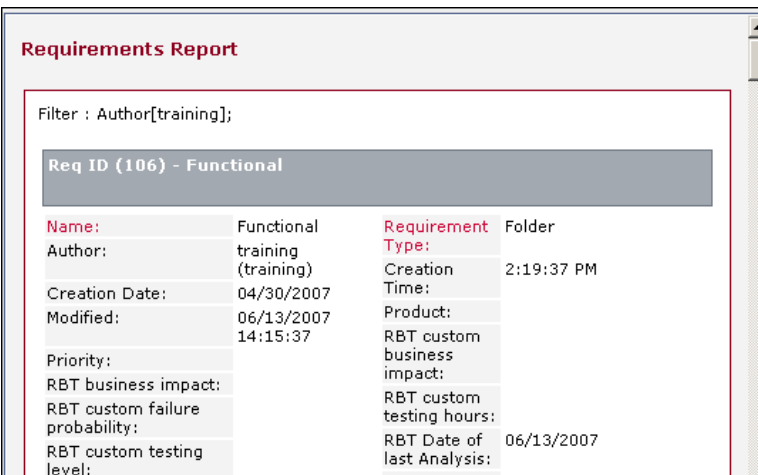
- Part 1: Generate analysis reports and graphs.
- Part 2: Generate a Word document.
- Part 3: Generate an Excel report.

Part 1: Generate Analysis Reports and Graphs

1. Use the following steps to generate a STANDARD REQUIREMENTS REPORT for the FLIGHTAPPLICATION project:
 - a) Log on to the FLIGHTAPPLICATION Quality Center project by using the **training** user name and **welcome** password.
 - b) On the Quality Center sidebar, click **REQUIREMENTS**.
 - c) From the menu bar, select **ANALYSIS → REPORTS → STANDARD REQUIREMENTS REPORT**. The REQUIREMENTS REPORT appears.
 - d) On the Quality Center toolbar, click the **CONFIGURE REPORT AND SUB-REPORTS** button.
 - e) Under the FILTER section, click **SET FILTER/SORT**. The FILTER dialog box appears.
 - f) Under the FILTER CONDITION column, click the **AUTHOR** field. The browse button appears.
 - g) Click the browse button. The SELECT FILTER CONDITION dialog box appears.

- h) Select **TRAINING** and click **OK**.
- i) Click **OK** to close the FILTER dialog box.
- j) Click **APPLY** to display requirements created by the TRAINING user.

Your REQUIREMENTS REPORT should be similar to [Figure 8-24](#).



Requirements Report

Filter : Author[training];

Req ID (106) - Functional

Name:	Functional	Requirement Type:	Folder
Author:	training (training)	Creation Time:	2:19:37 PM
Creation Date:	04/30/2007	Product:	RBT custom business impact:
Modified:	06/13/2007 14:15:37	RBT custom testing hours:	
Priority:		RBT Date of last Analysis:	06/13/2007
RBT business impact:			
RBT custom failure probability:			
RBT custom testing level:			

Figure 8-24 Requirements Report

- k) Click **CLOSE** to close the report.
2. Use the following steps to generate a BAR CHART that displays the total count of requirements that you created and configure this chart to group the requirements by their review status:
 - a) From the menu bar, select **ANALYSIS** → **GRAPHS** → **GRAPH WIZARD**. The GRAPH WIZARD: REQUIREMENTS MODULE dialog box appears.
 - b) Under GRAPH TYPE, ensure that SUMMARY is selected and click **NEXT**.
 - c) Under SELECT A FILTER OPTION, ensure that USE CURRENT FILTER is selected and click **NEXT**.
 - d) For the GROUP BY list, select **REVIEWED** and click **NEXT**.
 - e) For the X-AXIS list, ensure that AUTHOR is selected and click **FINISH**. The REQUIREMENTS SUMMARY GRAPH appears.

Your REQUIREMENTS SUMMARY GRAPH should be similar to [Figure 8-25](#).

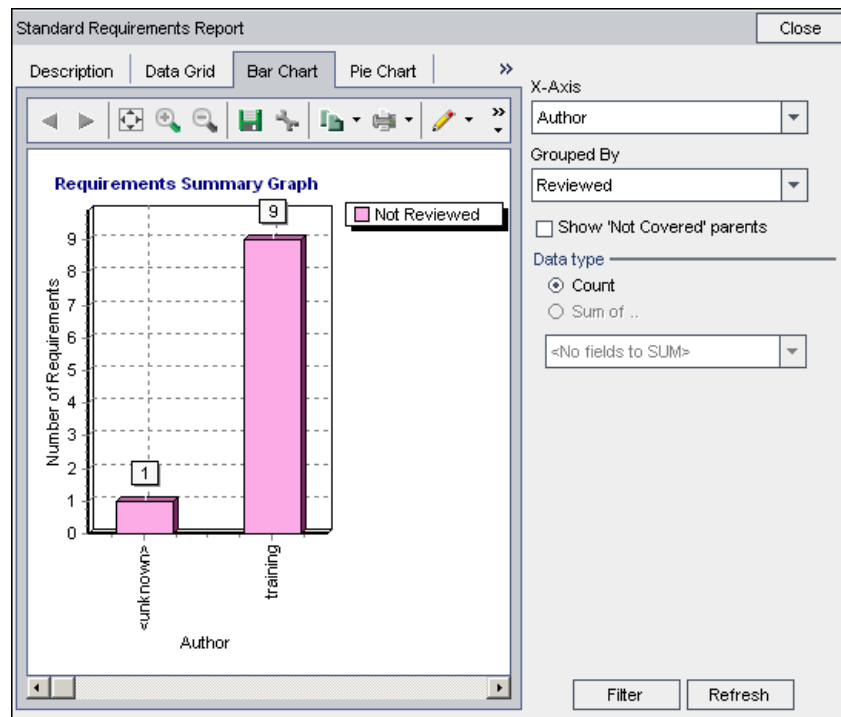


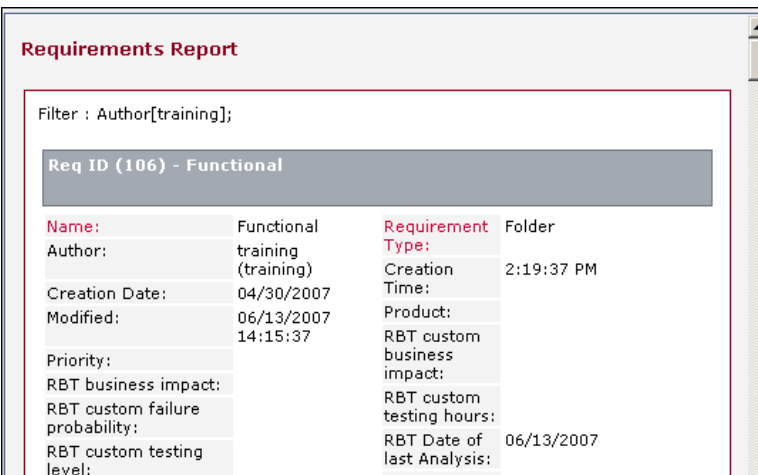
Figure 8-25 Requirements Summary Graph

- f) After reviewing the graph, close it.
3. Use the following steps to generate a BAR CHART that displays the LEVEL of each test in the test plan tree:
 - a) Open the **TEST PLAN** module.
 - b) From the menu bar, select **ANALYSIS** → **GRAPHS** → **GRAPH WIZARD**. The GRAPH WIZARD: TEST PLAN MODULE dialog box appears.
 - c) Under GRAPH TYPE, verify that SUMMARY is selected and click **NEXT**.
 - d) Under SELECT A FILTER OPTION, select **DO NOT USE A FILTER** and click **NEXT**.
 - e) From the GROUP BY list, select **STATUS** and click **NEXT**.
 - f) From the X-AXIS list, select **DESIGNER** and click **FINISH** to display the TEST PLANNING SUMMARY GRAPH.

Your TEST PLANNING SUMMARY GRAPH should be similar to [Figure 8-26](#).

- h) Select **TRAINING** and click **OK**.
- i) Click **OK** to close the FILTER dialog box.
- j) Click **APPLY** to display requirements created by the TRAINING user.

Your REQUIREMENTS REPORT should be similar to [Figure 8-24](#).



Requirements Report

Filter : Author[training];

Req ID (106) - Functional

Name:	Functional	Requirement Type:	Folder
Author:	training (training)	Creation Time:	2:19:37 PM
Creation Date:	04/30/2007	Product:	RBT custom business impact:
Modified:	06/13/2007 14:15:37	RBT custom testing hours:	
Priority:		RBT Date of last Analysis:	06/13/2007
RBT business impact:			
RBT custom failure probability:			
RBT custom testing level:			

Figure 8-24 Requirements Report

- k) Click **CLOSE** to close the report.
2. Use the following steps to generate a BAR CHART that displays the total count of requirements that you created and configure this chart to group the requirements by their review status:
 - a) From the menu bar, select **ANALYSIS** → **GRAPHS** → **GRAPH WIZARD**. The GRAPH WIZARD: REQUIREMENTS MODULE dialog box appears.
 - b) Under GRAPH TYPE, ensure that SUMMARY is selected and click **NEXT**.
 - c) Under SELECT A FILTER OPTION, ensure that USE CURRENT FILTER is selected and click **NEXT**.
 - d) For the GROUP BY list, select **REVIEWED** and click **NEXT**.
 - e) For the X-AXIS list, ensure that AUTHOR is selected and click **FINISH**. The REQUIREMENTS SUMMARY GRAPH appears.

Your REQUIREMENTS SUMMARY GRAPH should be similar to [Figure 8-25](#).

1. From the Quality Center menu, select **TOOLS → DOCUMENT GENERATOR**. The DOCUMENT GENERATOR dialog box appears.
2. To configure the document to include a title page and a table of contents:
 - a) In the DOCUMENT GENERATOR tree, ensure that the DOCUMENT node is selected.
 - b) Ensure that the DOCUMENT SETTINGS tab is selected.
 - c) In the TITLE field, type “**PROJECT STATUS AS OF <MM/DD/YY>**”.
 - d) Under the AUTHOR section:
 - i. In the NAME field, type your initials.
 - ii. In the INITIALS field, type your name
 - iii. In the **MAILING ADDRESS** field, type your e-mail address.
 - d) In the DESCRIPTION field, type **FLIGHT APPLICATION PROJECT - STATUS OF REQUIREMENTS/TEST REVIEWS**.
 - e) Click the **OPTIONS** tab and check the **FIRST PAGE** and **TABLE OF CONTENTS** check boxes.
 - f) Uncheck the **INDEX** check box.
3. Use the following steps to configure the document to include the appropriate requirements data:
 - a) In the DOCUMENT GENERATOR tree, check the **REQUIREMENTS** check box and select the **REQUIREMENTS** node.
 - b) Under the REQUIREMENTS section, ensure that ALL is selected.
 - c) Under the REQUIREMENTS LAYOUT section, ensure that FULL PAGE is selected.
4. Use the following steps to configure the document to include the appropriate test plan data:
 - a) In the DOCUMENT GENERATOR tree, expand the **TEST PLAN** node, check the **TEST LIST** check box, and select the **TEST LIST** node.
 - b) Under the TESTS section, ensure that ALL TESTS is selected.
 - c) Under the TEST LAYOUT section, ensure that FULL PAGE is selected.

Note: Ensure that no Microsoft Word document is open on your computer.

5. Click the **FULL DOCUMENT** button. The SAVE AS dialog box appears.
6. Type a name for your Word document and click **SAVE** to save the Word document on your computer. The DOCUMENT GENERATOR PROGRESS dialog box appears. This indicates that Quality Center is in the process of generating the Word document. When the Word document is generated, it appears on the screen.
7. To save the document as a favorite view for later viewing:
 - a) In the DOCUMENT GENERATOR window, click **ADD TO FAVORITES**. The ADD FAVORITE dialog box appears.
 - b) In the ADD FAVORITE dialog box, in the name field, type **FLIGHTAPP_REPORT**.
 - c) Click **OK** to close the ADD FAVORITE dialog box.
 - d) Close the DOCUMENT GENERATOR window.

Part 3: Generate an Excel Report

Use the following steps to generate an Excel report for the FLIGHTAPPLICATION project:

1. From the Quality Center menu, select **TOOLS → EXCEL REPORT GENERATOR**. The EXCEL REPORT GENERATOR window appears.
2. In the EXCEL REPORT GENERATOR window, from the Excel reports tree in the left pane, right-click **PRIVATE** and select **NEW EXCEL REPORT**. The NEW EXCEL REPORT dialog box appears.
3. In the EXCEL REPORT NAME field, type **FLIGHTAPP**.
4. Click **OK** to close the EXCEL REPORT GENERATOR dialog box.
5. In the right pane of the EXCEL REPORT GENERATOR window, click the **QUERY** tab.
6. In the Sheet 1 field, type the following SQL queries to extract the requirements coverage data:

```
SELECT REQ.RQ_REQ_STATUS as Status, Count( REQ.RQ_REQ_STATUS ) as  
Num FROM REQ GROUP BY REQ.RQ_REQ_STATUS
```

7. On the toolbar, click **TEST QUERY** to test the SQL query syntax. The query results appear in the QUERY RESULTS tab.

8. Click the **GENERAL** tab.
9. From the **STATUS** list, select **READY**.
10. In the left pane of the **EXCEL REPORT GENERATOR** window, right-click **FLIGHTAPP** and select **GENERATE EXCEL REPORT**.
11. Type a name for your Excel report and click **SAVE** to save the report on your computer. The **PROGRESS** dialog box appears. This indicates that Quality Center is in the process of generating the Excel report. After the process is complete, the Excel report appears.
12. Click **CLOSE**.
13. Log off from Quality Center.

