

A complete testing process with Rational Quality Manager

Skill Level: Introductory

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You get complete overview of the testing process by using IBM Rational Quality Manager throughout the software development lifecycle. An online bookstore application provides an example application to describe the effort from a test plan to a test report. You also learn how to integrate software requirements from IBM Rational RequisitePro with Rational Quality Manager. You submit a defect from Rational Team Concert, which is also integrated with Rational Quality Manager.

IBM® Rational® Quality Manager is a collaborative, Web-based, quality-management tool that offers comprehensive test planning and test-asset management throughout the software lifecycle. Built on the IBM Jazz[™] platform, it is designed for test teams of all sizes to use. Rational Quality Manager supports a variety of user roles, such as test manager, test architect, test lead, tester, lab manager, and roles outside of the test organization.

Introduction

In this article, you look at the complete testing process using IBM® Rational®

Quality Manager throughout the software development lifecycle. An online bookstore provides the example for the full process, including creating a test plan, executing test cases, submitting defects, and generating test reports. You also can create a test plan in IBM Rational RequisitePro when IBM Rational RequisitePro is integrated with RQM. Similarly, you see how to submit a defect to Rational Quality Manager from an integrated version IBM Rational Team Concert[™]. Before you start following the steps in the article, you need to install Rational RequisitePro v7.1 and IBM Rational Team Concert. In one procedure, you integrate Rational Quality Manager and IBM Rational Functional Tester. Make sure Rational Functional Tester is installed also.

Road map

In experiencing the complete testing process, you complete these major steps:

- Learn about the online bookstore application.
- Plan your test.
- Import a requirement from the integrated Rational RequisitePro application.
- Create and execute a test case.
- Submit a defect to the integrated Rational Team Concert application.
- Report the results of the test.

Authors' note

This article was written using IBM Rational Quality Manager Open Beta Version 1.0.1.20090310 running on a Microsoft® Windows® XP Professional SP2 server, using the Microsoft® Windows® XP Professional SP2 operating system with the Mozilla FireFox 3.0.4 browser. In addition, this article refers to a version of a bookstore demonstration application that was publicly available at the time of writing.

Welcome to the online bookstore

The online bookstore is a Web-based application that a team must test before deployment. These four steps capture the basic flow of the bookstore application. Users complete these procedures in the bookstore:

1. Log in to the bookstore.

- 2. Search for a book in the bookstore: Who Says Elephants Can't Dance?
- 3. Add the book to shopping list.
- 4. Pay for the book.

Figure 1. The bookstore search page



Plan your test

The test plan describes the overall scope of the test and the test schedule. The test plan provides a record of the test planning process. The plan also identifies test environments, entry and exit criteria, quality goals, and other aspects of the test.

When you create a test plan in Rational Quality Manager, you can base the plan on a default template or you can create a test plan. You can also define a default template or develop a new template. This flexibility makes creating test plans in Rational Quality Manager suitable for different teams that need to conduct one or numerous types of tests, such as functional verification tests, performance tests, system verification tests, globalization verification tests, and so on.

Figure 2. Sections of the default test-plan template

Manage Sections Table Of Contents + Summary Business Objectives **Test Objectives** Formal Review Requirements Test Schedules Test Estimation Test Environments Test Team Quality Objectives Entry Criteria Exit Criteria Test Cases Resources Attachments Show All Sections

Each section has an editor, an area where you can add details and information about the test. Some sections, such as Business Objectives and Test Objections, provide a rich-text editor for input. These editors provide common capabilities for formatting text, such as creating tables, setting fonts, and creating bulleted and numbered lists.

Some sections, such as Requirements and Tests Cases, provide links to additional test artifacts. Other sections include tables where you can establish criteria and measure testing progress against those criteria, such as Quality Objectives, Entrance Criteria, Exit Criteria, and Test Schedules.

Tip:

You can customize your own test-plan template by using the Manage Sections feature.

This screen capture shows the test plan for the online bookstore application:

Figure 3. The test-plan requirements and schedules

	in enner	11.5									Work	Item: Crea
5 5	ection lis	ts all of t	he conter	t and requiremen	ts associa	ated with a	given te	t plan. Y	ou can selec	t existing	requiremen	ts or define r
ns t	lo cover i	n the tes	t plan.				0					
G	roup by:	Ungrou	aped 💙						Ty	pe Filt	er Text	a.
Sto	IIA VO	- Item	is per pai	1e	Prev	ious 1-	8 of 8 1	lext		🐣 п,	41 th	× 16 18
	Status	ID T	ag	Name		Descript	ion				Owner	
		76 F	EAT2	Easy browsing		Easy bro	owsing fo	r availat	ole titles		Unassi	gned
		75 F	EAT1	Secure payme	nt me	Secure p	payment	method			Unassi	gned
		79 F	EAT3	Search by mult	tiple cr	Ability to	search	for CDs	by multiple	criteria	Unassi	gned
		80 F	EAT6	Highly scaleab	le	Highly s	caleable	to inclu	de many title	es and ef	Unassi	gned
	0	84 F	EAT4	Ability to check	k statu	Ability to	check t	he statu	is of an orde	r	Unassi	gned
		86 F	EAT8	User registratio	n go	Shopper	s should	be able	to register o	nce for.	Unassi	gned
		87 F	EAT9	Shipping Statu	5	Shopper	s should	be able	track any p	ackage t	Unassi	gned
	0	88 F	EAT10	Ability to add/r	emov	Ability to	add/ren	nove CD	s available fo	or sale	Unassi	gned
st	Sched	ules 3									Work	X Item: Crea
st :	Sched	ules 3	ies for this	; Test Plan.							Work	X (Ilem: Crea
st line Tes	Sched the test t Schedu	ules 🔇 milestori ule Table	les for this	i Test Plan.					Tu	Te Filt	Work	X Ilem: Crea
st	Sched the test t Schedu	ules 3 milestor ule Table	es for this ::	; Test Plan.	Previ	ious 11.	2 01 2 1	lavt	Ту	pe Filt	Work er Text	Item: Cree
st fine Tes	Sched the test t Sched	ules milestor ule Table	es for this :: s per pag	; Test Plan. je	Previ	ious 1-	2 of 2 1	lext	Ty	pe Filt	Work er Text	x (Iem: Cree 2 + x =
st fine Tes	Sched the test it Sched rv All Name	iules milestor ule Table <u>v</u> Item Descript	ies for this :: is per pag ion Plan Date	; Test Plan. je med Start P	Previ Ianned Er	ious 1 - nd Date [2 of 2 1 Planned Duration	Jext Points	Ty Actual Start	pe Filt Date A	Work er Text ctual End Da	illem; Cree
ine Tes	Sched the test it Sched re All Name Tter	ules 3 milestor ule Tabk w Item Descript Test L	ies for this t: is per pag ion Plan pate	rest Plan.	Previ lanned Er Jec. 15,	ious 1 - nd Dale [2009] [2 of 2 1 Planned Duration 15 d	Points	Ty Actual Start Dec 10, 2	pe Filt Date A	Work er Text dual End Da	tillem: Creating

Previous |1-2 of 2| Next

In addition to the test-plan requirements and schedules, you need to specify the environment or environments in which to test. Browsers that customers use and the software that you run to support the online bookstore are integral application components that an effective test must cover.

Figure 4. The test-plan environments and team members

			Work	Item: Creat
ts the various environme erating systems and othe	nts supported and tested r items. This list is then u	l by this test plan. You can add variou used to generate test environments.	s platforms such as browsers, da	tabases,
Platform Coverage	Test Environment			
			Type Filter Text	Q.
Show All 🤟 Items p	per page	Previous 1-5 of 5 Next		0
Туре	Attributes			
Application Server	WAS 6.1			
Browsers	Firefox, Internet Expl	orer 7		
DataBase	DB2 9.x			
OperatingSystem	AIX 5.3			
Test Adapter	Rational Functional 1	ester		
		Previous [1-5 of 5] Next		
st Team 🕐				X
			Work	llem: Creat
ecify the test team that wi ton.	Il execute on this test pla	n. Test teams are defined by an admi	nistrator selecting the Manage Te	am Areas
est Team: test for a	rticle Tean 🛛 💌	Manage Teans		
eam Alice				

Essential decisions in test planning include deciding when a test is ready to undergo the test you are developing. Moreover, you must decide when an application under test is ready to exit this testing stage. You can make the entry and exit criteria simple or complex depending on the test.

Figure 5. The entry and exit criteria in the test plan

fines the prerequisite items that must be achieved be	fore testing can begin.		
Intry Criteria Description	Current Value	Status	Comment
Jnit Test 100% pass		Successful	
est Environment is ready		Successful	
fest Case is ready		Successful	
cit Criteria 👔	.0.		×
() (it Criteria (?)	ting can be concluded	1	X E Work Item: Create
cit Criteria (?) fines the conditions that need to be met before the tes	ting can be concluded	1.	Work Item: Creat:
(I Criteria ?) fines the conditions that need to be met before the tes bit Criteria Description	ting can be concluded	l. Status	Work item: Create
t Criteria [?] fines the conditions that need to be met before the tes bit Criteria Description	ting can be concluded	i. Status Not Started	Work Item: Create
t Criteria [3] fines the conditions that need to be met before the tes but Criteria Description All identified test cases are attempted All severity 1&2 defects are closed or postponed	ting can be concluded	I. Status Not Started Not Started	Work Item: Create

Integrate requirements from Rational RequisitePro

For many teams, requirements management helps to ensure life-cycle traceability. By linking the test cases in your test plan with requirements that product managers, program managers, or other members of the larger, cross-functional team have assigned, you can verify that all requirements are tested.

If you define your requirements in an external tool, such as Rational RequisitePro, you can import the requirements into Rational Quality Manager, where they are accessible in the Requirements view. You can also associate requirements with test plans and test cases or add requirements to your test plan manually.

When requirements are updated or deleted in the original requirements application, the status of the requirement in Rational Quality Manager is updated with the **Suspect** icon ($_{\textcircled{}}$). You need to update the test plans or test cases that are associated with these suspect requirements.

Note:

Rational Quality Manager integrates with Rational RequisitePro Version 7.1 and requires the Rational RequisitePro client for Web to implement the integration. Be

sure to select the Web Components option when you install Rational RequisitePro.

After you install and configure Rational RequisitePro, you can use the application to manage your requirements and import those requirements into Rational Quality Manager.

The following screen capture from Rational RequisitePro shows this requirement: The online bookstore application must provide a way for customers to search the extensive list of books:

vener ar	Revision Attributes Traceability Higrarchy Dis	cussion
уре:	FEAT: Product Feature	-
[ame:	Ability to search for books by name	
e <u>x</u> t:	Since there will be so many books available for purchase, the system must provide extensive searching capabilities.	^
ackage:	Web Shop System Brows	×

Figure 6. The book-search requirement in Rational RequisitePro

To integrate Rational RequisitePro and Rational Quality manager and import requirements:

- 1. Install Rational RequisitePro v7.1, and configure a Web server for the application.
- 2. Create a Rational RequisitePro v7.1 project, and add one or more users to the project.
- 3. Add requirements to the Rational RequisitePro project.
- 4. In Rational Quality Manager, point to the **Requirements** icon (), and click **Import Requirements**.
- 5. Select Import from an external requirement system, and click Browse;

then select Rational RequisitePro.

Figure 7. Requirement source configuration

Host Name: 9, 123, 233, 55 O	Source:	RequisitePro	×	
Port 80	Host Name:	9. 123. 233. 55	0	
1 ML. 50	Port:	80		

- 6. In the **Source**, select **RequisitePro**.
- 7. In **Host Name**, type the host name or IP address of the host.
- 8. In **Port**, type the port number of the host, and click **Next**.
- 9. Select the name of the project in the requirements repository.
- 10. Type your user ID and password for the requirements repository, and click **Next**.

Figure 8. Requirement view customization

Type	1	Product Fea	ature	*		
Group by: Priority M			×		<i>Q</i>	
ana.	A11 🛩	Items per pa	ge Previo	us [1-15 of 15] Next		12
1	Status	Tag	Name	Description		Review Statu
•	Could	(2 items)				
•	Must	(1 - 6 of 6)				
		FEAT1	Secure payment method	Secure payment method		Incorporated
		FEAT3	Search by multiple criteria	Ability to search for CDs by multiple criteria		Approved
		FEAT6	Highly scaleable	Highly scaleable to include many titles and effect	ive searching t	Proposed
		FEAT11	Ability to check on customer orders	Ability to check on Shapper orders		Incorporated
		FEAT12	Maintain customer information	Maintain Shopper information		Proposed
E		FEAT14	Use Legacy System	Use existing legacy Warehouse System for shipp	ang orders.	Proposed
•	Shoul	d (1 · 7 of 3	7)			
		FEAT2	Easy browsing	Easy browsing for available titles		Proposed
		FEAT4	Ability to check status of an order	Ability to check the status of an order		Validated
		FEAT7	Ability to customize the Web site	Shoppers should be able to customize the Web s	site.	Proposed
E		FEAT8	User registration good for future purcha	Shoppers should be able to register once for all p	urchases; they	Incorporated
		FEAT9	Shipping Status	Shoppers should be able track any package that	has been shipp	Approved
		FEAT10	Ability to add/remove offerings	Ability to add/remove CDs available for sale		Proposed
		FEAT13	Generate reports	Generate reports		Incorporated
			Previo	us [1-15 of 15] Next		
						tude Tenny

- 11. In **Type**, select the requirement type of the requirements to import. A list of requirements is displayed.
- 12. Select the requirements from the list. To import all the requirements that are listed, select the check box next to the Status column.
- 13. Click **Import**, and then click **OK**. The requirements are imported into Rational Quality Manager.
- 14. Point to the **Requirements** icon (), and click **All Requirements**. The requirements that you imported are displayed in the Requirements editor.

Figure 9. The Requirements view list

Re	quire	ements (7)			
Gro	up by.	Status 💌	í.	Type	Filter Text 🖉
hos	· A11	🐱 Items per pa	ge	Previous [1-15 of 15] Next	* * * * *
	ID.+	Tag	Name	Description	Owner
•	😑 no	rmal (1 - 15 c	xf 15)		
	75	FEAT1	Secure payment method	Secure payment method	Unassigned
	76	FEAT2	Easy browsing	Easy browsing for available titles	Unassigned
	77	FEAT5	E-mail notification of new title	E-mail notification for Shoppers when new titles that may inte	unassigned
	78	FEAT15	Interactive guide to site throug	The Web site will include an interactive guide in the form of	Unassigned
	79	FEAT3	Search by multiple criteria	Ability to search for CDs by multiple criteria	Unassigned
	80	FEAT6	Highly scaleable	Highly scaleable to include many titles and effective searchi	Unassigned
	81	FEAT11	Ability to check on customer	Ability to check on Shopper orders	Unassigned
	82	FEAT12	Maintain customer information	Maintain Shopper information	Unassigned
	83	FEAT14	Use Legacy System	Use existing legacy Warehouse System for shipping orders.	Unassigned
0	84	FEAT4	Ability to check status of an or	Ability to check the status of an order	Unassigned
	85	FEAT7	Ability to customize the Web si	Shoppers should be able to customize the Web site.	Unassigned
	86	FEAT8	User registration good for fut	Shoppers should be able to register once for all purchases;	Unassigned
	87	FEAT9	Shipping Status	Shoppers should be able track any package that has been s	Unassigned
	88	FEAT10	Ability to add/remove offerings	Ability to add/remove CDs available for sale	Unassigned
	89	FEAT13	Generate reports	Generate reports	Unassigned

The next step is to associate each imported requirement with a test plan. You associate requirements with test plans to ensure that you test all product requirements thoroughly.

To associate one or more requirements with a test plan:

- 1. Open a test plan.
- 2. From the Table of Contents, click **Requirements** to display the Requirements section.
- 3. Click the Add Requirement(s) icon (___).
- 4. Select the requirements to associate with the test plan, and click **OK**.

The requirements are associated with the test plan.

Create a test case

Test cases are essential to maintaining high quality throughout the testing process. Test cases define what you need to validate to ensure that the system under test works correctly.

Rational Quality Manager provides a test-case template with some defined sections. For example, the template includes sections for preconditions and post-conditions and test execution and descriptions of expected results. You can also create a test case for a current test plan and associate your requirements with the test case. When you add a test script to a test case, it is listed in the Test Scripts section of the test case.

Note:

Rational Quality Manager can integrate with IBM Rational Functional Tester version 8.0 or later, IBM Rational Robot version 7.0.2 or later, IBM Rational Performance Tester version 8.0 or later, and IBM Rational Service Tester version 8.0.

Here is a Rational Quality Manager test case and test script that pertains to a search for this book by using the online bookstore application: *Who says elephants can't dance?*.

Figure 10. A book-search test case in Rational Quality Manager



Listing 1. Test script of a search for a book titled, Who Says Elephants Can't Dance?

```
public void testMain(Object[] args)
{
     startBrowser("Internet
```

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```
Explorer", "http://localhost:8081/BookStore/");
        text_username().click(atPoint(21,2));
browser_htmlBrowser(document_demosBookStore(),DEFAULT_FLAGS).inputKeys("yantingz{TAB}");
browser_htmlBrowser(document_demosBookStore(),DEFAULT_FLAGS).inputChars("yantingz");
        button_submit().click();
        text_widget_searchText().click(atPoint(41,14));
browser_htmlBrowser(document_demosBookStore(),DEFAULT_FLAGS).inputChars("who
says elephants can't dance");
        button_search().click();
        try
if(image_clickToShowDetailOfTheBo().performTest(ClickToShowDetailOfTheBook_textVP())){
        logTestResult("Search for book named who says elephants
can't dance.", true, "Pass");
        else{
        logTestResult("Search for book named who says elephants
can't dance.", true, "Fail");
        }catch(Exception e) {
        logException(e);
}
```

Associate a test script with your test case

If you have test scripts, you can add them to your test case. Of course, you can also create a script. This example provides all the steps to associate a test script with your test case.

- 1. Create a test case, and then open it.
- 2. Select the **Test Scripts** section in the Table of Contents.
- Click the Add Existing Test Script icon (-). The Add Test Scripts window opens.
- 4. Click **Run** to view all the test scripts in the project or use the View Builder to filter the result.
- 5. Select the script or scripts to add to the test case, and click **OK**.

Figure 11. The Add Test Scripts window

Add	Toet	Scrinte	5
AUG	16.91	actifica	5.

I will rear scribes .	only		
lame:			
Driginator:	Any	*	
State:	Any	×	
Script Type:	Any	~	
			Reset
	- I		Type Filter Text 🥖
oup by: Ungroupe			
Ungroupe	Add Test Scripts		Script Type

- 6. Save the changes to the test case.
- 7. Point to the **Construction** icon (), and click **View Test Case**. The

test case that you created is displayed in the Test Case editor, as shown in Figure 12.

Figure 12. A test-case list

Build	icr	lowing attributes, or see more: @						
by.	Ungroupe	dw				T	ype Filter Text	R
11	items p	oer page	Previous	1-2 of 2 Ner	t		► 1 S ×	TR.
ID	Suspect	Name	State	Category 🐁	Function 💁	Weight 🐁	Modified	
52	0	Search by multiple criteria_Coverage	Draft	Web Shop	Search	80	3 minutes ago	
53	0	Check the status of an order_Coverage	Draft	Web Shop	Status of order	100	1 minute ago	
3 4 1	by a by a by . 10 52 53	uilder by any of the fo by. Ungroupe it with thems p it Suspect 52 \$ 53 \$	uildor by any of the following attributes, or see more: by: Ungrouped items per page 10 Suspect Name 52 Search by multiple criteria_Coverage 53 Check the status of an order Coverage	uildor by any of the following attributes, or see more: by: Ungrouped items per page Previous ID Suspect Name State 52 Search by multiple criteria_Coverage Draft 53 Check the status of an order Coverage Draft	uilder by any of the following attributes, or see more: by: Ungrouped terms per page D Suspect Name State Category 52 Search by multiple criteria_Coverage 53 Check the status of an order Coverage D raft Web Shop	uilder by any of the following attributes, or see more: by: Ungrouped terms per page Previous [1-2 of 2] Next 10 Suspect Name State Category Function 52 Search by multiple criteria_Coverage Draft Web Shop Search 53 Check the status of an order Coverage Draft Web Shop Status of order	uilder by any of the following attributes, or see more: @ by: Ungrouped m Image: terms per page Previous [1-2 of 2] Next ID Suspect Name State Category in Function in Weight in 52 Search by multiple criteria_Coverage Draft Web Shop Search 80 53 Check the status of an order Coverage Draft Web Shop Status of order 100	uildor by any of the following attributes, or see more: by: Type: Filter Text by: Type: Filter Text image: tems per page Previous [1-2 of 2] Next image: tems per page State Category 10 Suspect Name State Category 52 Search by multiple criteria_Coverage Draft Web Shop Search B0 3 minutes ago 53 Check the status of an order Coverage Draft Web Shop Status of order 100 1 minute ago

Replace literal values with external test data in manual test scripts

To use external data in a manual test, you must associate test data with the manual

test script. After you establish this association, you can use the values in the test data to replace literal values in the manual test script.

Before completing these steps, create test data and associate a test case with a manual test script.

To replace literal values with test data in a manual test script:

- 1. Create the external test data, the file must be in a comma-separated value (CSV) format with the variable information in the first row.
- 2. From the Test Scripts section of the test case, open the test script by clicking the name. The test script opens in the Manual Test editor.
- 3. From the Test Data list, click the test name, and click **Save**. This action associates the test data with the test script.
- 4. Insert the test data variable into the manual test script:
 - a. Click the step to which to add a test data variable, and then move the cursor to the location to insert the variable.
 - b. From the toolbar, click the **Insert Test Data Column** icon (
).
 - c. Select the variable, and click **OK**. The variable is inserted at that point in the step.
 - d. Repeat these steps to add additional variables.

Figure 13. Adding external data to test scripts

Login: Input invalid username and password_Variation ³ Test Script Overview View Snapshots	
Originator: Maggie Action: Select Action 💌 🗢 State: Under Review	
Type: Manual Test Data: Login_td	
< Click here to enter a description >	
Manual Steps 🕲	
1 🗉 • Go to sign in page,input <u>UserName</u> and <u>Password</u> , click "submit"	• ×
2 - Error message:Invalid user name or password !	· ×
Click to add	

During test execution, the literal values are replaced with the test data.

Figure 14. Running test-script steps with variables

E	M	.ogin: Input i Ianual Script	nvalid username or password_Variation Execution	Cancel Cline and whose results
Test	Env	vironment		
Tes	t Scrip	pt Name	Login: Input invalid usemame and password_Variation	0%
Scrip	t Ste	eps	u 19 + 10 📁	Mugning Test Data Iteration 1 of 112
\$	# 1 2	Type Result	Description Ge to sign in page, input/ganting and ganting , click "submit" Error message: Invalid user name or password !	

Run a test case

Rational Quality Manager provides a variety of ways to run test cases, making the tool highly adaptable for many types of test teams. In this example, you run a Rational Functional Tester script.

- 1. Integrate Rational Quality Manager with Rational Functional Tester:
 - a. Click the startadapter.bat batch file that is installed by default into the C:\Program Files\IBM\SDP\FunctionalTester\RQMAdapter directory.

The Rational Functional Tester Adapter window opens as shown in Figure 15.

Figure 15. The Rational Functional Tester Adapter Window
--

Connection <u>I</u> nf	ormation Adapter Console
Server <u>U</u> RL:	https://localhost:9443/jazz
<u>L</u> ogin:	ADMIN
<u>P</u> assword:	******
Project Area:	Quality Manager
Adapter <u>N</u> ame:	RFT Adapter on Maggie
Save Passwor	rd

- Enter the Server URL for the Rational Quality Manager server, a valid login ID and password; then specify a unique adapter name. The adapter name is the name that is displayed in the Rational Quality Manager Web user interface (UI) to identify this instance of the adapter.
- c. If you do not want to enter your password each time you start the adapter, select **Save Password**.
- d. After you complete all fields, click **Start Adapter**.
- e. When the connection is made, the Connected is displayed at the bottom of the Rational Functional Tester Adapter window. You can also click the **Adapter Console** tab (Figure 16) to see the adapter status.

Figure 16. Checking the adapter status in the Rational Functional Tester adapter

Rational Functional Tester	Adapter for Rational Quality Manager
Connection Information	Adapter <u>C</u> onsole
.01:48:34:875 PM Login	to https://localhost:9443/jazz/

- 2. Point to the **Construction** icon (), and click **View Test Case**.
- 3. Choose the test cases you want to run.
- 4. In the upper-right corner of the test case, click **Run Test Case**, which opens the Run Test Case dialog box.
- 5. Make selections based on your project. For example, choose selections in **Test environment** and **Associate Results with a Test Plan** (Figure 17).

Figure 17. The Run Test Case window

Test Execution Records	Search for book by name_C	~		
Test Environment	WAS 6.1_DB2 9.x_AIX 5.3_1	V		
Test Script	Search for book by name	~		
Machine	IBM-L3F7784		۲	0
	a Taat Dian			
Associate Results with Test Plan	Bookstore Test Plan	Y		
Test Milestone	Iteration 1	Y		
Adapter Information				
Host Name IBM-L3F7784				
State Adapter is Available	ð.			
Reserved Not Reserved				

6. Click **OK.** The Script Execution page opens as shown in Figure 18.

Figure 18. The Script Execution page

Home View Test Case	view Test Execution Records	Script Execution		
Search for Functional Teste	book by name_Coverage E r Script	xecution	Connel	Clear and show results
Machino Namo: P: Adapter Name:	IBM L3F7784 9.123.233.19 RFT Adapter on IBM4L3F7784			
Test Environment				
Test Script Name Application Server Drowaera DataBase OperatingSystem Test Adapter	Search for book by name WAS 6.1 Internet Explorer 7 DB2 9.x AlX 5.3 Rational Functional Tester			
				100%

A complete testing process with Rational Quality Manager © Copyright IBM Corporation 2010. All rights reserved. 7. After you run the test script, click **Close and show results**. You can see the test results in Rational Quality Manager as shown in Figure 19.

Figure 19. Test-run results in Rational Quality Manag	Figure ⁴	19.	Test-run	results i	in R	ational	Quality	Manage
---	---------------------	-----	----------	-----------	------	---------	---------	--------

Functional 1	on Result			Discourd Changes See
Actual Result: Host Name: Owner:	© Pa IBM Mag	ssed (*) 1.3F7784 gje		
Test Milestone: Test Case: Test Script Test Data: Weight	Rera Sea Sea Una 100	tion 1 rch for book by name_Coverage rch for book by name ssigned	Start Time: Nov 13, 2009 1:34:23 PM End Time: Nov 13, 2009 1:34:57 PM Total Run Time: 35 sec	
Fail 00 Inconclusive 00 Blocked 00 Attempted 00	nt (3)	and Evolver 7 Rational Functional Tester		
Machine	Quantity	Hardware	OS & Software	
WAS Server (9.123.196.133)	1	pSeries (2GHz, 2G RAM, 40G disk)	AIX 5.3 ML6 WAS 6 0 2 19 DB 8.2 FP16 32bit	
DB Server (9.123.196.132)	1	pSeries (2GHz, 2G RAM, 40G disk)	AIX 5.3 ML6, WAS 6.1.0.17 DB2 server v9.1 FP5 64bit	
Client	1	Unknown	Windows XP Professional E 7.0 SP2	

8. On the Execution Result page, click the **Rational Functional Tester Simple Log** link. The test results open in your browser as shown in Figure 20.

Figure 20. The Rational Functional Tester simple log

200941171191	下午01时34分43秒	Script start [tasks search_book]
search_book ch_book.java		
2009年11月13日	下午01时34分43秒	Start application [http://localhost.8081/BookStore/]
st:8081/BookStore/ .search_book .ch_book.java		
2009年11月13日	下午01时34分54秒	ClickToShowDetailOfTheBook_text
wDetailOfTheBook_text search_book rch_book.java h_book.ClickToShowDo ickToShowDetailOfThe	t etailOfTheBook_text base rftvp Book_text.exp.rftvp	
2009年11月13日	下午01时34分54秒	Search for book named who says elephants can't dance
search_book		
	search_book ch_book.java 2009年11月13日 st 8081/BookStore' search_book 2009年11月13日 wDetailOfTheBook_tex search_book ch_book.java b_book.ClickToShowD ickToShowDetailOfThe 2009年11月13日 search_book search_book	search_book ch_book.java 2009年11月13日下午01時34分43秒 st8081/BookStore/ search_book ch_book.java 2009年11月13日下午01時34分54秒 wDetailOfTheBook_text search_book iskToShowDetailOfTheBook_text base rftvp ickToShowDetailOfTheBook_text exp.fftvp 2009年11月13日下午01時34分54秒 search_book

After running your test, you can add attachments, log defects, and add comments to the script.

Submit defects in Rational Team Concert

You can set up communication between Rational Quality Manager and Rational Team Concert so you can create and track defects in Rational Team Concert. After you set up communication, you can also create and track defects in the Rational Quality Manager user interface, even though the defects themselves are maintained in Rational Team Concert.

Note:

Before you begin, verify that you can log in to Rational Quality Manager from the computer that hosts the Rational Team Concert server. Likewise, verify that you can log in to the Rational Team Concert Admin Web UI from the computer that hosts the Rational Quality Manager server.

To set up defect tracking in Rational Team Concert:

1. Set up Rational Team Concert to accept cross-domain requests from Rational Quality Manager:

- a. In the Rational Team Concert Admin Web UI, click the Server tab.
- b. In the Configuration pane, click **Advanced Properties**.
- Under Core Repository Component, scroll to the com.ibm.team.repository.service.internal.xdomain.DynamicProxyFrameService component.
- d. In **Current Value** of the **Cross Domain Host Whitelist** property, type the various URLs that can be used to access the Rational Quality Manager Jazz Team Server. Separate each path with a comma, and try to include all possible paths. Consider these URLs, for example:

https://myserver:9443/jazz, https://myserver.ourdomain.mycompany.com:9443/jazz, https://9.12.345.67:9443/jazz

These examples include the simple host name, the host name with the domain name, and the IP address.

To configure multiple Rational Quality Manager servers, use commas to separate each server URL.

Note:

These paths must be the same that users use to access Rational Quality Manager.

- e. For the Enable Cross Domain Communication property, in Current Value select true.
- f. Scroll to the com.ibm.team.repository.servlet.internal.ServletConfigurationService component.
- g. Type the host name of the Rational Team Concert server.
- h. In Use Canonical Host Name, select false.

Figure 21. Rational Team Concert administrator configuration window

	none		
com.ibm.team.repository.service.internal.xdomai	n.DynamicProxyFrameService		Preview
Property	Current Value		
Cross Domain Host Whitelist	https://9.123.237.22.9443/jazz,https://rgm:9443/jazz		
	Default Value		
	none		
Property	Current Value	Default Value	
Enable Cross Domain Communication	true 💌	false	
com.ibm.team.repository.servlet.internal.Servlet	Configuration Service		Preview
Property	Current Value		
Host Name	(9.123.233.89		
	Default Value		
	none		
Property	Current Value	Default Value	
Repository HTTP port	9080	9080	
Repository HTTPS port	9443	9443	
Use Canonical Host Name	(false 💌)	true	
WS Allow Identity Assertion	false 🛩	true	
WS Logging Exceptions	false 🛩	false	
WS Use GZIp	true 💌	true	

- i. Click Save.
- 3. Set up Rational Quality Manager to communicate with Rational Team Concert.
 - a. In the Rational Quality Manager user interface, click **Admin**, and then click **Jazz Server Administration**.
 - b. Click Advanced Properties.
 - c. In **Adapter for RTC Component**, go to the com.ibm.rqm.adapter.rtc.service.internal.RTCDefectsCollector component, and modify the properties as necessary.
 - If necessary, in Current Value, type the correct user name and password for the Rational Team Concert Jazz Server administrator. At minimum, user-name account must have JazzUsers repository permissions and also have an assigned Client Access License.
 - If necessary, specify a period in **Delay** or accept the default value.

The delay value determines how frequently the Rational Quality Manager server synchronizes with the Rational Team Concert server. The default period is 500 seconds. To see changes more frequently, decrease the delay. If decreasing the delay produces too great a load on the Rational Quality Manager server, you can increase the delay.

• If necessary, update the period in **Draft Link Lifespan** or accept the default value.

This value specifies the time before a draft defect expires automatically. The default period is 1000 seconds. If a user creates a defect or associates an existing defect, the user must save the defect before the draft link lifespan times out.

d. Also in **Adapter for RTC Component**, go to the com.ibm.rqm.adapter.rtc.service.internal.rest.ConnectionRestService component, and modify the properties as necessary. In **Current Value**, type the correct user name and password for the Rational Team Concert Jazz Server user. This user-name account must have JazzUsers repository permissions and also have a Client Access License assigned to it.

Figure 22. Rational Quality Manager administrator configuration

And in case of the local division of the loc	and the second			
Back to System Properties			Trps to Search Q. Adver	
	Advanced Properties		System Properties	
itatus	/ aranged r repenses	Jazz Server Administration		
Status Summary	Hide properties set to default values		Jazz Project Administration	
Component Status	Hide unchanged properties		Jazz User Administration	
Active Services	Adapter for RTC Component			
onfiguration	com.ibm.rgm.adapter.rtc.service.internal.RTC	DefectsCollector		
E-mail Settings	Property	Current Value		
Database Connection Feed Settings Ucense Key Management	User Name	(hujie		
		Default Value		
Advanced Properties		ADMIN		
	User Password	······		
		Default Value		
	< Property	Current Value	Default Value	
	Delay (seconds)	600	500	
	Draft Link Lifespan (seconds)	(1000)	1000	
	com.ibm.rgm.adapter.rtc.service.internal.rest	ConnectionRestService		
	Property	Current Value		
	User Name	hujie		
		Default Value		
		ADMIN		
	User Password	(
		Default Value		

- e. Scroll to the com.ibm.team.repository.servlet.internal.ServletConfigurationService component.
- f. Type the host name of the Rational Quality Manager server.
- g. In Use Canonical Host Name, select false.
- h. Click Save.

- 4. Set up the linkage between the Rational Team Concert project area and the Rational Quality Manager project area. After you set up this linkage, the defects that users create in Rational Quality Manager are stored in the corresponding Rational Team Concert project area.
 - a. In Rational Quality Manager, click **Admin**, and then click **System Properties**.
 - b. Click **Defects Provider**, and in **Provider** select **Rational Team Concert (Defects)**.
 - c. Click **Configure**. This action starts a wizard for setting up Rational Team Concert as the defect provider.
 - d. In URL, type the full URL of the Rational Team Concert server, for example, https://rtc_server1:9443/jazz.
 - e. In **Name**, type a name for this particular Rational Team Concert server.
 - f. Optional: In **Description**, type a description of the server.

g. Click Next.

Note:

If you receive a warning message, Security Error: Domain Name Mismatch, click OK. If you receive the Verify the Logged in User request, click Continue or click Log in as different user.

- h. On the next wizard page, select the Rational Team Concert project area for which the defects will be created. The default value is the RQM Defects project area.
- i. Click Finish.

Figure 23. Rational Quality Manager administrator configuration, continued>

Home System	n Properties					Trow to Restt
Administratio	'n				Atrest	Jazz Project Administration Jazz User Administration
						Feed Views
Artifact Option Defects Provide Regulations of Parameters	at Properties	Defects Provider Select and configure the re	pository where defects o	vill be created ())	Rational Team Concert Project Area Select the project area	a for which the defects will be created.
Report Properti Global CPU limi Artifact State Execution State	er tation Transition Con	Defects Provider Provider:*	Rational Team C	Concert (Defects)	Requisition 992,Frank3, 2_FM08.1 GME	~
Sent Pint Categ Sent Case Categ Related Sites	ories V	Summary: Status:	cqp4.0 https://9 © Click to verify Configure	123.233 89-9443/jazz (Lotas Hashops Lotas Hashop Saustops COP 2009 Kinalayas Saustops 4, 8 QAT Sherps	
Rational Team Con	voert			1		
Repository Specify the Rati	ional Team Concert	D server to connect.	ialog I		Dialog 3	
URL: *	https:/	/9.123.233.89:9443/jac	u	Login Required		
Name: * Description:	cqp4.0			Login to 'cgp4.0'.		Club for) Finith Count
				In order to perform the op Concert Defects Provider server "cop4.0" (https://9.	/, you need to login to the 123 233 89:9443(jazz/).	\square
				UserID: * Password:		P
		_		Dialog 2		
		C.Back Bert. >	Firmsh Cancal		Log In Conce	a

After you complete the wizard, the Defects Provider page is updated, showing that the status is OK.

After you complete these steps, you can create and track defects that are saved in Rational Team Concert.

Note:

If you create defects after running a test script, you can create and track the defects in Rational Team Concert. If you click **Defects** on the left navigation, the defect is only in Rational Quality Manager, and is not tracked in Rational Team Concert.

Report test results

Test managers and test leads are intensely interested in the status and results of tests. Reports from Rational Quality Manager provide this essential information.

Rational Quality Manager provides an array of reports that can be run anytime. Three reports represent some of the information that test managers and test leads can obtain from Rational Quality Manager. The following charts are generated from preformatted reports in Rational Quality Manger. You can also save report-generation parameters and export reports.

Plan Requirements Coverage by Test Case

This report lists the number of requirements that are associated with the test case.

Plan Requirements Coverage by Test Case 8 overed Not Covered Test cases's count of how many requirements are associated December 1, 2009 4:11:35 PM

Figure 24. Plan requirements coverage by test case

The Execution status by Test Schedule report

This report lists the status of execution work items by test schedule. You can select several plans to see the execution results for multiple plans.

Test iteration	Tester	Test Environment	Test case	TER	Weight	Points passed	Points failed	Points blocked	Points inconclusive	Points attempted	Attempt
teration 1											
Totals					180	180	0	0	0	180	5
	yantinga										
	rotais	WAS 6 1 DB2 9 x AIX 5.3 Firefox Rational Superformal Tester			160	160	<u> </u>	<u> </u>	2	100	
		Totals			100	100	0	0	0	100	4
			Login: Input invalid username and password Variation				······				
			Totals		100	100	0	0	0	100	4
				40	100	100	0	0	0	100	4
		WAS 6.1_DB2 9.x_AIX 5.3_Internet Explorer 7_Rational Functional Tester									
		Totals			80	80	0	0	0	80	1
			Search for book by name. Coverage								
			Totals		80	80	0	0	0	80	1
				41	80	80	0	0	0	80	1
teration 2											
Totals					200	0	100	100	0	200	3
	yanting Totals	WAS 5.1_DB2.9.x_AlX 5.3_Firefox_Rational Functional Tester			200	0	100	100	0	200	3
		Totals			100	0	0	100	0	100	1
			Pay for books_Coverage								
			Totals		100	0	0	100	0	100	1
		WAS 6.1_DB2 9 x_AIX 5.3 Internet Explorer		43	100	0	0	100	0	100	1
		7 Rational Functional Tester			100		100			100	
		TULARS	Add to shopping		100		100			150	
			Totals		100	0	100	0	0	100	2
			i utalia	42	100	0	100	0	0	100	2
	_			-		-		1.70	10-		17

Figure 25. The Execution by Test Schedule report

December 3, 2009 10:45:50 AM

Execution and defects by owner

This report lists the status of execution work items and defects by different owners.

Figure 26. A report showing execution work item and defects by owner

Tester	Test Plan	Iteration	TERID	TER Status	Defect ID	Defect name
pengcy						
	Bookstore Test Plan					
	and the second	Iteration 1				
			41	Passed		
			44	Passed		
		Iteration 2				
			43	Passed		
					206	Couldn't pay for the book.
			45	Passed		
yantingz						
	Bookstore Test Plan					
		Iteration 1				
			40	Passed		
		Iteration 2				
			42	Passed		
					205	Couldn't add to the shopping list.

December 3, 2009 11:34:14 AM

Depending on your focus and requirements, you can look at the same information by tester, owner, plan, or computer that was tested. With these different views, you have different ways to get data for comparison.

The software developers receive information about the defects that testing found and work to correct the problems. After that, the application is tested again to ensure that the developers corrected the problem and introduced no other problems.

When quality criteria are met and all defects are resolved, the team can deploy the software.

Summary

You established requirements for the application and captured them in Rational RequisitePro, which can be integrated with Rational Quality Manager. You have developed test cases and test scripts for the test cases. After running a test case and script, you logged defects for the product. You provided reports to managers and others on the team. Rational Quality Manager, working with Rational RequisitePro, Rational Functional Tester, and Rational Team Concert, provides critical, end-to-end tools for developing and maintaining high quality software.

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Resources

Learn

- Check the Rational Quality Manager page on IBM® developerWorks® for links to product documentation, articles, tutorials, courses, downloads, and other useful areas.
- Explore the Rational Quality Manager Information Center for technical details.
- For tips, read these developerWorks articles by Michael Kelly: Getting started with IBM Rational Quality Manager (December 2008) and For Managing your first project with IBM Rational Quality Manager (October 2008).
- Browse the IBM Quality Management page to learn more about what is available.
- Find more information about IBM Rational Quality Manager and related products on the Software Testing and Quality Management of ibm.com.
- Get tips, tricks, and updates, from the IBM Rational Quality Manager blog for technical resources and best practices for Rational Software Delivery Platform products.
- See the Rational Quality Manager product roadmap on developerWorks -- a resource roadmap for all users.
- Find more articles about IBM Rational Quality Manager on the developerWorks Technical library.
- Learn about other applications in the IBM Rational Software Delivery Platform, including collaboration tools for parallel development and geographically dispersed teams, plus specialized software for architecture management, asset management, change and release management, integrated requirements management, process and portfolio management, and quality management.
- Visit the Rational software area on developerWorks for technical resources and best practices for Rational Software Delivery Platform products.
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- Subscribe to the IBM developerWorks newsletter, a weekly update on the best of developerWorks tutorials, articles, downloads, community activities, webcasts and events.

Get products and technologies

- See the information center that comes with Rational RequisitePro and the publicly-available Information Center.
- Download the free trial version of Rational Quality Manager.
- Download these IBM product evaluation versions and get your hands on application development tools and middleware products from Rational®, DB2®, Lotus®, Tivoli®, and WebSphere®.

Discuss

- Join the Rational Quality Manager forum, which also includes discussions about Rational Test Lab Manager.
- Check out developerWorks blogs and get involved in the developerWorks community.

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