

Getting started now with Rational Performance Tester 9.1.0

Contents

Chapter 1: Start with Rational Performance Tester	5
Start now	
Chapter 2: Performance testing	
Rational Performance Tester	
Chapter 3: Installation details	13
Chapter 4: Testing workflow	15
Setting performance requirements	16
Verifying the recorded baseline at playback	
Chapter 5: User load simulation	
Putting more users into a test	
Setting user load stages	
Chapter 6: Test results	23
Glossary	
Index	27

Start with Rational Performance Tester

Topics:

• Start now

Start now with *performance testing* with Rational Performance Tester. Download and install the Rational Performance Tester *Starter Edition*.

Related tasks

Putting more users into a test on page 20 Verifying the recorded baseline at playback on page 16 Setting performance requirements on page 16

Start now

- 1. Download and install Rational Performance Tester Starter Edition.
- 2. Start Rational Performance Tester.
- **3.** Close the **Welcome** screen.
- 4. Click File > New > Performance Test Project..
- 5. Enter a project name, any name, in the New Project window; then, click Finish.



6. Click HTTP Test in New Test From Recording; then, click Next.

New Test Fron	n Recording			
Recording Sess	sion			
Generates a HT	TP test.			E
Oreate a test f	from an existing recor	rding		
Oreate a test f	from a new recording			
Test Nature:				
L HTTP Test SAF Test G, Socket Test TN3270 Test				
Select test typ Recording Encry	e after recording ption Level: None	•		
?	< Back	Next >	Finish	Cancel

7. Enter a test name, any name. Then, click Next.

Select Location Choose a location and a name for the test.	E
Enter, create, or select the parent folder:	
/AnyProject	
☆ ↔ ↔ > Ø AnyProject	
Iest name: AnyTest	
Iest name: AnyTest Customize automatic data correlation	Configure Workspace Settings
Iest name: AnyTest Customize automatic data correlation	Configure Workspace Settings

8. Click on Microsoft Internet Explorer or your default browser. Then, click Finish.

Wew Test From Recording	
Select Client Application Launches Internet Explorer and records its HTTP activity throug	h a proxy.
Apple Safari Attachmate EXTRAI X-treme Cogogie Chrome BiBM Personal Communication Managed Application Microsoft Internet Explorer Microsoft Internet Explo	
() < Back Next > Fi	nish Cancel

9. Wait until the browser opens with Welcome to HTTP Test Recording.

10. Enter your company's home page in the address field. "YourCompany.com"

11. Open any other page from the home page.

12. Close the browser (all tabs) after that page loaded fully.,

13. Click Finish in the Domains Selection window.

14. Wait until the test generation completes.

15. Click Open test; then, click No in the Test Editor dialog box.

16. Click Run > Run; then, click Yes to Confirm Perspective Switch.

17. Maximize the lower left quadrant.

ve tot payagate Search Project Rup Window Help						(IE	
- Babis Bis 2 Ori Ari Serar				Ouick A	cress i mo i du Parfo	umance Text [P] 1	Test Dess
Rentered Data 22				سارہ عداقت			·
Protect Data and		Event Log - An: Name [12 and 3017.13/57/50]		•••••			
Request Response Headers Response Content prowser		Event Log - Anyrvame [15 mit. 2017 12:57:59]					
		Page	Response Time [ms]	VP Failures	7 Unexpected Re	Messages	
		complete_search	2045	0	0	0	
< <current contain="" data="" display="" does="" not="" selection="" to="">></current>		HCL We touch lives	8098	0	0	0	
	\mathbf{i}	- Shorthow					
ForyName.recession 😤 AnyName 🚡 AnyName [13-03-171]	2:57] 🖹 AnyName 😒 🥂 📴	Execution Event Console Any-tame [13 mrt. 2017 12:57:59]			Z 81 6	18 > 8 8	1 4 0
nnyflame.recession 😤 Anyflame 🚡 Anyflame (13-03-17.1 Feet Log Commend lancestan	257) 🗈 AnyName 😒 🥂 🖻	E Execution Event Console 13 AnyLiame [13 mrt. 2017 12:57:59] bype filter text			<i>2.</i> aj e	18 > 21 8	~ ~
Anylame.recession 🔆 Anylame 🍙 Anylame.[13-03-37.] Test Log • General Information • General Information	257) Di Anytiano () Camoo Proportios	Anytame [13 mt. 2017 12:57:59]	Date	Туре	Z 🌒 🗄 User	: E ≱ E E] ==
Anythame.tessession 😭 Anythame 🚡 Anythame [13:40:37] i est Log Consent Information The general information of this test log.	2257 📄 AnyName 🖂 🤍 🖤 🖬	Any Jame (13 mt. 2017 12:57:59) byte Friter text Message	Date	Туре	Ø2 6 ∰ ₹	1 🖻 🕻 🗐 🗎) マ ⇔ Jser Grou
Anghama.recession 🕆 Anghame 🚡 Anghame (1343-27) Test Log • Consent Information of this test log. Barne	227) AnyName Common Properties Yeads yeads yeads	Applement [13 mt. 2017 1257-59] (by: Filter tet Morage	Date ^	Туре	Ø. ∰ Œ	: E > E E)
AnyName.recession 😭 AnyName 💼 AnyName [13:03-37] est Log Concertal Information The general Information of this test log. Bene AnyName	257) AnyAtame Common Properties Vended para State	Execution Event Console 10 Anyterne [13 mt 2017 12:57:59] (b)= File test Mozage	Date ^	Туре	Z 😂 🕫	1 🛱 🏷 🖾 🗎 🖻] ♥ =
Anghama.recession 🕆 Anghame 🚖 Anghame (1343-27) Test Log • Consent Information of this test log. Iteme Anghame Decosition	257) AnyName III III IIII	Execution Seret Console 12 Ary Interes [13 eret 2017 1257 59] [17]: There text Manage	Date	Туре	∠ âi œ	1 E > E E] ♥ ==
Anythame.seciession @ Anythame & Anythame [13-03-071 feet Log for second information The second information The second information System Anythame Decopition	2571	Anyme (1) nrt 207125739) (rpt file tot Messige	Date	Туре	∠ al œ	1 E > E E	J v 📼
Anglame.recession 12 Anglame 12 69-221 est Log e concrol information the parent information of this test log. Barrel Anglame Diputipition	257) AnyName 11 Image: Common Properties Verificit Image: Common Properties Start 2122-5960-765 CCT Image: Common Properties	Annution Fuert Counsel 12 Anylanes [1] not 2017 25759] (yr) filter tod Mutage	Date	Туре	∠ ai t	1 C > E D] ♥ =
Profilame accession (* Anyliame), Anyliame (12-0)-121 ett Log et Concert Information Program Information Pagenovi Information Pagenov	2571 A optime 12 m Common Properties	scuton Ford Consile 12 skylene (12) net 2017 12:57:09 (byge filter ted Mesoge	Date ^	Туре	Z ali te	1 C > E D] ⊽ =
Anylame.eccession (* Anylame (* Anylame (* 164)-27) *et Log • Concert Information Of this test log. Barne Anylame Diprojection File (Anyperject/Anylame, 1890/052090, escutionali	257) AnyName 11 Image: Common Properties Yes Yes Yes 32 Yes Yes 33 The TAY 212-25466.785 CCT Yes 39 Tay 212-22542.4951 CCT Yes 31 Tay 212-22542.4951 CCT Yes 32 Tay 212-22542.4951 CCT Yes	Annution Fuert Counter 11 Annution Fuert Counter 12 Annution Fuert Counter 12 Section 2017 257569 Section 2017 25756 Section 2017 25756 Section 2	Date ^	Туре	Z. daj te	3 G ≯ E ₽	Jser Grou
Anyhame.recession 😭 Anyhame 🚡 Anyhame (12-43-17). Text Log • General Information The general Information The general Information Anyhame Opcorption: - - - - -	2571 AnyAteme 13 () () () () () () () () () () () () ()	facuton fiver Consile [] dogung [] dogung []	Date *	Туре	Z. Să (E	1 G > E D] ⊽ ⇔
Anyldame.eccession (* Anyldame (* Anyldame (* 149-32) Test Log © concert fundation the general information of this test log. Usene Anyldame Diportiption File /Anyproject/Anyldame_148940520990_executiondir	257) AnyName 11 Image: Company Properties Spesic pass Spesic Space 13 Spesicit 13 ment 2012/2060.050 CCT Spesicit 14 Anorpoint/Annotane totable Spesicit	Annuton Fuert Cossele 12 Anylane [] mc. 2017 25759] (yr) fifter tod Missage	Date ^	Туре	الله من الله الله الله الله الله الله الله الل	0	Jser Grou
Anythame.recisesion 😭 Anythame 🚡 Anythame [13:43:171 feet Log	2071 AnyName II Common Properties Vendet pres Sart I mark 207 12-560-55 CET Sage III mark 207 12-560-55 CET Sage IIII mark 207 12-560-85 CET Sage IIII mark 207 12-560-850 CET Sage IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Arcount four Counter [] Arcount [] and (2017) 12:57:09] (by fifter not Message	Date *	Туре	∠ ĝi Œ	: E > E E]
Anyldame.eccession († Anyldame), Anyldame (13-63-21 Fort Log • Conserved Information of this test log. Bane: Anyldame Digoriptione File /Anyproject/Anyldame_148940520090.executionals	2577 	fasuion Fuerd Console 33 doglanes (21 m. 2021 125208) //yop filter team Morange	Date ^	Туре	الله من الله الله الله الله الله الله الله الل]
Anyltame.eccession 😭 Anyltame 🚡 Anyltame [13-03-171 For Log	201 Anyhame II Common Properties Yordet pres Saft I mare 2021 12:566:35 C.T.T Bag II mare 2021 12:566:35 C.T.T Bag II mare 2021 12:566:35 C.T.T Fig Application Types Test Fig Application Fi	Account from Councile 11 Account 21 and 2017 12-52-599 Type filter tod	Date ^	Туре	/간 4월 19	u C > E D	Jser Grou
Anythane.secsasion 😨 Anythane 🚡 Anythane (13-43-47) fert Log © General Information The general Information Deportation Deportation Deportation Prior (Anythane,148946220990, security on the Prior (Anythane, 148946220990, security on the Prior (Anythane, 148946220990, security on the Prior (Anythane, 148946220990, security on the Prior (Anythane, 14894622090), security of the Prior (Anythane, 1489462200), security of the Prior (Anythane, 1489462200), se	257 Anyhame III III IIIIIIIIIIIIIIIIIIIIIIIIIIII	facution Fired Consile 11 deglines [2] met.2017.157509 (by fifthered Marge	Date	Туре	Z, ∰ Œ) V D
Anylkame.recession 😭 Anylkame 🚡 Anylkame [3 43-37 Text Log	2071 Anyhame III Control Contr	Concision from Councile 33 Acquires (2) and 20(7):15:75(9) Type Fifter tod	Date ^	Туре	/건 쇼) 대	0 D ≯ E] D	Jser Group
Anyliana.recession 😭 Anyliane 🚡 Anyliane [1343-21 Exet Log	207) Appliance II Common Properties gendicit para Para Superior Common Properties gendicit Jammer 2012 12-5960,755 CCT Superior 2019 2019 2019 2019 2019 2019 2019 2019	A fasuion Fuert Consile 33 4 daylanet [1 met. 2017 12528] Uppe filter und Metage	Date *	Туре	Z 🍂 🕫	i 6 ≯ 8] @	J v a

18. Wait until the test completes. The indicator **Complete** must be green.

Ignore any correlation error message for now.

19. Click the tab with the timestamp.



20. Click Page Performance on the left side.

21. Review the graph of the Average Page Response Time for Run. See figure.

The response time of the first page is greater than the second page.

lest Execution - AnyProject/anyTes	t1_148941	7449041.stats - Rational Window Help	Performance Tester				Martin Colores					
3 - E & ≜ & E & Z	0 •									Quick Access	😰 🕴 🏩 Performa	nce Test 🚯 Tes
AnyTest.recsession	est 👔	AnyTest [13-03-17 15:5	0] 📄 AnyTest	anyTest1.recsession	🖀 anyTest1	🚡 anyTest1 [13-03-17 16:04] 🙁 📄 anyT	est1					-
anyTest1 [13-03-17 16:04]	~ Com	plete Performance R	leport 🗸 🔰 Entire R	un 🕶								С
Pages ×	Page P	erformance >										
verall	- age -	criorinance				A	. D					
immary	ġ.					Average rage Response time for	Kull					
ge Performance 🛛 🧿	40	second										
sponse vs. Time mmary	35											
sponse vs. Time Detail	25											
ge Throughput	20											
ver Throughput	15	-										
ver Health Summary	10											
ver Health Detail												
ching Details												
ge Size	0.	,		Persor	nal			Co	ntact us			
ors						Performance Summary						
e Health							Response Time - Min	Response Time - Average	Response Time - Standard Deviation	Response Time - Max	Attempts - Rate	Attempts
	Personal						41,45	41.45	Oms	41,45	0,010	1
	Contact of	us					22.00	13.45	Oms	13.4s	0.010	1

Figure 1: Average Page Response Time for Run

Related concepts

Installation details on page 13 Rational Performance Tester on page 12 Performance testing on page 11 Testing workflow on page 15 Test results on page 23

2

Performance testing

Topics:

• Rational Performance Tester

Skipping *performance testing* is not an option. Before your web application goes live, you want to know whether your application meets the performance requirements.

In most cases, you want to know how your application behaves when a certain number of users connect to your application.

Afterward, when performance issues arise, you want to know the cause. Performance testing helps you to discover what factor determines the rate, the "bottleneck".

Related tasks

Start now on page 6 Setting performance requirements on page 16 Putting more users into a test on page 20

Rational Performance Tester

Rational Performance Tester measures the network traffic between your client computer, and the application server. Through virtual users, you emulate the network traffic. You can run tests with multiple users through *performance schedules*.

To work with Rational Performance Tester, you don't need to know how to code.

Unlike functional tests, Rational Performance Tester tests do not depend on object recognition or the way you manipulate the GUI. Rational Performance Tester works with standardized network protocols. As such, the tool measures the time between the first byte out to the last byte in.

Rational Performance Tester can do the following network protocols.

- HTTP (browser-webserver traffic)
- Citrix
- SAP
- TN3270
- Socket
- SOA

Related tasks Start now on page 6 Setting performance requirements on page 16 Verifying the recorded baseline at playback on page 16

Installation details

The installation of Rational Performance Tester follows the same procedure as other IBM Rational products like Rational **Functional** Tester.

To get Rational Performance Tester installed quickly, you can download and install the *Rational Performance Tester Starter Edition*.

Note: You must have administrative (Windows) or root (Linux) privileges to install Rational Performance Tester.

Watch the video *How to install IBM Rational Performance Tester Starter Edition* to install the Rational Performance Tester Starter Edition.

You can also read the *Installing Rational Performance Tester and Rational Performance Tester Agent* for a comprehensive description.

Related tasks

Start now on page 6

4

Testing workflow

Topics:

- Setting performance
 requirements
- Verifying the recorded baseline at playback

You can follow the following workflow to work with Rational Performance Tester.

1. Determine the requirements.

Make clear what you want. How many users your application must handle. What the maximum response time of a request should be.

- 2. Create a performance test project.
- 3. Record a test.

Your computer issues requests to your application server,

4. Adjust the test to your requirements.

Edit the test in such a way that the test meets your needs. For example, set *verification points*.

5. Playback the test.

Your computer issues the same requests that you recorded and captures the responses from the server.

6. Assess the results.

Rational Performance Tester provides reports with graphs to support your analysis. For the individual events of the playback, open the *test log*.

Related tasks

Start now on page 6

Setting performance requirements

You can set limits to the accepted response times or the number of times that *verifications* must pass. To set the requirement so that the test fails when the test doesn't satisfy the requirement, select **Standard**.

- 1. Open the Performance Test perspective. Click Window > Open Perspective > Other ... > Performance Test (default). Then click OK.
- 2. Follow the instructions in the following documents.
 - a) Defining performance requirements in tests. See figure.
 - b) Defining performance requirements in schedules

. neque	st Details				
ging					
Always Ic	og details				
Use subst	tituted URL in performance reports				
formand	e Requirements				
Hide requ	uirements				
Enable	e Performance Requirements				
Manage	nothank nodeocura co za/42/				Use Default
Indiffe.	hetbank.neusecure.co.za.445/				0.000.000000000
Perfor	mance Requirement	Oper	Value	Standard	
Perfor Res	mance Requirement sponse Time (Std. Deviation)	Oper <=	Value 1000	Standard	
Perfor Res	mance Requirement sponse Time (Std. Deviation) sponse Time (85% lowest values under)	Oper < =	Value 1000	Standard	
Perfor Res Res	mance Requirement sponse Time (Std. Deviation) sponse Time (85% lowest values under) sponse Time (90% lowest values under)	Oper	Value 1000	Standard	
Perfor Res Res Res	mance Requirement sponse Time (Std. Deviation) sponse Time (85% lowest values under) sponse Time (90% lowest values under) sponse Time (95% lowest values under)	Oper <=	Value 1000	Standard	
Perfor Res Res Res Pag	mance Requirement sponse Time (Std. Deviation) sponse Time (85% lowest values under) sponse Time (90% lowest values under) sponse Time (95% lowest values under) ge Response Time Contribution (Average)	Oper <=	Value 1000	Standard	
Perfor Res Res Res Pag	mance Requirement sponse Time (Std. Deviation) sponse Time (85% lowest values under) sponse Time (90% lowest values under) sponse Time (95% lowest values under) ge Response Time Contribution (Average) ge Response Time Contribution (Minimum)	Oper <=	Value 1000	Standard	
Perfor Res Res Res Pag Pag	mance Requirement sponse Time (Std. Deviation) sponse Time (85% lowest values under) sponse Time (90% lowest values under) sponse Time (95% lowest values under) ge Response Time Contribution (Average) ge Response Time Contribution (Minimum) ge Response Time Contribution (Maximum)	Oper	Value 1000	Standard	
Perfor Res Res Pag Pag Pag	mance Requirement sponse Time (Std. Deviation) sponse Time (85% lowest values under) sponse Time (90% lowest values under) sponse Time (95% lowest values under) ge Response Time Contribution (Average) ge Response Time Contribution (Minimum) ge Response Time Contribution (Maximum) ge Element Verification Point Pass (Count)	Oper <=	Value 1000	Standard	

Figure 2: Performance requirements in tests

Related concepts

Start with Rational Performance Tester on page 5 Rational Performance Tester on page 12 Performance testing on page 11

Verifying the recorded baseline at playback

You can compare the following things in the playback actual with the recorded baseline through a verification point.

- Page title
- Response code
- Response size
- Response content

Image verification is available only for Citrix tests.

- 1. Open the Performance Test perspective. Click Window > Open Perspective > Other ... > Performance Test (default). Then click OK.
- 2. Follow the instructions Verifying expected behavior.

Related concepts

Start with Rational Performance Tester on page 5 Rational Performance Tester on page 12

5

User load simulation

Topics:

- Putting more users into a test
- Setting user load stages

When users connect to your application server, the users impose a load on your server. Rational Performance Tester can simulate this situation through a *performance schedule*. You run a test with multiple virtual users.

In the real world, users don't connect to your web server at the same time. In a a *performance schedule*, you can simulate the situation that the total number of users connect to your server in stages.

For more information, see *Emulating workloads*.

Putting more users into a test

You can run tests with more users through a *performance schedule*. You can also add other options to run your test in a schedule.

- 1. Open the Performance Test perspective. Click Window > Open Perspective > Other ... > Performance Test (default). Then click OK.
- Create a performance schedule. Click File > New > Performance Schedule. Then, name the schedule and click Finish
- 3. Highlight the first item in the Schedule Contents.
- 4. Select User Load in the Category dropdown box of Performance Schedule Details.

You can assign up to 5 users to an HTTP schedule in the Rational Performance Tester Starter Edition. If you want to use more users, you need a separate virtual-users license.

Related concepts

Start with Rational Performance Tester on page 5 Performance testing on page 11

Setting user load stages

- 1. Open the Performance Test perspective. Click Window > Open Perspective > Other ... > Performance Test (default). Then click OK.
- Create a performance schedule. Click File > New > Performance Schedule. Then, name the schedule and click Finish
- **3.** Highlight the schedule.
- 4. Select User Load in the Category dropdown box, the default. Then, click Add.
- 5. Click Create multiple stages in the Add User Stages window.

Create one stage			Create r	nulti	ple stages
Append to existing stage Run last stage until all wo	s (defau ork com	lt is 'replace'; pletes)		
Base Stages Additional St	ages				
Beginning user count:	1				
Number of stages:	5		-	-	
User increment per stage	1				
Stage duration:	1	Minutes		•	
Rate of change:	10	Seconds		•	All users over specified per 👻
Settle time:	10	Seconds		-	

6. Compose your stages. Then, click OK.

The Performance Schedule Details shows the number of users over the subsequent stages. See figure.

	ory: User Load						
	Users	Stage Duration	Add.				
18	1	10 Minutes					
rů,	2	10 Minutes					
rů,	3	10 Minutes	Remo				
rů,	4	10 Minutes					
1	5	Until Finished	υρ				
			Dow				
] Sł me	now Advanced limit for a user to respond to a	stop request: 30 Second	s v				
] Sł me erce] Ex Nu Jse	now Advanced I limit for a user to respond to a entage of users allowed to exit it run for failing requirements mber of failing stages in a row r Load Preview	stop request: 30 Second luring execution: 0	s v				

Figure 3: Increasing number of users in stages

Test results

Rational Performance Tester creates execution reports and displays the reports automatically after a run.

Each test result begins with the name of the schedule or test, and ends with the timestamp of the run between square brackets.

The reports consist of figures and graphs that you can present to your manager or customer.

For more information, see Viewing reports after a run.

If you want to see details about verification points and follow the course of the test, use the test log.

To open the test log, right-click the executed test in the **Test Navigator**; then click **Display Test Log**. For more information, see *Viewing test logs*.

Related tasks

Start now on page 6

Glossary

Performance testing

Through performance testing, you measure the responsiveness and stability under a certain or various workloads. Performance testing comes in different types.

Load testing	Load testing is appropriate when you want to know what your application does under a specific load. For example, what are the response times when 100 users send requests to your application at the same time?
Stress testing	Stress testing indicates what load will cause your application to fail.
Soak or endurance testing	This test allows you to check what happens when your application suffers a certain load for a long time. A great way to see memory leaks.
Spike testing	In spike testing you increase the number of users suddenly with a significant amount. Then you see how the application reacts.
Configuration testing	What influences do different configurations have on your application?

Most users of Rational Performance Testing choose for load testing.

Verification point

A verification point is a point that you mark in the recording. The recorder saves the properties of your mark. You see a comparison of the recorded properties, or baseline, and the properties that Rational Performance Tester found during playback, or actual.

EXAMPLE

You record an HTTP test against your company website. You arrive at a login page with title "Login" and you want to make sure that the playback also arrives at this page. Then, you set a title verification point.

For details see Specifying the expected page title.

Performance schedule

A performance schedule or schedule is a set that consists of one or more user groups that contains one or more tests. You can assign settings on all three levels. Highlight either the schedule, or user group, or test level. Then, discover the options on the right side of the screen.



Figure 4: Schedule options in categories

Index

С

Citrix 12

F

functional tests 12

H

HTTP 6, 12, 20, 25

L

license 20 Linux 13

N

network protocols 12

P

page performance 8 performance schedule 20, 20, 23, 25 performance testing 25 playback 15, 16, 25 privileges 13 project 6

R

Rational Functional Tester *13* recording *25* response times *15*, *16*, *25*

S

SAP 12 SOA 12 Socket 12 Starter Edition 13, 20

Т

test generation 7 TN3270 12

V

verification point 23 virtual user 12, 20 W

Windows 13

Rational Performance Tester | Index | $\mathbf{28}$