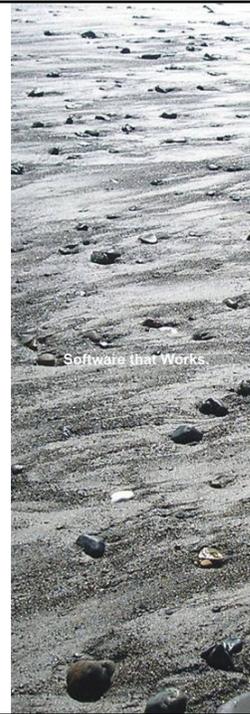


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**Capacitación en
Rational Performance Tester**

Modalidad teórico-práctica

Ing. Nadia Soledad Cavalleri
05/2012



Modalidad

- 2 días de 4 horas
- Máquinas virtuales
- Materiales
- Logística

Software that Works.

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Agenda general

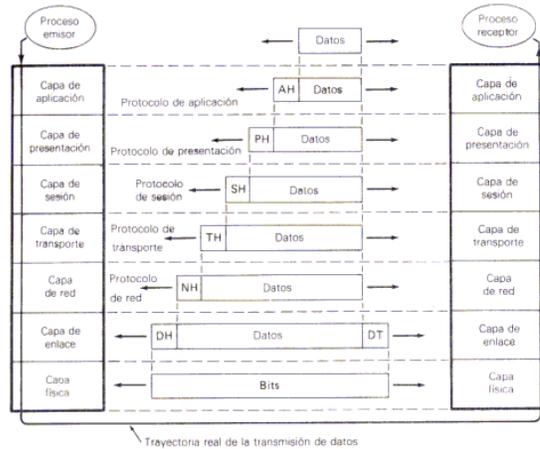
- Repaso de conceptos necesarios
 - Pruebas de performance
 - Protocolos
 - Arquitectura de 3 capas
 - Desviación estándar
- Aplicación de pruebas
- Rational Performance Tester
- Integración a RFT-RQM y RPT-RQM
- Evaluación del curso

Pruebas de performance

- No funcional
- Tipos
 - Volumen → Throughput
 - Carga → Respuesta
 - Estrés → Carga de falla
 - Longevidad → Período extendido

Modelo OSI

- Jerarquía con tareas únicas y específicas
- Normaliza
- Divide el problema
- Independencia al cambio

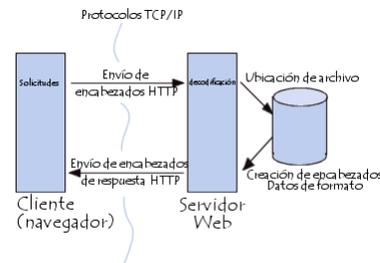


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Protocolo HTTP

- Protocolo
 - → Hypertext Transfer Protocol (HTTP)
 - Orientado a transacciones



1. El usuario quiere acceder a www.baufest.com/index.html
2. El navegador averigua la IP de esa página
3. El navegador establece una conexión con el puerto 80 del servidor
4. El navegador envía por esta conexión: **GET /index.html**
5. El servidor envía la página **<html> <head>**
6. El servidor cierra la conexión

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Protocolo HTTP - Mensajes

- Cliente
 - GET /index.html HTTP:/1.0
 - User-Agent: Internet explorer v8
 - Host: mi_PC
 - Accept: text/html, image/gif, image/jpg
 - <finaliza con línea en blanco>

- Servidor
 - http/1.1 200 OK
 - Server: Microsoft IIS/5.0
 - Last modified: Mon, 25 Feb 2012 12:04:22 GMT
 - Content type: text/html
 - <línea en blanco>
 - <html>
 - <head> <title> Título de la página </title> </head>

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Mensajes - Códigos de respuesta posibles

- 1xx - Información
 - 100 Continue
 - 101 Switching Protocols
 - 102 Processing

- 2xx - Éxito
 - 200 OK
 - 201 Created
 - 202 Accepted
 - 203 Non-Authoritative Information
 - 204 No Content
 - 205 Reset Content
 - 206 Partial Content
 - 207 Multi-Status
 - 208 Already Reported
 - 226 IM Used

- 3xx - Redirección
 - 300 Multiple Choices
 - 301 Moved Permanently
 - 302 Found
 - 303 See Other
 - 304 Not Modified
 - 305 Use Proxy
 - 306 Switch Proxy
 - 307 Temporary Redirect
 - 308 Permanent Redirect

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Mensajes - Códigos de respuesta posibles

- 4xx – Error del cliente
 - 400 Bad Request
 - 401 Unauthorized
 - 402 Payment Required
 - 403 Forbidden
 - 404 Not Found
 - 405 Method Not Allowed
 - 406 Not Acceptable
 - 407 Proxy Authentication Required
 - 408 Request Timeout
 - 409 Conflict
 - 410 Gone
 - 411 Length Required
 - 412 Precondition Failed
 - 413 Request Entity Too Large
 - 414 Request-URI Too Long
 - 415 Unsupported Media Type
 - 416 Requested Range Not Satisfiable
 - 417 Expectation Failed
 - 418 I'm a teapot
 - 420 Enhance Your Calm
 - 422 Unprocessable Entity
 - 423 Locked
 - 424 Failed Dependency
 - 425 Unordered Collection
 - 426 Upgrade Required
 - 428 Precondition Required
 - 429 Too Many Requests
 - 431 Request Header Fields Too Large
 - 444 No Response
 - 449 Retry With
 - 450 Blocked by Windows Parental Controls
 - 499 Client Closed Request

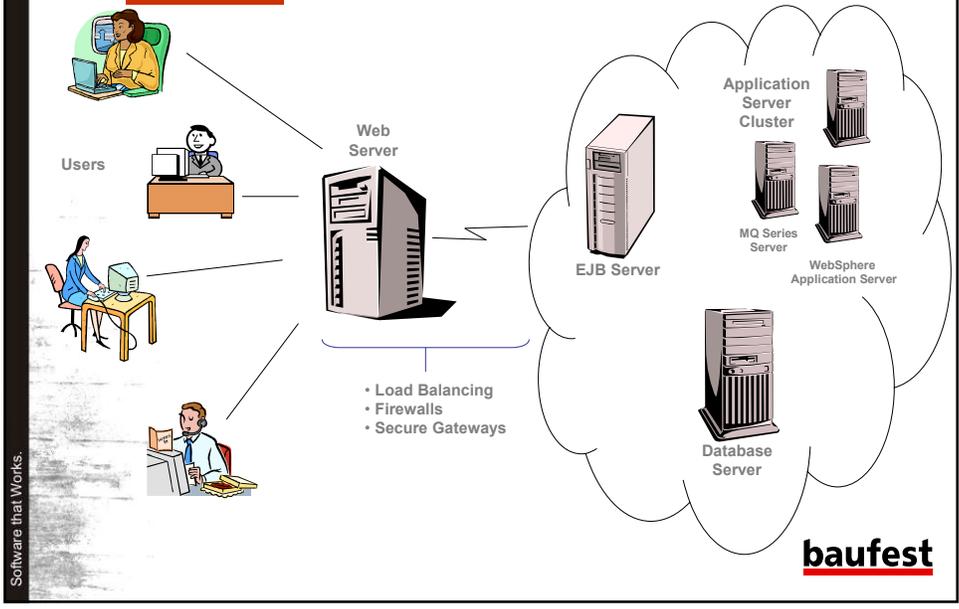
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Mensajes - Códigos de respuesta posibles

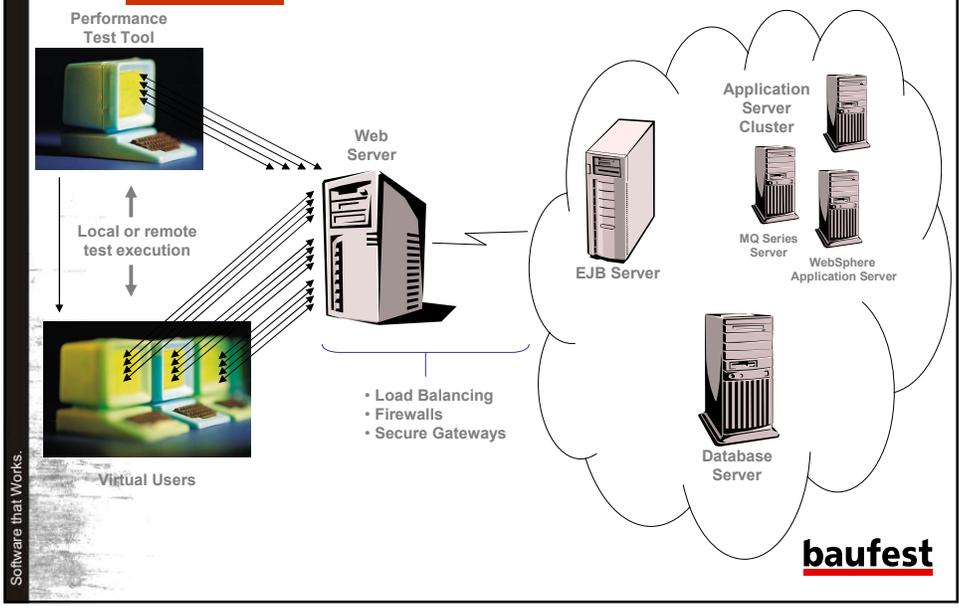
- 5xx – Error del servidor
 - 500 Internal Server Error
 - 501 Not Implemented
 - 502 Bad Gateway
 - 503 Service Unavailable
 - 504 Gateway Timeout
 - 505 HTTP Version Not Supported
 - 506 Variant Also Negotiates
 - 507 Insufficient Storage
 - 508 Loop Detected
 - 509 Bandwidth Limit Exceeded
 - 510 Not Extended
 - 511 Network Authentication Required
 - 598 Network read timeout error
 - 599 Network connect timeout error

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Arquitectura

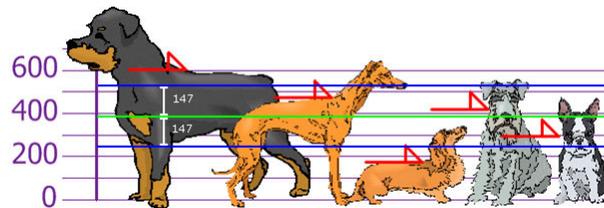


Arquitectura



Desviación estándar

- Altura al nivel de hombros (en mm.):
 - 600, 470, 170, 430 y 300
- En promedio: 394
- Desviación estándar: 147

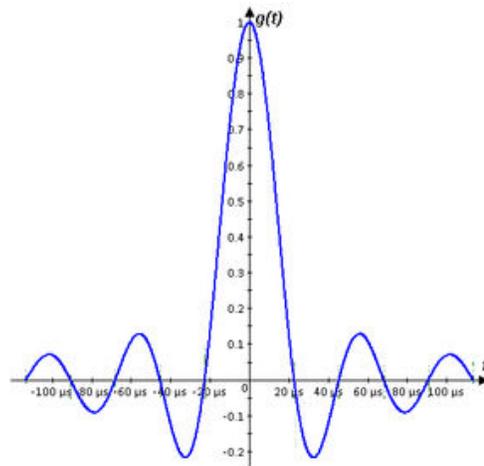


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Intervalo de muestreo

- Intervalos
 - Amplios
 - Reducidos



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Aplicación de pruebas

PLANTS BY WEBSPHERE

Flowers | Fruits & Vegetables | Trees | Accessories

HOME | SHOPPING CART | LOGIN | HELP

Gardens of Summer

They all start with the right flowers...
and we've got them all

Tips
Preserve extra grass seed by keeping it dry. Tape boxes and bags closed, or seal them into plastic bags. Be sure to remove extra air from the bags. Store all seed in a cool, dry area such as a garage or basement.

Specials

		
Bonsai Tree \$30.00 each	Red Delicious Strawberries \$3.50 (50 seeds)	Tulips \$17.00 (10 bulbs)

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Ejercicios

- 2.1 Exploring the Training Application
- 2.2 Explore the Training Application Database



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Argentina

Tel.: +54 (11) 4807-8080
Fax: +54 (11) 4801-6146
Av. Las Heras 3257
(C1425ASJ) Buenos Aires

España

Tel.: +34 91 745 2763
Fax: +34 91 561 5626
c/ Francisco Giralte, 2
(28002) Madrid

México

Tel.: +52 1 55 5284-2842
Fax: +52 1 55 5284-2803
Monte Pelvoux 111, 2do Piso
Col. Lomas de Chapultepec
(11000) Del. Miguel Hidalgo
México D.F.

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Capacitación en Rational Performance Tester

Modalidad teórico-práctica

Ing. Nadia Soledad Cavalleri
05/2012



Software that Works.

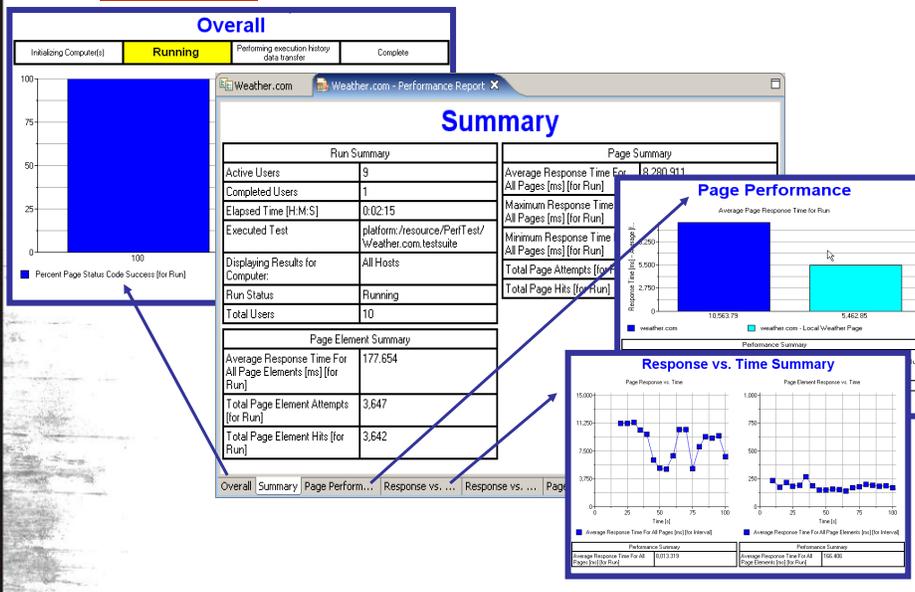
Rational Performance Tester

- Herramienta de automatización de pruebas no funcionales
- Plataformas
 - Sistemas operativos: Windows, Linux, z/OS
 - Aplicaciones basadas en HTTP, SAP, Siebel, SIP, TCP Socket, Citrix
- Scripts en Java
- Integraciones: CC, RQM
- Sin conocimientos de programación
- Monitoreo en tiempo real

Software that Works.

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Rational Performance Tester



Software that Works.

Puntos en común con RFT

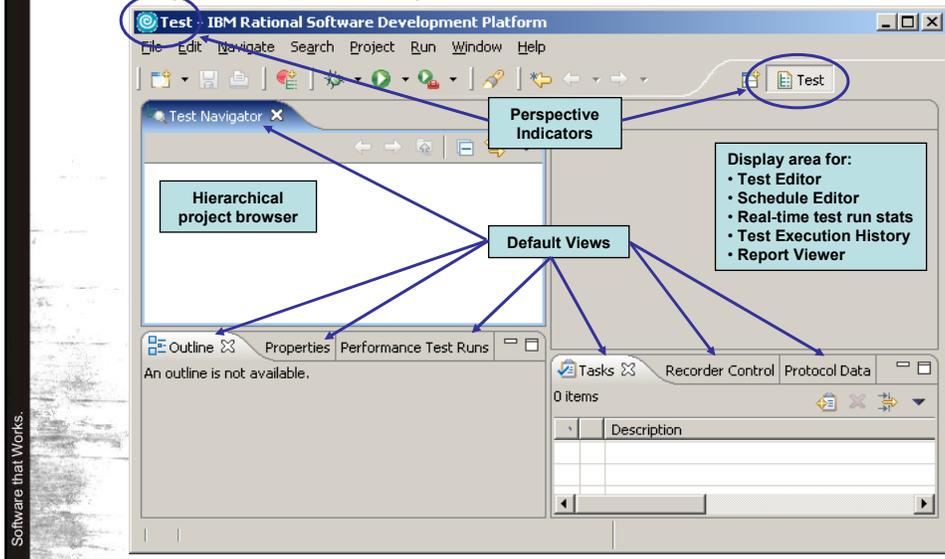
- Herramienta de automatización de pruebas
- Extensión en JAVA
- Integraciones
- Sin conocimientos de programación
- Interfaz
- Puntos de verificación
- Datapools
- Sustitución de literales por variables

Antes de comenzar a grabar...

- Modelo REALISTA → Workload Analysis
- ¿Qué deberíamos tener en cuenta?

Interfaz

- Workspace
- Perspectiva
- Vista

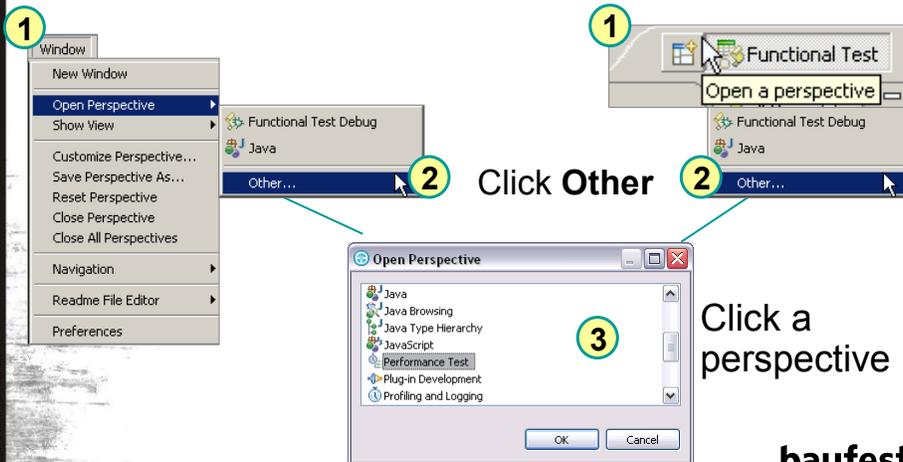


Software that Works.

Abrir perspectiva

Click **Window > Open Perspective...**

...or click the **Open a perspective** button



Software that Works.

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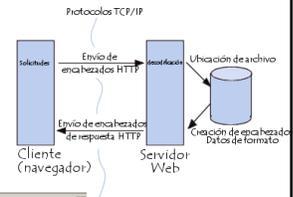
Vistas – Vistas rápidas

Software that Works.

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Vistas - ¿Cómo vemos el protocolo?

- 1. El usuario quiere acceder a www.baufest.com/index.html
- 2. El navegador averigua la IP de esa página
- 3. El navegador establece una conexión con el puerto 80 del servidor



Software that Works.

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Vistas - ¿Cómo vemos el protocolo?

- 4. El navegador envía por esta conexión: **GET /index.html**

Performance Test - tst_OrderItem

Test Contents

This section shows the test contents

- tst_OrderItem
 - Plants by WebSphere - Home Page
 - Selected Item Description - Add to Cart
 - localhost:9080/PlantsByWebSphere/servlet/ShoppingServlet?action=productdetail&itemId=10030
 - Connection
 - Response: 200 - OK
 - localhost:9080/PlantsByWebSphere/PlantMaster.css
 - Response: 304 - Not Modified
 - localhost:9080/PlantsByWebSphere/applycss.js
 - localhost:9080/PlantsByWebSphere/PlantMaster.css
 - localhost:9080/PlantsByWebSphere/servlet/ImageServlet
 - localhost:9080/PlantsByWebSphere/images/1x1_trans
 - localhost:9080/PlantsByWebSphere/images/item_select
 - localhost:9080/PlantsByWebSphere/images/button_ad
 - localhost:9080/PlantsByWebSphere/images/poweredb
 - localhost:9080/PlantsByWebSphere/images/tab_flower
 - localhost:9080/PlantsByWebSphere/images/tab_vegpi
 - localhost:9080/PlantsByWebSphere/images/tab_trees
 - localhost:9080/PlantsByWebSphere/images/tab_access
 - localhost:9080/PlantsByWebSphere/images/tab_trees
 - Shopping Cart - Checkout Now
 - Customer Login
 - Billing and shipping form
 - Review Order - Submit Order
 - Order Confirmation

Test Element Details

HTTP Request - localhost:9080/PlantsByWebSphere/servlet/ShoppingServlet?action=productdetail&itemId=10030

Request Attributes

Version:	1.1	Method:	GET
Host:	localhost	Port:	9080
URL:	/PlantsByWebSphere/servlet/ShoppingServlet?action=productdetail&itemId=10030		

Request Headers

Header Name	Value
Accept	image/gif, image/jpeg, image/png, image/x-icon, */*
Referer	http://localhost:9080/PlantsByWebSphere/prc
Accept-Language	en-us
Accept-Encoding	gzip, deflate
User-Agent	Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1)

Primary request for page Delay: 0 milliseconds

Character set: windows-1252; Windows Latin 1

Request was made over a regular connection

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Vistas - ¿Cómo vemos el protocolo?

- 5. El servidor envía la página **<html> <head>**
- 6. El servidor cierra la conexión

Performance Test - tst_OrderItem

Test Contents

This section shows the test contents

- tst_OrderItem
 - Plants by WebSphere - Home Page
 - Selected Item Description - Add to Cart
 - localhost:9080/PlantsByWebSphere/servlet/ShoppingServlet?action=productdetail&itemId=10030
 - Connection
 - Response: 200 - OK
 - localhost:9080/PlantsByWebSphere/PlantMaster.css
 - Response: 304 - Not Modified
 - localhost:9080/PlantsByWebSphere/applycss.js
 - localhost:9080/PlantsByWebSphere/PlantMaster.css
 - localhost:9080/PlantsByWebSphere/servlet/ImageServlet
 - localhost:9080/PlantsByWebSphere/images/1x1_trans
 - localhost:9080/PlantsByWebSphere/images/item_select
 - localhost:9080/PlantsByWebSphere/images/button_ad
 - localhost:9080/PlantsByWebSphere/images/poweredb
 - localhost:9080/PlantsByWebSphere/images/tab_flower
 - localhost:9080/PlantsByWebSphere/images/tab_vegpi
 - localhost:9080/PlantsByWebSphere/images/tab_trees
 - localhost:9080/PlantsByWebSphere/images/tab_access
 - localhost:9080/PlantsByWebSphere/images/tab_trees
 - Shopping Cart - Checkout Now
 - Customer Login
 - Billing and shipping form
 - Review Order - Submit Order
 - Order Confirmation

Test Element Details

Response

Response Data

Status:	200	Version:	1.1
Reason:	OK		

Response Headers

Header Name	Value
Server	WebSphere Application Server/5.1
Content-Type	text/html; charset=ISO-8859-1
Set-Cookie	JSESSIONID=0000Pa9yMUJuBCGh2Yp3
Cache-Control	no-cache="set-cookie, set-cookie2"
Expires	Thu, 01 Dec 1994 16:00:00 GMT
Content-Language	en-US

Content:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0//EN">
<!--
This sample program is provided AS IS and may be used, executed, copied and modified without royalty payment by customer (a) for its own instruction and study, (b) in order to develop applications designed to run with an IBM WebSphere product, either for customer's own internal use or for redistribution by
```

Vistas – Protocol Data

The screenshot displays the Vistas Performance Test interface. On the right, the 'Performance Test - Boston.com' window shows a tree view of 'Test Contents' including 'Boston.com', 'Boston.com / News / Traffic', 'Boston.com / Weather', and 'weather.boston.com/'. Below this is a 'Test Contents' section with 'Add', 'Insert', and 'Remove' buttons. On the left, several 'Protocol Data' windows are open, showing request and response details. One window shows a GET request for a JavaScript file. Another shows an HTTP 200 OK response with headers like 'Date: Fri, 08 Oct 2004 23:19:15 GMT' and 'Server: Apache/1.3'. A third window shows the beginning of an HTML document. A fourth window shows the rendered page content, including 'Boston current conditions' (Mostly Cloudy, 68°F) and a 'WEATHER FINDER' section. A blue arrow points from the 'Test Contents' tree to the rendered page content, with the text 'Ojo con JavaScript' (Eye on JavaScript) below it. A vertical watermark 'Software that Works.' is on the left, and the 'baufest' logo is in the bottom right.

Proyecto

- Contiene
 - Tests
 - Schedules
 - Logs
 - Datapools
 - Carpetas

The screenshot shows the IBM Rational Software Development Platform interface. The 'Project' menu is open, displaying options such as 'New', 'Performance Schedule', 'Performance Test Project', 'Performance Test Report', 'Datapool', 'Folder', 'Record Performance Test', 'StatCon File', 'Example...', and 'Other...'. The 'Performance Test Project' option is highlighted. Below the menu, the 'Recorder Status' is shown as 'Stopped'. A vertical watermark 'Software that Works.' is on the left, and the 'baufest' logo is in the bottom right.

Ejercicios

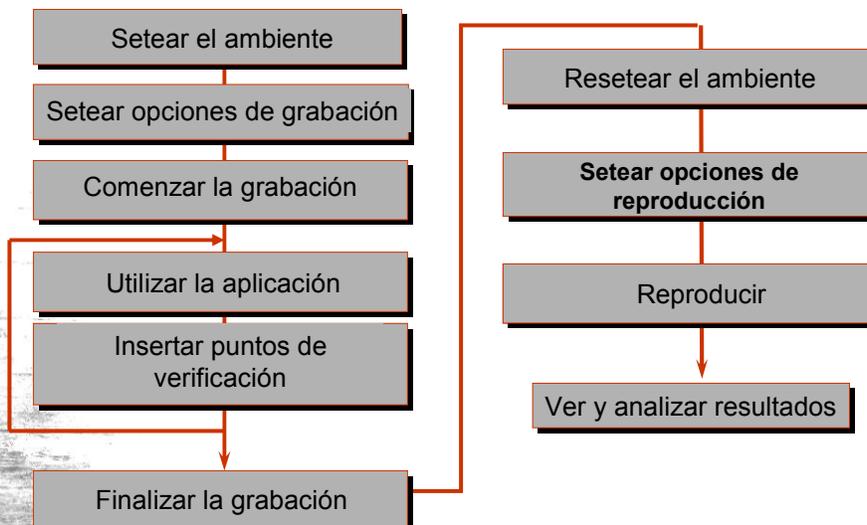
- 3. Exploring IBM Rational Performance Tester



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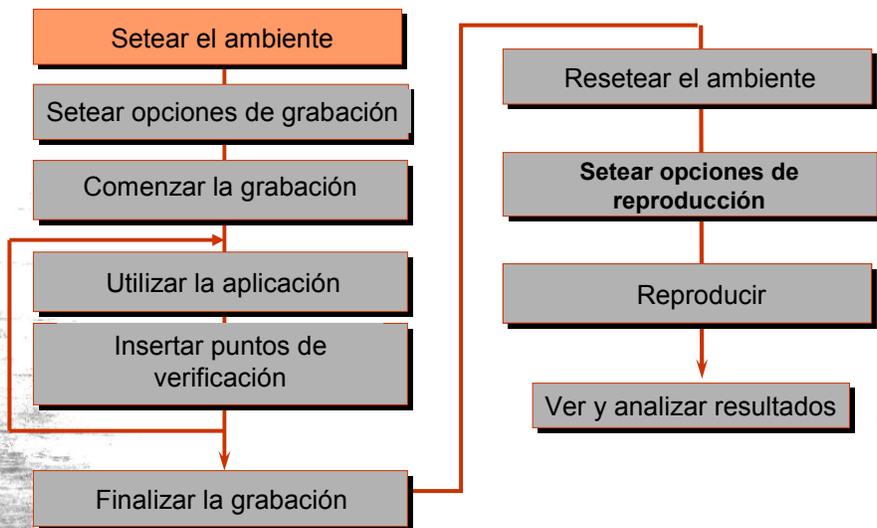
Workflow de pruebas



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Workflow de pruebas



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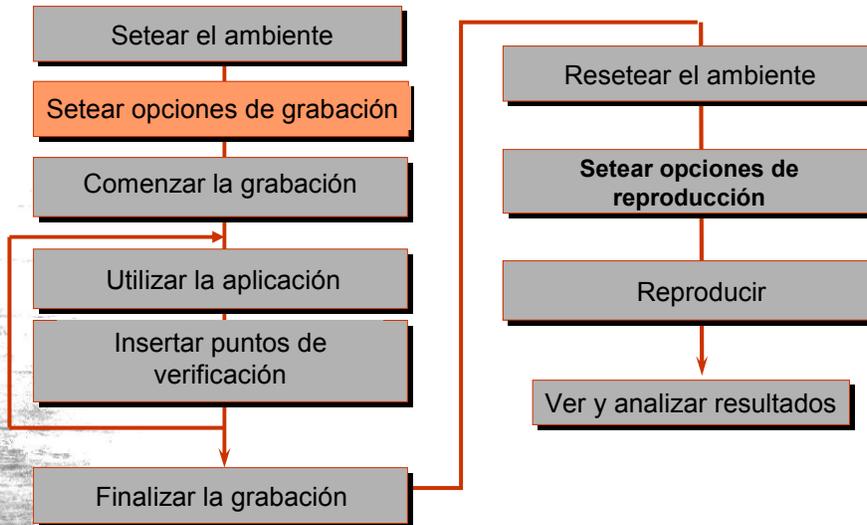
Setear el ambiente de pruebas

- Verificar estado de las bases de datos
- Disponibilidad del server
- Cookies del navegador
- Versiones desplegadas

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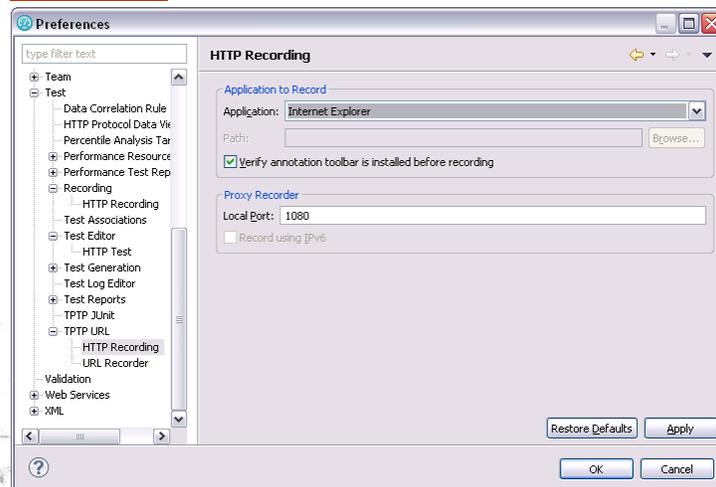
Workflow de pruebas



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Configuraciones previas



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- Al grabar vuelve a preguntar

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Workflow de pruebas



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Grabación

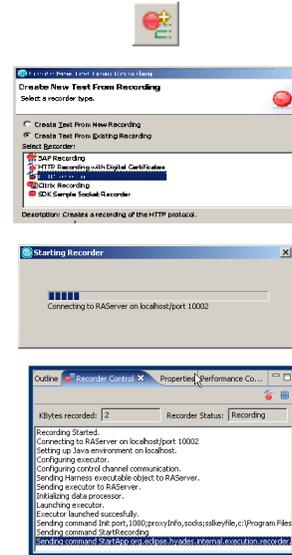


Software that Works.

fest

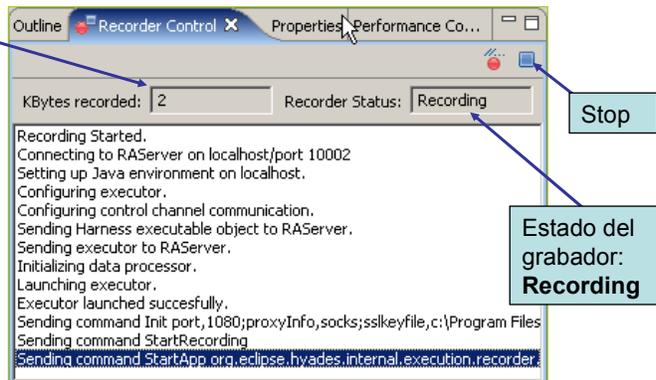
Grabación

- Iniciar la grabación
- Seleccionar un protocolo
- Comenzar la grabación
- Recorder Control view



Grabación – Recorder control view

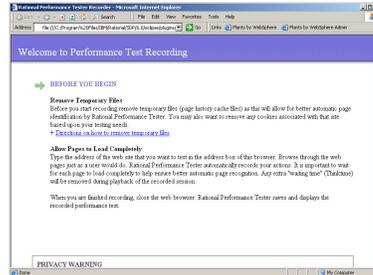
Kbytes grabados:
• != 0
• Constantemente actualizados



Estado del grabador:
Recording

Grabación

- Eliminar archivos temporales
- Tipear la URL
- Realizar las transacciones
- Cerrar el browser o presionar Stop
- Recession
- Recomendaciones:
 - Eliminar cache y cookies
 - Cargar página completamente
 - Usuarios y contraseñas de prueba



Grabación

Test - Check_Weather - IBM Rational Software Development Platform

Test Navigator

- Java_project
- Performance testing sample
- PerfTest
- bin
- src
- Amazon_Books
- Amazon_Misc
- Amazon_Searches
- Amazon_Videos
- Check_Weather**
- Empty_recording
- Google_Search
- Weather_10day
- Weather_1rly
- Weather_today
- Weather.com
- Plants
- testproj

Performance Test - Check_Weather

Test Contents
This section shows the test contents

- Check_Weather
- weather.com
- weather.com - Search Results
- weather.com - Local Weather Page
- www.weather.com - Hourly Forecast

Test Element Details
HTTP Page - weather.com
Page title: weather.com
Primary request: web1.weather.com/
Think time: 0 milliseconds

Test Editor: Page listing

Detalles de la página o Request seleccionado

Protocol Data
Request | Response Headers | Response Content | Browser

GET / HTTP/1.1
Accept: image/gif, image/x-bitmap, image/jpeg, image/png, application/x-shockwave-flash, app
User-Agent: Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; .NET CLR 1.1.4322)
Host: www.weather.com
Connection: Keep-Alive

Ejercicios

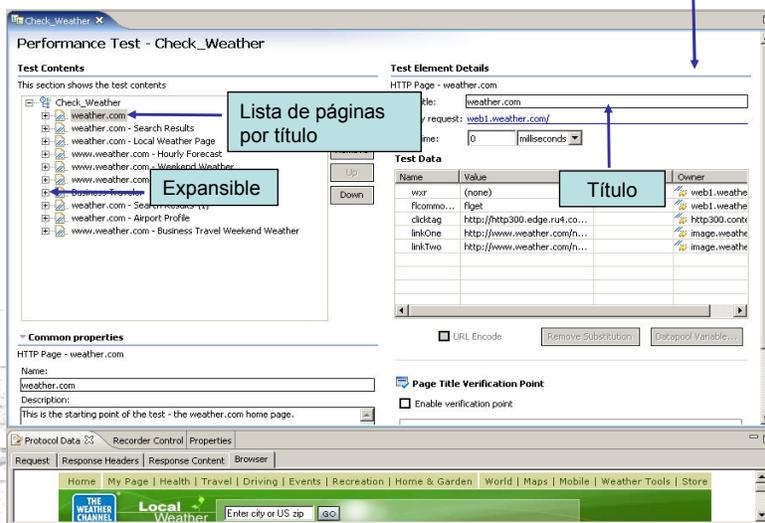
- 4.1: Record a test



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Grabación – Test editor



Lista de páginas por título

Expansible

Título

Detalles del ítem seleccionado

Name	Value	Owner
wor	(none)	web1.weathe
ficommo...	fgjet	web1.weathe
clicktag	http://http300.edge.ru4.co...	http300.con
linkOne	http://www.weather.com/n...	image.weathe
linkTwo	http://www.weather.com/n...	image.weathe

Common properties
HTTP Page - weather.com
Name: weather.com
Description: This is the starting point of the test - the weather.com home page.

Page Title Verification Point
 Enable verification point

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Grabación – Test editor - Detalles

- Page title
- Primary request
- Think time
- Test data
 - Correlaciones
 - Candidatos al datapool

Performance Test - Check_Weather

Test Contents
This section shows the test contents

- Check_Weather
- weather.com
- weather.com - Search Results
- weather.com - Local Weather Page
- www.weather.com - Hourly Forecast
- www.weather.com - Weekend Weather
- www.weather.com - Tenday Forecast
- Business Traveler
- weather.com - Search Results {1}

Test Element Details
HTTP Page - weather.com

Page title: weather.com

Primary request: web1.weather.com/

Think time: 0 milliseconds

Test Data

Name	Value	Substituted with	Owner
wxr	(none)		web1.weathe
ficommoobion	foet		web1.weathe

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Grabación – Primary request y subordinados...

- URL del primary request
- Requests subordinados
 - .gifs
 - style sheets
 - scripts

Performance Test - tst_OrderItem

Test Contents
This section shows the test contents

- tst_OrderItem
- Plants by WebSphere - Home Page
- Selected Item Description - Add to Cart
- localhost:9080/PlantsByWebSphere/servlet/Shop
- localhost:9080/PlantsByWebSphere/PlantMaster.css
- localhost:9080/PlantsByWebSphere/applycss.js
- localhost:9080/PlantsByWebSphere/PlantMaster.css
- localhost:9080/PlantsByWebSphere/servlet/ImageServlet?
- localhost:9080/PlantsByWebSphere/images/1x1_trans.gif
- localhost:9080/PlantsByWebSphere/images/item_selection
- localhost:9080/PlantsByWebSphere/images/button_add_to
- localhost:9080/PlantsByWebSphere/images/poweredby_w
- localhost:9080/PlantsByWebSphere/images/tab_flowers_u
- localhost:9080/PlantsByWebSphere/images/tab_veggies_u
- localhost:9080/PlantsByWebSphere/images/tab_trees_u.g
- localhost:9080/PlantsByWebSphere/images/tab_accessori
- localhost:9080/PlantsByWebSphere/images/tab_trees_s.g
- Shopping Cart - Checkout Now
- Customer Login
- Billing and shipping form
- Review Order - Submit Order
- Order Confirmation

Software that Works.

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Ejercicios

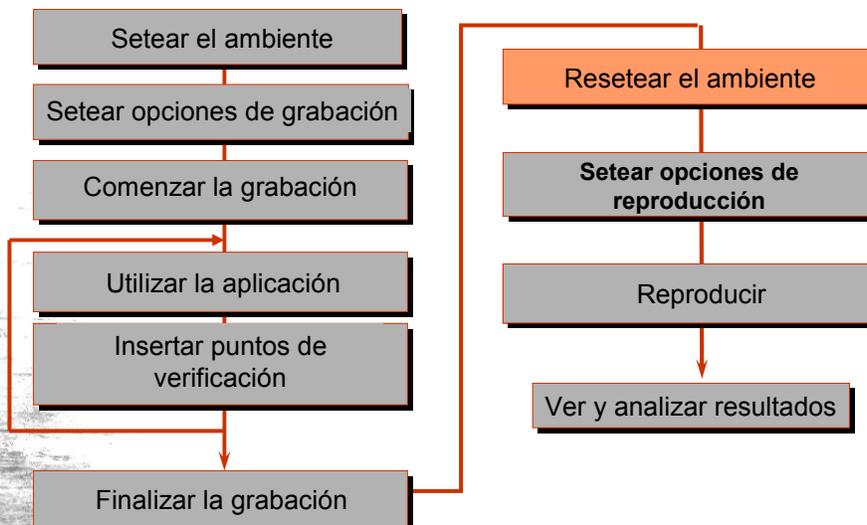
- 4.3 Exploring a performance test



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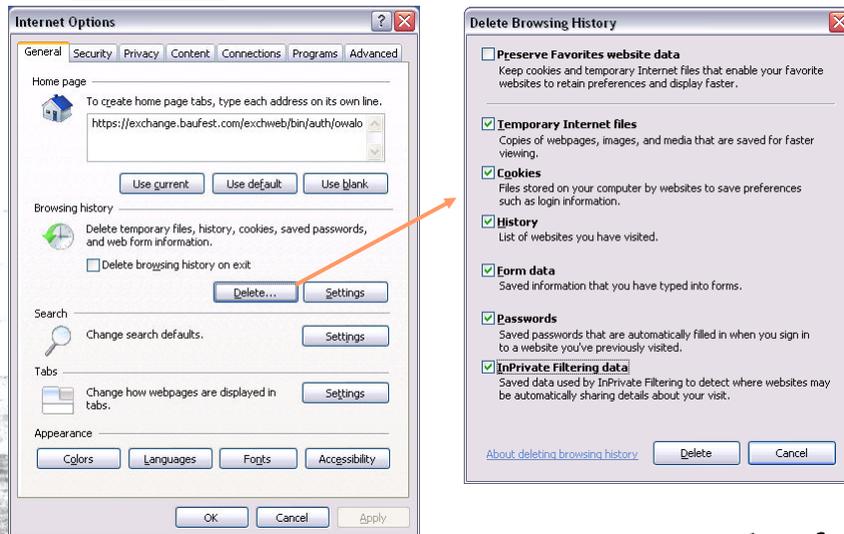
Workflow de pruebas



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Resetear el ambiente



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Workflow de pruebas

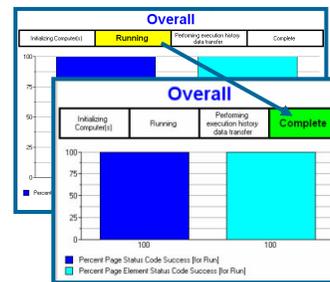


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Reproducción

- Run as > Test
- Monousuario
- Monitor = Reporte en tiempo real



Software that Works.

Reproducción - Resumen

Run Summary		Page Summary	
Active Users	0	Average Response Time For All Pages [ms] [for Run]	323.286
Completed Users	1	Maximum Response Time For All Pages [ms] [for Run]	1.352
Elapsed Time [H:M:S]	0:00:38	Minimum Response Time For All Pages [ms] [for Run]	50
Executed Test	platform:/resource/Plants/Tests/Order_Special_Item_testsuite	Total Page Attempts [for Run]	7
Displaying Results for Computer:	All Hosts	Total Page Hits [for Run]	7
Run Status	Complete		
Total Users	1		
Page Element Summary			
Average Response Time For All Page Elements [ms] [for Run]	25.533		
Total Page Element Attempts [for Run]	45		
Total Page Element Hits [for Run]	45		

Software that Works.

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Reproducción - Summary

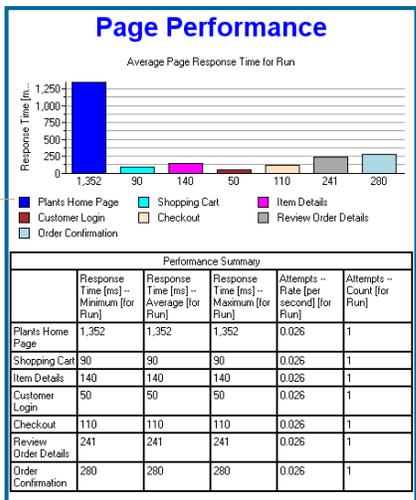
Summary

Run Summary		Page Summary	
Active Users	0	Average Response Time For All Pages [ms] (for Run)	323.286
Completed Users	1	Maximum Response Time For All Pages [ms] (for Run)	1.352
Elapsed Time [H:M:S]	0:00:38	Minimum Response Time For All Pages [ms] (for Run)	50
Executed Test	platform /resource/Plants/Tests/Order_Special_Item_testsuite	Total Page Attempts (for Run)	7
Displaying Results for Computer:	All Hosts	Total Page Hits (for Run)	7
Run Status	Complete		
Total Users	1		
Page Element Summary			
Average Response Time For All Page Elements [ms] (for Run)	25.533		
Total Page Element Attempts (for Run)	45		
Total Page Element Hits (for Run)	45		

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Reproducción – Page performance

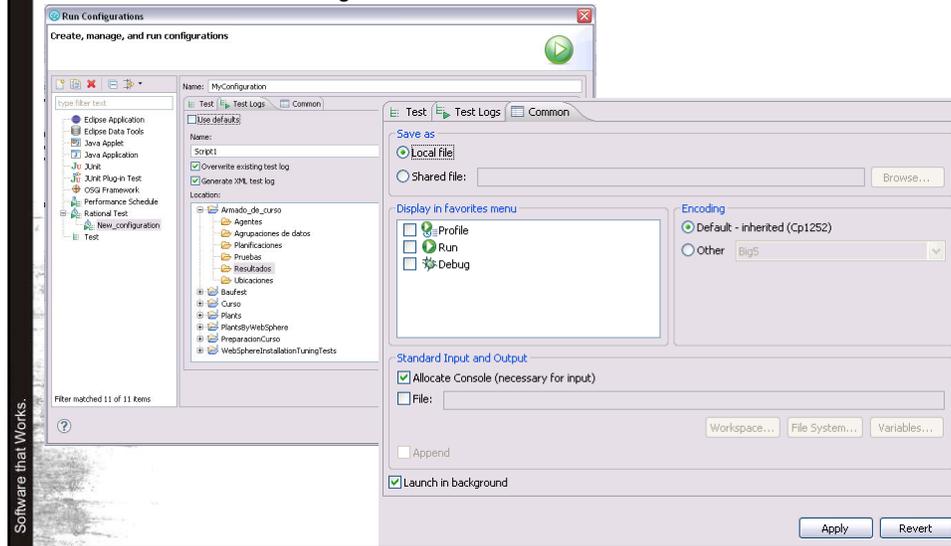


Software that Works.



Reproducción – Configuración propia

- Run as > Run configurations...

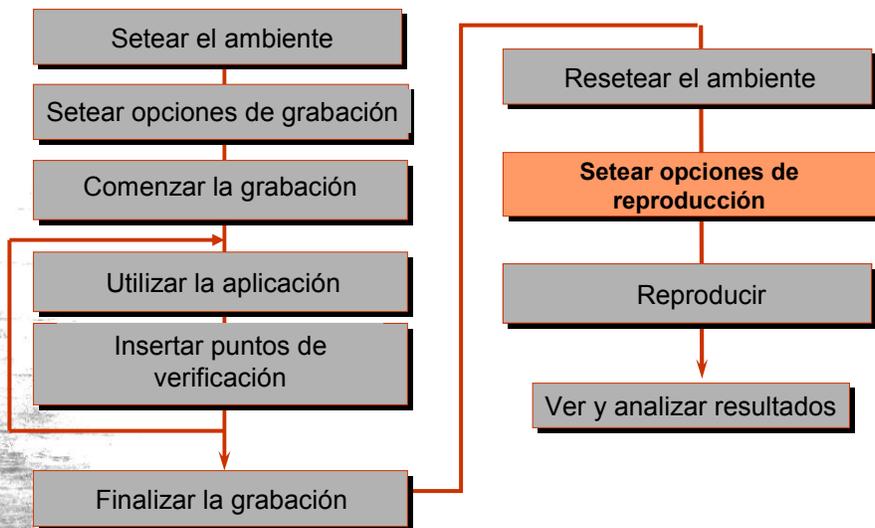


Ejercicios

- 4.4 Validate a Performance Test



Workflow de pruebas



Software that Works.

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¿Qué opciones podemos setear?

- Datos
- Think time
- Planificaciones
- Elementos de prueba
 - Puntos de verificación
 - Request
 - Código
 - Delay
 - Loop
 - Condiciones
 - Transacciones
 - Selector aleatorio
 - Comentarios

Software that Works.

baufest

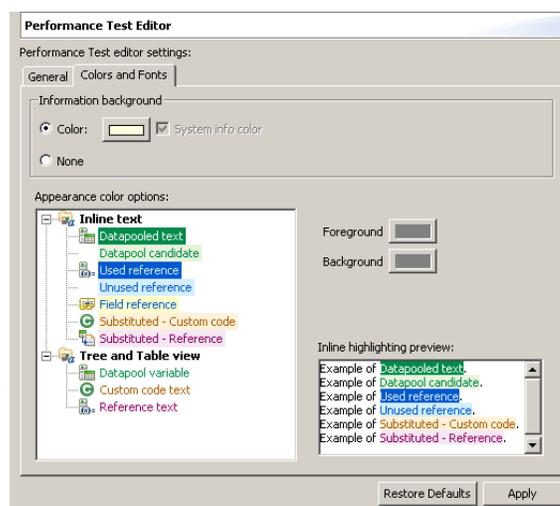
Datos

- Tipos
 - Usuario → Datapool
 - Estado de aplicación → Correlación de datos
- Datapool
 - Variar escenarios
 - No hay generación automática de datos
 - Creación o importación
- Correlación
 - Mecanismo usado para manejar la información dinámica de una transacción
 - Identificada automáticamente
 - Resaltados de forma customizada
 - Puede ser eliminada

baufest

Datos - ¿Cómo los customizo?

- Preferences > Test > Test editor > Colors and fonts

**baufest**

Datos - ¿Dónde los vemos?

- Datapool → Test
- Data correlation → Página

Performance Test - tst_OrderItem

Name	Value	Substituted with
passwd	plants	
action.x	33	
userid	plants@plantsb...	
action.y	8	
action	login	login - Content
updating	false	false - Content

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Datos - ¿Dónde los vemos?

- Data correlation → Elemento

Performance Test - tst_OrderItem

Data correlation enabled

Reference associated with Datapool column

Datapool candidate

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Datos – Más información de una referencia

- Tooltip

Performance Test - tst_SpecialOrderOneItem_Datapool

Test Contents
This section shows the test contents

- tst_SpecialOrderOneItem_Datapool
 - Plants by WebSphere
 - PlantsByWebSphere {3}
 - localhost:9080/PlantsByWebSphere/PlantMe
 - localhost:9080/PlantsByWebSphere/applycs
 - localhost:9080/PlantsByWebSphere/PlantMe

Test Element Details
HTTP Request - localhost:9080/PlantsByWebSphere/servlet/ShoppingServlet?action=prod

Request Attributes

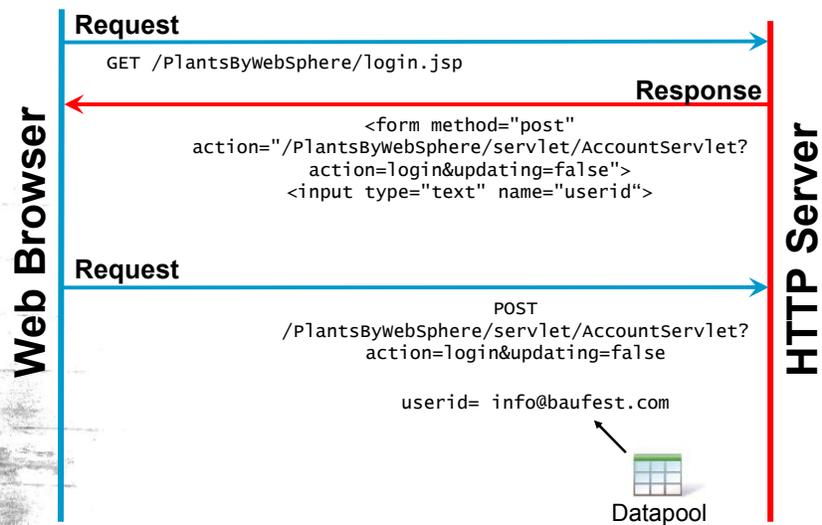
Version:	1.1	Method:	GET
Host:	localhost	Port:	9080
URL:	localhost:9080/PlantsByWebSphere/servlet/ShoppingServlet?action=product&itemID=10713		

Correlated with "ItemID" variable, of Plants_Inventory [(testproj)Plants_Inventory_datapool] datapool (Plants_Inventory [(testproj)Plants_Inventory_datapool])

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Datos – Ejemplo



Ejercicios

- 5.1 Using datapools
- 5.2 Data correlation



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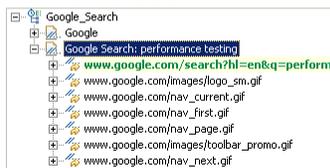
Think time

- Emula las pausas en la actividad del usuario
- Configurado a nivel de página

Performance Test - Google_Search

Test Contents

This section shows the test contents



Test Element Details

HTTP Page - Google Search: performance testing

Page title: Google Search: performance testing

Primary request: www.google.com/search?hl=en&q=performance+testing&btnG=

Think time: 6917 milliseconds

milliseconds

seconds

minutes

hours

Test Data

Name	Value	Related with	Owner
btnG	Google Search	Google Search" - Cont...	www
hl	en	"en" - Content	www
q	performance testing		www

Software that Works.

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Delay

- Emula las pausas en la actividad del sistema
- **NO** debería cambiarse

The screenshot shows the 'Test Element Details' window for an HTTP request. The URL is `www.google.com/search?hl=en&q=performance+testing&btnG=Google+Search`. The 'Request Attributes' section shows the method as GET and the host as www.google.com. The 'Request Headers' section lists various headers such as Accept, Referer, and User-Agent. At the bottom, the 'Primary request for page' checkbox is checked, and the 'Delay' is set to 0 milliseconds. A dropdown menu is open, showing options for milliseconds, seconds, minutes, and hours.

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Header

- Agregar valores estándar
- Modificar los valores existentes

The screenshot shows the 'Add/Edit Headers' dialog box. It has two panes: 'Available Headers' and 'Selected headers'. The 'Available Headers' pane lists various headers like Accept, Referer, and Cookie. The 'Selected headers' pane shows the headers currently selected for the request. At the bottom, there is a 'New custom header' section with 'Name' and 'Value' input fields and an 'Insert' button. A large blue arrow points from the 'Add' button in the 'Request Headers' table to the 'Add/Edit Headers' dialog box.

Software that Works.

Puntos de verificación

- Verifica un comportamiento esperado
- Tipos
 - Título de página → Tag <title>Título de la página</title>
 - Contenido
 - Código de respuesta
 - Tamaño de respuesta
- Niveles
 - Test: aplica a todos los elementos.
 - Page: aplica a todos los elementos
 - Element: N/A Título

Puntos de verificación - Configuración

- Preferences > Test > Test generation > HTTP Test generation > Test generation option

Test Generation Options | Data Correlation | Data Correlation Types

Do not generate new page if think time is < 500 ms

Generate new page if delay between requests > 5000 ms

Maximum request delay 2000 ms

Save only the first 4KB of responses larger than 2048 KB

Suppress NSLookup() and use numeric IPs

Automatically include verification point of

HTML page title

HTTP return code

HTTP response size

Accept sizes for primary request within 10 %

Restore Defaults Apply

Puntos de verificación – Título de página

- Desde Test detail se puede habilitar y modificar

Performance Test - Google_Search

Test Contents
This section shows the test contents

- Google_Search
 - Google
 - Google Search: performance testing

Buttons: Add, Insert, Remove, Up, Down

Test Element Details
HTTP Page - Google Search: performance testing
Page title: Google Search: performance testing
Primary request: www.google.com/search?hl=en&q=performance+testing&btnG=
Think time: 6917 milliseconds

Page Title Verification Point
 Enable verification point
Expected page title: Google Search: performance testing
Recorded title: Google Search: performance testing

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Puntos de verificación – Tamaño de respuesta

Performance Test - GoogleSearch1

Test Contents
This section shows the test contents

- GoogleSearch1
 - Google
 - 64.233.167.104/
 - Connection
 - Response: 200 - OK
 - Response Size Verification Point
 - Response Code Verification Point
 - 64.233.167.104/images/logo.gif
 - Response: 200 - OK
 - Response Size Verification Point
 - Response Code Verification Point
 - Google Search: IBM

Buttons: Add, Insert, Remove, Up, Down

Test Element Details
Response Size Verification Point
Recorded response size is 2,657 bytes.
 Enable verification point
Select matching method:
 Exact:
 At least:
 At most:
 Range (bytes):
 Range (%): 10 %
Verify that the response size is between 2,392 and 2,922 bytes.

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Puntos de verificación – Código de respuesta

The screenshot shows the 'Performance Test - GoogleSearch1' interface. On the left, the 'Test Contents' tree lists various test elements, including a 'Response Code Verification Point' for the URL '64.233.167.104/'. A blue arrow points from this element to the 'Test Element Details' panel on the right. The 'Test Element Details' panel shows the configuration for the 'Response Code Verification Point', with the record response code set to 200. The 'Enable verification point' checkbox is checked, and the 'Select matching method' is set to 'Relaxed'.

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Puntos de verificación – Contenido

- Case sensitive
- Puede ser
 - String
 - Expresión regular

The screenshot shows the 'Test Element Details' panel for a 'Content Verification Point'. The 'Enable verification point' checkbox is checked, and the 'Verification fails if:' dropdown is set to 'At least one of the checked strings is found'. The 'Available strings (1 selected)' dialog box is open, showing a table with columns for 'Text', 'Case', 'RegEx', and 'End Byte'. The 'Search String' is selected, and the 'End Byte' is set to 100. The 'Text' field is empty, and the 'Case' is set to 'User-defined'. The 'RegEx' checkbox is checked, and the 'Regular expression' checkbox is also checked. The 'OK' and 'Cancel' buttons are visible at the bottom of the dialog box.

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Transacciones

- Parte de la prueba en la que hay un interés particular
- Forma de organizar páginas o requests
- Simplifica la estructura de las pruebas

Performance Test - Browse_and_Buy

Test Contents

This section shows the test contents

The screenshot shows a tree view of test contents under the 'Browse_and_Buy' folder. The items listed are 'Home Page', 'Transaction: Browse', and 'Transaction: Buy'. To the right of the tree are five buttons: 'Add', 'Insert', 'Remove', 'Up', and 'Down'.

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Transacciones - Agregar

Performance Test - Browse_and_Buy

Test Contents

This section shows the test contents

The screenshot shows a tree view of test contents. The items listed include 'Home Page', 'Flowers Catalog', 'Flower Item Details', 'Fruits and Veg Catalog', 'Fruit and Veg Item Details', 'Trees Catalog', 'Tree Item Details', 'Accessories Catalog', 'Accessory Item Details', 'Add to Cart', 'Customer Login', 'Checkout', and 'Review Order Details'.

Common properties

Test Element Details

Multiple Items

The screenshot shows a context menu with the following options: 'Transaction', 'Loop', and 'Condition (IF)'. A blue arrow points from the 'Transaction' option to the 'Performance Test Editor - New Transaction' dialog box.

The dialog box asks: 'Would you like to move selected objects into new transaction?'. It has a 'Yes' button and a 'No' button. The 'Yes' button is highlighted with a blue arrow.

Performance Test - Browse_and_Buy

Test Contents

This section shows the test contents

The screenshot shows the 'Transaction: Browse_and_Buy' folder expanded in the tree view. The items listed are 'Flowers Catalog', 'Flower Item Details', 'Fruits and Veg Catalog', 'Fruit and Veg Item Details', 'Trees Catalog', 'Tree Item Details', 'Accessories Catalog', 'Accessory Item Details', 'Add to Cart', 'Customer Login', 'Checkout', 'Review Order Details', and 'Order Confirmation'.

Common properties

Test Element Details

Transaction

Transaction name: Browse_and_Buy

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Ejercicios

- 6.1 Adding test elements



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Loop

- Secuencia de acciones que se repiten hasta que se cumpla una condición
- Sobre
 - Páginas
 - Elementos
- Establecer
 - Número de iteraciones
 - Frecuencia
- ¡OJO!
 - Preservar el flujo y la lógica
 - No poner frecuencias extremas

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Loop - Agregar

Performance Test - Check_Weather_loops

Test Contents
This section shows the test contents

- Check_Weather_loops
 - weather.com
 - weather.com - Search Results
 - weather.com - Local Weather Page
 - www.weather.com - Hourly Forecast
 - www.weather.com - Weekend Weather
 - Click here to find out more!
 - www.weather.com - Tenday Forecast
 - Business Traveler
 - weather.com - Search by Airport Code
 - weather.com - Airport Profile
 - www.weather.com - Business Travel Weekend

Test Element Details
Multiple Items

- weather.com - Search by Airport Code
- weather.com - Airport Profile
- www.weather.com - Business Travel Weekend

Buttons: Add, Insert, Remove, Up, Down

Context Menu:

- Insert
 - HTTP Page
 - Custom Code
 - Transaction
 - Loop
 - Condition (If)
- Enable Page Title VPs
- Enable Response Code VPs
- Enable Response Size VPs
- Test Search
- Cut
- Copy
- Paste
- Remove
- Select All
- Save

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Loop - Configurar

Test Element Details

Loop (1 iteration)

Loop name: Loop (1 iteration)

Duration

Count-based: 1 iterations

Time-based:

Infinite

Control the rate of iterations

Options

Iteration rate: 1 per Minute

Randomly vary the delay between iterations

Delay before the first iteration of the loop

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Condicional

- Agrupa elementos en construcciones
 - If / Then
 - If / Then / Else
- Evalúa condiciones

Performance Test - Login_Success_Buy

Test Contents

This section shows the test contents

- Login_Success_Buy
 - Home Page
 - Item Details
 - Shopping Cart
 - Login Failure
 - Login Success
 - Checkout
 - Review Order
 - Order Confirmation

Context Menu:

- Add
- Insert
- HTTP Page
- Custom Code
- Transaction
- Loop
- Condition (If)
- Else Block

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Custom code

Test Contents

This section shows the test contents

- Classics2
 - ClassicsCD.com Shop
 - Symphonie Nr. 9
 - CD Catalog
 - CD CustomerID Entry
 - CD Order Placed

Context Menu:

- Add
- Insert
- HTTP Request
- Custom Code
- Transaction
- Loop
- Condition (If)

Test Element Details

Custom Code

Class name: test.Class1098907931326

View Code Generate Code

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Ejercicios

- 6.2 Adding custom code to test



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Planificaciones

- Modelan la carga de trabajo: tipos de usuario, ubicación, escenario, ramp up...
- Multi-usuario
- Comportamiento del sistema en otras condiciones

Workload Item	Schedule Attribute	Details
User types	User Groups	<ul style="list-style-type: none">PercentageFixed number
Tasks or transactions	Performance Tests	
Pause in activity	Delay	<ul style="list-style-type: none">Fixed period of time
Repeated activity	Loops	<ul style="list-style-type: none">Number of iterations
Random activity	Random Selector	<ul style="list-style-type: none">Define weight of items

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Planificaciones - Elementos

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Planificaciones - Configuraciones

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Planificaciones - Configuraciones

Schedule Element Details

Prueba

User Load | Think Time | Resource Monitoring | Statistics | Performance Requirem | Test Log

Modify the duration of recorded think time delays:

Use the recorded think time

Use the recorded think time
Specify a fixed think time
Increase/decrease the think time by a percentage
Vary the think time by a random percentage

Limit think times to a maximum value

Maximum think time: 10 Seconds

Resource Monitoring

Create and manage configurations

Specify the host name and setting for the data sources from which you wish to collect resource monitoring data.

Host: localhost

Data Sources:

- CPU Load Monitoring
- I/O read number
- Windows Performance Monitor

Specify the type of resource data you wish to collect:

- Memory
 - Page Faults/sec
 - PageIn/sec
 - Pool NonpagedBytes
 - Pool PagedBytes
 - PrivateBytes
- Total
 - % Disk Read Time
 - % Disk Time
 - % Disk Write Time
- Processor
 - % Processor Time
- IAS Total
 - Bytes Received/Sec
 - Bytes Transmitted/Sec

Show only selected counters

OK Cancel

Schedule Element Details

Prueba

User Load | Think Time | Resource Monitoring | Statistics | Performance Requirem | Test Log

Enable resource monitoring

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Planificaciones - Configuraciones

Schedule Element Details

Prueba

User Load | Think Time | Resource Monitoring | Statistics | Performance Requirem | Test Log

Statistics log level: All

Statistics sample interval: 5 Seconds

Only store All Hosts statistics

All

- None
- Schedule Actions
- Primary Test Actions
- Secondary Test Actions
- All

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Planificaciones – Configuraciones de grupo

Performance Schedule - Prueba

Schedule Contents

This section shows the schedule contents

Enter filter text

- Prueba
- User Group 1 (100%)

Options

Add

Insert

Select

Remove

Up

Down

Prev

Next

Run

Schedule Element Details

User Group 1 (100%)

Group name: User Group 1

Group size

Absolute: 0

Percentage: 100

Locations Options

Run this group on the local computer

Run this group on the following locations (0 defined)

Name	Hostname	Directory
Desktop2	192.168.42.1	C:/workspace/ITNet1
Remotelocation	adama	C:/Documents and Settings/...

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Ejercicios

- 7. Creating a simple schedule



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Selector aleatorio

Performance Schedule - Weather.com

Schedule Contents

This section shows the schedule contents

- Weather.com
 - Daily Forecast (60%)
 - Hourly Forecast (25%)
 - Ten Day Forecast (5%)
 - Miscellaneous activity (10%)
 - Random Selector (20 iterations)
 - 10-day (10)
 - Weather_10day
 - Hourly (30)
 - Weather_hrly
 - Today (60)
 - Weather_today

Schedule Element Details

Random Selector

Below, you may add Weighted Blocks to this Random Selector. Each time the selector is executed, it will pick one Weighted Block at random, based on the weight assigned to each block. The entire contents of the selected block will then be executed sequentially.

Name	Weight
10-day	10
Hourly	30
Today	60

Add Open Remove

Number of iterations:

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Ejercicios

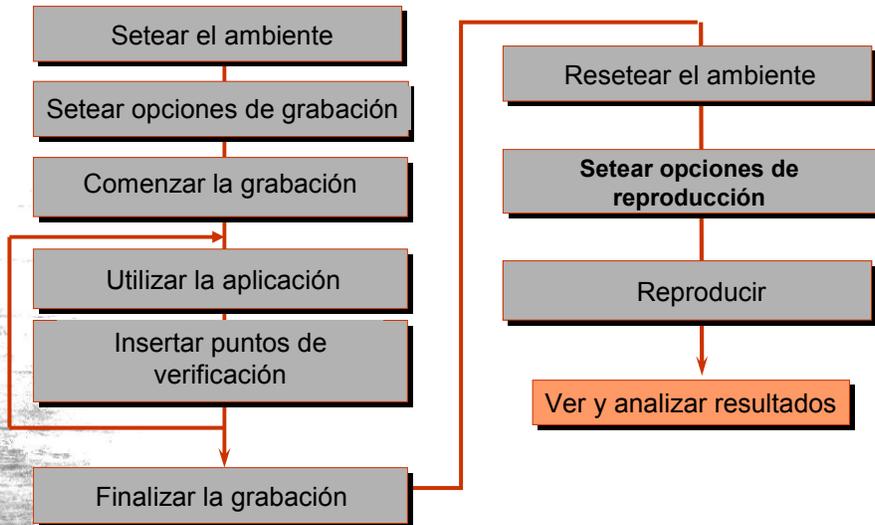
- 8. Enhancing Schedules
- 9. Ramping-Up Tests



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Workflow de pruebas



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Test log – Veredicto

The screenshot shows the 'Performance Test Runs' window. On the left, a tree view displays the test structure, including 'Plants' and 'BuyBonsai'. A context menu is open over the 'BuyBonsai' test, with 'Display Test Log' selected. On the right, the 'Test Log' window is open, showing the following details:

General Information		Common Properties	
This section describes the general information about this object.			
Name	BuyBonsai	Verdict	pass
Description		Start	Mar 19, 2007 2:39:28 PM EDT
File	/Plants/BuyBonsai.execution	Stop	Mar 19, 2007 2:40:14 PM EDT
Type	Performance Test	Host name	localhost

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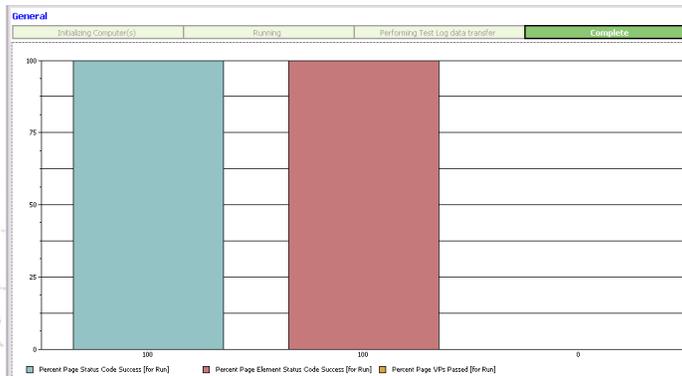
Reportes

- Vista de los resultados estáticos de las pruebas
- Reportes estándar
 - Informe de rendimiento (**default**)
 - Informe de rendimiento del elemento de página
 - Informe percentil de elementos de página
 - Informe percentil de página
 - Informe de puntos de verificación
- Default modificable: Window > Preferences > Test > Performance Test Reports > Default Report.
- Exportar csv / HTML
- Comparación
- Customización



Informe de rendimiento - General

- Muestra
 - Progreso del estado de las pruebas
 - Gráfico de barras con el porcentaje de códigos exitosos de elementos de página



Informe de rendimiento - Resumen

- Estados posibles: Inicializando sistemas, Añadiendo usuarios, En ejecución, Transfiriendo datos al registro de datos, Detenido o Completado
- Transacciones

Resumen

Resumen de la ejecución

Executed Test	google
Active Users	0
Completed Users	1
Total Users	1
Elapsed Time (H:M:S)	0:00:43
Run Status	Complete
Displaying Results for Computer:	All Hosts

Resumen de página

Percent Page VPs Passed [for Run]	0
Total Page VPs Failed [for Run]	1
Total Page Attempts [for Run]	4
Total Page Hits [for Run]	4
Average Response Time For All Pages [ms] [for Run]	3,713.5
Response Time Standard Deviation For All Pages [for Run]	3,962.8
Maximum Response Time For All Pages [ms] [for Run]	9,388
Minimum Response Time For All Pages [ms] [for Run]	188

Resumen de elementos de página

Total Page Element Attempts [for Run]	18
Total Page Element Hits [for Run]	18
Average Response Time For All Page Elements [ms] [for Run]	477.5
Response Time Standard Deviation For All Page Elements [for Run]	1,220.9

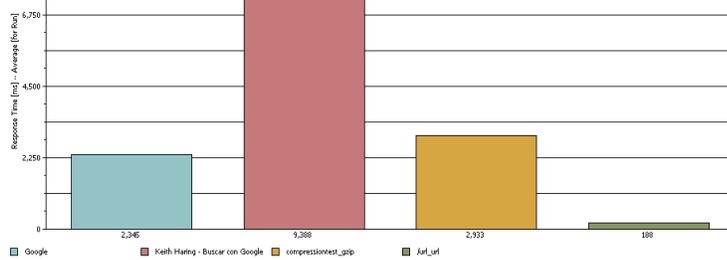
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IR – Rendimiento de página

- 10 páginas más lentas
- Rendimiento por elemento: **Display page element responses**

Rendimiento de página



Resumen de rendimiento

	Response Time [ms] -- Minimum [for Run]	Response Time [ms] -- Average [for Run]	Response Time [ms] -- Standard Deviation [for Run]	Response Time [ms] -- Maximum [for Run]	Attempts -- Rate [per second] [for Run]	Attempts -- Count [for Run]
Google	2,345	2,345	0	2,345	0.02	1
Keith Haring - Buscar con Google	9,388	9,388	0	9,388	0.02	1
compressiontest_gtp	2,933	2,933	0	2,933	0.02	1
/url_url	188	188	0	188	0.02	1

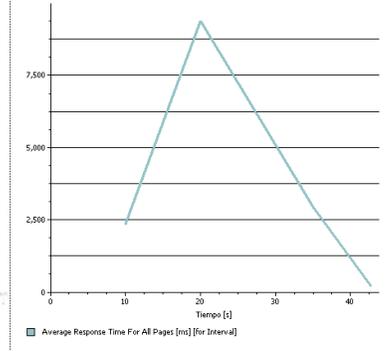
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IR – Rta. en oposición a resumen de tiempos

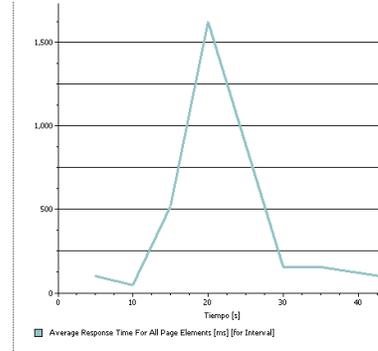
- División en etapas
- Intervalo de muestreo

Respuesta en oposición a resumen de tiempos



Resumen de rendimiento

Average Response Time For All Pages [ms] [for Run]	3,713.5
Response Time Standard Deviation For All Pages [for Run]	3,962.8

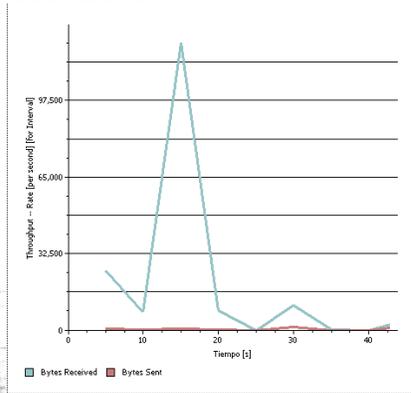


Resumen de rendimiento

Average Response Time For All Page Elements [ms] [for Run]	477.5
Response Time Standard Deviation For All Page Elements [for Run]	1,220.9

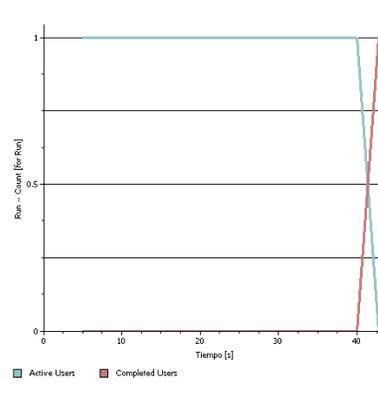
IR – Rendimiento del servidor

Rendimiento del servidor



Resumen de rendimiento

Bytes Received [for Run]	373,429
Bytes Sent [for Run]	18,455

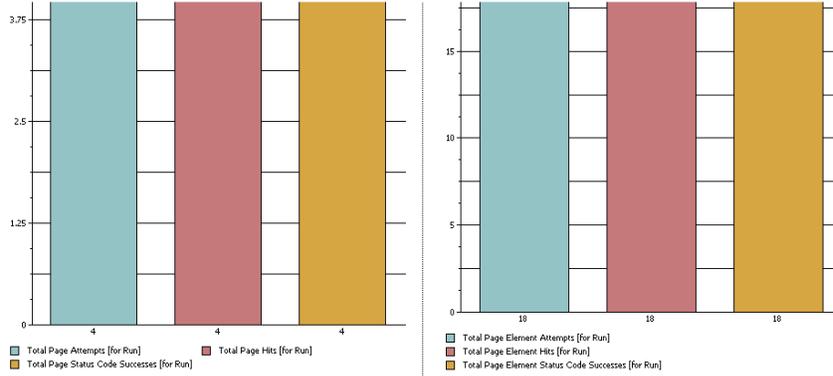


Resumen de rendimiento

Active Users	0
Completed Users	1
Total Users	1

IR – Resumen de la salud del servidor

Resumen de la salud del servidor



Resumen de rendimiento

Total Page Attempts [for Run]	4
Total Page Hits [for Run]	4
Total Page Status Code Successes [for Run]	4

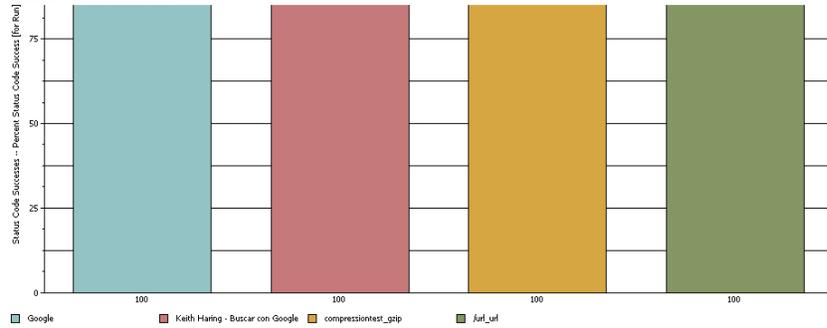
Resumen de rendimiento

Total Page Element Attempts [for Run]	18
Total Page Element Hits [for Run]	18
Total Page Element Status Code Successes [for Run]	18



IR – Detalle de la salud del servidor

Detalles de la salud del servidor



Resumen de rendimiento

	Attempts -- Count [for Run]	Hits -- Count [for Run]	Status Code Successes -- Count [for Run]	Status Code Successes -- Percent Status Code Success [for Run]	Attempts -- Rate [per second] [for Run]
Google	1	1	1	100	0.02
Keith Haring - Buscar con Google	1	1	1	100	0.02
compressiontest_gzip	1	1	1	100	0.02
/url_url	1	1	1	100	0.02



IR – Recursos

The screenshot displays the Performance Monitor interface. On the left, a graph shows various performance metrics over time. A context menu is open over the graph, listing options like 'Add/Remove Performance Counters', 'Customize...', 'Change Time Period...', 'Import Resource Monitoring Data...', and 'Import Response Time Breakdown Data...'. On the right, the 'Add/Remove Resource Counters wizard' is open, showing a tree view of performance counters. The 'Memory' section is expanded, showing 'Page Faults/sec', 'Pages/sec', 'Pool Nonpaged Bytes', and 'Pool Paged Bytes'. The 'PhysicalDisk' section shows '% Disk-Read Time', '% Disk Time', and '% Disk Write Time'. The 'Processor' section shows '% Processor Time'. The wizard includes columns for 'Counter', 'Scale', and 'Locations To Include'. At the bottom left, a vertical banner reads 'Software that Works.' At the bottom right, the 'baufest' logo is displayed.

Ejercicios

- 10.1. Analyzing Results

The illustration shows a man in a business suit juggling three weights on a bar. He is carrying a briefcase in his right hand. The background is a simple, stylized landscape. At the bottom left, a vertical banner reads 'Software that Works.' At the bottom right, the 'baufest' logo is displayed.



¿Consultas?

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Tips

- Modelos realistas
- Workloads idénticos para comparar
- Cambiar de a una variable por vez
- Dejar que las páginas se carguen completamente
- Usuarios y contraseñas de prueba

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Argentina

Tel.: +54 (11) 4807-8080
Fax: +54 (11) 4801-6146
Av. Las Heras 3257
(C1425ASJ) Buenos Aires

España

Tel.: +34 91 745 2763
Fax: +34 91 561 5626
c/ Francisco Giralte, 2
(28002) Madrid

México

Tel.: +52 1 55 5284-2842
Fax: +52 1 55 5284-2803
Monte Pelvoux 111, 2do Piso
Col. Lomas de Chapultepec
(11000) Del. Miguel Hidalgo
México D.F.

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Integración RPT-RQM

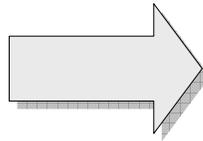
Modalidad teórico-práctica

Ing. Nadia Soledad Cavalleri
05/2012

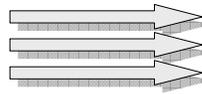


Integración con RQM

- Test plan → Test case → Test script → Script RPT



- Test suite → Test cases



¿Consultas?

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Argentina

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