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**Capacitación en
Rational Functional Tester**

Modalidad teórico-práctica

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04/2012



Modalidad

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

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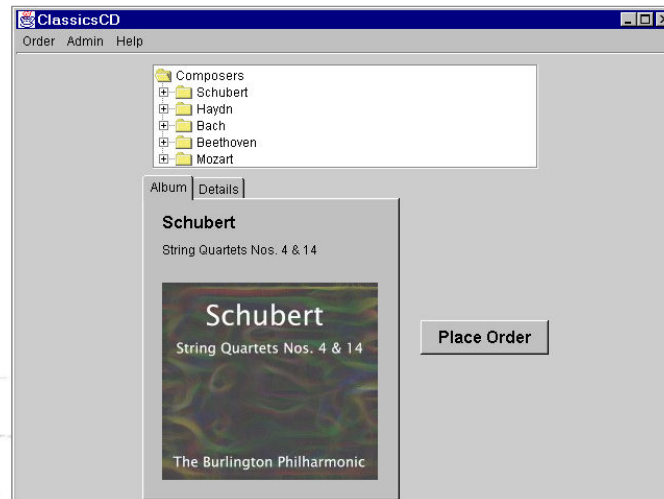
Agenda

- Aplicación de pruebas
- RFT
- Workflow de pruebas
- Mapas de objetos
- Reconocimiento de objetos
- Datapools
- Integración con RQM
- Evaluación del curso

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Aplicación de pruebas - ClassicsCD



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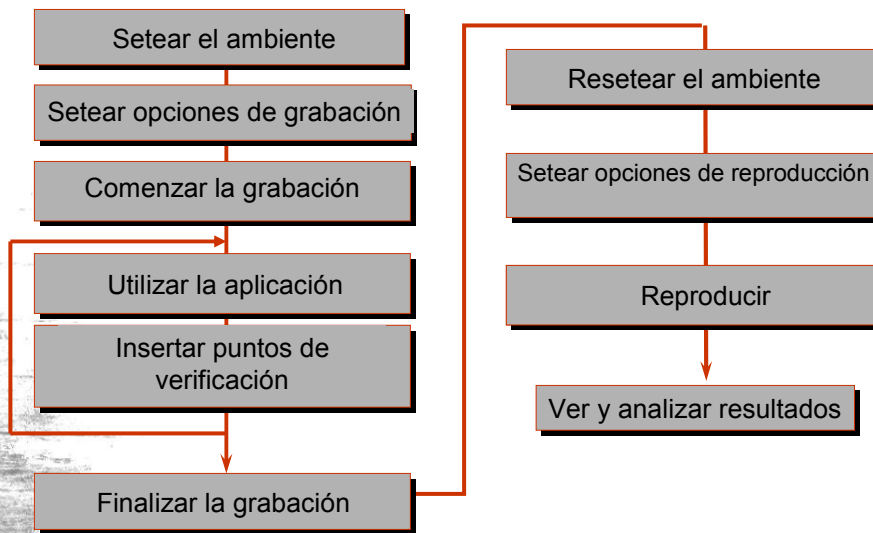
Rational Functional Tester

- Herramienta de automatización de pruebas funcionales
- Plataformas
 - Java, Web 2.0, SAP, Siebel, terminal-based, .NET y escritorio
 - Linux y Windows
- Scripts en .NET y Java
- Integraciones: CC, RQM
- Sin conocimientos de programación

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Workflow de pruebas



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ScriptAssure

- Cambios en el código → Ruptura de scripts

The image shows two side-by-side dialog boxes, 'Old build' and 'New build', both titled 'Choose One:'. Both have radio buttons for 'New Customer' and 'Existing Customer'. The 'Full Name' field is set to 'Trent Culpito'. In the 'Old build', the 'Remember Password' checkbox is circled in red. In the 'New build', the 'Remember The Password' checkbox is circled in red. A yellow box with the text 'Functional Tester Evaluates... Close Enough?' has arrows pointing to both checkboxes. Below each dialog box, the 'Recognition Properties' are listed: 'Class = java.swing.jcheckbox' and 'Name = pswd' for the old build, and 'Class = java.swing.jcheckbox' and 'Name = rempswd' for the new build. The 'Name' fields are circled in red. A vertical watermark 'Software that Works.' is on the left, and the 'baufest' logo is at the bottom right.

Interfaz

- Workspace
- Perspectiva
- Vista

The screenshot shows the IBM Rational Software Development Platform interface. The title bar reads 'Functional Test - IBM Rational Software Development Platform'. The menu bar includes 'File', 'Edit', 'Navigate', 'Search', 'Project', 'Script', 'Configure', 'Run', 'Window', and 'Help'. A toolbar with various icons is visible. On the left, a 'Functional Test Projects' window displays instructions: 'Select: File > New > Functional Test Project' to create a new project, and 'Select: File > Connect to a Functional Test project' to connect to an existing project. The main workspace shows a 'Current Perspective' window with 'Functional Test' and 'Resource' views. A 'Script Explorer' window is open, displaying 'Functional Test Script Editor is not ac'. At the bottom, there are 'Tasks', 'Console', and 'Problems' views. A table at the bottom shows columns for 'Description', 'Resource', and 'In Folder'. A vertical watermark 'Software that Works.' is on the left, and the 'baufest' logo is at the bottom right.

Abrir perspectiva

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

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

1

2

3

Click **Other**

Click a perspective

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Perspectiva Functional Tester

View name

Functional Test menu

Functional Test toolbar

Current script

Editor area (showing Java Script Editor)

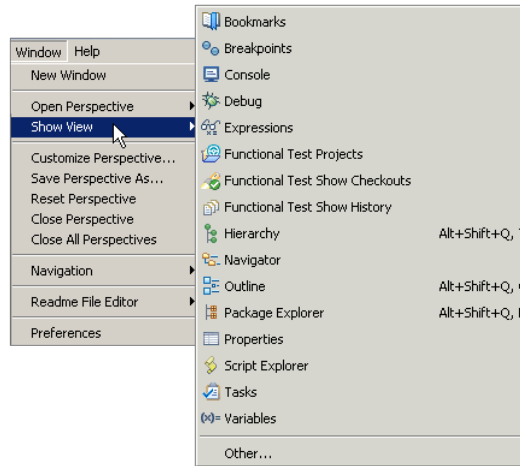
Functional Test Script Explorer

Functional Test Projects view

Additional Functional Test views

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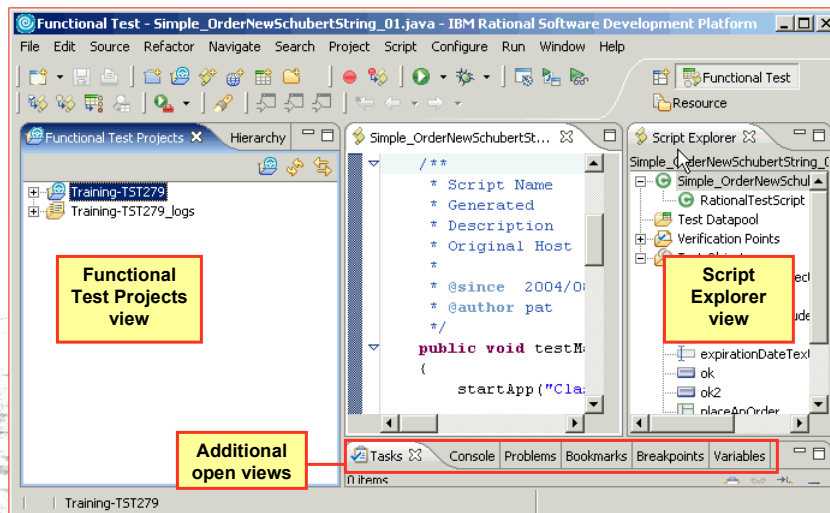
Abrir vista



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Algunas vistas



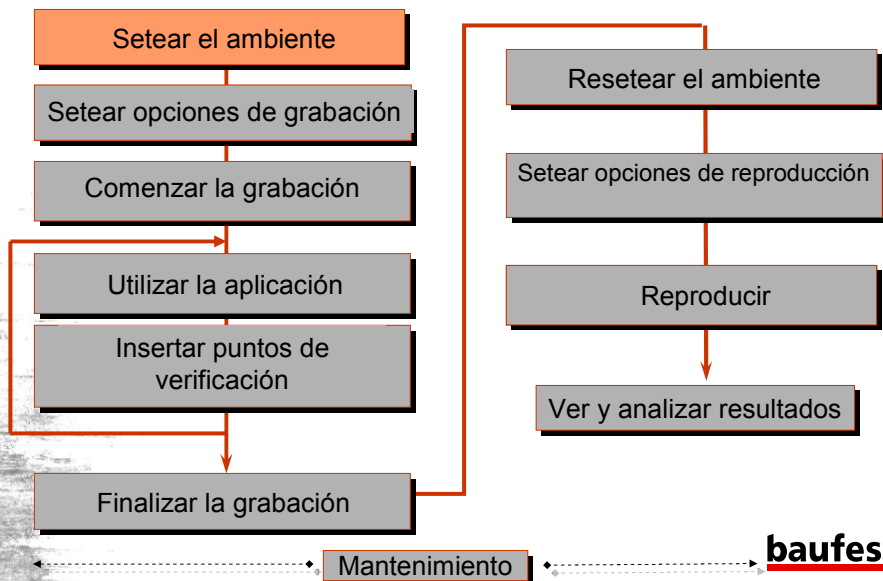
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Proyecto de Functional Tester

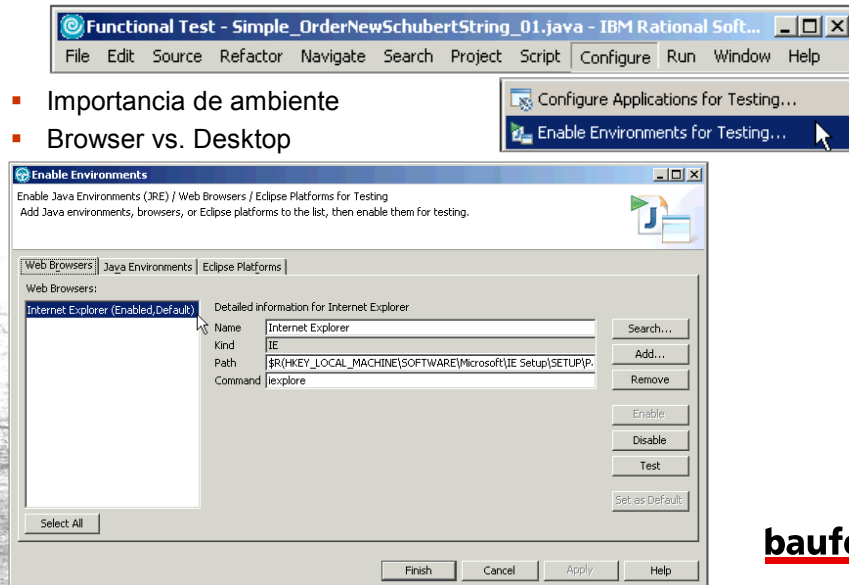
- Contiene
 - Scripts
 - Mapas de objetos
 - Líneas base de los puntos de verificación
 - Datapools
- Nuevo o existente

Workflow de pruebas

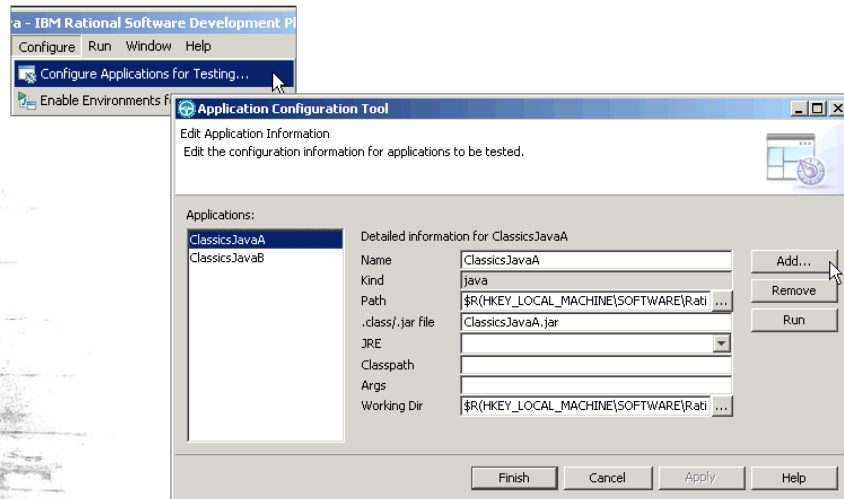


Setear el ambiente

- Importancia de ambiente
- Browser vs. Desktop



Setear el ambiente



Ejercicios

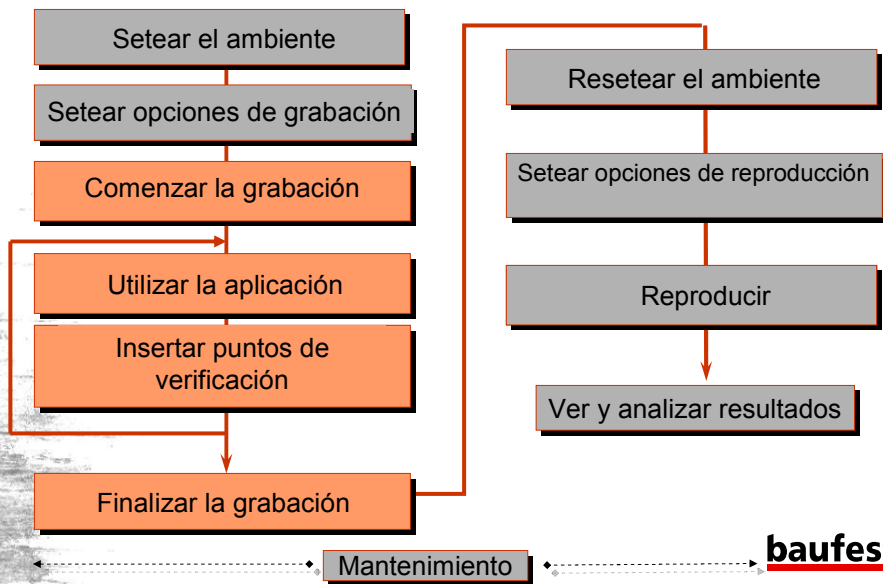
- 2. Getting started with IBM Rational Functional Tester



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Workflow de pruebas



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Script

- Archivo de texto con sentencias
 - Automáticas
 - Manuales
- Sentencias ejecutadas en la reproducción
- Planificar previamente
 - Definir convenciones de nombre
 - Reutilización
 - Mantenimiento
- **Ver Grabación**

```

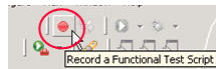
public void testMain(Object[] args)
{
    setSimplifiedScriptLine(1); //Start Application ClassicsJ
    startApp("ClassicsJava");

    // Group: ClassicsCD
    setSimplifiedScriptLine(2); //ClassicsCD
    timerStart("ClassicsCD_2");
    setSimplifiedScriptLine(3); //Click tree2 at Composers->
    tree2().click(atPath("Composers->Beethoven->Location(PLUS_M

    setSimplifiedScriptLine(4); //Click tree2 at Composers->
    tree2().click(atPath("Composers->Beethoven->Symphony No. 9"

    setSimplifiedScriptLine(5); //Click Place Order
    placeOrder().click();

    timerStop("ClassicsCD_2");
    // Group: Member Logon
    setSimplifiedScriptLine(6); //Member Logon
    timerStart("MemberLogon_6");
    setSimplifiedScriptLine(7); //Click OK
    ok().click();
    }
    
```

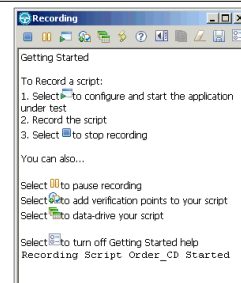


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Recording monitor

- Luego de seleccionar la aplicación de pruebas
- Muestra
 - Cada acción
 - Errores
- Toolbar



Recording toolbar:

1. Stop Recording
2. Pause/Resume Recording
3. Start Application
4. Insert Verification Point or Action Command
5. Insert Data Driven Commands
6. Script Support
7. Display Help

Monitor preference buttons:

8. Display Toolbar Only
9. Copy Selected Text
10. Clear All Monitor Text
11. Save Monitor Text As
12. Monitor Message Preferences

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Software that Works.

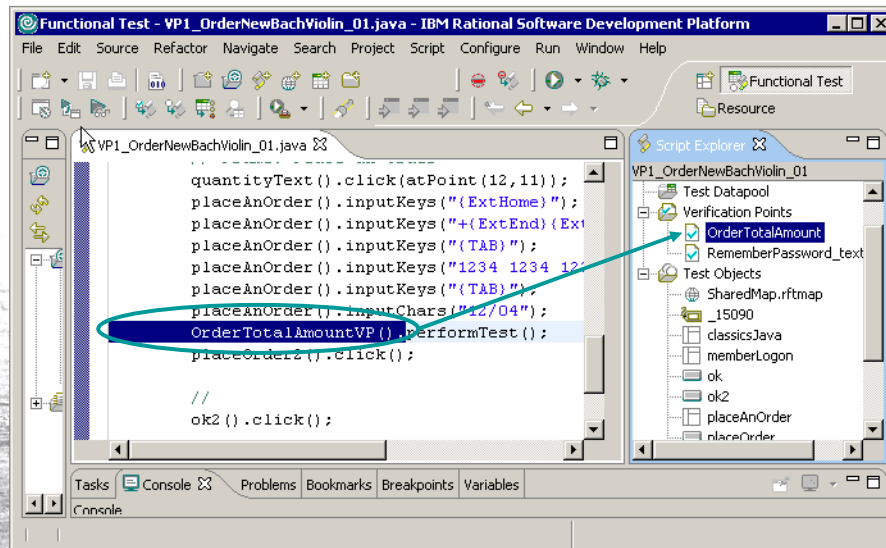
Puntos de verificación

- ¿Cómo puedo saber que la aplicación funciona como quiero?
- Punto creado para verificar el estado de AUT tras cada build
- Resultados
- “A test is not a test without verification points!”
- ¿Cómo los veo?

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Ubicación de los Puntos de verificación



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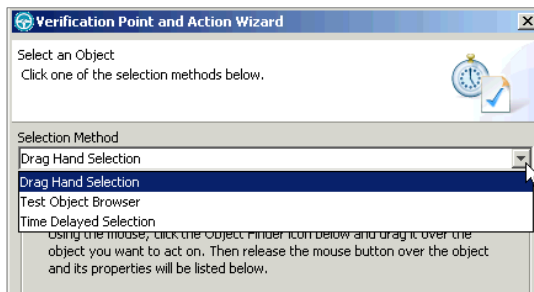
Grabación de puntos de verificación

- Pasos

- 1. Seleccionar un objeto
- 2. Seleccionar una acción

```
Recording Started  
jmb().click(atPath("Order->View Existing Order Status..."));  
ok().click();
```

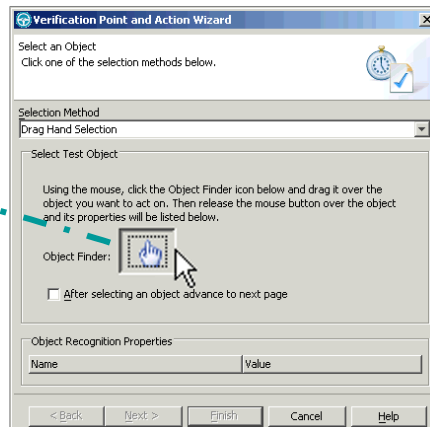
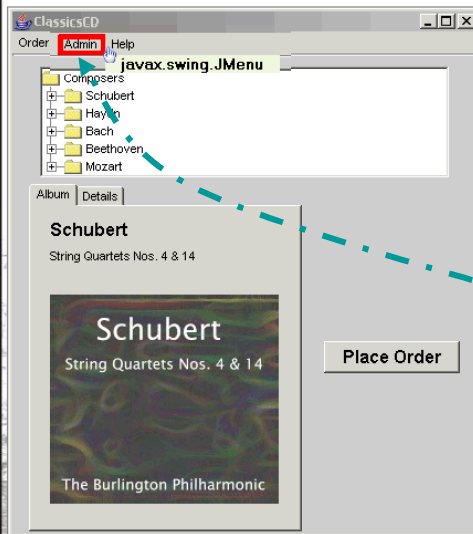
- 1. Métodos de selección



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Método de selección: Drag hand selection



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Método de selección: Test object browser

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Select an Object
Click one of the selection methods below.

Selection Method
Test Object Browser

Select Test Object

- Java domain (process id:804)
 - Frame
 - tree2
 - ScrollBar
 - ScrollBar
 - tabbedPane
 - PlaceOrder
 - jmb

Name	Value
rclass	javax.swing.Button

< Back Next > Finish Cancel Help

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Browse object hierarchy to select

Método de selección: Time delayed selection

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Select an Object
Click one of the selection methods below.

Selection Method
Time Delayed Selection

Select Test Object

Use on pop-up items (like menus). Set number of seconds needed to get cursor over object. Then click the Object Finder below to start the countdown. When time expires, the object under the cursor is selected, and its properties are listed below.

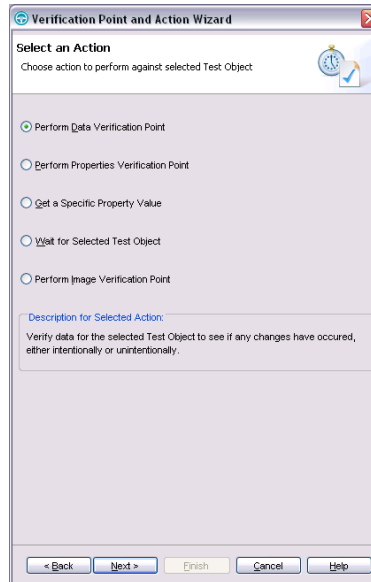
Seconds before selection: 10

Object Finder:

Get parent hierarchy of selected object

After selecting an object advance to next page

2. Acciones a realizar



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Ejercicios

- 3.2. Record a Data Verification Point
- 3.3. Record a Properties Verification Point



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Funciones de soporte a scripts

- Y en el código lo vemos así...

```
public void testMain (Object[] args)
{
Log Entry → logInfo("Test log entry")
             // Start application here
             startApp("ClassicsJavaA");
Sleep →      sleep(5.0);
Comment →   // Frame: ClassicsCD
             menubar().click(atPath("Order"));
             menubar().click(atPath("Order->View Exist

             // Frame: View Order Status
             CancelSelectedOrder().click();
Timer →     timerStart("Timer1");
```

Ejercicios

- 3.4. Include Script Support Functions in a Script
- 3.5. Include a Timer in a Script



Insertar grabaciones en scripts

- ¿Cómo puedo...
 - ...corregir un error en un script?
 - ...continuar una grabación interrumpida?
 - ...incorporar una funcionalidad?



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Ejercicios

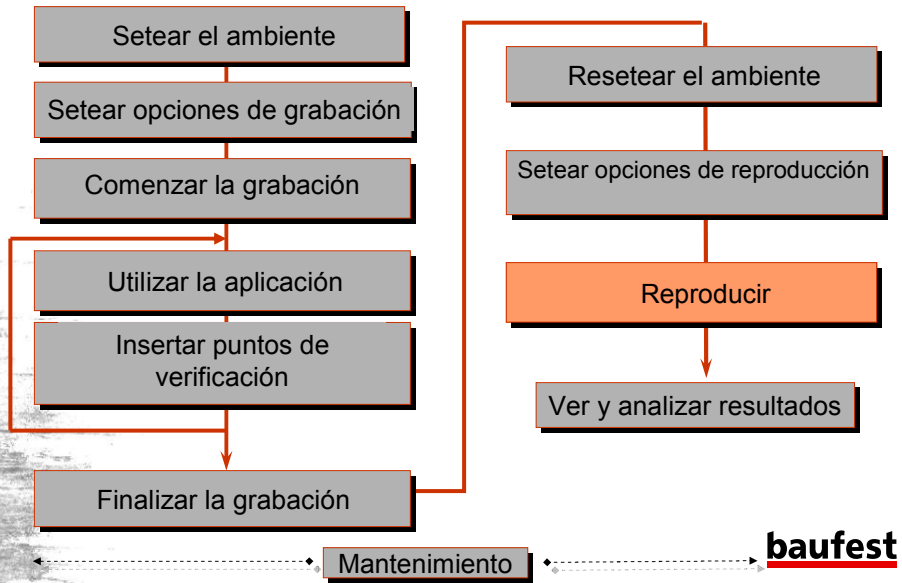
- 3.6 Insert Recording into a Script



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Workflow de pruebas

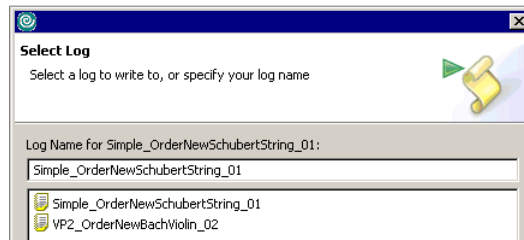


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Reproducción

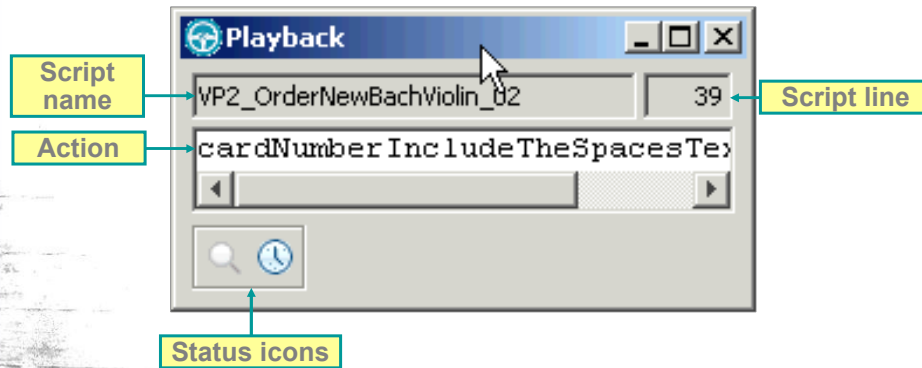
- Momentos
 - Al desarrollar el script
 - Al regresionar
- Pasos
 - Ejecutar el script 
 - Completar la información para el log



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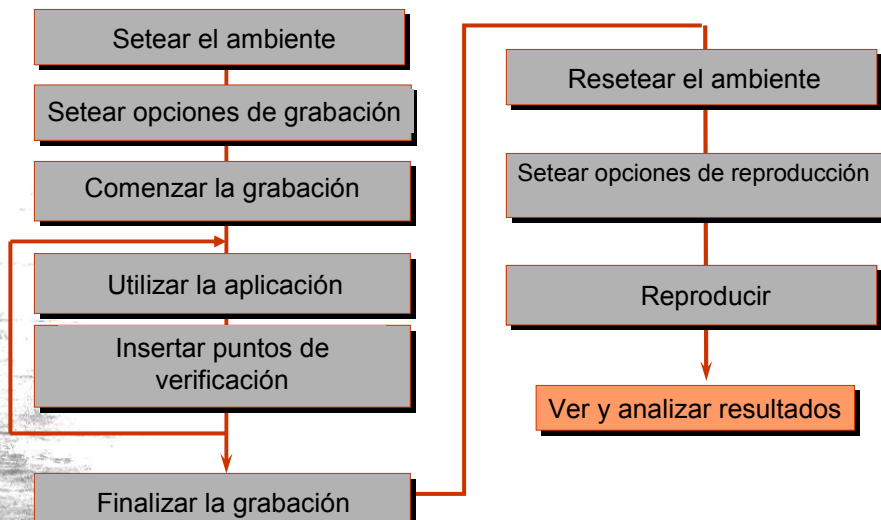
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Playback monitor



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Workflow de pruebas

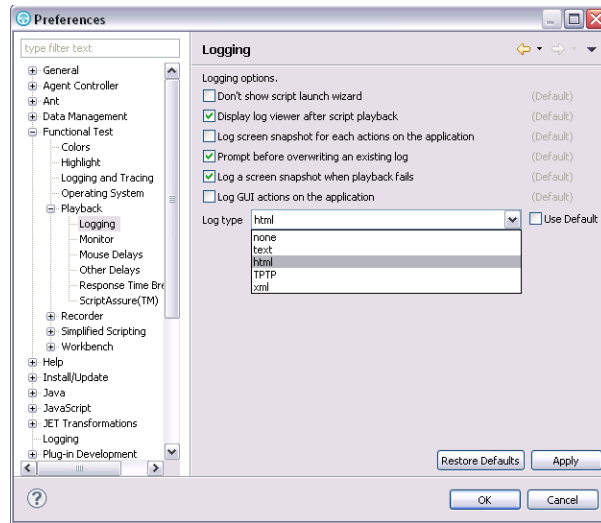


Mantenimiento

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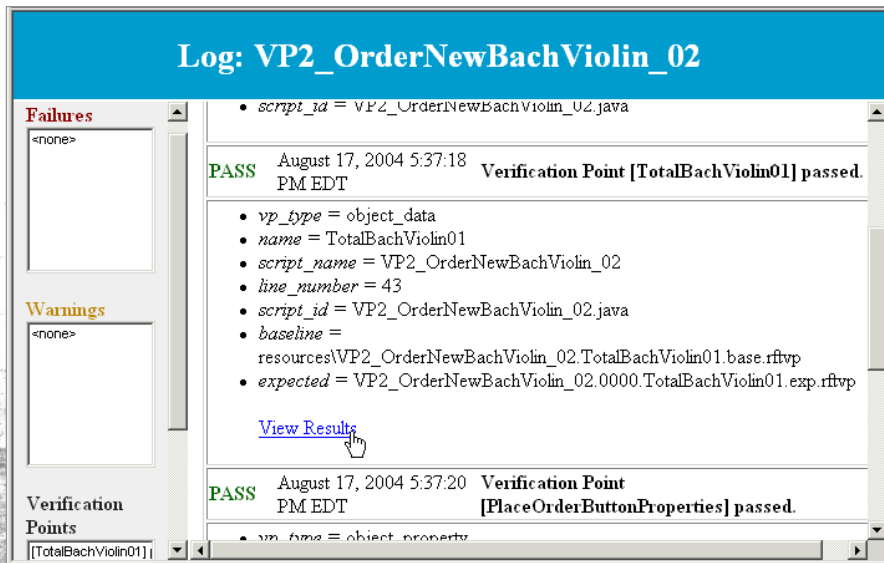
Log

- Tipos:

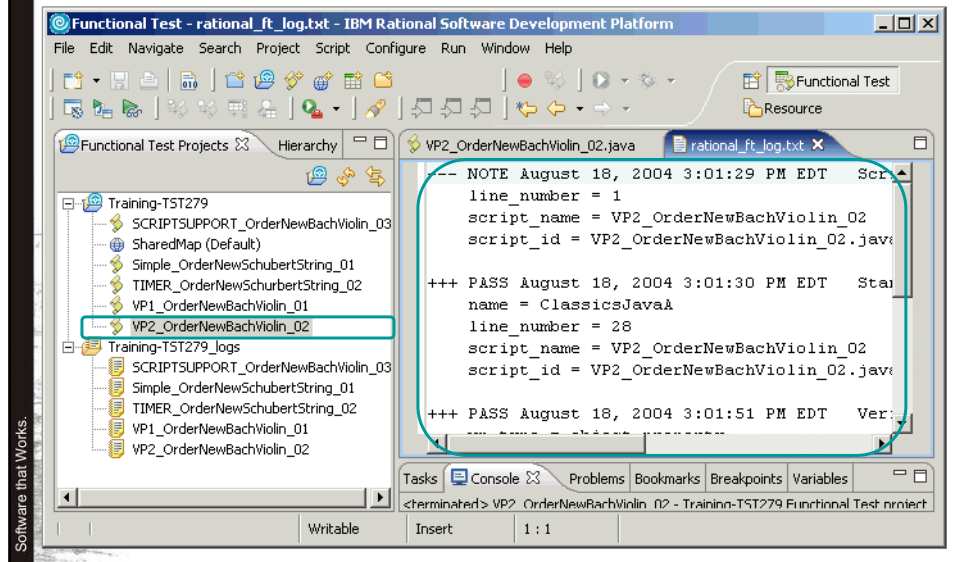


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Log - HTML



Log - Text



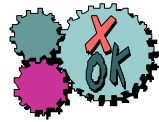
Ejercicios

- 4.2 Play Back a Script and View Results
- 4.3 View a Specific Log



Verification point comparator

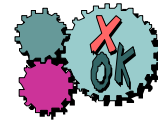
Script con Puntos de verificación



Línea base

- ✓ Propiedades
- ✓ Menu
- ✓ Textos
- ✓ Tablas
- ✓ Jerarquías
- ✓ Listas
- ✓ Etc.

Reproducción del script



Actual

COMPARA

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Verification point comparator

Property	Expected...	Actual Va...
data	Remember...	Remember...
description	CheckBox ...	CheckBox ...
whiteSpac...	Use All Ch...	Use All Ch...

Expected Value: Remember Password

Actual Value: Remember The Password

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Verification point comparator

- ¿Y si el PV falla?
 - Es porque hay una diferencia
 - Investigar las causas
 - Si es necesario
 - Reportar defecto
 - Actualizar línea base

Ejercicios

- 4.4 View Playback Results from a Script Containing a Verification Point



Debugging

- Identificar el problema

- → Localizarlo

» → Corregirlo

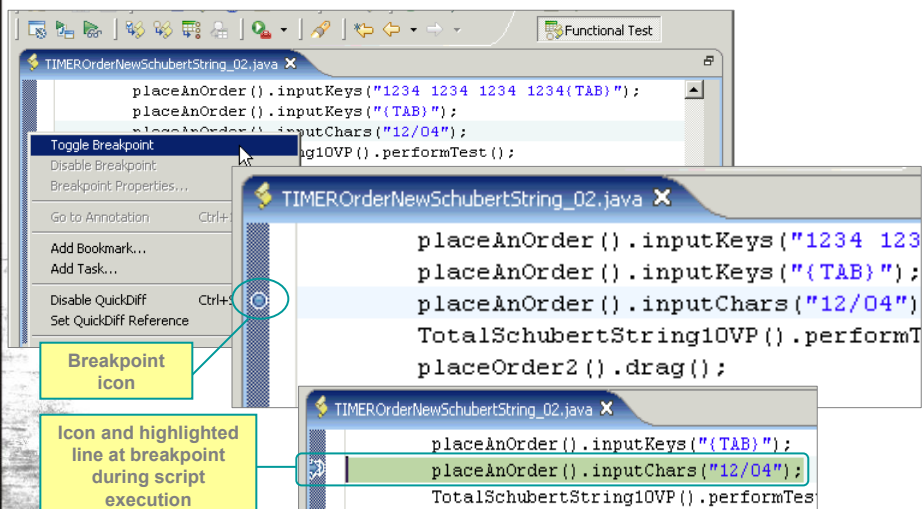
- Herramientas principales

- Perspectiva
- Breakpoints
- Stepping
- Stop() command

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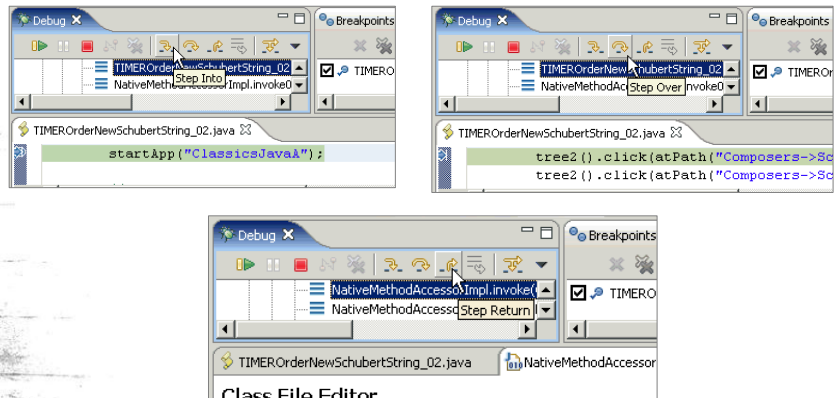
Debugging - Breakpoint



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Debugging - Stepping



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Ejercicios

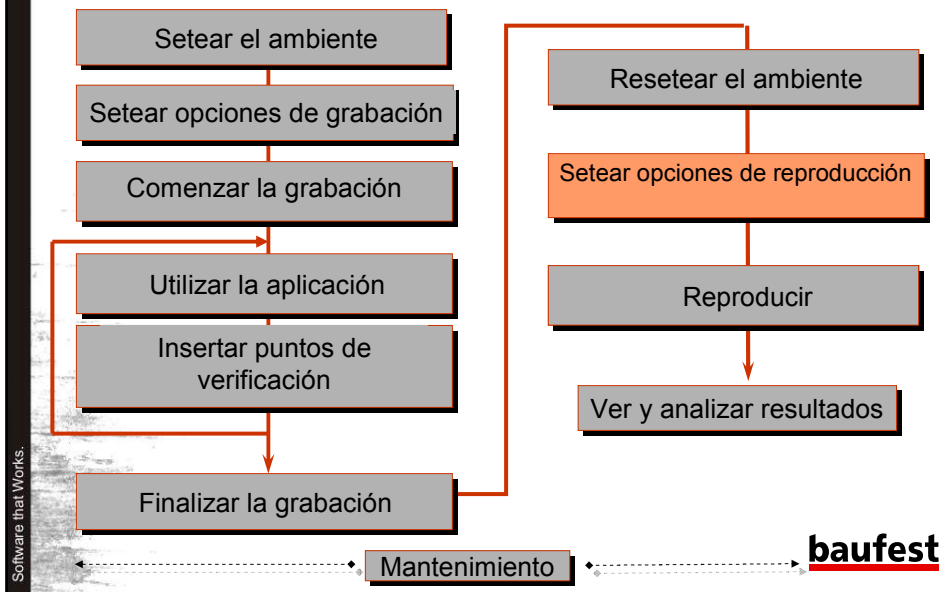
- 4.5 Use the Verification Point Comparator
- 4.6 Insert a Breakpoint into a Script



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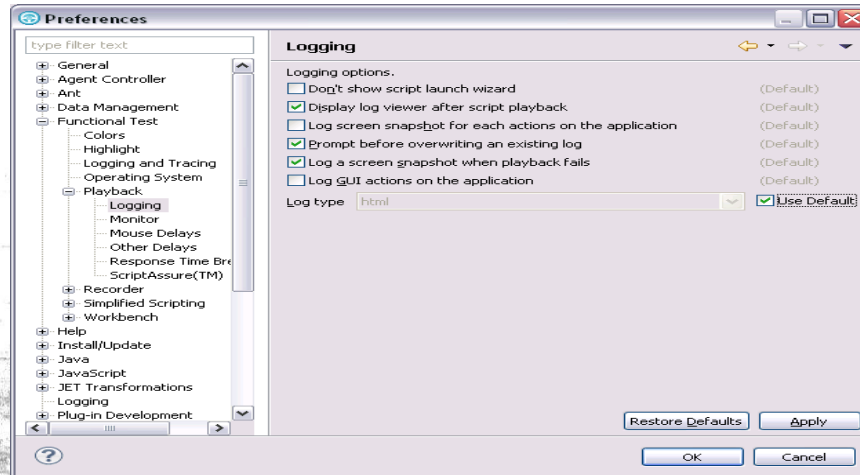
Workflow de pruebas



Opciones de reproducción a setear

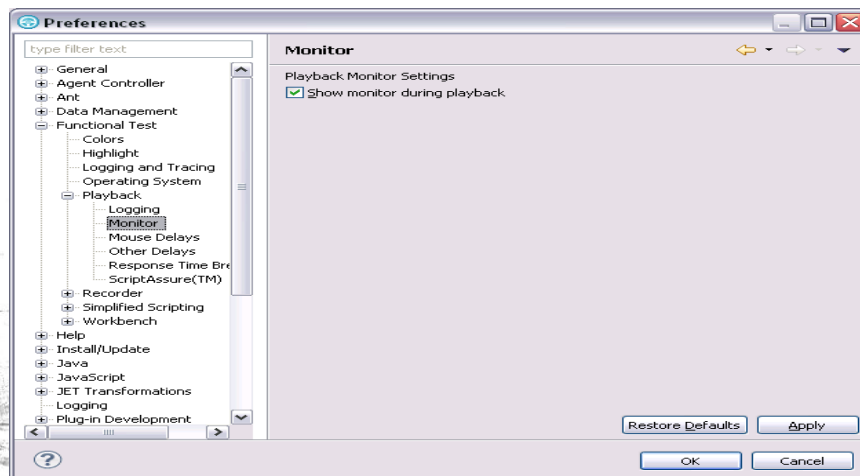
- Playback monitor
- Logging
- Delays
 - Mouse
 - Otros
- Etc.

Opciones de reproducción - Logging



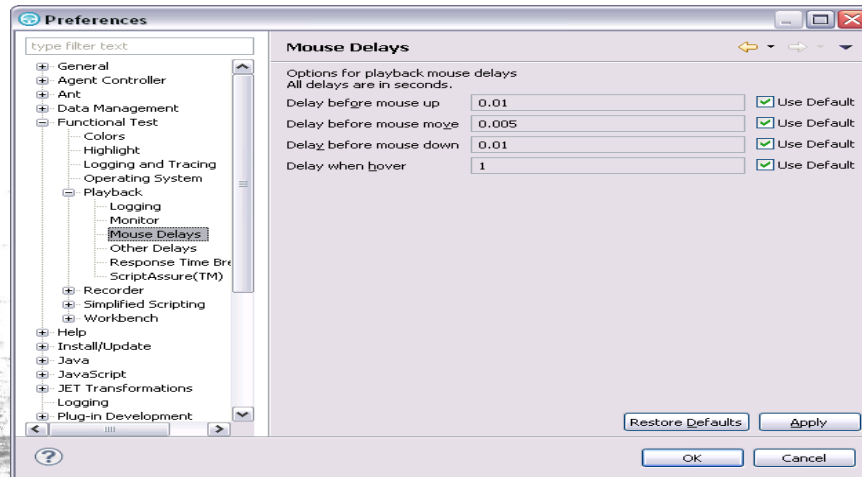
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Opciones de reproducción - Monitor



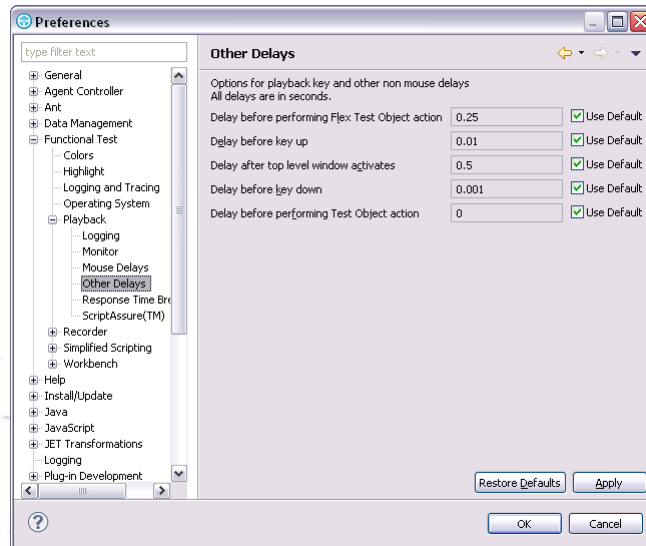
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Opciones de reproducción – Mouse delays



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Opciones de reproducción – Other delays



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Ejercicios

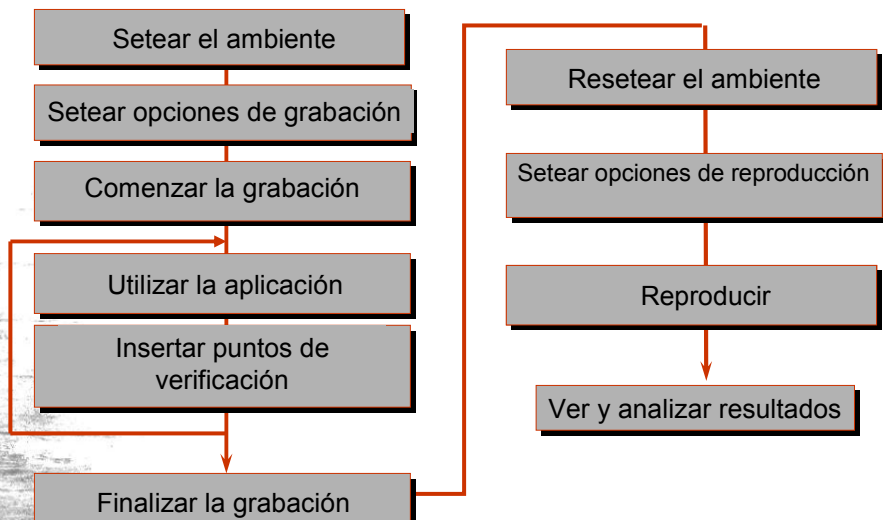
- 4.7 Set Functional Tester Preferences and Options



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Workflow de pruebas



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Mantenimiento

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Mantenimiento

- CAMBIO → RUPTURA → (RE) TRABAJO

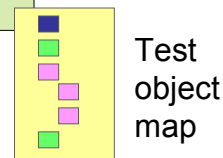
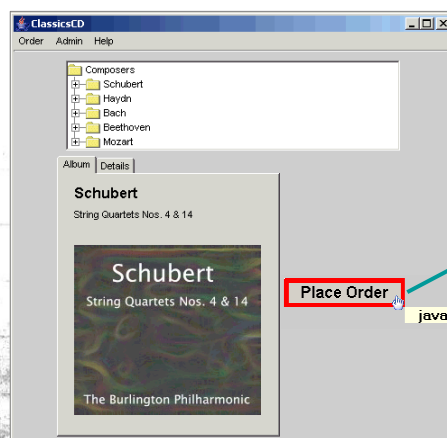


- Ej. un desarrollador cambia las propiedades del objeto que RFT utiliza para reconocerlo
- ¿Qué pasa si varios script usan a ese objeto? → ¿Actualizamos mapa o script?

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La grabación genera Script y TOM

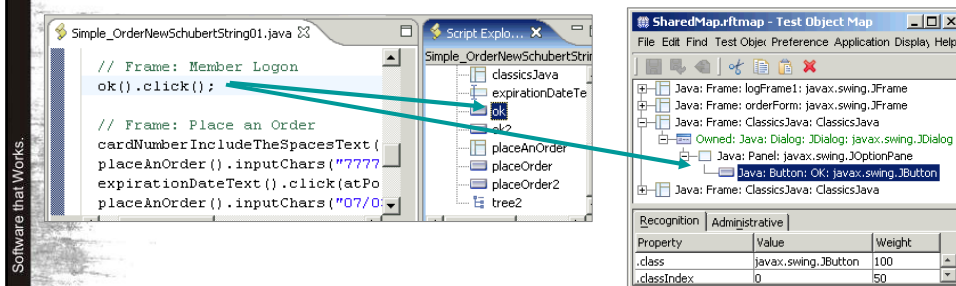


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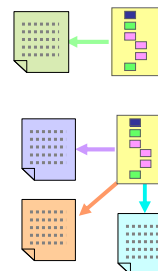
Script y TOM

- Script
 - No contiene objetos. Sólo referencias a ellos.
 - Ej.
 - OK().click();
 - PlaceOrder2().drag();
- Test Object Map (TOM)
 - Guarda la información de los objetos



Pero que es un TOM?

- Colección jerárquica de los objetos de prueba
- Contiene las propiedades de cada objeto
- Todo script tiene un TOM
- Tipos
 - Público
 - Asociado sólo a un script
 - Automáticamente
 - Creado al grabar el script
 - Eliminado al eliminar el script
 - Vista: Script explorer
 - Privado
 - Asociado con más de un script
 - Automáticamente actualizado al grabar un script
 - Vistas: Script explorer y Test project



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Ejercicios

- 5.1 Display a Test Object Map
- 5.2 Create and Use a Shared Test Object Map

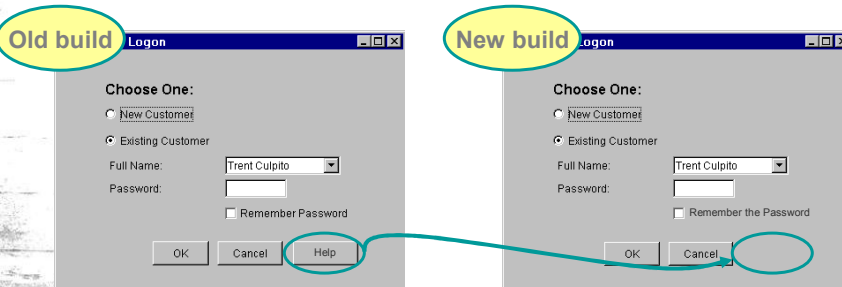


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Qué se puede hacer en el TOM?

- Agregar objetos
- Eliminar objetos
- Insertar objetos en código
- Modificar propiedades de objetos
- Unificar objetos



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Agregar un objeto

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Agregar un objeto

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Eliminar un objeto

Object Map: Delete Test Object

Delete Test Object
Confirm deletion of test objects (details on Next page)

Confirm deletion of selected test object
Total number of test objects deleted: 1

Property	Value	Weight
.class	javax.swing.JButton	100
.classIndex	2	50
accessibleContext.accessibleName	Cancel	100
name	cancel-orderForm	100

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Insertar un objeto en código

Simple_OrderNewSchubertSS_01.java

```
startApp("ClassicsJavaA");  
  
// Frame: ClassicsCD  
tree2().click(atPath("Compos  
tree2().click(atPath("Compos  
placeOrder().click();  
I  
// Frame: Member Logon  
ok().click();
```

Script Explorer

Simple_OrderNewSchubertSS_01

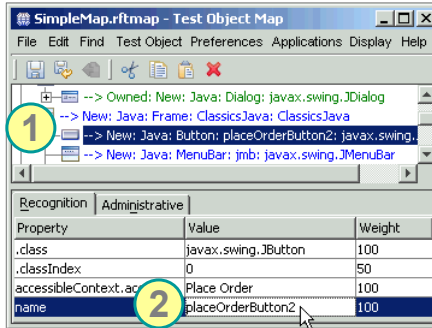
- classicsJava
- expirationDateText
- ok
- ok2
- placeAnOrder
- placeOrder
- placeOrder2
- schubert4_14Jpg
- tree2

Open
Insert at Cursor
Rename
Highlight
Interface Summary
Delete

click() void - GuiTestObject
click(MouseModifiers arg0) void - GuiTestObj
click(MouseModifiers arg0, Point arg1) void - C

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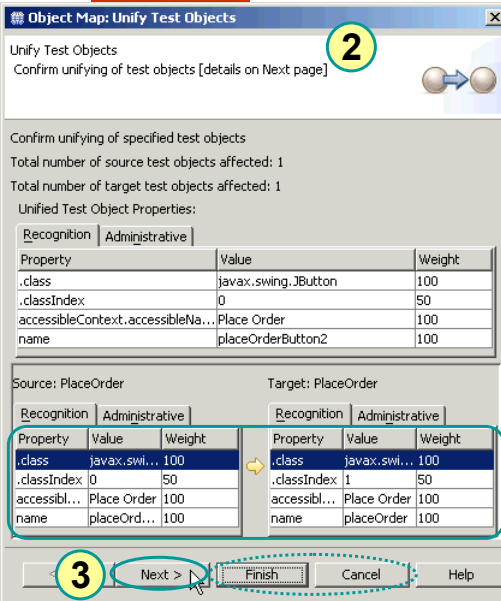
Modificar un objeto



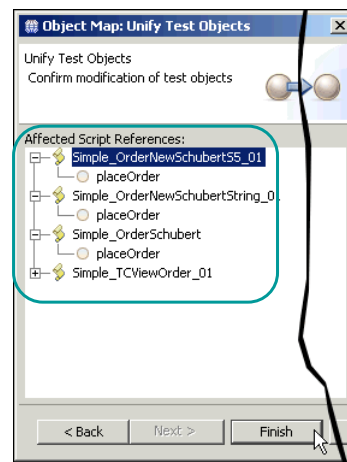
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Unificar objetos



1 En el TOM, arrastrar el objeto nuevo sobre el objeto a ser sustituido



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3 Next > Finish

Ejercicios

- 5.3 Modify a Test Object Map

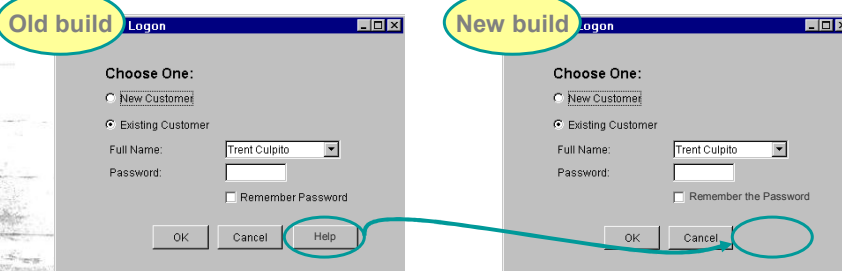


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Qué se puede hacer en el TOM?

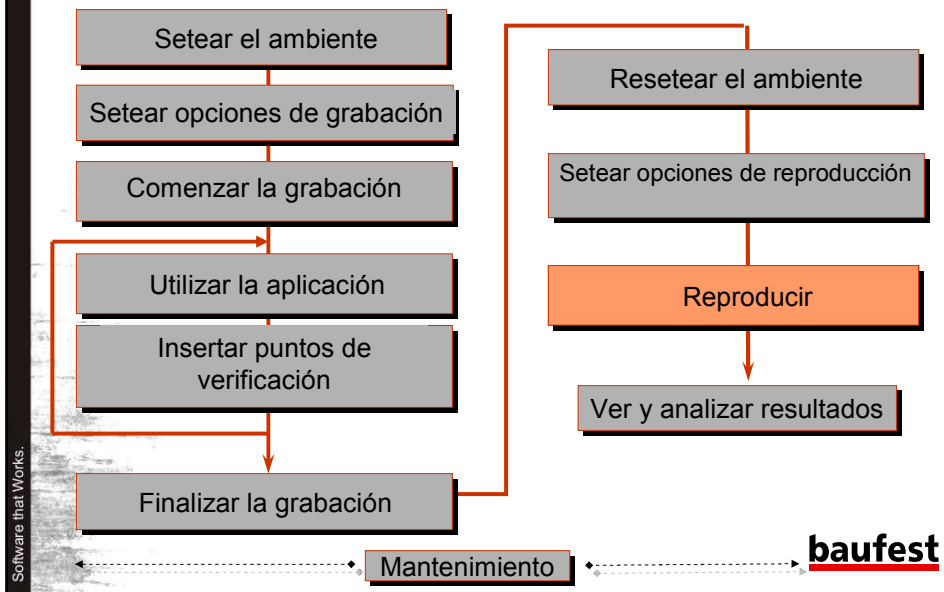
- Agregar objetos
- Eliminar objetos
- Insertar objetos en código
- Modificar propiedades de objetos
- Unificar objetos



Software that Works.

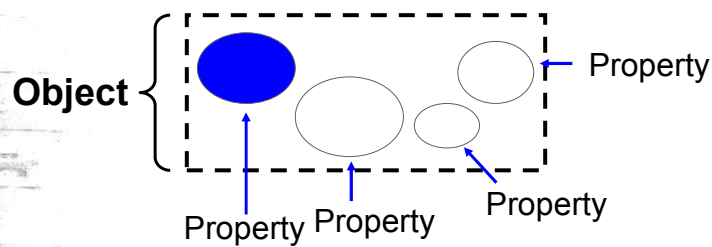
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Workflow de pruebas



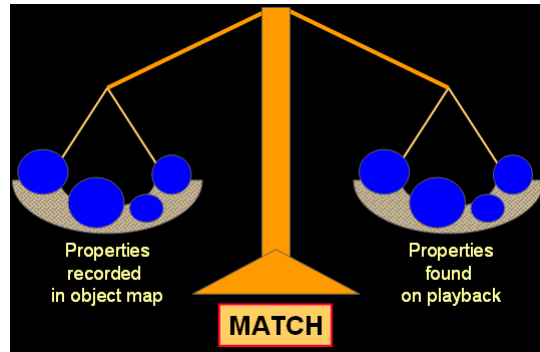
Reconocimiento de objetos

- Cómo se reconocen los objetos?
 - ...a pesar de los cambio?
 - Warnings
- RFT utiliza
 - Pesos (weights)
 - Umbrales (thresholds)



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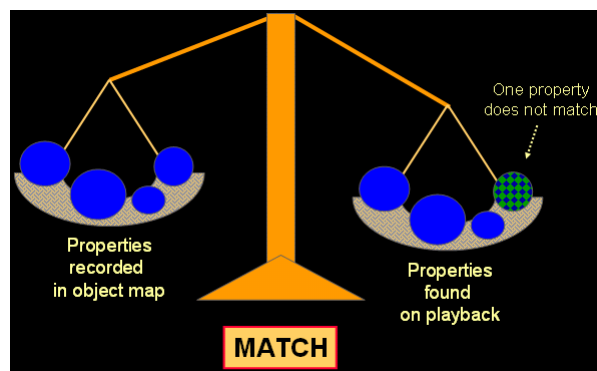
Exact Match – Objeto encontrado



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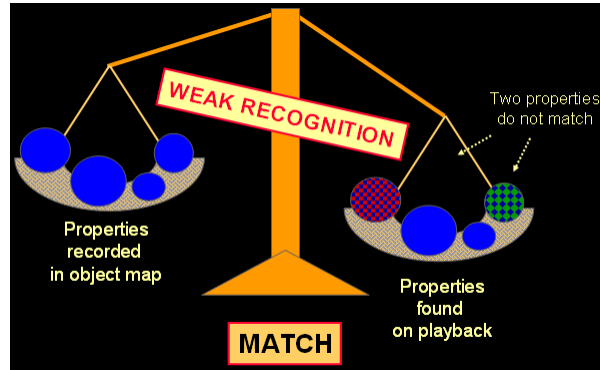
Close Enough Match – Objeto todavía encontrado



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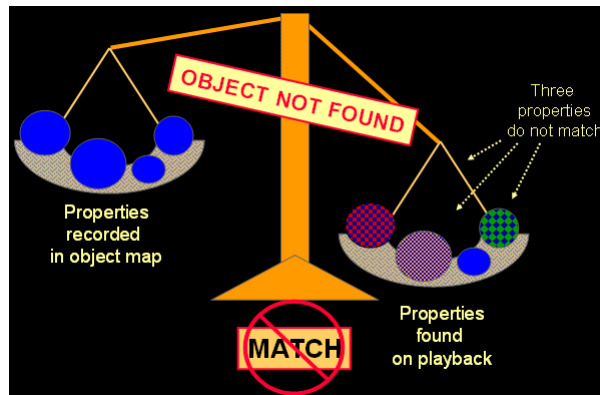
Close Enough Match – Objeto todavía encontrado



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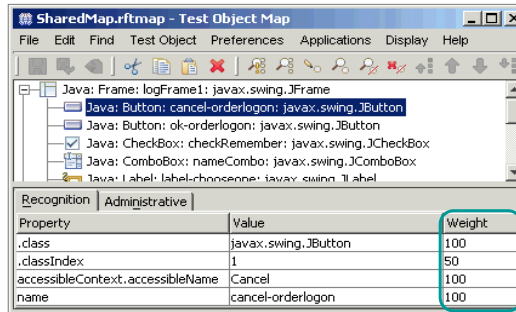
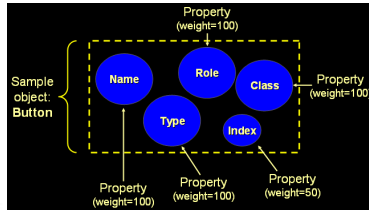
Object Not Found – Objeto no encontrado



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Ejemplo



Pesos



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Cálculo para el reconocimiento

- Durante la reproducción se asigna un Score de reconocimiento
- A menor Score, mayor Reconocimiento

Ejemplos:

Exact match:

Recorded

Found on playback



One property with weight of 100 does not match:



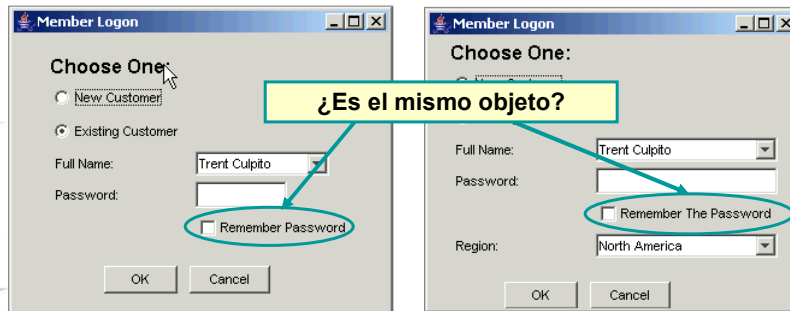
Two properties that do not match:



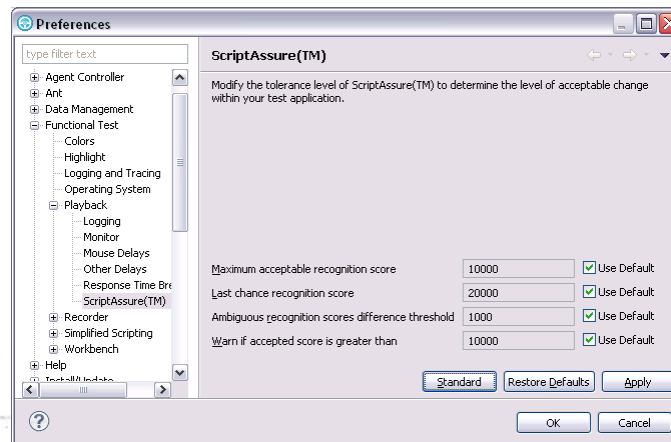
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Controlar los umbrales

- Ejemplo:



Controlar los umbrales



Ejercicios

- 6.1 Set Recognition Score Thresholds
- 6.2 Changing the baseline



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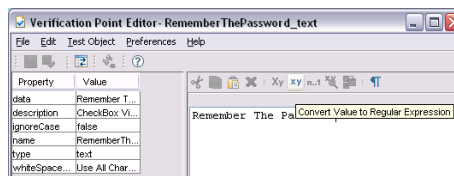
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Reconocer objetos variables

- Ejemplo:

A screenshot of the ClassicsCD.com website. The main message says "Your order has been placed. For future reference, your order ID is 44. Thanks for shopping at ClassicsCD.com!". There are navigation buttons for "Catalog", "Shopping Cart", "Cashier", and "Order Status". A red box highlights the text "CD Order 18272921" and a yellow box highlights the text "Match order ID between 1 and 99999".

- Herramientas
 - Expresiones regulares
 - [c]ustomer
 - red|blue|green
 - Ab?c
 - Remember[the]* Password
 - Rangos numéricos
 - [1 .. 15]
 - [1 .. 15> → No incluido



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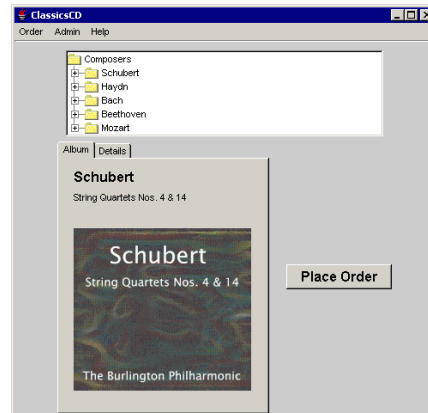
Variar datos además de objetos

- Para qué variar los datos?
 - Mantenimiento de datos
 - Variedad de escenarios

Test Case 1

Test Case 2

Test Case 3



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Variar datos además de objetos

- Cómo?
 - Reemplazando literales por variables

```
// Frame: Place an Order
quantityText().click(atPoint(5,11));
placeAnOrder().inputKeys("{ExtHome}+{ExtEnd}{ExtDelete}");
placeAnOrder().inputKeys(dpString("Quantity"));
cardNumberIncludeTheSpacesText().click(atPoint(16,8));
placeAnOrder().inputKeys(dpString("CreditCardNum"));
expirationDateText().click(atPoint(12,8));
placeAnOrder().inputChars(dpString("ExpDate"));
TotalVP().performTest();
placeOrder2().click();
```

- Usando datapool

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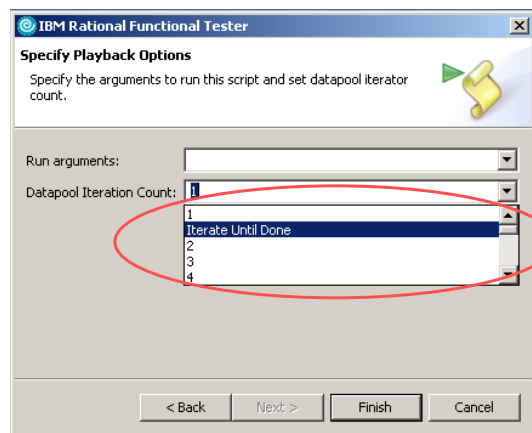
Datapool

- Conjunto de datos
- Provee variedad de datos para las ejecuciones
- En RFT se puede
 - Importar (csv)
 - Exportar (csv)
 - Editar
 - Compartir (“Associate with script”)
 - Crear
 - Durante la ejecución
 - Por fuera de ésta
 - Referenciarlos desde los puntos de verificación

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Se usa todo el datapool?



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Ejercicios

- 7.1 Record a Functional Test Script
- 7.2 Add Descriptive Variable Names to the Data
- 7.3 Insert a Verification Point with a Datapool Reference
- 7.4 Add Data to the Datapool
- 7.5 Run the Test Script and View the Results
- 8.1 Import an External Datapool into a Functional Tester Project
- 8.2 Edit the Variable Names
- 8.3 Record a Test Script
- 8.4 Associate the Datapool with the Test Script
- 8.5 Change the Verification Point Reference
- 8.6 Replace the Literal Values in the Script with Variables
- 8.7 Run the Test Script and View the Results
- 9.1 Export and Edit the Datapool



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**Integración
RFT-RQM**

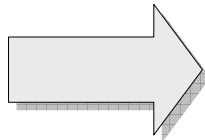
Modalidad teórico-práctica

Ing. Nadia Soledad Cavalleri
04/2012

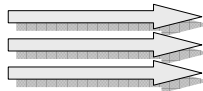


Integración con RQM

- Test plan → Test case → Test script → Script RFT



- Test suite → Test cases



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Ejercicios

- 10.1 Import a Functional Test script in RQM
- 10.2 Associating the imported test script
- 10.3 Executing the imported test script
- 10.4 Executing a set of automated scripts



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Tips

- No cambiar el estado de la aplicación al insertar un PV
- Nomenclatura de scripts:
 - Sin espacios
 - Sin caracteres especiales
 - Sin que comience con números
- Trabajar con ventanas maximizadas
- Grabar la apertura y cierre de la aplicación
- Evitar uso de
 - Scroll del mouse
 - Back del browser

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