

Testing Bindows application using Mercury's QuickTest Professional

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1 Introduction

The purpose of this document is describing how to test a Bindows application using Mercury's automated functional testing tool: QuickTest Professional (QTP). For further information about QTP see <http://www.mercury.com/us/products/quality-center/functional-testing/quicktest-professional/>. It is not in our intention to give a full solution to test every Bindows application, rather to demonstrate how testing could be done.

The document will not supply a comprehensive understating of QTP. Its graphical point and click interface will be used to create and run automated tests. Recording and running tests, adding synchronization points and verification steps on Bindows applications will be demonstrated. Setting QTP options and configuring them to be optimized for a Bindows "customers" Demo application. This application is an integral part of the samples and screenshots displayed on this document.

1.1 Prerequisites

- Working knowledge of Bindows applications, web sites and browsers.
- Working knowledge of using Mercury's QTP tool in testing web applications.
- Understanding of testing concepts.
- Bindows™ framework installation on your local machine.
- Internet Explorer Browser (All relations to a browser through this document is to the IE browser).

1.2 Audience

- Quality Assurance Engineers.
- Users of QTP who need to automate manual testing and verification in the Bindows environment.

2 Configuring QTP

2.1 Setting Web Options

Use the following directions to set the Web Options in QTP:

- Under Menu **Tools** → **Options** in tab **Web**, select the "**Advanced**" button. Change the default settings in the **Advanced Web Options** dialog to the following:

In "Record settings":

- Check on: "Record coordinates", "Record MouseDown and MouseUp as Click".

In "Run settings":

- Check on: "Run only click", "Replay type - Mouse", "Run using source index".
- Check off: "Enable browser resize on record/run".

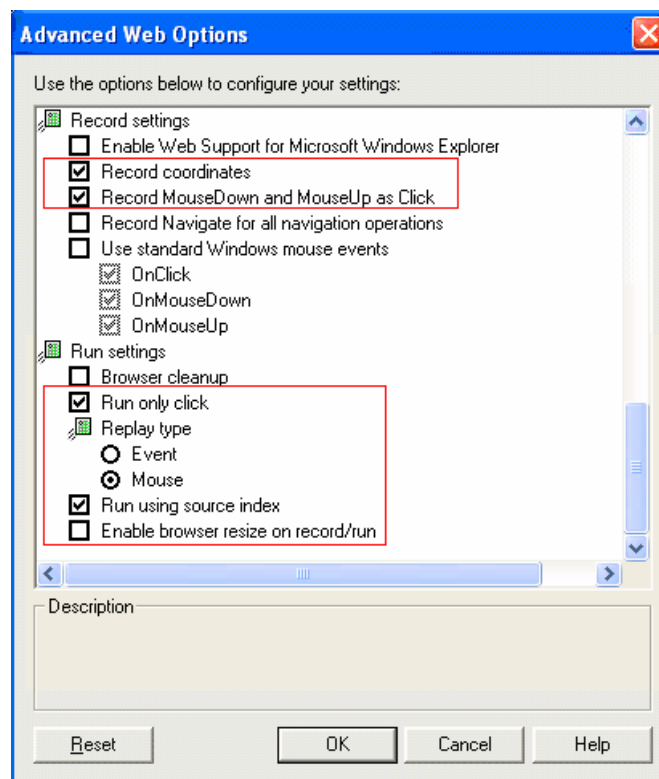


Figure 1: Advanced Web Options

2.2 Setting Object Identification

Use the following directions to set the Bindows Object Identification:

- Under Menu **Tools** → **Object Identification** select the **Web** environment.
- Select "WebElement" at the "Test object classes" list.

At the "Object Identification" dialog:

- Configure the **Mandatory Properties**: "html id"; "html tag"; "innertext".

- Check on: "Enable Smart Identification".

Configure "Smart Identification Properties - WebElement" dialog:

- In "Base Filter Properties": "html tag".
- In "Optional Filter Properties": "html id"; "class"; "innertext"; "visible"; "attribute/sourceindex". (Note: In order to have all these properties added, you can use the "Add/Remove" button. If one of these properties doesn't appear in the property list, you can add it using the "New" button.)

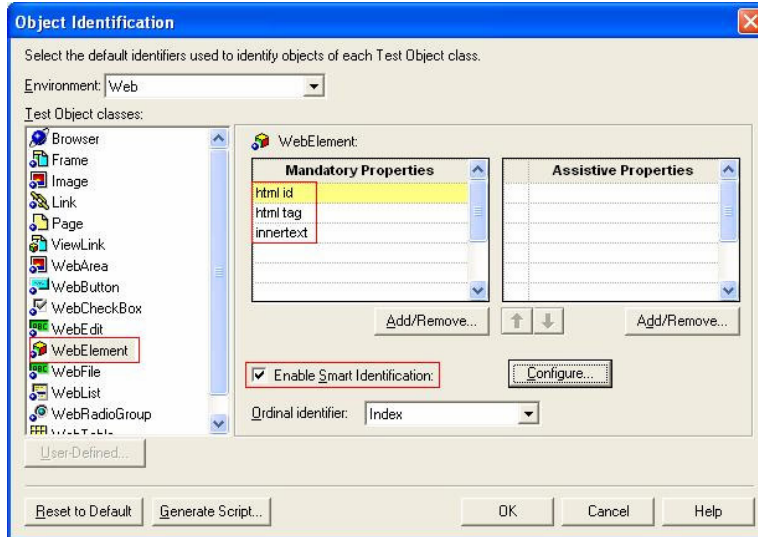


Figure 2: Object Identification – WebElement

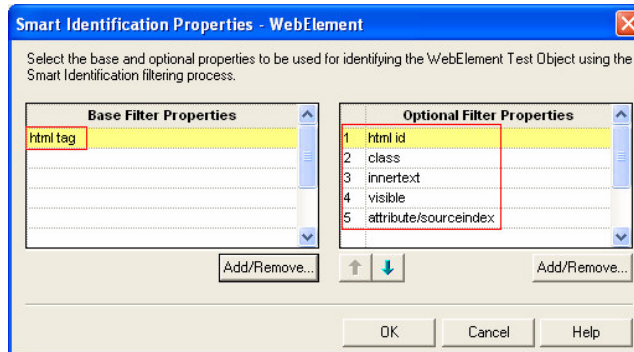


Figure 3: Smart Identification Properties – WebElement

- Select "WebTable" at the "Test object classes" list.

At the "Object Identification" dialog:

- Configure the **Mandatory Properties**: "html id"; "html tag"; "name"; "tabindex".
- Check on: "Enable Smart Identification".

Configure "Smart Identification Properties - WebTable" dialog:

- In "Base Filter Properties": "html tag".
- In "Optional Filter Properties": "html id"; "class"; "border".

Note: In order to have all these properties added, you can use the "Add/Remove" button. If one of these properties doesn't appear in the property list, you can add it using the "New" button.

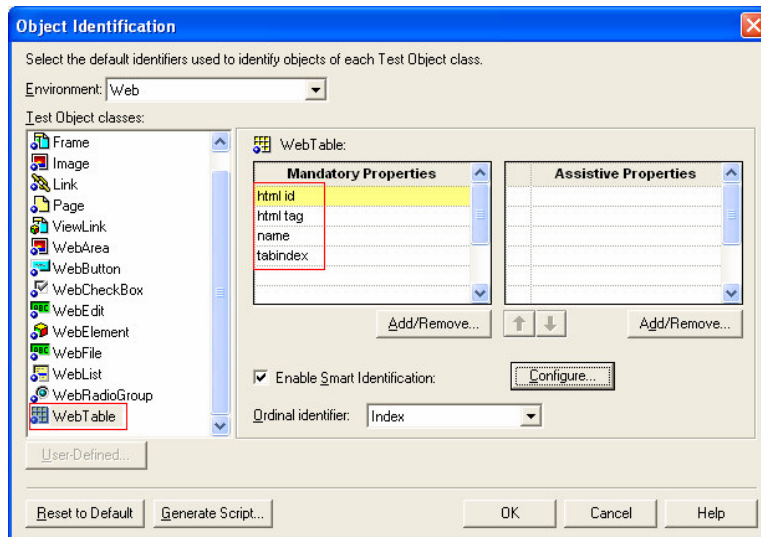


Figure 4: Object Identification – WebTable

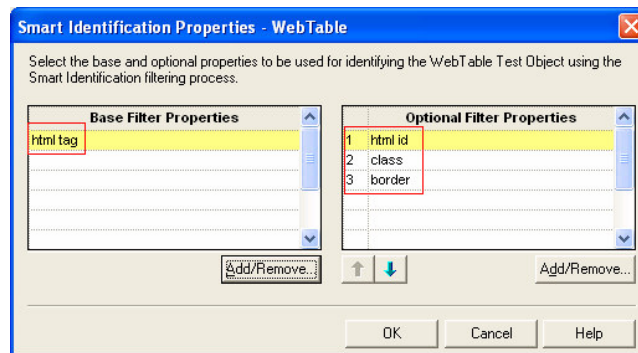


Figure 5: Smart Identification Properties – WebTable

2.3 Setting Web Event Recording Configuration

Use the following directions to configure how to record Bindows objects:

- Under Menu **Tools** → **Object Identification** select the **Web Event Recording Configuration environment**.
- Use the slider to select a "*Medium*" standard event recording configuration. This level will be the base for our customized event recording level. Click **OK**.
- Open up again the menu: **Web Event Recording Configuration**.
- Click on "Custom Setting" button to open the "Custom Web Event Recording Configuration" dialog.
- Configure the "*Any Web Object*" node according to the setting appear in Figure 6. (Note: you can use QTP Help button in order to understand how to add/change the Event Name, Listen and Record values appear in the table).

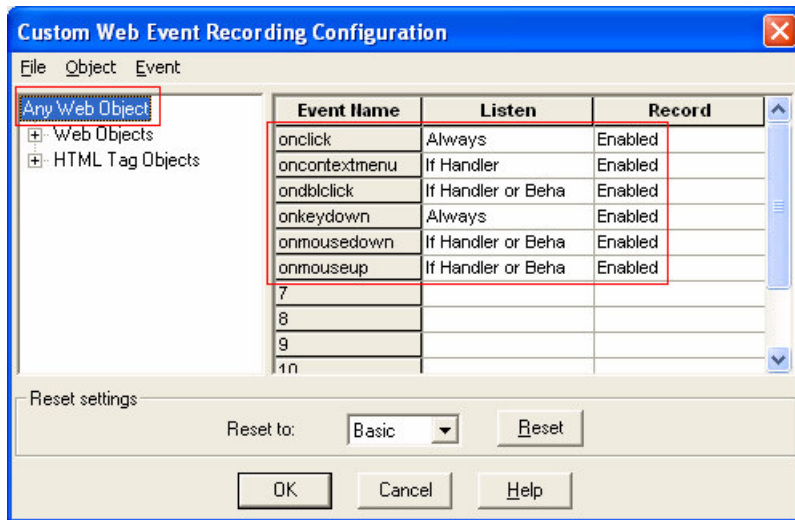


Figure 6: Custom Web Event Recording Configuration – Any Web Object

- Select "WebElement" node under "Web Objects", and configure it according to Figure 7:

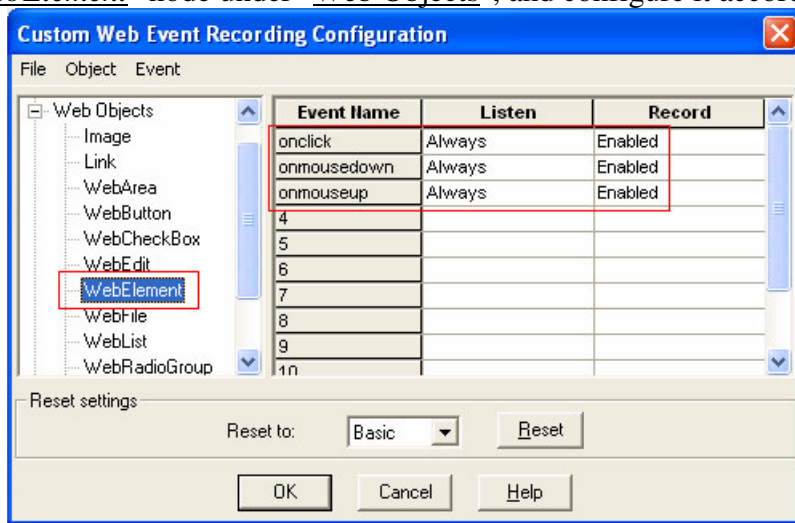


Figure 7: Custom Web Event Recording Configuration – WebElement

- Select "HTML Tag Objects" node and add the following tags: div; label; nobr; span; td; tr. (Note: you can use QTP Help button in order to understand how to add new tag objects and events to the HTML Tag Objects node).
- Per each tag add the event configuration according to the following figures (8-13):

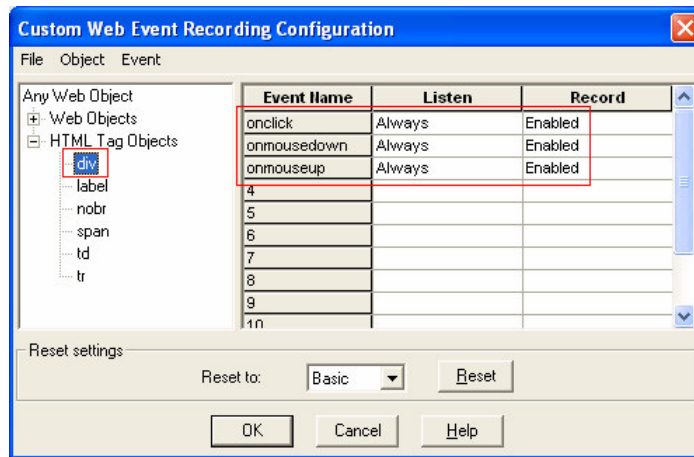


Figure 8: Custom Web Event Recording Configuration – div

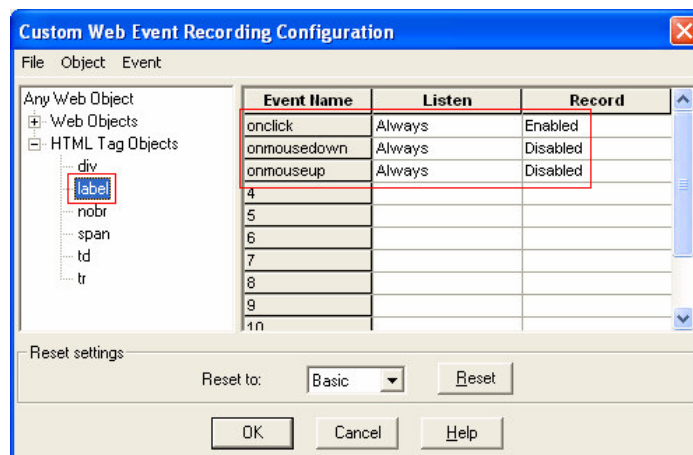


Figure 9: Custom Web Event Recording Configuration – label

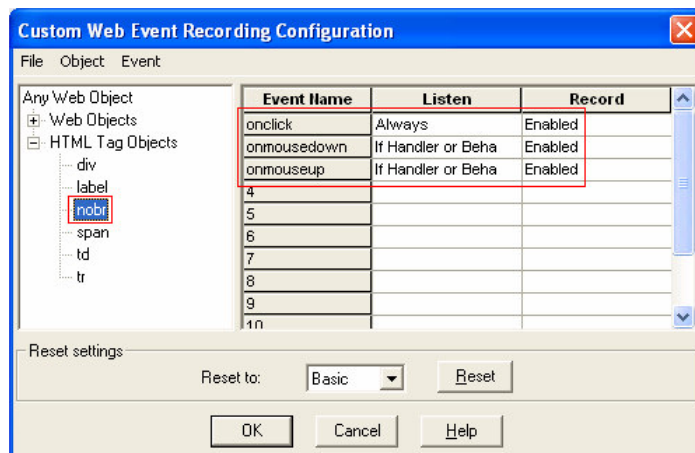


Figure 10: Custom Web Event Recording Configuration – nobr

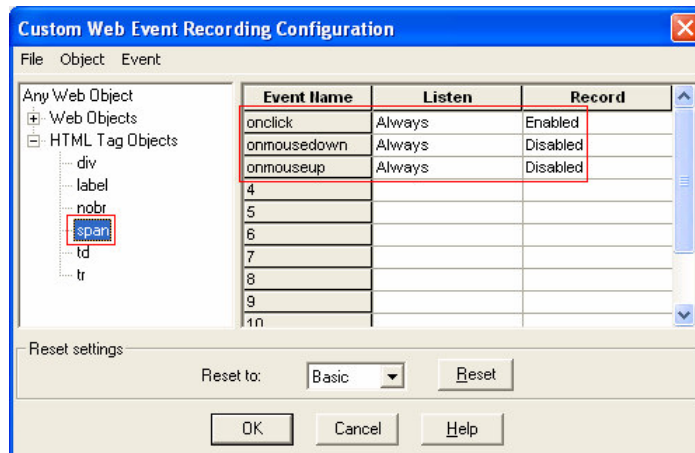


Figure 11: Custom Web Event Recording Configuration – span

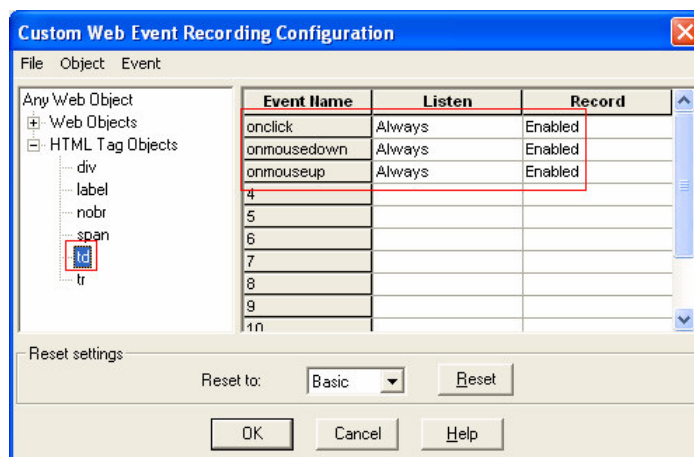


Figure 12: Custom Web Event Recording Configuration – td

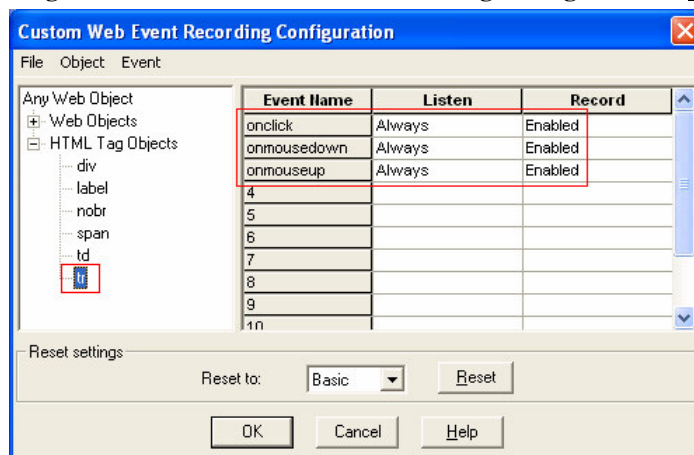


Figure 13: Custom Web Event Recording Configuration – tr

3 Record and Playback

3.1 Create and Execute Basic Scripts

After configuring all the necessary setting, QTP is ready to be used to test some Bindows application. All demonstrations of tests record/replay are done on a demo Bindows application: Customers.

- To view the application on line you can access through:
<http://www.bindows.net/bindows/samples/qtp/>
- It is also recommended to download the application to a local Bindows web server to start using the demo test scripts and configuration.

Note: A running MySQL server is pre-requisite for a working **customers** application.

- Save the file from: <http://www.bindows.net/bindows/samples/qtp/qtp.zip>.
- Create a directory customers under your <Bindows>/samples local directory. (<Bindows> should be replaced by your full path name to the Bindows installation directory.)
- Extract the zip content to the <Bindows>/samples/customers directory.
- Run the qtp.sql script in the MySQL server to create and update the **customers** database with the relevant data.
- After installation you can access the application by navigating to:
<http://localhost/bindows/samples/customers/index.html>

For further information or questions about how to obtain and work with the Bindows Customers application, please contact: support@bindows.net

Here is a screenshot from the Bindows Customers application:

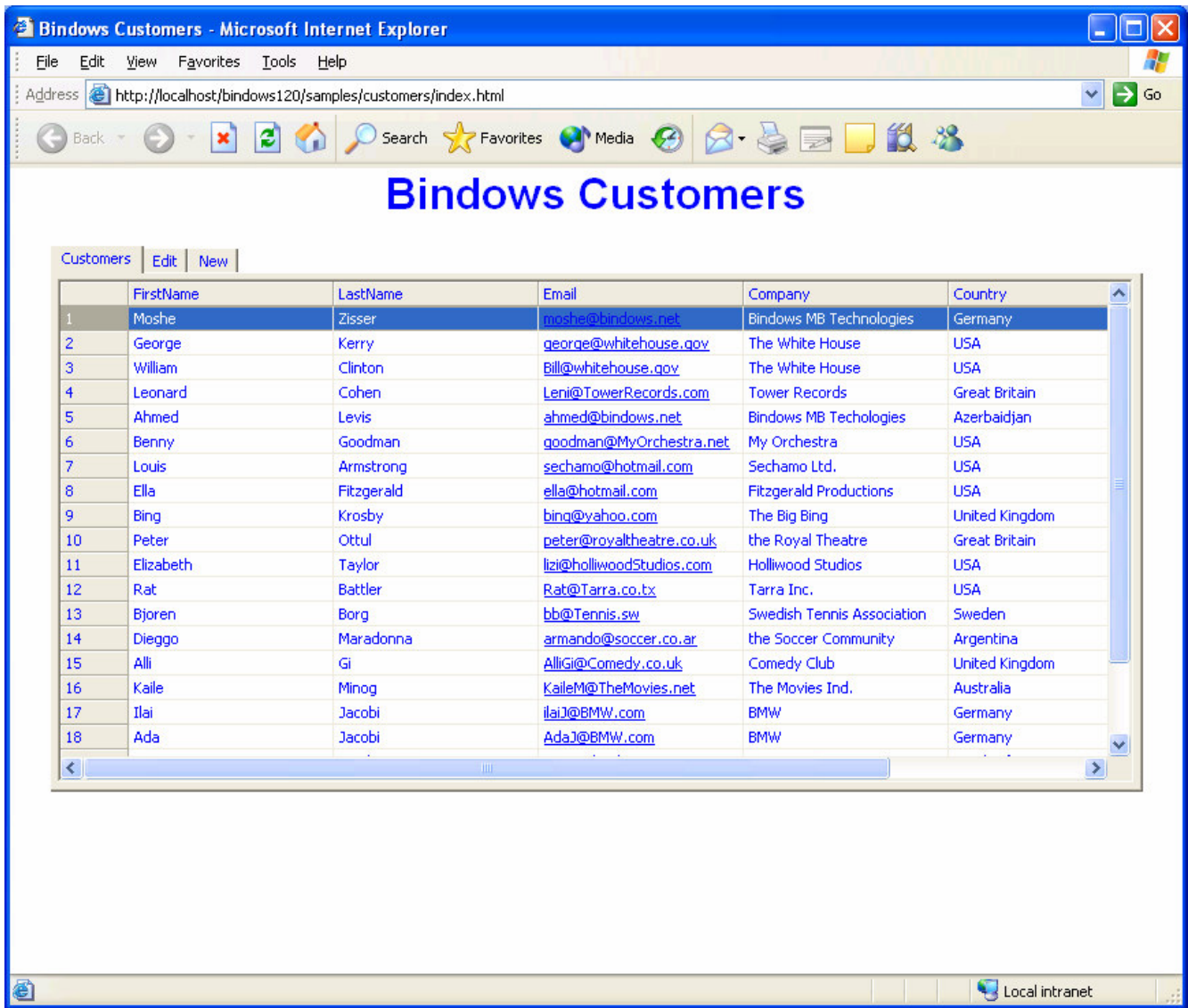


Figure 14: Bindows Customers application

A test that can be record with this application would check:

- Selecting a customer from the table
- Right-click context menu to edit it
- Change the necessary details at the Edit pane
- Commit the change
- Verify that all necessary customer details appear correctly within the application

Note: Before you starts recording on the Bindows application make sure that the Browser is open up to its full window mode, and that there are no other browsers open. This will ensure that the replay of the test script will be accurate.

Test creation: Record the test by selecting a customer, and the right –click to invoke the context menu. In the "Edit" tab pane make some changes to the customers details, and select the "Commit" button. Insert some check-points to the dialog appears at the "Commit", and at the table row of the edited customer in the "Customers" tab pane.

A glance of the test can be viewed in the next figure.

In the left pane of QTP you can see the Test tree with the Test objects. Per each object exist the operation, values, and comments that have been automatically been inserted by QTP during the record phase.

In the right pane of QTP you will see the "Active Screen" where per each object/operation QTP captured the relevant HTML screen map with a "highlighted" rectangle per the object which is selected in the left pane.

After creating such a test script (simply by recording the user operation), QTP is ready for the execution of it. You can select to save the test or run it with temporary result folder for further test editing. Simply choose to "**Test**" → "**Run**", and select where to put the results of the test (file, or temporary).

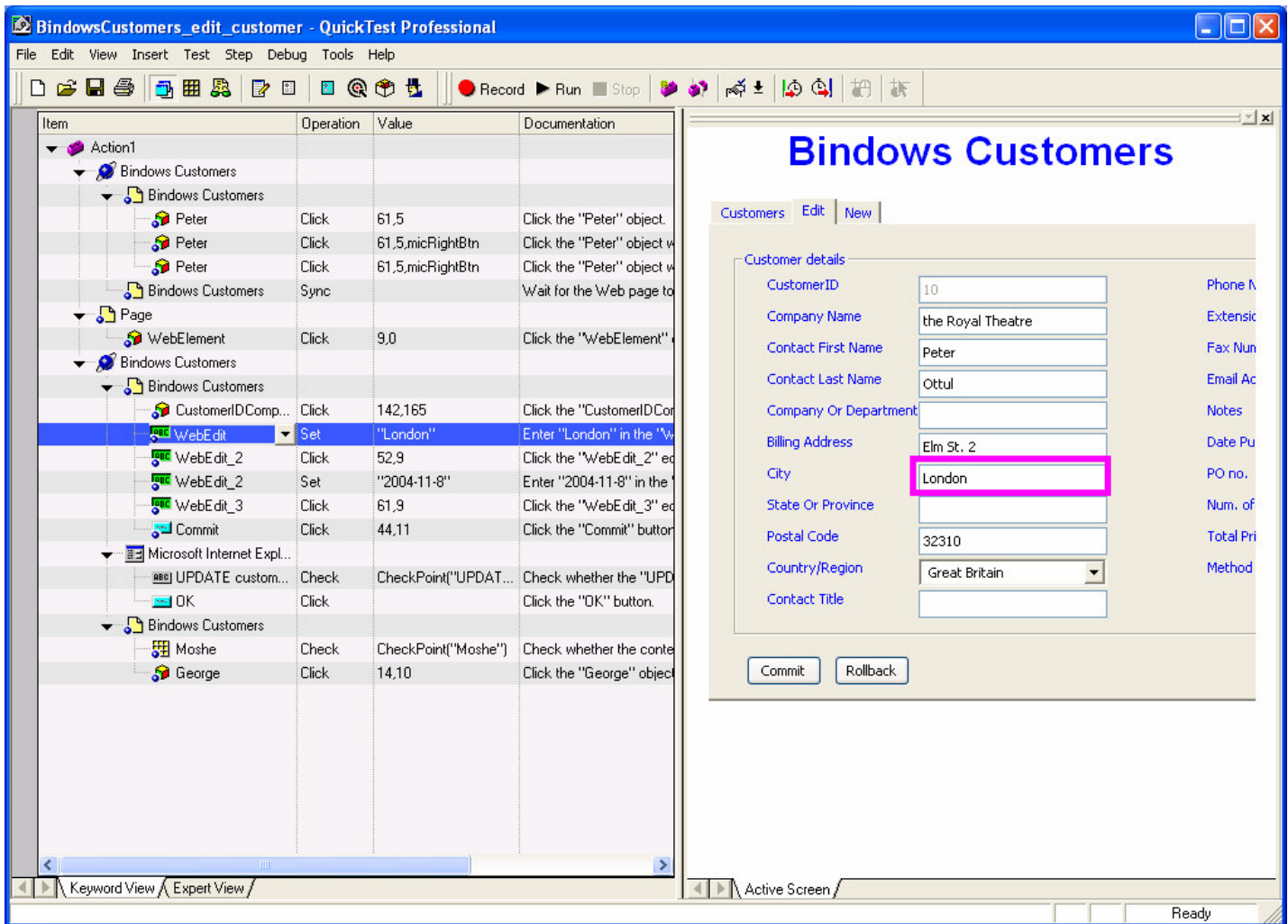


Figure 15: a script test on Bindows Customers application: "BindowsCustomers_edit_customer" script

3.2 Understand QTP Run Results

When the test finished its run execution QTP opens the **Test Results** viewer with the run results of the test.

In the left pane you will see the test tree with the test object nodes and the operations performed on each. In the right pane you will see the test result per each test object operation that was performed during the test run. The following figure demonstrates a successful run test results.

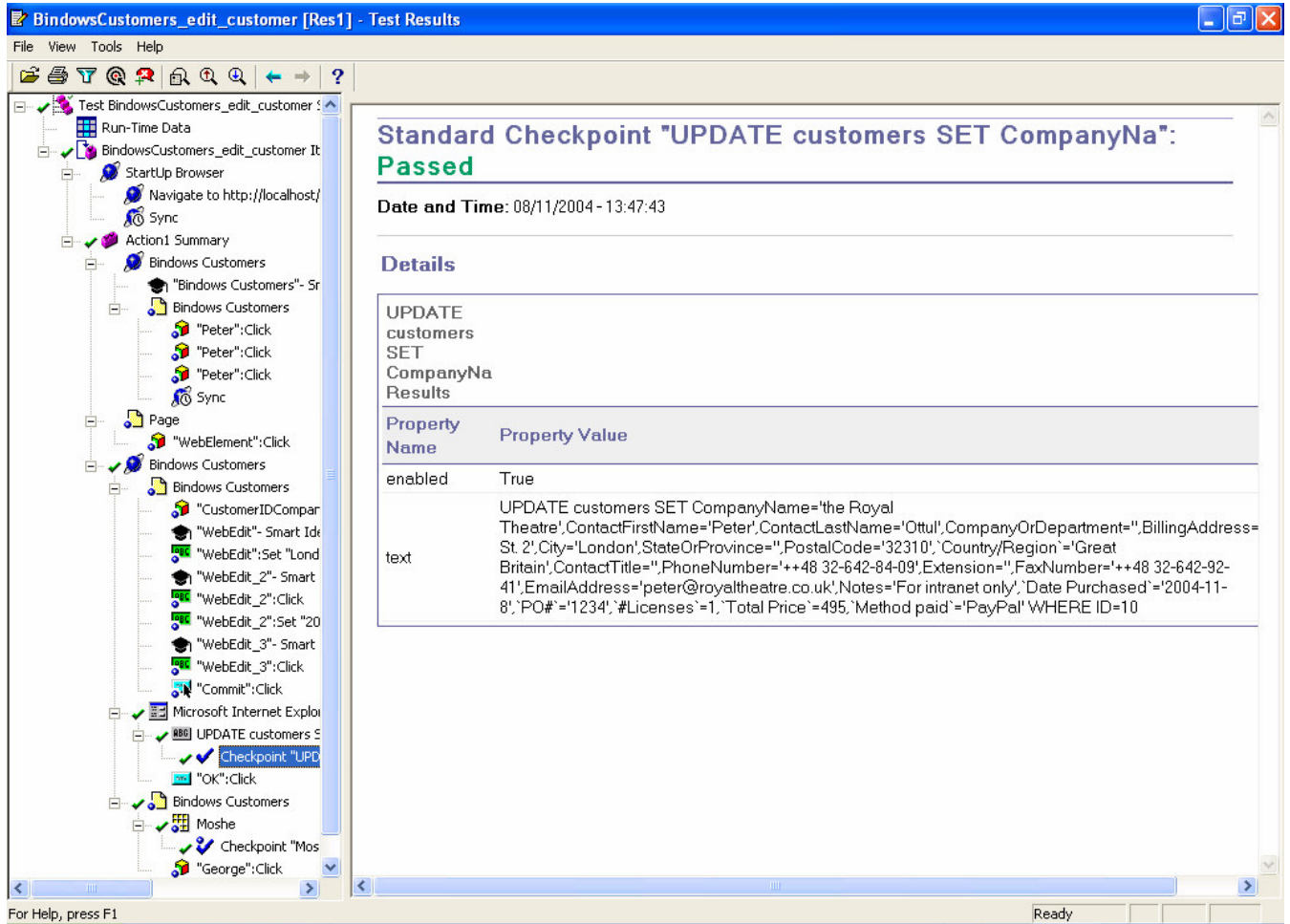


Figure 16: a test result on Bindows Customers application: "BindowsCustomers_edit_customer" Res1

4 How QTP identifies Bindows objects

4.1 Object Identification

QTP has a predefined set of properties that it learns for each test object. If these mandatory property values are not sufficient to uniquely identify an object you record, QTP can add some assistive properties and/or an ordinal identifier in order to create a unique description. Setting QTP to recognize Bindows objects is described in section: [Setting Object Identification](#). If some of the

objects are still not recognized, you can add more html attributes by adding per each object the: "attribute/<attrName>" property.

4.2 Object Repository

Each recorded Bindows Object during the test record/run session is being learned as a set of properties into the QTP Object Repository. If one or more of the property values of an object in your application differ from the property values QTP uses to identify the object, your test or component may fail. Thus, when the property values of objects in your application change, you should modify the corresponding test object property values so that you can continue to use your existing tests or components.

Note: In some cases, the Smart Identification mechanism may enable QTP to identify an object, even when some of its property values change. However, if you know about property value changes for a specific object, you should try to correct the object definition so that QTP can identify the object from its basic object description. For more information on the smart identification mechanism, see QTP help on "*Configuring Object Identification*", and section: [Setting Object Identification](#).

After configuring the Object, you may want to also customize the way that QTP record your actions on Bindows objects. This might be done by configuring the web event recording as describe in section: Setting Web Event Recording Configuration.

4.3 Use the Object Spy

QTP **Object Spy** might help to decide how to further customize QTP settings for recognizing some more Bindows objects/actions. While having the Bindows application open, you can activate the Object Spy and point to an object you wish to examine. You can get the set of properties-values per the Test Object that QTP can create for the Bindows Object, or the properties for the HTML DOM run-time object. Figure 17 show a sample of pointing to the "Email" header object at the "Bindows Customers" application.

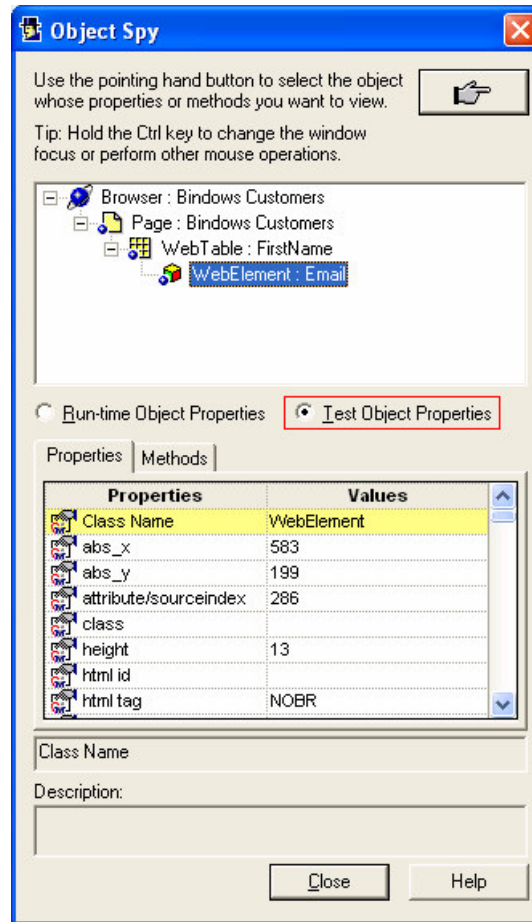


Figure 17: Object Spy – pointing on "Email" header in Bindows Customers application

5 Synchronizing Tests

When you run a test or component, your application may not always respond with the same speed. For example, it might take a few seconds:

- for a progress bar to reach 100%
- for a status message to appear
- for a button to become enabled
- for a window or pop-up message to open

You can handle these anticipated timing problems by synchronizing your test or component to ensure that QTP waits until your application is ready before performing a certain step.

5.1 Add synchronization steps

Several ways to add synchronization step:

- You can insert a *synchronization point*, which instructs QTP to pause the test or component until an object property achieves the value you specify. When you insert a synchronization point into your test or component, QTP generates a **WaitProperty** statement in the Expert View. For more information, please consult the QTP Help on "*Creating Synchronization Points*."
- You can insert **Exist** or **Wait** statements that instruct QTP to wait until an object exists or to wait a specified amount of time before continuing the test or component. For more information, please consult the QTP Help on "*Adding Exist and Wait Statements*."

5.2 Global synchronization Settings

Several ways to change global settings:

- When working with tests, to modify the maximum amount of time that QTP waits for an object to appear, change the **Object Synchronization Timeout** in the **Test** → **Settings** → **Run** tab.
- **Note:** The object synchronization timeout for a component is always 20 seconds (20000 milliseconds).
- To modify the amount of time that QTP waits for a Web page to load, change the **Browser Navigation Timeout** in the **Test** → **Settings** → **Web** tab or **Business Component** → **Settings** → **Web** tab.

6 Appendix A

6.1 Web Object Identification Script

[QTP Bindows Web Obj setting.vbs](#)

6.2 Custom Web Event Recording Configuration File

[custom_web_event_recording_config.xml](#)

6.3 QTP test scripts on customers application

- [BindowsCustomers_edit_customer.zip](#)
- [BindowsCustomers_edit_and_sort_customer.zip](#)

You can import this scripts from QTP through the: **File → Import from zip file.**