

Table of Contents

Introduction.....	9
Getting the Source-code.....	9
Windows, Linux or Mac.....	10
Acknowledgments.....	10
Chapter 1:Getting Started With The Tools.....	11
What Tools?.....	11
Selenium IDE.....	11
Java.....	11
Eclipse.....	12
Selenium-RC.....	12
Chapter 2:Selenium IDE Basics.....	13
Install Firefox.....	13
Install Selenium-IDE.....	13
Capture Play Back – Recording a Script with the IDE.....	14
Command, Target and Value.....	17
Save The Test.....	17
Further reading.....	17
Chapter 3:Install Java.....	19
Chapter 4:Install and Run Selenium-RC.....	20
Step One - Download & Install Selenium-RC.....	20
Overview of the Contents of the Selenium Archive.....	21
Step Two - Run Selenium-RC.....	22
Step Three – Stop the Selenium Server.....	23
From the command line.....	23
From a browser URL.....	24
Running an IDE Generated Test in Different Browsers.....	24
End Notes.....	26
Chapter 5:The Eclipse IDE.....	27
First - Install Eclipse.....	27
Second - Run Eclipse.....	28
Third - create a new Java project.....	31
Chapter 6:Create a JUnit test Using the JUnit export from Selenium-IDE.....	33
Introduction.....	33
Export an IDE script as a JUnit test.....	33
Load an existing script into the IDE.....	33
Change the format of the script to Java.....	34
Create a New Class in Eclipse.....	35
Copy & Paste the code from Selenium IDE into Eclipse.....	38
Resolve Import Errors.....	40
Add JUnit to the build path.....	42
Remove the unused import.....	44
Run the JUnit test.....	45
Allow it through the Firewall.....	45
Seeing the test running.....	46
Check the results.....	47
It went too quickly!.....	48

Run the test in debug mode.....	49
Create and Import some more IDE Converted tests.....	52
Exercises.....	55
Chapter 7:The Annotated Generated Test.....	56
Use Attach Source to see the Selenium Driver Source Code.....	56
Why should we do this?.....	59
MyFirstSeleniumTests.java Annotated.....	59
A little more about selenium-java-client-driver.jar.....	63
A little about JUnit.....	65
A look at SeleneseTestCase.java.....	65
Use the SeleneseTestCase Functionality.....	67
Using the IDE to add asserts and verifies.....	67
First record the setup steps.....	67
Add the Verify Statements.....	68
Add the Asserts.....	70
What is the difference between an Assert and a Verify?.....	71
How to find line numbers in Eclipse?.....	73
Creating Screenshots on Failure with SeleneseTestCase.....	74
Chapter 8:Let's get coding.....	77
A brief pause, because you have already learned some Java.....	77
What we will now learn.....	77
Create a New Test From Scratch.....	77
Our First Test with Annotations.....	78
Back to Our Selenium Test.....	80
Making Something Happen.....	82
Your Final Test Code.....	83
The DefaultSelenium constructor explained.....	84
Retrospectives.....	85
Well Done.....	85
Why did you do that?.....	85
Run Selenium-RC in a DOS window?.....	85
Start it easily.....	85
See the logging messages.....	85
Find The Window.....	86
Stop and Restart Selenium Easily.....	86
Final Notes.....	86
Back to Eclipse.....	87
Removing the Source Code Association.....	87
Chapter 9:Chapter - What if it all goes wrong?.....	88
Check that Selenium Server is running.....	88
Close any Selenium-RC windows.....	89
Stop and restart the Selenium-RC server.....	89
Remove any Java threads from the Debug perspective.....	89
Close any blocked browser windows.....	90
Firefox Update Dialog.....	90
Summary.....	91
Chapter 10:Essential Firefox Add-Ons.....	92
What is Firebug?.....	92
What is XPather?.....	92
Basic Firebug Usage.....	93

Basic XPath Usage.....	95
Optimise XPath with XPather.....	96
Chapter 11:First Steps with Test Automation Thinking.....	99
Let's Automate Search.....	99
Start writing some tests.....	99
Make Selenium Type In Some Text.....	100
Start with a copy and Paste.....	100
Fix the duplicate method name.....	101
Add a Selenium Command.....	102
The “type” method.....	103
Find the locator with FireBug.....	103
A brief introduction to XPath.....	105
Add the locator into the code.....	106
Check that it works.....	106
Now make it Click on the Search Button.....	107
Selenium “Click” Method.....	107
Locate the button with FireBug.....	107
Create an XPath so that selenium can locate it.....	108
Add the XPath details to our source code.....	108
One last thing to do.....	108
Now check that it works.....	108
Quick Summary.....	108
But is it a test if we don't check any results?.....	109
But we can't control the data.....	109
Automate the Acceptance Criteria.....	110
Acceptance Criteria: Selenium Remote Control homepage listed in returned results.....	110
Look for text in the page.....	111
Use assertions to make the test fail on error.....	112
Debugging a Failing Test.....	113
Our final test with assertions.....	114
Scan the page source code.....	115
Look for a specific URL in the page.....	116
Most Robust Method.....	119
Acceptance Criteria: Page title has “Selenium-RC” in it.....	120
Acceptance Criteria: Search box on the page has Selenium-RC in it.....	120
One test to rule them all.....	120
Summary.....	121
Chapter 12:First Steps with Automation Refactored.....	123
Introducing Refactoring.....	123
Automatically refactoring the start up code into a new method.....	124
Automatically refactor the tear down code into a new method.....	126
JUnit @Before and @After	128
Refactoring Plan and Analysis.....	128
Remove Parameter from stopSeleniumAndCloseBrowser.....	129
Move setup code into a new method.....	130
Remove the setup code from each @Test method.....	131
Annotate stopSeleniumAndCloseBrowser with @After.....	131
Remove the tear down code from each @Test method.....	131
The Refactored Code.....	133
@BeforeClass & @AfterClass.....	134

Our refactored code.....	135
Automatically create JUnit Test Structure.....	136
Summary.....	138
Chapter 13:How do I upgrade my Selenium Server when a new version comes out?.....	139
First Download the New Version.....	139
Configure Eclipse Project.....	139
Remember to re-attach the source.....	141
Chapter 14:Chapter - Basic HTML Theory.....	142
Page Structure.....	142
Elements & Tags.....	142
Attributes.....	143
Expanded.....	143
Chapter 15:Basic XPath Theory.....	144
XPath Expressions.....	144
Node Types.....	144
Selections	145
Predicates.....	145
Advanced.....	146
Combining Match Queries.....	146
Wild Card Matches.....	146
Boolean Operators.....	147
XPath Functions.....	147
XPath optimisation.....	148
Use the ID.....	148
Use the attributes.....	148
Start at the first unique element.....	149
Selenium XPath Usage.....	149
Chapter 16:Basic CSS Selector Theory.....	150
Firefinder for Firebug.....	150
CSS Selector Expressions.....	151
Selenium & CSS.....	151
Selections.....	152
Direct Descendents and Absolute Paths.....	152
Sub Elements and Relative Paths.....	153
Attribute and Index matching.....	153
Attribute Matching.....	153
Special attribute selectors.....	153
Indexed Matching.....	154
Advanced.....	155
Combining Matches.....	155
Wild Card Matches.....	155
Attribute Substring matching.....	155
Boolean Operators.....	155
Sibling Combinators.....	156
Useful Links.....	156
Chapter 17:Learning The Selenium API.....	157
Chapter 18:Testing HTML Forms.....	158
An HTML Form.....	159
Submit a Form with Default Values.....	159
Commands Used.....	162

Submit Form without clicking button.....	162
Amend a Text, Password, TextArea or File Field.....	162
Text Fields.....	162
Type vs TypeKeys.....	163
Password Fields.....	163
TextArea Fields.....	163
File Field.....	164
Attachfile command.....	165
Amending Checkboxes and Radio Items.....	165
Click.....	165
Check	166
Uncheck.....	167
Amending Multiple Select Values.....	168
Amending Dropdown Elements.....	169
Amending Hidden Field Values.....	170
Checking the Values of the Input Fields.....	171
Text, Password, TextArea, File.....	171
CheckBox & Radio Items.....	171
Multiple Select & DropDown.....	172
getValue.....	173
isSomethingSelected.....	173
getSelectedId & getSelectedIds.....	173
getSelectedIndex & getSelectedIndexes.....	173
getSelectedLabel & getSelectedLabels.....	174
getSelectedValue & getSelectedValues.....	174
getSelectOptions.....	175
Put It All Together.....	175
Chapter 19:Testing Static HTML.....	177
A Basic Static HTML Test.....	177
getTitle – Check the page title.....	179
getText – Check the username.....	180
isTextPresent – check the 'heading'.....	182
isElementPresent – check comments and filename.....	182
getXPathCount – count the checkboxes entered.....	183
click – navigate to the form.....	185
The rest of the test.....	185
The full test and summary.....	186
getAttribute.....	187
assignId.....	187
getBodyText & getHtmlSource.....	188
goBack.....	189
highlight.....	189
Chapter 20:Using JavaScript with Selenium.....	191
A Basic JavaScript Enabled Page.....	191
The Class.....	192
FireEvent, isAlertPresent, and getAlert.....	193
getEval.....	194
RunScript.....	194
AddScript.....	195
Chapter 21:Start Selenium Programmatically.....	196

Add Selenium Server to the project.....	196
Start it in the code.....	197
The Start Up routine explored.....	198
BindException Handling.....	198
Stop Existing Server.....	199
Custom Remote Control Configurations.....	200
Chapter 22:Running Tests Outside Eclipse.....	202
What is Ant?.....	202
What is Hudson?.....	202
What is Subversion?.....	202
Chapter 23:Using Ant to Run Selenium Tests.....	203
Install Ant.....	203
Install Java JDK.....	203
Update the Environment Variables and Path.....	204
Check that Ant works.....	206
Check that Java works.....	206
Create a Lib Folder.....	207
Amend Eclipse Project Properties.....	207
Create an initial build.xml file.....	207
Running the Ant file.....	211
Add the Tests which require no server.....	213
Refactor The Build File.....	214
Summary.....	217
Additional Reading.....	217
Chapter 24:Using Hudson to Run Ant.....	219
Introduction.....	219
Install Hudson.....	219
Using Hudson without Version Control.....	222
Configure the Hudson Project.....	224
Scheduling the build automatically.....	227
Chapter 25:Adding Subversion to the mix.....	228
Chapter 26:Take Stock of Where we are.....	229
Plan Of Action.....	229
Chapter 27:Evolving A Selenium Manager Class.....	232
Chapter 28:Create Our First Page Objects.....	239
Create a SearchPageTests class.....	239
Add the SeleniumManager	240
Convert startSeleniumAndSearchForSeleniumRC.....	241
typeInASearchTermAndAssertThatHomePageTextIsPresent.....	245
typeInASearchTermAndAssertThatHomePageURLExists.....	246
typeInASearchTermAndCheckPageTitleHasSearchTermInIt.....	247
typeInASearchTermAndCheckSearchInputHasSearchTermInIt.....	247
After all that	248
SearchPageTests.java.....	248
SearchPage.java.....	249
Final Notes.....	249
Chapter 29:More Page Object Creation.....	250
The Tests.....	250
HTML_form_tests.java.....	250
test_submit_form_with_default_values	251

test_submit_form_without_clicking_submit	251
test_submit_form_with_new_username	252
test_submit_form_with_new_password.....	252
test_submit_form_with_new_password.....	252
test_submit_form_with_filename.....	252
test_submit_form_with_click_check_and_radio.....	253
test_submit_form_with_multiple_select_values.....	253
test_submit_form_with_dropdown_values.....	254
test_submit_form_with_hidden_field.....	254
test_check_text_entered_values.....	254
test_check_checkbox_values.....	255
test_check_radio_values.....	256
test_randomly_select_value_from_dropdown.....	257
Static_HTML_tests.java.....	258
JavaScript_With_Selenium_Tests.java.....	263
The Page Objects.....	264
BasicHTMLForm.java.....	264
Possible refactorings.....	266
HTMLFormResultsPage.java.....	268
Discussion of getFilename.....	269
BasicAjaxPage.java.....	270
Chapter 30:Page Object Models Summary.....	271
What is a Page Object Model?.....	271
Grow an abstraction layer.....	271
Refactor the Page Objects internally.....	271
Create Domain Level Abstractions.....	272
Lessons learned.....	272
Related Study.....	273
Chapter 31:Data Driven Tests in JUnit.....	274
Basic Data Driven Testing.....	274
JUnit Parameterized Class Runner And Constructor.....	275
Data supplied by an @Parameters annotated method.....	275
A Data Driven Test.....	276
Running a Data Driven Test.....	276
The full code for the test.....	277
Multiple Tests.....	278
Reading Data From Tab Delimited Files.....	278
General Hints.....	279
Chapter 32:Screen Capture on Failure.....	281
Chapter 33:Run the tests on multiple browsers.....	286
Browser Codes.....	286
Property Files.....	287
System Properties.....	289
Chapter 34:JavaScript And Dynamic HTML Testing Redux.....	291
Example Dynamic HTML Page.....	291
First Model the behaviour in the test.....	292
Code the check in the page object model.....	292
First understand the page.....	292
Summary.....	293
Chapter 35:Cookie Handling.....	294

Cookies in the example application.....	294
How to see cookies on a web page?.....	294
Firefox by Default.....	294
Firecookie - Firebug Plugin.....	297
Selenium Cookie Commands.....	298
Example Code For Cookie Testing.....	299
Basic Class.....	299
Check Cookie Creation using deleteAllVisibleCookies and isCookiePresent.....	299
Get Cookie values using getCookie and getCookieByName.....	300
getCookie.....	300
getCookieByName.....	301
deleteCookie.....	302
createCookie.....	303
Chapter 36:The Future of Selenium.....	305
If you want to experiment with 2.0.....	306
Chapter 37:Structuring the tests and code.....	308
Java project folder and package structures.....	308
Changing what goes into Version Control.....	311
Configuring Source-code Folders in Eclipse.....	311
Add libraries.....	313
Re-organise the Classes and Packages.....	313
Share the Server among tests and create a base test class.....	315
Share the Server using a Singleton.....	315
Create a Base Class.....	316
Get Ant Working.....	318
Make sure all tests are valid tests.....	320
Create end to end tests where we assert after executing functionality.....	320
Have all tests pass on multiple browsers.....	320
Locators as constants or methods.....	321
Locators as constants.....	321
Locators as methods.....	322
Get Hudson Working.....	323
Speed up the test execution with a suite.....	327
Running Different Suites for Different Browsers.....	331
Nested Suites.....	331
Browser Specific Groups.....	332
Create a conditional Ant File.....	333
Get Selenium 2.0 working.....	334
Ways of using what we have built.....	335
Exercises For the reader:.....	336
Chapter 38:In Closing.....	337
Additional Reading.....	337
Appendix A - Selenium API MindMap.....	339
Appendix B - Playing along at home.....	340