Cheap and Free Test Tools

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www.riceconsulting.com

RICECONSULTING

At the Start

- This will be an interactive session
  - Some demos and videos
- Screenshots
- Helpful hints
- I get no compensation from tool vendors, but I do get review licenses for some of the tools.

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We Can't Cover All Tools

- I focus on tools you may not have heard about.
- I welcome hearing about free and inexpensive tools you have found helpful.
  - At the end of each tool type, I'll ask for your suggestions about other tools.

3

Constraints

- You may find it hard to get your management to consider using an open-source or free tool.
- Some companies are heavily invested in commercial tools (that may or may not be the best ones for you), so they keep out any other options.

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Common Acceptance Issues

- Security
  - Code vulnerabilities
- Vendor uncertainty
  - Open source has none
  - Small vendors are often acquired
- Support levels
- Future tool direction
  - Free, paid, or no growth at all

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A Strategy For Acceptance

- Make the business case in cost vs. benefits.
  - Also, bring out the reality of having a free tool vs. no tool.
- Include information about companies like Sun, IBM, and Microsoft that have contributed open-source and free software.

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Think About Commercial Tools

- Security
  - Do commercial tools have security issues?
- Vendor certainty
  - Are larger vendors acquired?
- Direction of the tool
  - Do major tools fade away?
- Support levels
  - Are major tools well-supported?

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What's the Answer?

- Keep an open mind.
- You can be successful with a wide variety of tools if you get a "best fit" for your needs.
- Price is not the best way to determine tool quality or applicability to your needs.

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Evaluations

- Regardless of the tool cost or source, you should do a good evaluation and proof of concept.
- Even free tools require an investment of time to:
  - Learn
  - Install
  - Maintain

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Your Personal Toolkit

- As a tester, it's good to have your own set of test tools.
  - You don't get locked into one tool set.
  - You can learn on your own.
  - You can be a value-added resource in your company concerning test tools.
  - You can take your tools wherever you go!

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Tool Types We Will Cover

- Test Design
- Test Execution
- Test Management
- Test Data
- Test Evaluation
- Defect Tracking
- Special Applications – SOA, Load testing, Web testing

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Test Design

- CTE-XL for classification trees
- Testersdesk.com
- ACTS - www.nist.gov
- AllPairs – www.satisfice.com
- PICT – www.microsoft.com
    - More at www.pairwise.org
- METS – Minimal Essential Testing Strategy - http://www.gregpaskal.com/mets/

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Free and Cheap Test Tools
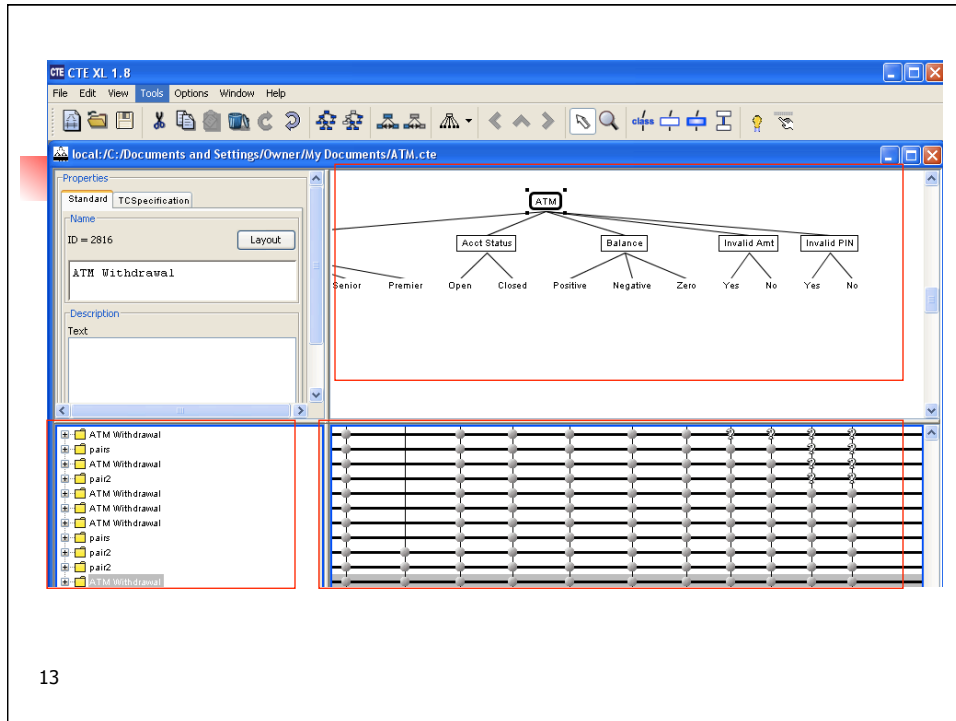
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CTE-XL

- Recently acquired by Berner-Mattner
  - www.berner-mattner.com
- Free version still available
  - And will remain available
- Pro version with extended functionality
- Based on the classification tree approach
- Generates test cases in a variety of ways.

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CTE XL 1.8

Edit View Tools Options Window Help

local:/C:/Documents and Settings/Owner/My Documents/ATM.cte

Properties
Standard TCSpecification
Name
ID = 2816   Layout
ATM Withdrawal
Description
Text

ATM Withdrawal
pairs
  pairs.Testcase 1
  pairs.Testcase 2
  pairs.Testcase 3
  pairs.Testcase 4
  pairs.Testcase 5
  pairs.Testcase 6
  pairs.Testcase 7
  pairs.Testcase 8

ATM
Acct Status   Balance   Invalid Amt   Invalid PIN
Senior Premier   Open Closed   Positive Negative Zero   Yes No   Yes No

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Testersdesk.com

- A free web service to create test cases:
  - Pairwise
  - N-way/Random
  - T-way
  - Subsets
  - Boundary tests
  - Test permutations
- Also generates test data

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Testersdesk.com

Tool information

Getting started

Step 1: Read the **Context of this tool** (see below)

Step 2: Provide your input (test parameters and their values) in the below format

```
Param1:v1,v2,v3,v4
Param2:v1,v2
Param3:v1,v2,v3
...
```

Step 3: Click **Display Results** to see the reduced number of test cases in the browser or click **Download Results** if you want to save the results to your local filesystem

Step 4: Click **Common Questions** for more

Note: Click on **Load/fill example inputs** button to experience the tool

Context of this tool

Input/Output constraints

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Testersdesk.com

Tool information

Getting started

Context of this tool

- This tool is helpful in situations where several test parameters exist each of which takes several values, resulting in a prohibitively high number of Test Combinations.
- It generates a reduced set of test cases covering all the pair/two-way interactions between those test parameters, and help reduce the test effort in a reasonable way.
- Several testers have judiciously used this tool to reduce millions of test combinations into just a vital few, and successfully found defects in a short time.

Input/Output constraints

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Testersdesk.com

Tool information	▲
Getting started	▬
Context of this tool	▬
Input/Output constraints	▬

Minimum Test Parameters:	2
Maximum Test Parameters:	20
Average number of values for all parameters together cannot exceed 10	

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Request Timestamp: Jul 26, 2010 7:44:36 PM
Total possible Test Combinations: 8640
[Show results in CSV format] [Show results in XML format]
Pairwise Test Combinations from TestersDesk: 31

	Journey mode	Preferred time	Leaving from	Going to	Booking type	Customer type	Adults	Children
1	Return trip	Morning	Type1_City	Type1_City	Economy	Registered	1	0
2	One way	Afternoon	Type2_City	Type2_City	First class	New	1	1
3	Return trip	Evening	Type3_City	Type3_City	First class	Registered	1	2
4	One way	Late night	Type1_City	Type2_City	Economy	New	1	3
5	One way	Morning	Type2_City	Type3_City	Economy	Registered	1	4
6	One way	Afternoon	Type3_City	Type1_City	First class	New	2	0
7	Return trip	Evening	Type1_City	Type3_City	Economy	New	2	1
8	Return trip	Late night	Type2_City	Type1_City	First class	Registered	2	2
9	Return trip	Morning	Type3_City	Type2_City	First class	Registered	2	3
10	Return trip	Afternoon	Type1_City	Type1_City	First class	New	2	4
11	One way	Evening	Type2_City	Type2_City	Economy	Registered	3	0
12	Return trip	Late night	Type3_City	Type3_City	Economy	New	3	1
13	One way	Morning	Type1_City	Type1_City	Economy	New	3	2
14	any_value_of_Jour	Afternoon	Type2_City	Type3_City	First class	Registered	3	3
15	any_value_of_Jour	Evening	Type3_City	Type2_City	any_value_of_Bool	any_value_of_Cust	3	4
16	One way	Late night	Type1_City	Type3_City	Economy	Registered	4	0
17	Return trip	Morning	Type2_City	Type1_City	First class	New	4	1
18	any_value_of_Jour	Afternoon	Type3_City	Type2_City	Economy	any_value_of_Cust	4	2
19	any_value_of_Jour	Evening	any_value_of_Leav	Type1_City	any_value_of_Bool	any_value_of_Cust	4	3
20	any_value_of_Jour	Late night	any_value_of_Leav	any_value_of_Goir	any_value_of_Bool	any_value_of_Cust	4	4
21	One way	Morning	Type1_City	Type2_City	First class	Registered	5	0

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Free and Cheap Test Tools

Common Test Data Generators
to quickly generate test input data of several types and quantities

Template-based File Generator
to generate multiple test data files from a Template and CSV data file

Size-based File Generator
to generate a batch file that creates a file of the specified type and size

Date/Time (Timestamp) Generator
to generate date and time values in the specified format and timezone

Password Test Generator
to generate valid & invalid values to test a password field's test requirements

Luhn (Mod-10) Number Generator
to generate valid or invalid numbers based on Luhn (Mod-10) algorithm

Person Name Generator
to generate real person names with the specified gender, format and quantity

Universal Unique ID Generator
to generate Universally Unique IDs for test fields that need globally unique values

E-Mail Address Generator
to generate several test e-mail addresses in the valid format

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SQL Injection Test Generator
to generate a single automated and downloadable webpage that can test SQL Injection attacks on the target form

OS Information Scripts
downloadable scripts that can show OS level information on the test machine hardware, processes, software etc

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Test Execution

- Macro Scheduler

  mjtnet

  - www.mjtnet.com
  - Windows only
  - Row/Column oriented
    - Has object recognition for some Windows objects
    - Will execute VB Script
  - $29 to $195 per individual license
  - $595 for enterprise license
  - Like capture/playback, but no comparison features
  - Has a very robust scripting language

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Macro Scheduler Main Interface
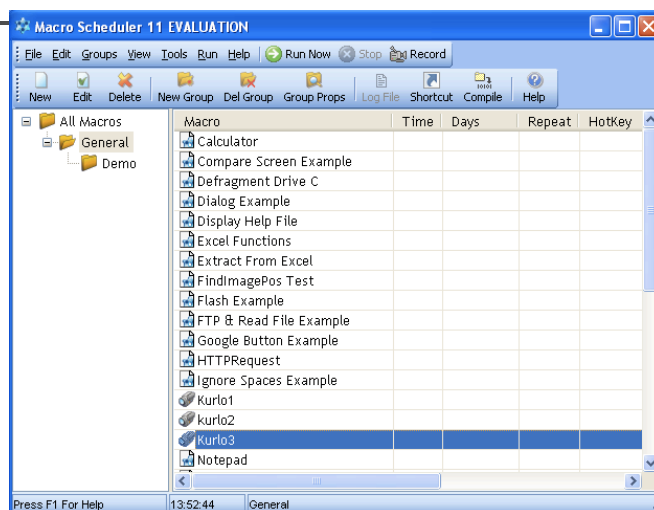
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Macro Scheduler Script Editor
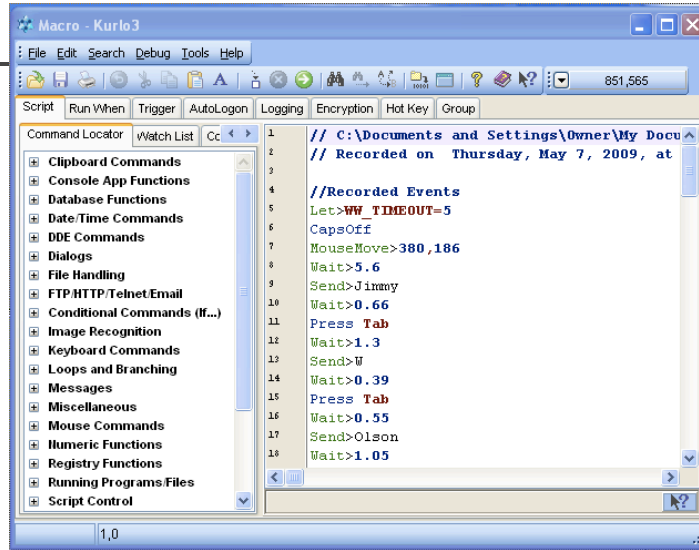
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Example Script (1)

- Row, column
- Data
- Keystroke
- Wait time

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Free and Cheap Test Tools

Example Script (2)

```
50  Wait>0.45
51  LClick
52  WaitWindowOpen>Address Book Required
53  MoveWindow>Address Book Required,420,313
54  ResizeWindow>Address Book Required,307,124
55  Wait>0.06
56  MouseMove>576,409
57  Wait>2.12
58  LClick
59  WaitWindowOpen>Jimmy Olson
60  MoveWindow>Jimmy Olson,246,95
61  ResizeWindow>Jimmy Olson,655,561
62  Wait>0.06
63  MouseMove>644,518
64  Wait>2.8
65  LClick
66  Wait>0.14
67  MouseMove>788,635
68  Wait>1.52
69  LClick
70  WaitWindowOpen>Kurlo
71  MoveWindow>Kurlo,-4,-4
72  ResizeWindow>Kurlo,1032,746
73  Wait>0.06
74  MouseMove>929,750
75  Wait>3.51
```

Object Recognition → (line 52)

Duplicated Data → (line 59)

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Sample Data-Driven Script

```
4   //Specify the path of the file here
5   Let>k=1
6   Label>start
7   ReadLn>c:\kurlo.txt,k,line
8   If>line=###EOF###,finish
10  SetFocus>Kurlo
11  MouseMove>69,7
12  Wait>3
13  LClick
14  Press ALT
15  Send>c
16  Release ALT
17  Wait>1.27
18  Press Enter
19  Wait>3.16
20  Send>%line%
21  Wait>1.33
22  Press Tab
23  Wait>1.3
24  Let>k=k+1
25  ReadLn>c:\kurlo.txt,k,line
26  Send>%line%
27  Wait>0.49
```

Test Data File → (line 7)

Loop ← (line 8)

Read from file → (line 25)

Input to screen ← (line 26)

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Selenium IDE

- Firefox add-on that records clicks, typing, and other actions to make a test, which you can play back in the browser.

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Selenium IDE (2)

- Selenium IDE is not only recording tool: it is a complete IDE.
- You can choose to use its recording capability, or you may edit your scripts by hand.
- With autocomplete support and the ability to move commands around quickly, Selenium IDE is the ideal environment for creating Selenium tests no matter what style of tests you prefer.

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Source: http://seleniumhq.org

Selenium IDE Features

- Easy record and playback
- Intelligent field selection will use IDs, names, or XPath as needed
- Autocomplete for all common Selenium commands
- Walk through tests
- Debug and set breakpoints
- Save tests as HTML, Ruby scripts, or any other format

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Selenium IDE Features (2)

- Support for Selenium user-extensions.js file

- Option to automatically assert the title of every page

- NEW! Easy customization through plugins

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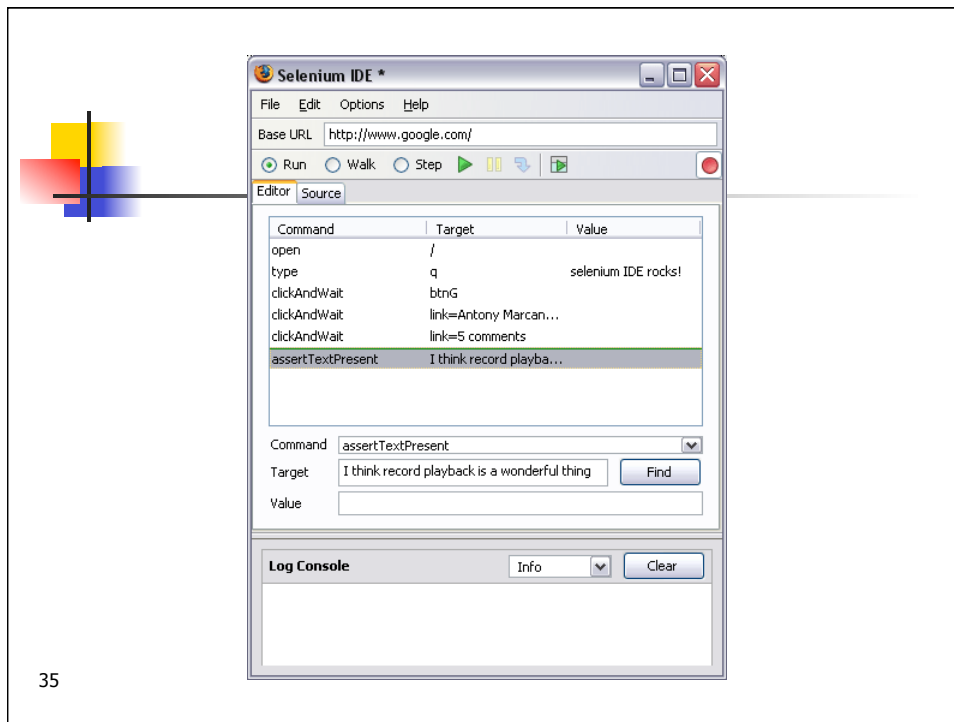
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Cubic Test

- CubicTest is a graphical Eclipse plug-in for writing Selenium and Watir tests.
- CubicTest's test editor is centered around pages/states and transitions between these pages/states.
- CubicTest features an innovative test recorder and test runner based on Selenium RC which are fully integrated with the graphical test editor.

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Cubic Test

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Bad Boy

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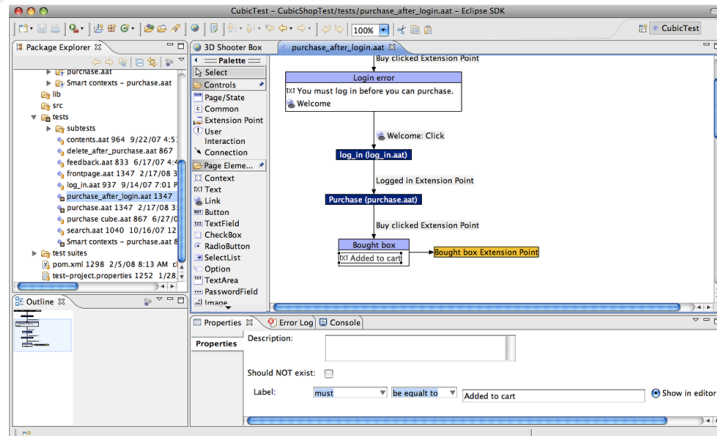
Bad Boy

- Record/playback
- Free for individuals and deployments of 5 computers or less & not-for-profits
- $45/user license fee otherwise
- http://www.badboy.com.au/

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Cucumber

- http://cukes.info/
- Cucumber is a tool that executes plain-text functional descriptions as automated tests.
- The language that Cucumber understands is called Gherkin

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Cucumber Language Example

```
Feature: Search courses
  In order to ensure better utilization of courses
  Potential students should be able to search for courses

  Scenario: Search by topic
    Given there are 240 courses which do not have the topic "biology"
    And there are 2 courses A001, B205 that each have "biology" as one of the topics
    When I search for "biology"
    Then I should see the following courses:
      | Course code |
      | A001        |
      | B205        |
```

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Other Free Test Execution Tools

- FitNesse - http://fitnesse.org
- Apodora - http://sourceforge.net/projects/apodora/
- AutoIT - http://www.autoitscript.com/autoit3/index.shtml
- Frankenstein – http://frankenstein.openqa.org/
- WET - Commercial grade Opensource Web automation testing tool - http://wet.openqa.org
- Grease Monkey - http://testertools.com/browsers-based-tools/grease-monkey-web-testing-tool-with-scripts/

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Free and Cheap Test Tools

Test Management

- Testopia
  - Testopia is a test case management extension for Bugzilla.
  - It is designed to be a generic tool for tracking test cases, allowing for testing organizations to integrate bug reporting with their test case run results.
  - Though it is designed with software testing in mind, it can be used to track testing on virtually anything in the engineering process.
  - http://sourceforge.net/projects/testopia

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Free and Cheap Test Tools

Test Management (2)

- qaManager
  - http://sourceforge.net/projects/qamanager
  - web based application used for keeping track of engineering and customer releases of Software Projects, Resource allocations and related information.
  - It helps QA Managers to keep track of releases effectively.Powered by OpenXava and Java.

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Free and Cheap Test Tools

Test Management (2)

- TestMaster
  - http://testmaster.sourceforge.net/
  - A test case logging, reporting and test automation tool, much like the commercial product Test Director.

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Free and Cheap Test Tools

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Zeta Test

- Zeta Test is an integrated test management environment that enables you to perform black-box tests, white-box tests, regression tests or change management tests of software applications.
- Zeta Test helps you to plan, perform, log, monitor and document the tests, and then to evaluate the test results.
- Cost – Free
- www.zeta-test.com

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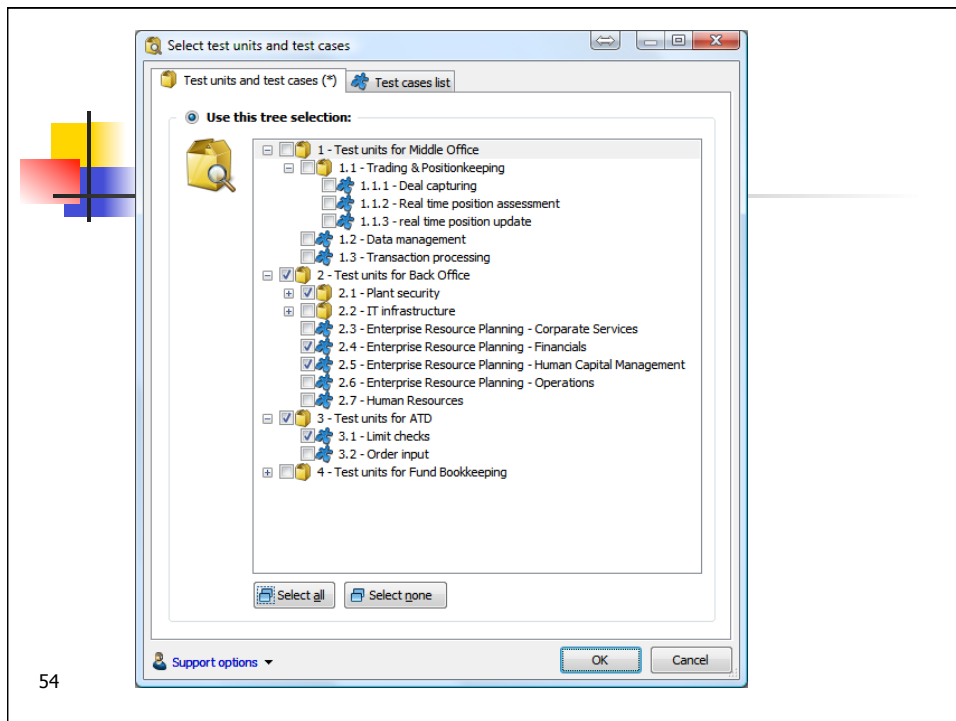
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Free and Cheap Test Tools

XQual

- Free at http://www.xqual.com
- XStudio is a fully-graphical application developed in Java (so theoretically deployable on any OS).
- All of the data are organized within trees for more flexibility.
- Integrated management - All entities involved in the QA/testing projects are managed by XStudio.
  - This makes lots of metrics/statistics/status generation much more easier.

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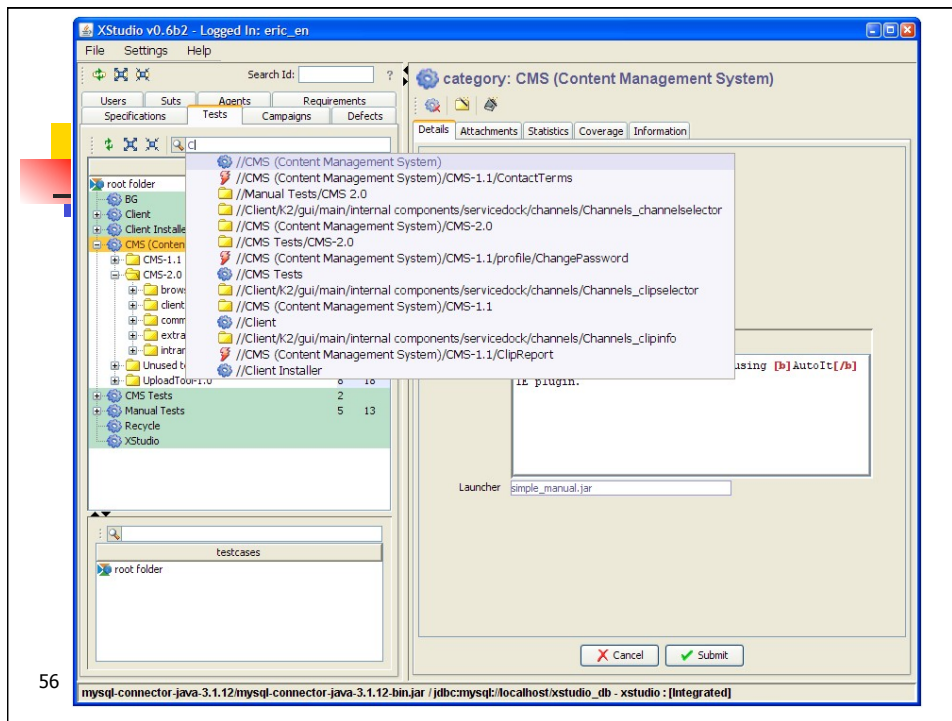
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Bromine

- http://bromine.seleniumhq.org/
- Part of the Selenium suite of tools
- Web-based QA tool for Selenium, that enables you to easily run Selenium-RC tests and view the results.
- It scales from the single tester that just wants to run some tests without all the hassle to the corporate solution with multiple user-groups and hundreds of test cases.

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Test Data Generation

- Generatedata.com
  - www.generatedata.com
  - Creates test data in a variety of forms:
    - Text, cvs, XML, Excel, SQL
  - Free and Cheap Subscriptions Available
- DBFeeder - Free
  - Automatically generate test data for Oracle Databases which fits primary and foreign keys of tables.
  - http://dbfeeder.sourceforge.net/index.html
- Testersdesk.com – Free
- Fake Name Generator – Free - http://www.fakenamegenerator.com/

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Free and Cheap Test Tools

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Free and Cheap Test Tools

Testersdesk.com

Common Test Data Generators

Load example inputs in all forms   Clear data from all forms/fields

Language String Generator (UTF-8 encoded Unicode)

Language   Select a language
String length
Quantity
Generate language strings

Simple String Generator (English/ASCII)

Character type   Select character type
String length
Quantity
Generate simple strings

Custom Syntax String Generator

Syntax/format   Provide syntax/format
Quantity
Generate syntax strings

Duplicate String Generator

Base string   Provide string to duplicate
Times to repeat
Generate duplicate strings

Random Number Generator

Min value   Max value
Integers   Real numbers
Quantity
Generate numbers

Quantified String Generator

Start with a character   Start with a number
Text length
Separator $
Generate quantified text

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FakeNameGenerator.com

Lucille J. Papas
2782 Oakdale Avenue
Polk City, FL 33868

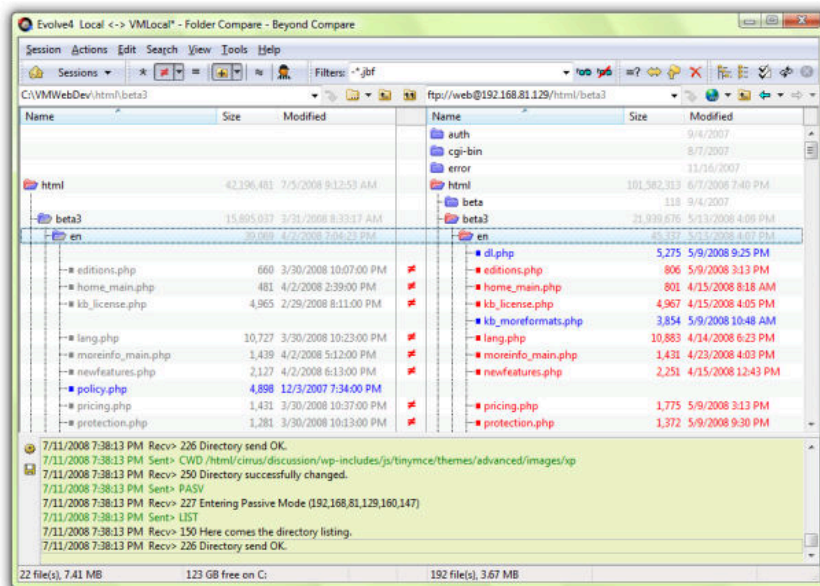|	
Phone:	863-605-4854
Website:	MadisonAutomobile.com
Email Address:	LucilleJPapas@example.com
	This is a real email address. Click here to use it!
Password:	ohD0ohhoiJ1
Mother's Maiden name:	Hamilton
Birthday:	February 24, 1936 (74 years old)
MasterCard:	5437 8551 1057 5866
Expires:	5/2015
SSN:	262-79-1093
	You should click here to find out if your SSN is online.
Occupation:	Education and development manager
UPS Tracking Number:	1Z 768 775 76 9903 731 4
Blood type:	A-
Weight:	200.4 pounds (91.1 kilograms)
Height:	5' 6" (167 centimeters)

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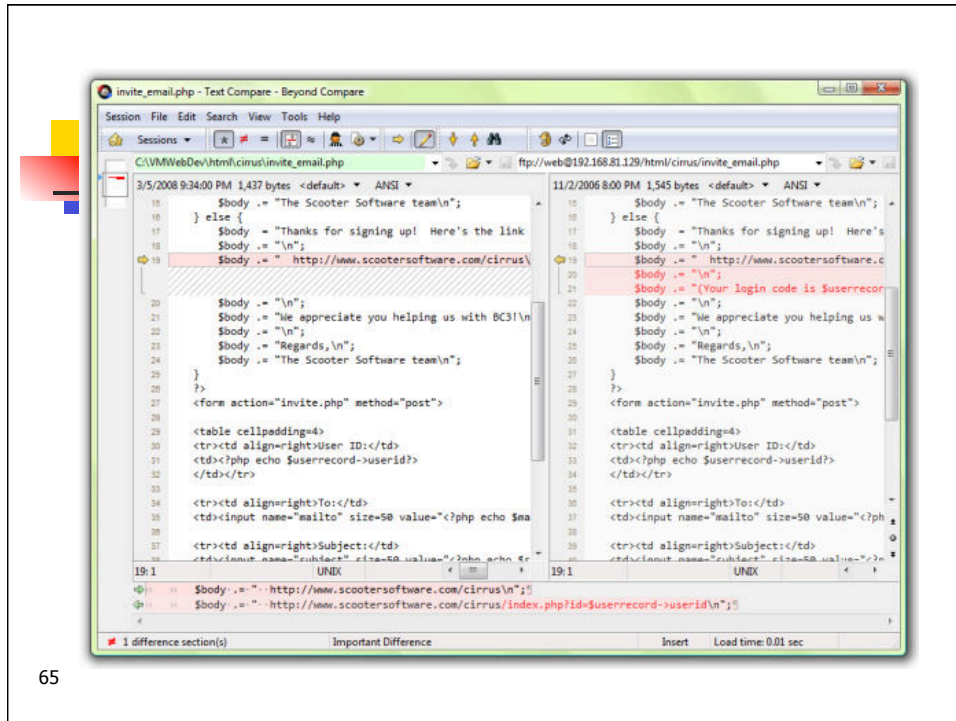
Free and Cheap Test Tools

Test Evaluation

- Beyond Compare
  - www.scootersoftware.com
  - $30/single user, volume discounts
- Exam Diff
  - www.prestosoft.com
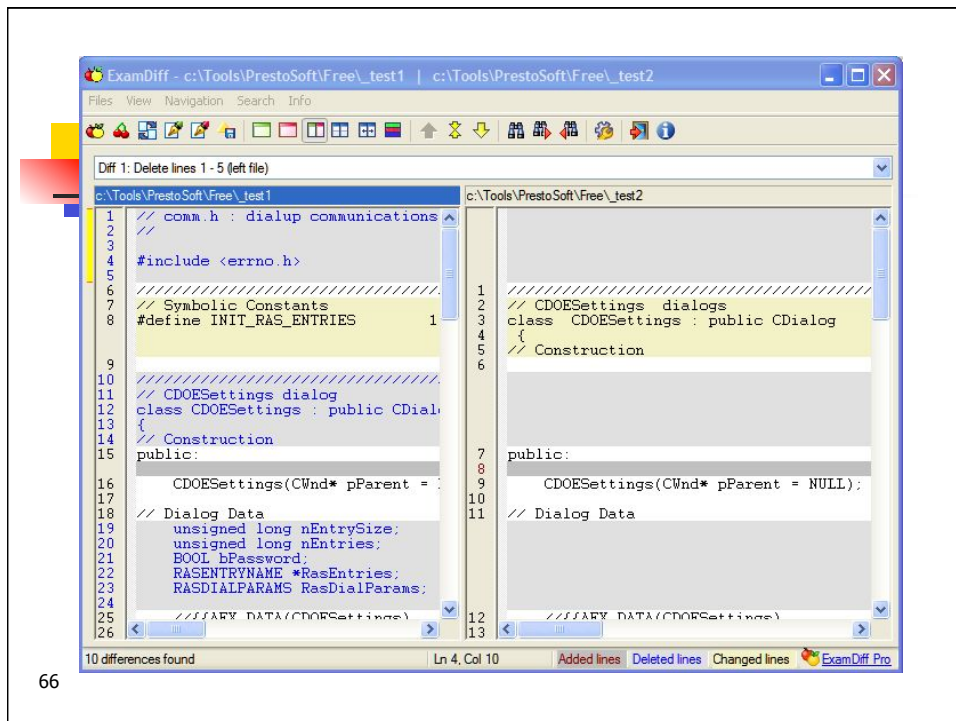 - Free and Pro versions
  - $35/single user, volume discounts

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Free and Cheap Test Tools

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Test Evaluation (2)

- Windows Media Encoder
  - Free at www.microsoft.com
  - Captures screen video in wmv format
- Hypercam
  - $30/single user at www.hyperionics.com
  - Captures screen video in avi format
  - Volume discounts
- Jing
  - Free & Pro
  - www.techsmith.com

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Defect Tracking

- Bugzilla – free at www.bugzilla.org
- FlySpray – Free at www.flyspray.org
- Many more at:
  - http://www.software-pointers.com/en-defecttracking-opensource-tools.html

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Free and Cheap Test Tools

Free and Cheap Test Tools

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SOA

- SoapUI
  - http://www.soapui.org/
  - Free and Pro versions
- Push to Test
  - www.pushtotest.com

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Free and Cheap Test Tools
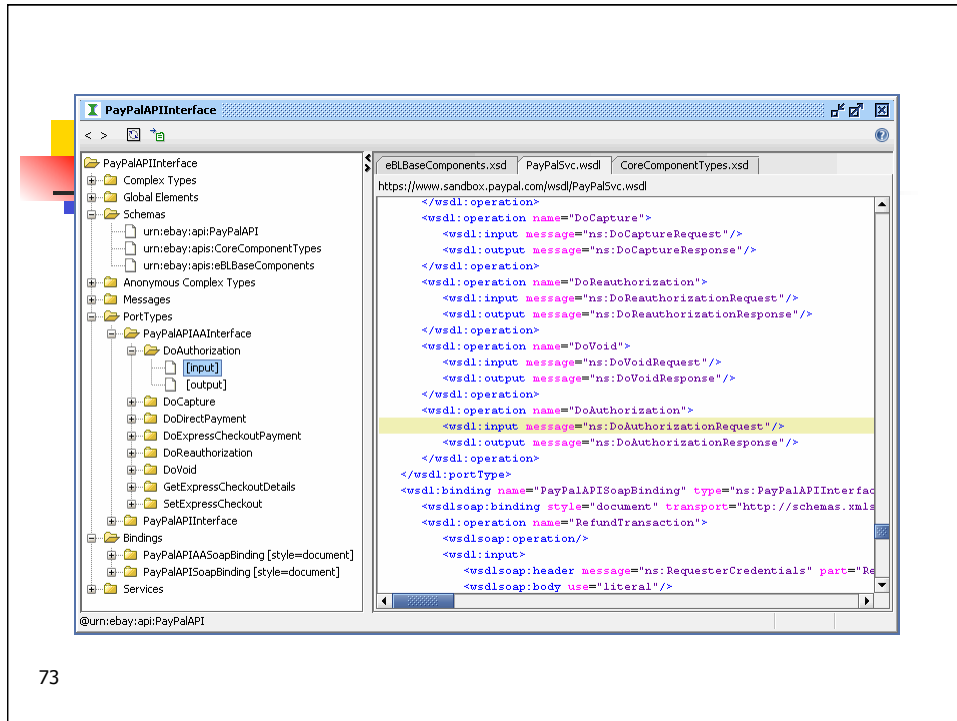
73
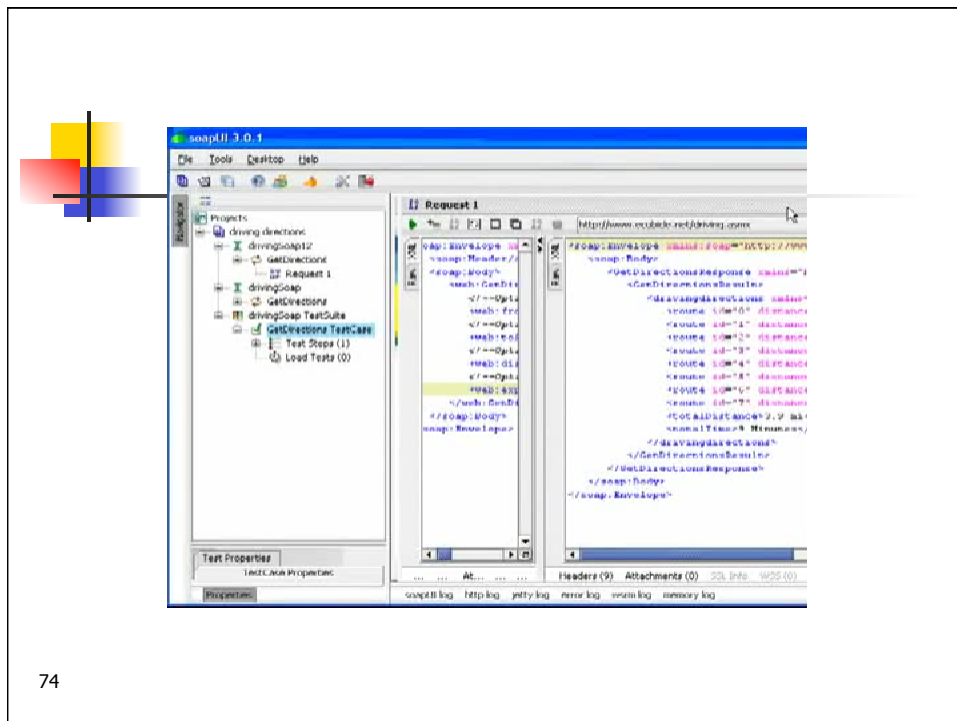
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Free and Cheap Test Tools

Load Testing

- Paessler Web Server Test
- www.paessler.com
    - Pro edition single user - $249
        - 100 Concurrent virtual users
    - Enterprise edition single user - $750
        - Up to 10,000 concurrent virtual users
    - Enterprise edition 5 user - $1,449
    - Enterprise edition site license - $2,895

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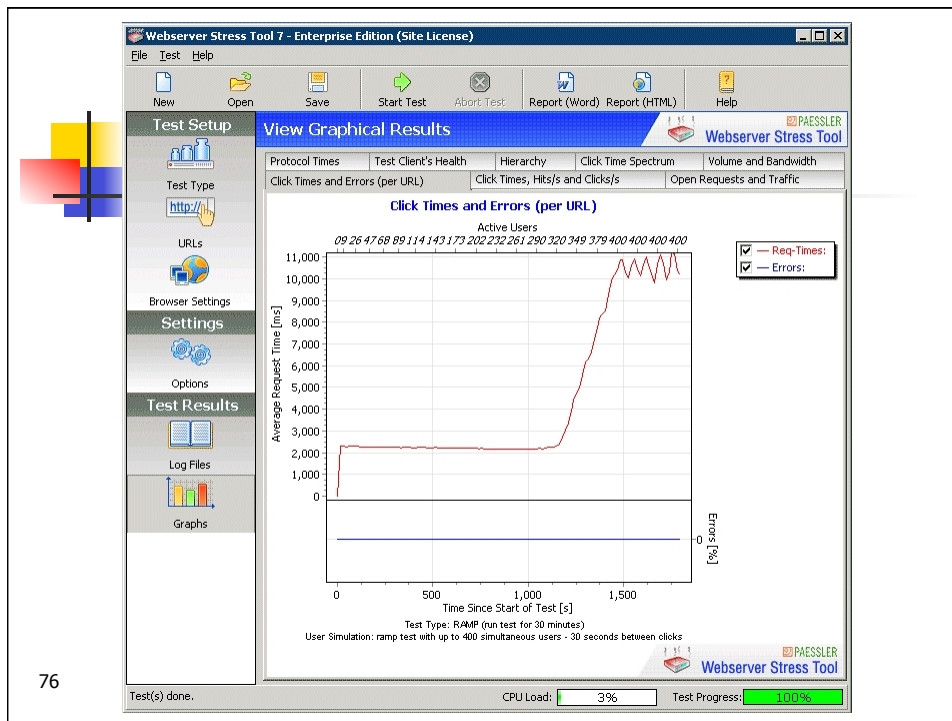
Network Monitoring

- Axence NetTools Pro – www.axencesoftware.com
- FREE and very comprehensive set of network administration tools:
  - NetWatch - network monitoring with alerting, real-time & historical charts;
  - WinTools lists exhaustive system information from Windows computers;
  - Port scanner; network scanner;
  - NetStat lists local inbound & outbound connections;
  - TCP/IP workshop for low level service testing; ping; fast traceroute;
  - DNS lookup; bandwidth test tool; SNMP browser and more.

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Axence NetTools Pro

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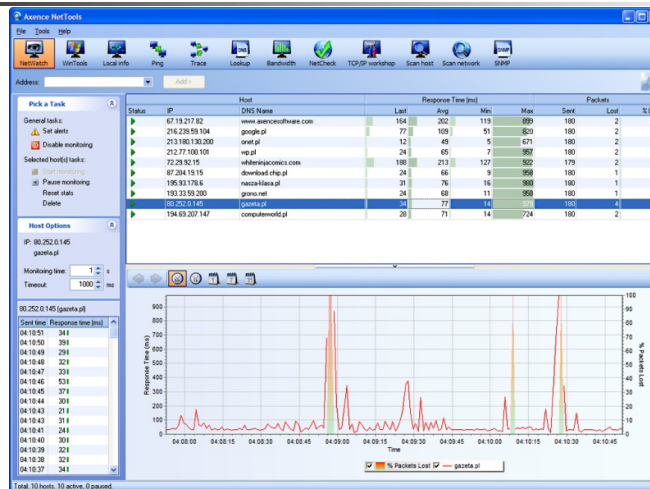
Web Testing

- Link Checkers
    - Link Tiger – www.linktiger.com
    - Xenu – www.xenu.com
    - X3C - http://validator.w3.org/checklink
    - Jspider - http://j-spider.sourceforge.net/
    - More at http://www.cryer.co.uk/resources/ link_checkers.htm
- Compliance Checkers
    - http://www.thefreecountry.com/webmaster/ htmlvalidators.shtml
- Google Web Site Optimizer

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Free and Cheap Test Tools

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Canoo Web Test

- Canoo WebTest is a free Open Source tool for automated testing of web applications in a very effective way.
- http://webtest.canoo.com

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Canoo Web Test

Simple Google Test in XML

```xml
<project default="test">
 <target name="test">

  <webtest
       name="check that WebTest is Google's top 'WebTest' result">
    <invoke url="http://www.google.com/ncr"
            description="Go to Google (in English)"/>
    <verifyTitle text="Google" />
    <setInputField name="q" value="WebTest" />
    <clickButton label="I'm Feeling Lucky" />
    <verifyTitle text="Canoo WebTest" />
  </webtest>

 </target>
</project>
```

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Quality Management

- SpagoWorld – Spagoworld.org
  - **Spago4Q** - The free/open source platform to measure, analyze and monitor Quality of products, processes and services
  - **SpagoBI** – Open Source Business Intelligence suite
  - **Spagic** - The free/open source platform for the governance of middleware services and the development of SOA applications
  - **Spago** - The Java Enterprise Framework for the development of web and multichannel applications in SOA environments

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Spago4Q

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Online Collaboration Tools

- Web Presentations
  - Openmeetings - http://code.google.com/p/openmeetings/
- Conference Calls
  - TalkShoe – www.talkshoe.com
  - Great for distributed teams who want to talk for free.
  - Recordable and private

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Open Office

- If you don't have MS Office, consider Open Office
  - 3.1 is an excellent release
  - Very compatible with MS Office
  - Spreadsheet macros can be an issue
  - Free at www.openoffice.org
- Or, Google Apps

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Summary

- These tools can all be helpful in different ways.
- With test tools, you don't always get what you pay for, so regardless of the price do a decent evaluation.
- Free and cheap tools allow you to obtain and learn tools on your own.
  - This helps in building your personal tool kit.

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Resources

- www.opensourcetesting.org
- www.openqa.org
- www.testertools.com
- www.riceconsulting.com/cheaptools.htm
    - I keep this page updated as I learn of new tools.
    - Let me know if you find a new one!

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Bio - Randall W. Rice

- Over 30 years experience in building and testing information systems in a variety of industries and technical environments
- Certified Software Quality Analyst
- Certified Software Tester
- ISTQB Certified Tester – Foundation level, Advanced Level – Full
- Treasurer of the American Software Testing Qualification Board (ASTQB)
- Chairperson, 1995 - 2000 QAI's annual software testing conference
- Co-author with William E.Perry, *Surviving the Top Ten Challenges of Software Testing*
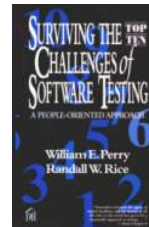- Principal Consultant and Trainer, Rice Consulting Services, Inc.

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