Evaluation Report: *eValid Ver. 3.2*

November 2002

by

Ms. Alla Grebelsky
Ms. Archanaa Panchal

Worcester Polytechnic Institute
100 Institute Road
Worcester, MA 01609

Under Supervision of:

Professor Gary Pollice
Computer Science Department

Overview

The Tool: eValid, version 3.2, a website management tool, by Software Research, Inc.
The Team: Alla Grebelsky, Archanaa Panchal

The product is a website testing and tuning tool that has an IE-look and feel to it. The entire GUI and the actual functionality are all incorporated into a fully functional, stand-alone browser-type application. The idea (this comes from the product makers) was deliberately intended to be easier to use, versus a plugin to be used in a browser or IDE.

Summary

The tool as a whole is extremely user-friendly. It does not however accomplish this at the expense of functionality. There are excellent tutorials, do-it-yourself's, and user documentation. In addition, since it's a browser, you do not have to navigate multiple windows/application to look up your results. They also simulate real loads on real servers, which would explain their motto: **If you can browse it, you can test it.**

Reported users of this tool include Accenture, Teradyne, BlueDog Technologies, Nokia and iBeta, along with a number of .com companies.

Guide to the Rest of this Report

We will start off by presenting a more detailed explanation of what our tool is and what it is intended to do. We will then outline some basic features it supports, and how it purports to test them. Finally, we will provide some actual testing done on real-life websites and show you why we would recommend this product.

Product Details

Again, the product being evaluated is a website performance tool, eValid, ver. 3.2.
(As a note, we found the personnel at Software Research, Inc., makers of eValid, extremely helpful. Within reason, they have been prompt in responding to emails, and were happy enough to help, even given that they weren't expecting a sale.)

eValid is built primarily to work on the Windows platforms. The tool-website specified compatibility with NT and 2000, and our own environment was Windows XP. Various

types of evaluation copies are available, from short-term, minimal functionality, to long-term, enhanced-functionality. The installation is as easy as can be, requiring very little or no intervention on the part of the user; it's not rocket-science to figure out how to even use the basic functions of this tool, which is something we especially appreciated.

The product is commercial, with licenses starting at $950, for basic functionality. At this time, given how extensive the functionality is, we think that for a large company, looking to host hundreds of webpages, and wanting to ensure that their site has fewer delays and no unexpected broken links or bad code, this seems a reasonable price to pay.

The one constraint on using this is that you cannot test your webpage in the development environments. It has to be uploaded and then opened as a regular website. But given how easy this usually is, it seems a non-issue.

Training, both in using the product and in exploring what features are available is extensive, from do-it-yourself example hints to demos of the product actually testing various websites. The website is well maintained, with release notes and user documentation updated as required.

What we found in our explorations, was that this software is a no-brainer to use, given its array of features. In addition, excellent tips on what to test for in a website are part of the tutorial. The GUI looks exactly like any web browser you might be used to. When you start up, it will break up various parts of a website for you, in terms of links, content and timing. As you tune your website, it provides statistics on the whole thing page by page. It can do comparisons of various pages, in terms of load-up times and can even tell you where potential delays lie. In addition, the one-browser works for any kind of script available on any websites, from HTTP, to ASP and XML. So far, we haven't found anything that fazes it.

As explained, the application is a fully functional web browser. Anything you can do with a standard browser works here. (in fact, there were times when we forgot we weren't in IE or Netscape). Thus, integration issues and compatibility problems are out.

The following is taken directly from the eValid website, primarily because we feel we could not have said it any better.

The eValid WebSite Quality Assurance and Testing Solution provides a unique client-side view of website quality.

Because eValid is built into an IE-compatible browser it is a monitoring tool that gives very accurate and completely repeatable results, but also has the flexibility to be basis of the I-Service monitoring capability. eValid gives users details and accuracy not possible with other methods such as those based on Windows desktop client/server approaches. All Quality of Service (QoS) decisions are made with data that reflects what real website users would see and experiences.

eValid's current release for Windows NT/2000/XP has the following capabilities.

***General Features**: eValid is built into a fully functioning IE-compatible browser. As a result the eValid solution provides a unique client-side view of WebSite quality and performance. The test functions are available from pull down menus -- a true point and click solution-- and support is provided for batch commands, interactive mode, and multi-copy playbacks. Product documentation is kept up to date in a separate on-line area.*

- ***Site Analysis**: Complete WebSite analysis is done with search spider built into the browser. All of the search functions, such as total time, length, depth of search and number of pages searched are user controlled. There are adjustable protocols,*

acceptance, and rejection lists. Broken/Unavailable link discovery is automatic. Dynamic page filters are done every page visited, noting such properties as download time, page size, page age, metric properties, content (string match and regular expressions match). eValid has the ability to draw 3D-SiteMaps with page performance, size, and dependence annotation.

- ***Functional Testing/Validation****: The product has complete record/play functional & regression testing support with advanced object-oriented validation modes for all features of pages, using all Web protocols, JavaScript, applets, XML, HTTPS, etc. There is a simple, editable scripting language and results are put in simple, database-ready logfiles. eValid has an adaptive playback to enhance life of recorded scripts. There are automatic script creation and generation capabilities.*
- ***Timing/Tuning****: Measurement and analysis of achieved server performance is done entirely within the browser, with page timing and component tuning to 1.0 msec resolution.*
- ***Server Loading****: eValid sever loading capabilities feature automatically launched multiple independent browsers for totally realistic loads. LoadTest operations have full scripting and scenario control to support realistic mixes of users.*

Evaluation Method

The product we evaluated was an extended-function, limited-license edition. We essentially used it on the WPI website, to test for the following issues:

1. Page load-up times,
2. Comparisons of different pages on the site,
3. Testing for poorly written code,
4. Checking for broken links.

The various results can be viewed in multiple formats, from graphs to spreadsheets. Statistics are easy to gather – you can view them for a given page or for multiple pages at a time. In addition, when you ask for link-analysis and tree, it provides one, which is a list (along with the link status – valid/disabled/missing) or a tree, providing the hierarchy.

The actual navigation process can be recorded into a script file, which can then be saved. Thus, in order to replicate any interesting test process, all you have to do is remember which file you saved it as. It allows for a rapid playback or a step-by-step one. The step-by-step process allows you to see how each webpage was loaded, and actually lets you view which elements slowed loading down.

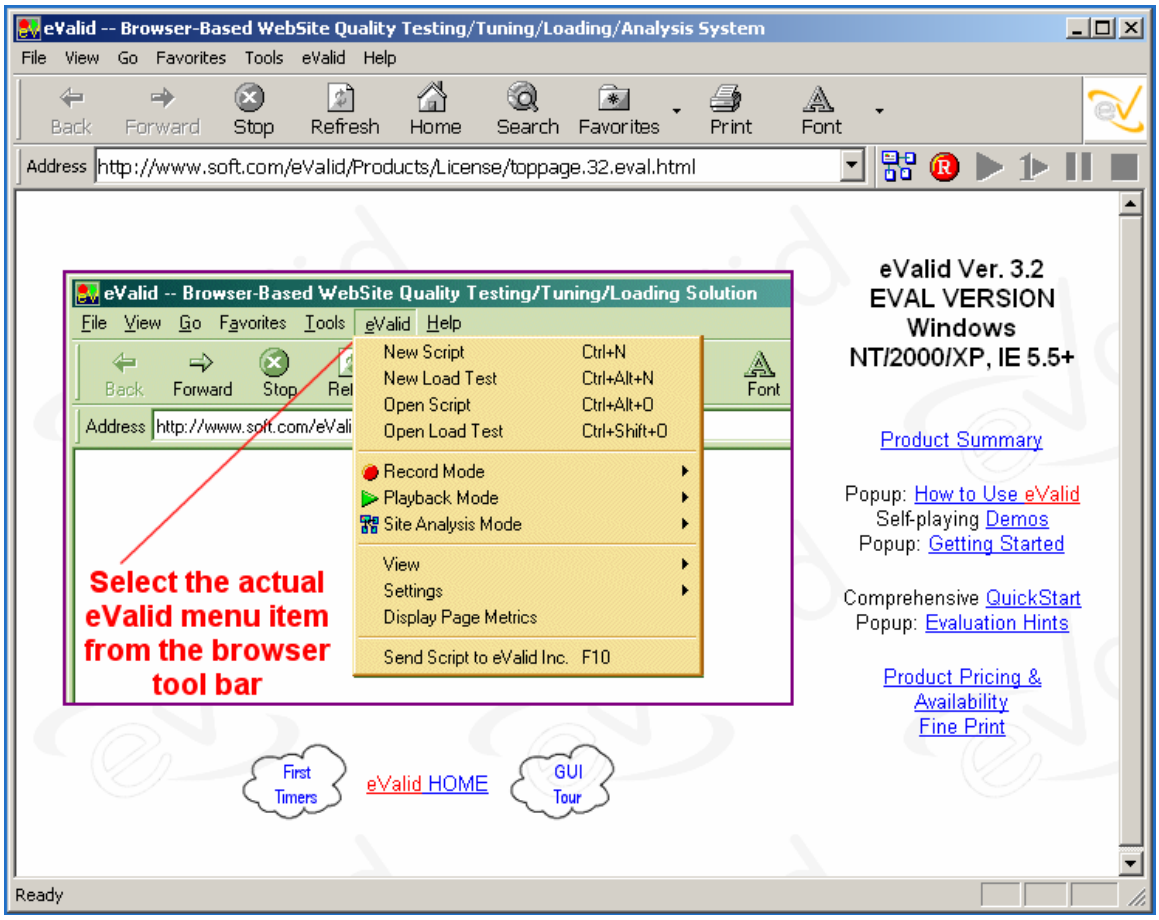
At each load-up, you have the option to keep a separate window open, which allows you to view various metrics for a given webpage. Almost anything can be saved for future reference. In addition, script files, at their most basic are extremely easy to write, so the tester (though he doesn't really need to) can write his own sequence of events.

Testing script files can be modified and edited using a normal text editor. Log files can have numerous selections, depending on whether the tester wants to evaluate overall site performance and reliability or figure out what's broken and/or doesn't exist.
The process of evaluation is termed as "start recording" and can be stopped by the user at any time, which is why it is entirely duplicable. It also keeps track of off-site links, to make sure that they are not being considered in the performance of this website.

Results

The software can be downloaded as a self-extracting (.exe) zip file. It uses standard installation procedures and only needs user intervention to specify where to load everything. It comes with a

handy, easy-to-read readme.txt file, which tells you where to put the license file (.lic). at first startup, this is displayed; thereafter, just the application is started up.

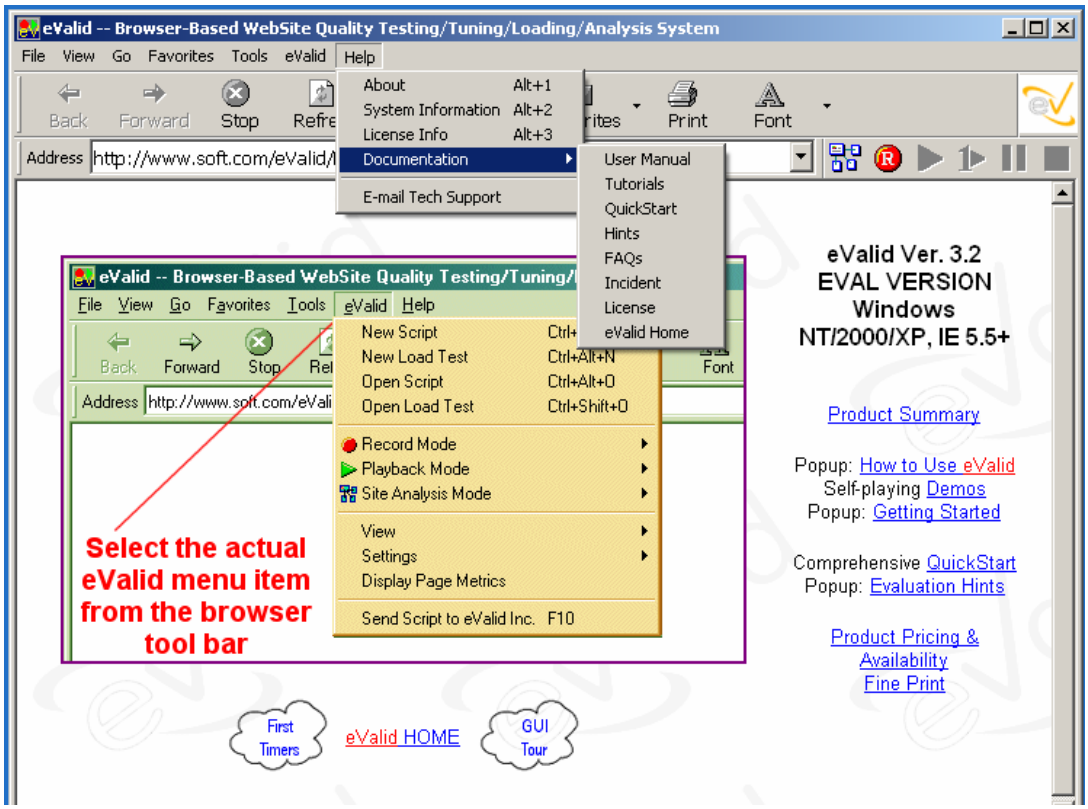


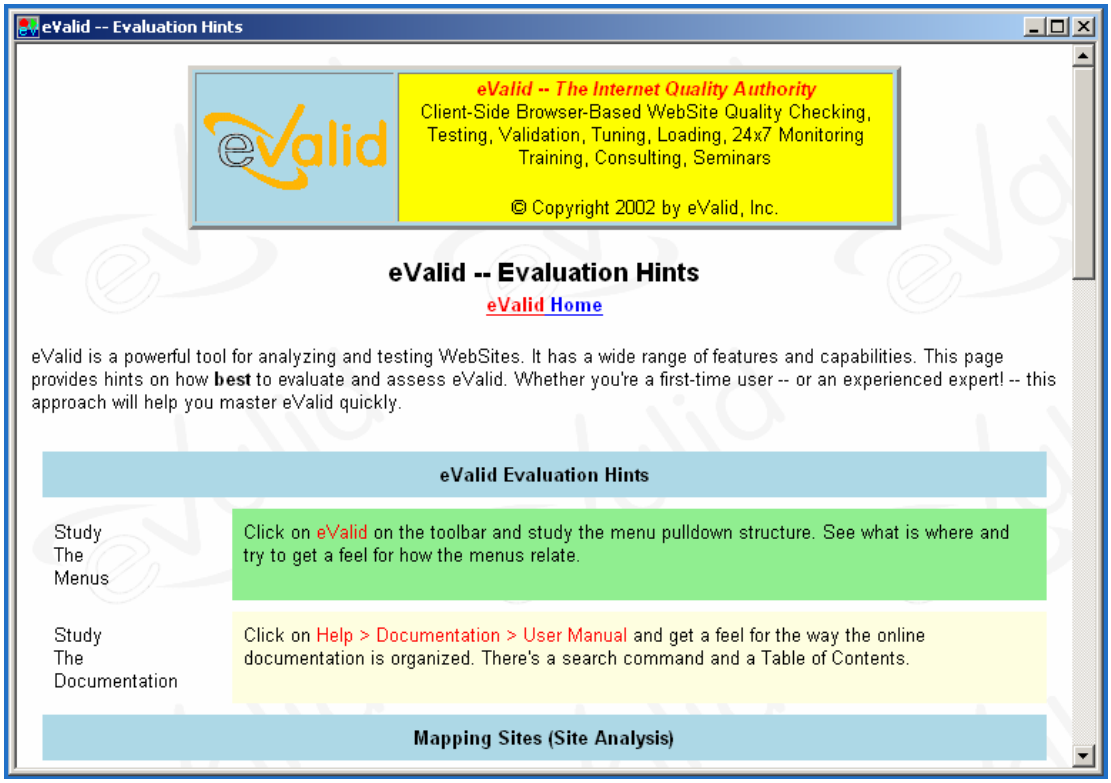
The (extensive) documentation includes all of the following:

1. features of the current version,
2. upwards/downwards compatibility,
3. sample reports generated,

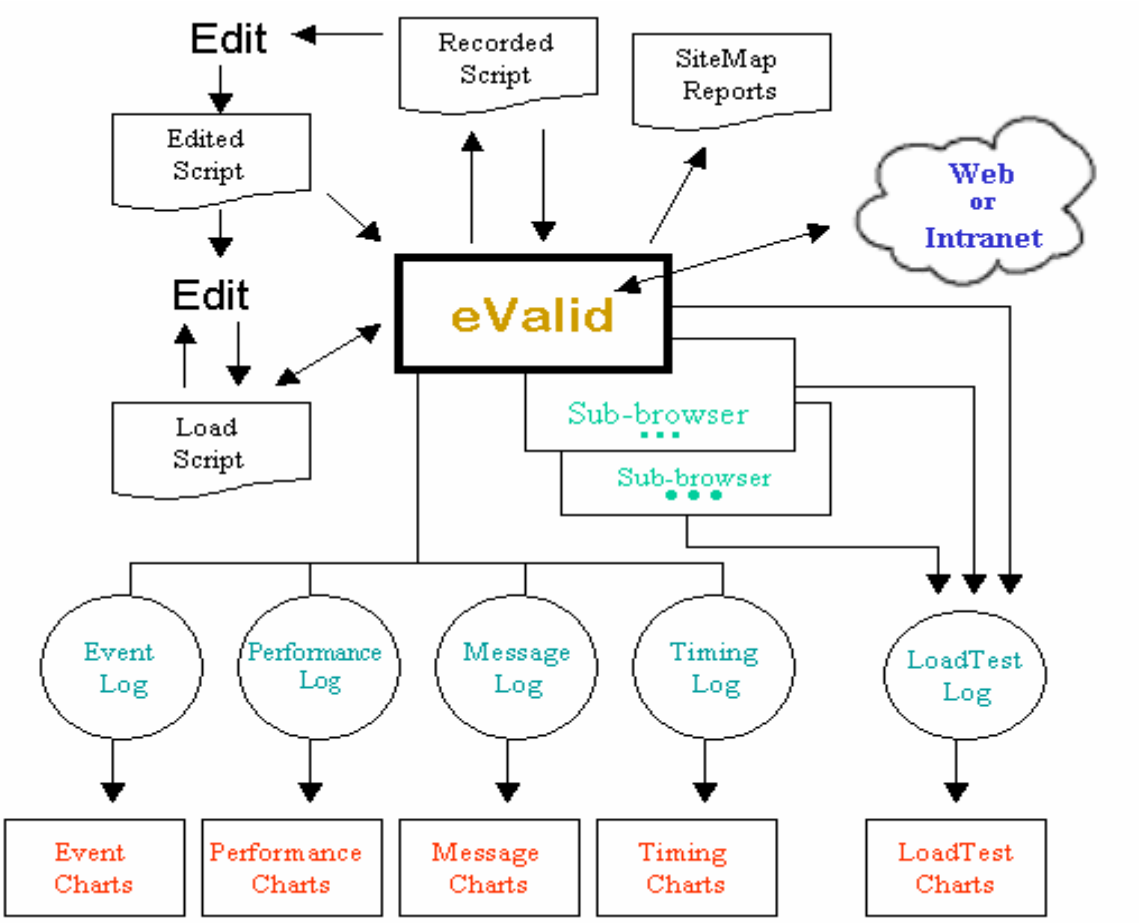
The documentation is arranged in a separate frame, as a tree structure that can be browsed as will. As much information as it does contain, accessing and comprehending it is extremely organized.

Also, as stated earlier, the various links also offer useful test ideas – both for the newcomer and the more experienced tester.


eValid -- Browser-Based WebSite Quality Testing/Tuning/Loading/Analysis System
File View Go Favorites Tools eValid Help
About Alt+1
System Information Alt+2
License Info Alt+3
Documentation
E-mail Tech Support
User Manual
Tutorials
QuickStart
Hints
FAQs
Incident
License
eValid Home
Address http://www.soft.com/eValid/
eValid -- Browser-Based WebSite Quality Testing/Tuning/
New Script
New Load Test
Open Script
Open Load Test
Record Mode
Playback Mode
Site Analysis Mode
View
Settings
Display Page Metrics
Send Script to eValid Inc. F10
Select the actual eValid menu item from the browser tool bar
eValid Ver. 3.2
EVAL VERSION
Windows
NT/2000/XP, IE 5.5+
Product Summary
Popup: How to Use eValid
Self-playing Demos
Popup: Getting Started
Comprehensive QuickStart
Popup: Evaluation Hints
Product Pricing & Availability
Fine Print
First Timers
eValid HOME
GUI Tour


eValid -- Evaluation Hints
eValid -- The Internet Quality Authority
Client-Side Browser-Based WebSite Quality Checking, Testing, Validation, Tuning, Loading, 24x7 Monitoring
Training, Consulting, Seminars
© Copyright 2002 by eValid, Inc.
eValid -- Evaluation Hints
eValid Home
eValid is a powerful tool for analyzing and testing WebSites. It has a wide range of features and capabilities. This page provides hints on how best to evaluate and assess eValid. Whether you're a first-time user -- or an experienced expert! -- this approach will help you master eValid quickly.
eValid Evaluation Hints
Study The Menus
Click on eValid on the toolbar and study the menu pulldown structure. See what is where and try to get a feel for how the menus relate.
Study The Documentation
Click on Help > Documentation > User Manual and get a feel for the way the online documentation is organized. There's a search command and a Table of Contents.
Mapping Sites (Site Analysis)

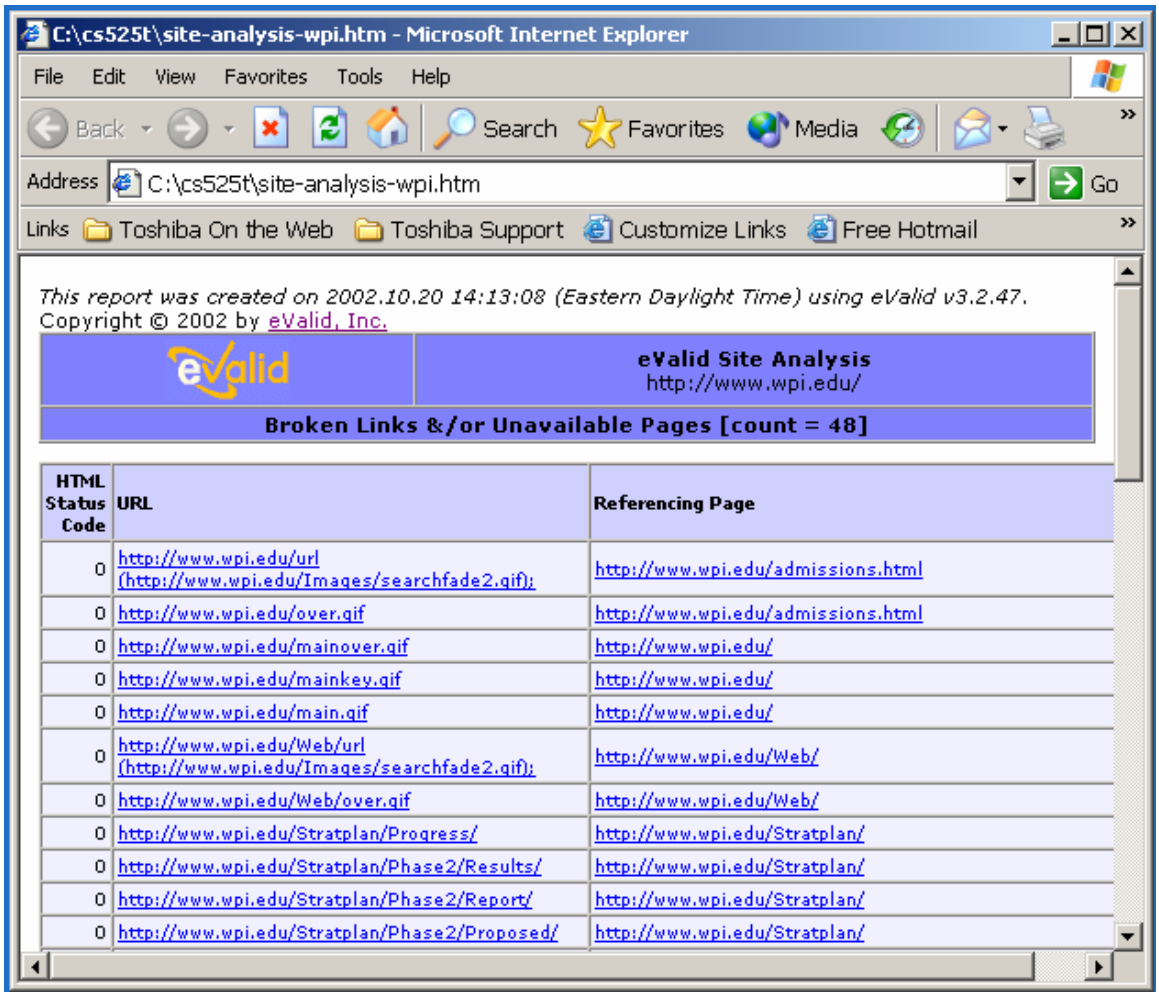
In addition, as can be seen from the screen showing the structure of eValid, making and editing your own script files to run various tests and saving them is easy too.
Also, any of the test files can be depicted as charts for presentation purposes and as spreadsheets for other analysis.



Our Findings:

As stated, we evaluated the WPI website. Here's what we found:

The entire website was explored to check for links to watch out for. This process can actually be replicated with similar analysis for a use-case; a user can bring up the initial page and then create navigation/performance/analysis files and charts/logs for each use case. Thus, if a user were to explore the "admissions" section of the website, he would create a separate group for his results there, and another group for his testing on the "human resources" webpage and so on.

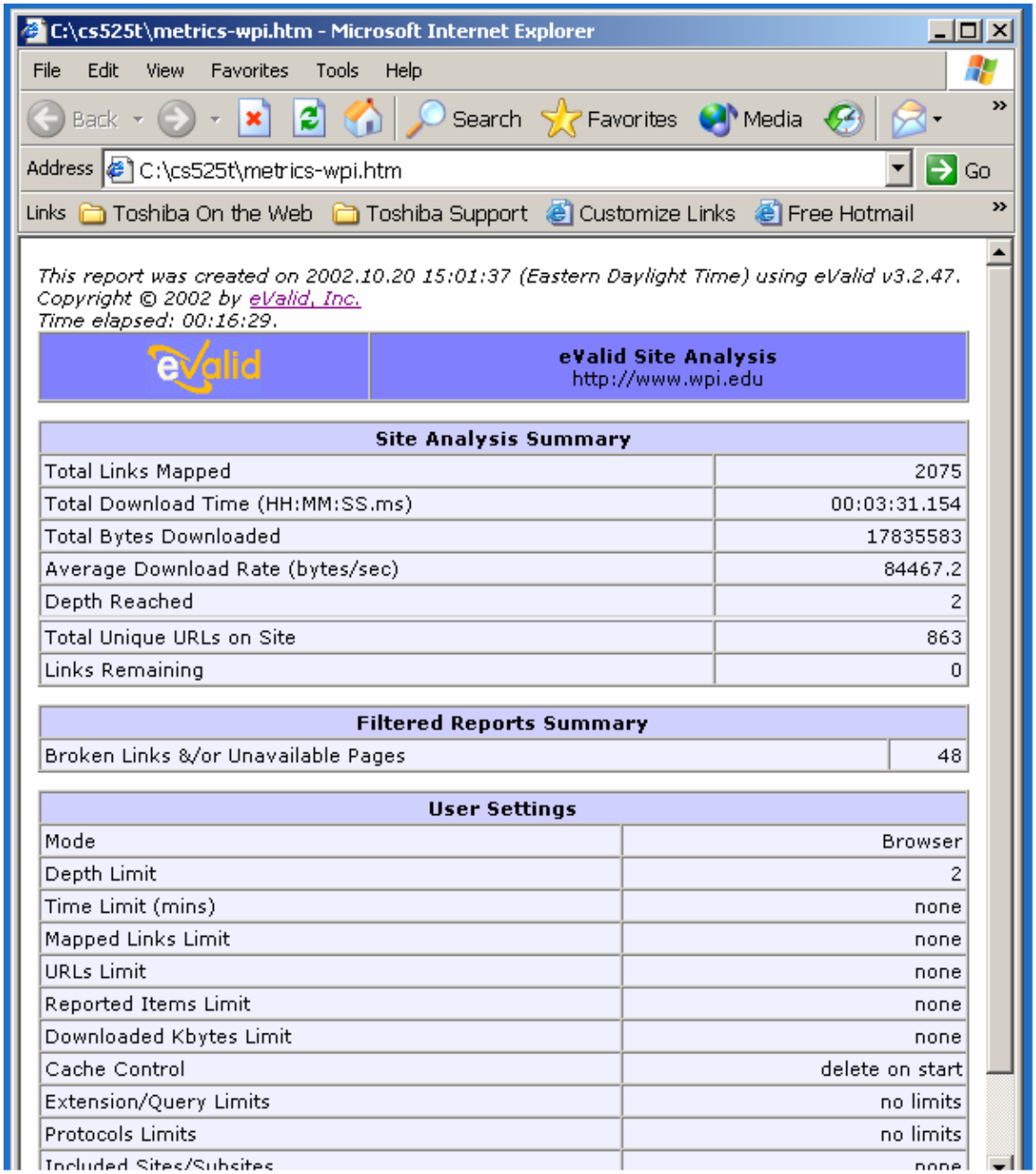


HTML Status Code	URL	Referencing Page
0	http://www.wpi.edu/url (http://www.wpi.edu/Images/searchfade2.gif);	http://www.wpi.edu/admissions.html
0	http://www.wpi.edu/over.gif	http://www.wpi.edu/admissions.html
0	http://www.wpi.edu/mainover.gif	http://www.wpi.edu/
0	http://www.wpi.edu/mainkey.gif	http://www.wpi.edu/
0	http://www.wpi.edu/main.gif	http://www.wpi.edu/
0	http://www.wpi.edu/Web/url (http://www.wpi.edu/Images/searchfade2.gif);	http://www.wpi.edu/Web/
0	http://www.wpi.edu/Web/over.gif	http://www.wpi.edu/Web/
0	http://www.wpi.edu/Stratplan/Progress/	http://www.wpi.edu/Stratplan/
0	http://www.wpi.edu/Stratplan/Phase2/Results/	http://www.wpi.edu/Stratplan/
0	http://www.wpi.edu/Stratplan/Phase2/Report/	http://www.wpi.edu/Stratplan/
0	http://www.wpi.edu/Stratplan/Phase2/Proposed/	http://www.wpi.edu/Stratplan/

again, note that for each missing link, potentially affected pages are also shown. Thus, criticality of the missing link can be decided; if the next page is not too important, then fixing the link can be left to a later time.

Each such page, in addition to the specified lists, also comes time/date/version stamped. This becomes important when we set time-critical tests, so we can ensure that a given test was indeed carried out or initiated at the time we wanted.

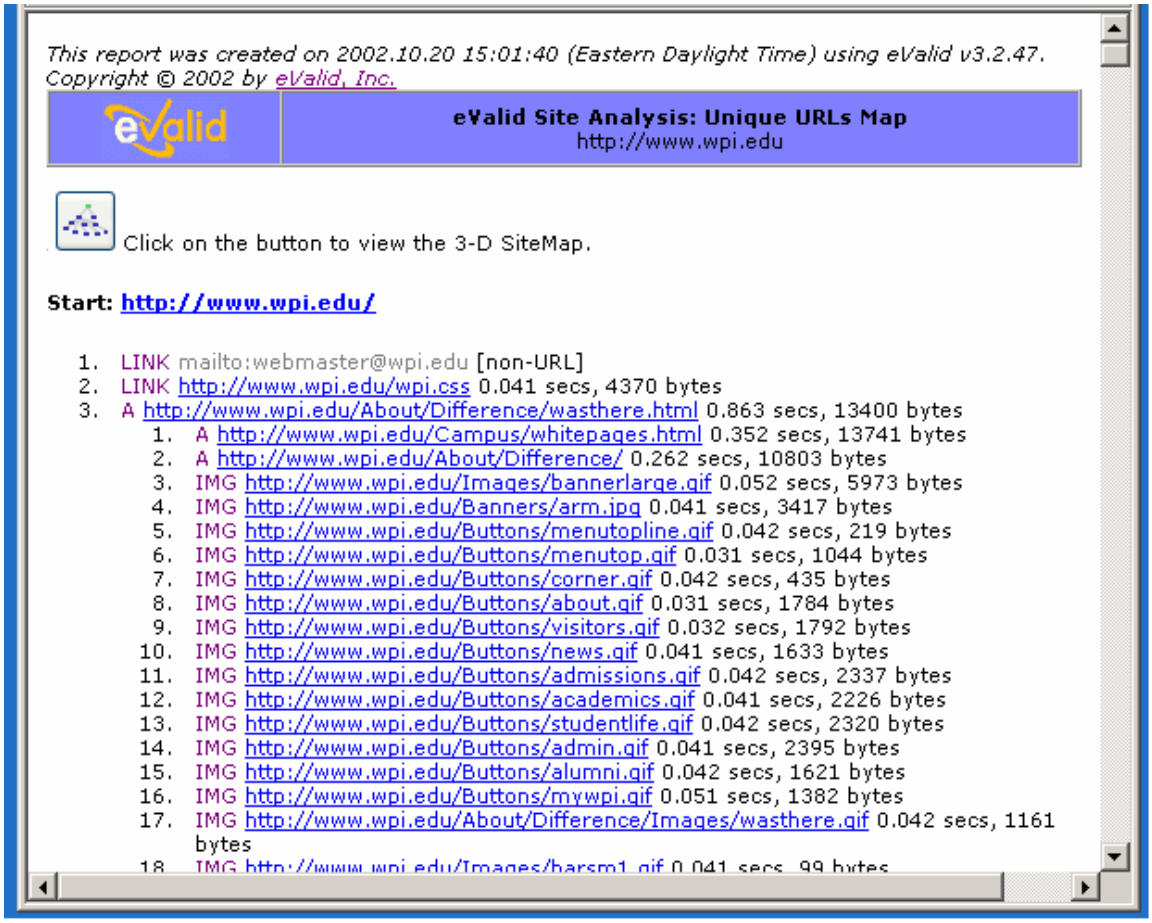
As a note, this particular test was done to just create a site map. The user need not do this for the whole site. Starting from any initial webpage, he can start an exploration, and start recording at that point. This he can then playback, to review findings along the way.



Next, we sought out various properties of our selected website. As can be seen, this is total information at a glance. It provides a good starting point for figuring out how much time testing will potentially take; this can be judged from the number of missing/broken links v/s the total number of links on the site.

And finally, this is a summary page for all the webpages visited during the exploration. It lists the size of the page, and the time it took to load up the page. In addition, it specifies whether the given object is an html link or a gif file or an off-site page, and even a script that was run, when the page was visited.

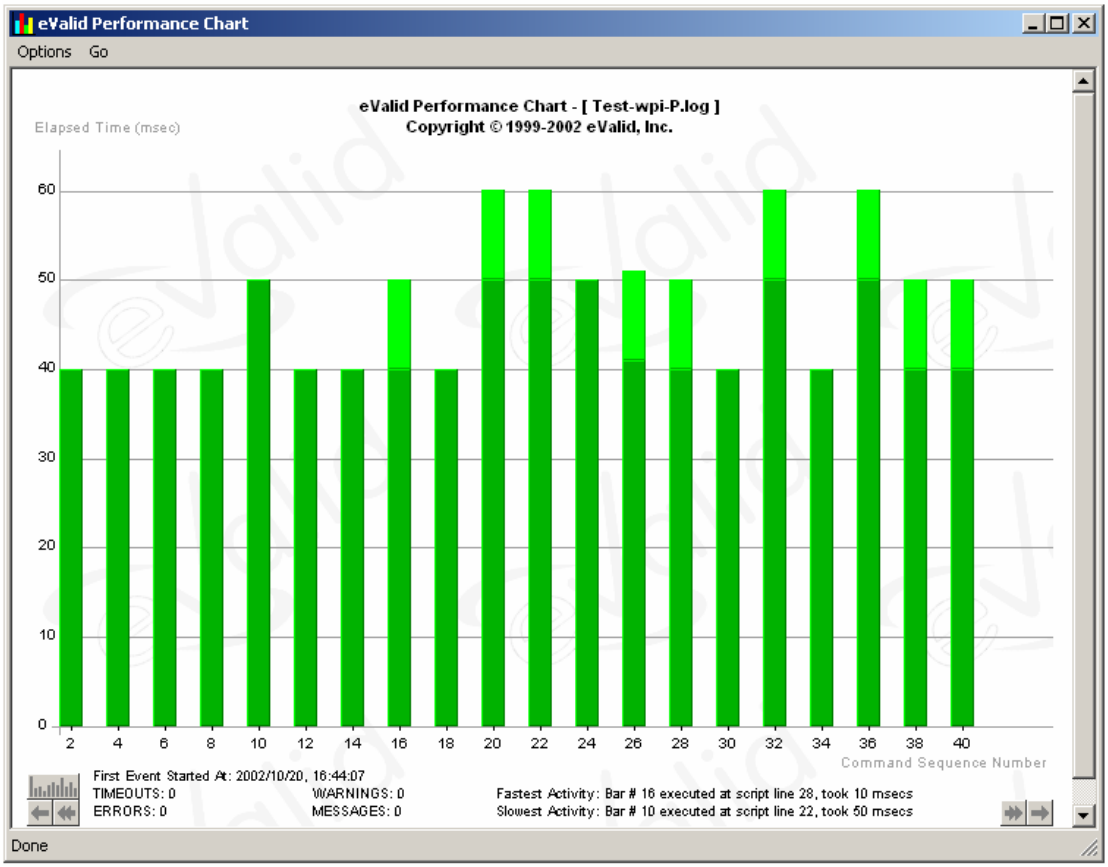
All this can add up to useful information in performance analysis of a website.



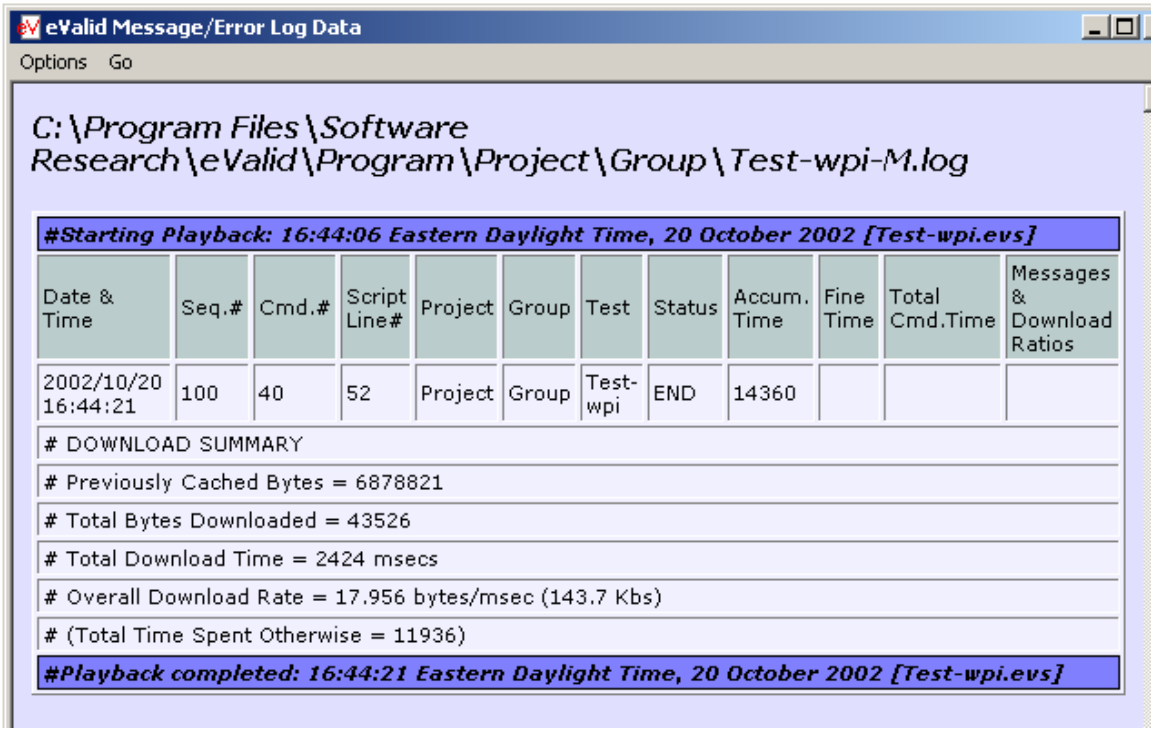
A 3-D view of the tree-link structure of the site is also available.

Given that different pages might load up faster or slower depending on load, the tool provides average time analysis of a given webpage. It can display graphically how long it took for various pages to load up, compared to various other pages. Also, it can break down each such “bar” on the graph element-wise, which will help pinpoint not only what pages will slow you down, but also what on those specific pages is responsible (eg., images, scripts running, etc).

In addition, it displays at the end the option to select what sort of data you wish to view about a given playback from a test. It also allows you to choose to view different types of logs as charts, html tables, log dialogs or spreadsheets.


eValid Performance Chart
Options Go
eValid Performance Chart - [Test-wpi-P.log]
Copyright © 1999-2002 eValid, Inc.
Elapsed Time (msec)
60
50
40
30
20
10
0
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
Command Sequence Number
First Event Started At: 2002/10/20, 16:44:07
TIMEOUTS: 0
ERRORS: 0
WARNINGS: 0
MESSAGES: 0
Fastest Activity: Bar # 16 executed at script line 28, took 10 msecs
Slowest Activity: Bar # 10 executed at script line 22, took 50 msecs
Done

i


eValid Message/Error Log Data
Options Go
C:\Program Files\Software Research\eValid\Program\Project\Group\Test-wpi-M.log
#Starting Playback: 16:44:06 Eastern Daylight Time, 20 October 2002 [Test-wpi.evs]
Date & Time | Seq.# | Cmd.# | Script Line# | Project | Group | Test | Status | Accum. Time | Fine Time | Total Cmd.Time | Messages & Download Ratios
2002/10/20 16:44:21 | 100 | 40 | 52 | Project | Group | Test-wpi | END | 14360
DOWNLOAD SUMMARY
Previously Cached Bytes = 6878821
Total Bytes Downloaded = 43526
Total Download Time = 2424 msecs
Overall Download Rate = 17.956 bytes/msec (143.7 Kbs)
(Total Time Spent Otherwise = 11936)
#Playback completed: 16:44:21 Eastern Daylight Time, 20 October 2002 [Test-wpi.evs]

The following is a sample script file generated during a playback from a test:

```
#
# Recording by eValid v3.2.47, Build Date: (Sep 12 2002)
# (c) Copyright 2002 by eValid, Inc.
# Recording made on: Microsoft Windows XP (IE 6.0.2600.0000), HostName
"PranavLaptop"
# Recording started at: <2002/10/20 16:42:38>
#

ProjectID "Project"
GroupID "Group"
TestID "Test-wpi"
LogID "AUTO"

ScreenSize 1024 768
InitLink "http://www.wpi.edu/"
Wait 3105
FollowLink 67 "" "http://www.wpi.edu/Admin/" ""
Wait 2974
FollowLink 133 "Academic Resources Center" "http://www.wpi.edu/Admin/ARC/" ""
Wait 2714
FollowLink 71 "" "http://www.wpi.edu/Admin/" ""
Wait 2113
FollowLink 153 "Financial Aid" "http://www.wpi.edu/Admin/FA/" ""
Wait 2764
FollowLink 37 "" "http://www.wpi.edu/Admin/FA/g.html?g" ""
Wait 4647
FollowLink 54 "" "http://www.wpi.edu/Admin/FA/Figure/?g" ""
Wait 3004
FollowLink 118 "" "http://www.wpi.edu/" ""
Wait 2604
FollowLink 64 "" "http://www.wpi.edu/Campus/" ""
Wait 3925
FollowLink 138 "Reserve Officers Training Corps"
"http://www.wpi.edu/Campus/rotc.html" ""
Wait 9354
FollowLink 144 "" "http://www.wpi.edu/" ""
Wait 2543
FollowLink 58 "" "http://www.wpi.edu/admissions.html" ""
Wait 1943
FollowLink 121 "Summer Programs" "http://www.wpi.edu/Academics/Summer/" ""
Wait 2193
FollowLink 30 "" "http://www.wpi.edu/Academics/" ""
Wait 2744
FollowLink 67 "" "http://www.wpi.edu/alumni.html" ""
Wait 2634
FollowLink 118 "WPI's Corporate and Foundation Relations Office"
"http://www.wpi.edu/Admin/UR/Corporate/" ""
Wait 2003
FollowLink 23 "Meeting the Human Resource & Technology Needs of Corporations"
"http://www.wpi.edu/Admin/UR/Corporate/hrneeds.html" ""
Wait 2423
FollowLink 29 "Search Completed Projects"
"http://www.wpi.edu/Academics/Projects/projects.html" ""
Wait 1643
FollowLink 32 "Requesting IQP and MQP Reports"
"http://www.wpi.edu/Academics/Projects/report-request.html" ""
Wait 1752
FollowLink 21 "" "http://www.wpi.edu/Academics/Projects/projects.html" ""

# Recording stopped at: <2002/10/20 16:43:38>
```

As can be seen, it is easy enough to replicate into custom files, made by the tester.

Recommendations

We would definitely recommend this product. Apart from the fact that it is not high-priced, we want to point out that for the price, the buyer gets excellent value-for-money. Learning any version would not take more than a week, even maybe (for the more experienced testers) to master. Newcomers to the game will love how much it gives them to start working with, what to watch out for and what sort of tests to simulate. There is about a ton of information even to start testing immediately or do exploratory analysis.

For the time/money investment, we're sure it will return extremely good performance. In addition, it is not a slow running tool. It does not take forever to generate reports and log files and since graphs and logs can be saved, the tester/s save time on reproducing their findings with additional packages.

We found that one of the most attractive features of this tool is easy to browse/read documentation. Since most test results can be viewed in a variety of ways, feedback for different aspects is easy and quick. Thus, changes can be made and tested for immediately.

All in all, a must-have for anyone who wants to win "Best Featured Website" awards in all categories.