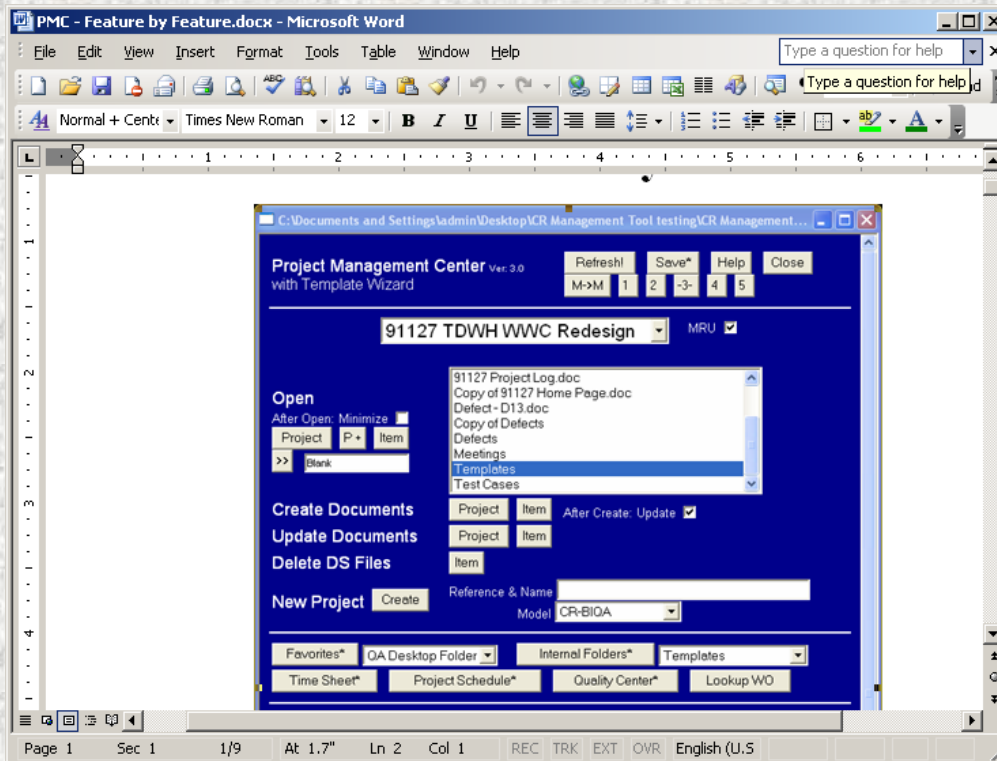


# Opportunities for Programming Day-to-Day Tasks in the Working Life of the Analyst

Presenter: Richard Levine



TASSQ

[www.tassq.org](http://www.tassq.org)

(Toronto Association of  
Systems & Software Quality)

Monthly Meeting

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# Presenter Background

- ***Richard Levine*, President RML Consulting Services Inc.**
- ***Richard Levine* earned his Master's Degree in Mathematics from York University, and M. Sc. in Computer Science from University of Toronto. He worked for more than a decade with Xerox Canada, first with the Quality Assurance Group and then as Senior Business Analyst. Since then he has provided technical and consulting services in quality assurance, testing, business analysis and process improvement to companies including Bell Canada, Telus, Red Celsius, Globe Interactive, Honda Financial, Iverson Software, Kodak, KPMG, Ontario Government Ministries, Reuters and TD Canada Trust. He has special interests in software development tools and software ergonomics (study of user-friendly systems). He has taught at Atkinson College and Glendon College, and given seminars in Sunnyvale CA, New Haven CT, Toronto, Ottawa, and Helsinki (Finland). He lives in Toronto with his family.**
- **Contact the presenter at [Rlevine \(atsign\) eol \(dot\) ca](mailto:Rlevine@at-sign-eol.ca) or through LinkedIn at <http://ca.linkedin.com/in/rlevine>**

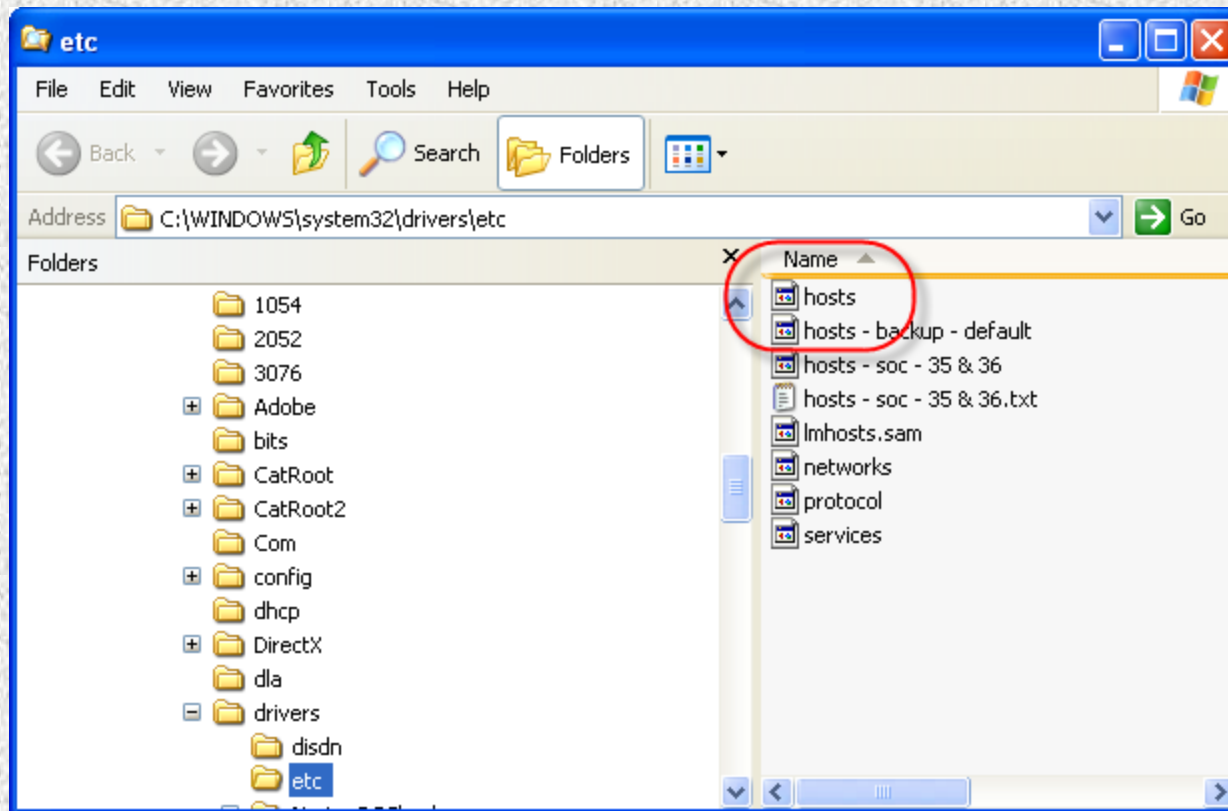
# Opportunities for Programming Day-to-Day Tasks in the Working Life of the Analyst

- Opportunities - You don't have to do the programming
- Programming - macros, scripting, programming, systems thinking
- Day-to-Day Tasks, Working Life - "administrivia"
- Analyst - Business (Systems) Analyst, Quality Assurance Analyst, Tester

# Overview

- Six Examples
  - Document creation and access
- Methodology
- Benefits
- Acceptors
- Resistors
- Discussion

# Change Host File - Context



# Change Host File - Context

- Task with a lot of steps [show this]
- Testers in our QA group change host file (during Internet testers) lots of times a day (10) with different files
- Several times in the middle of the night (deployment testing)
- Lots of times in the middle of the night (trouble-shooting)

# Change Host File - Opportunity?

"There's no problem"

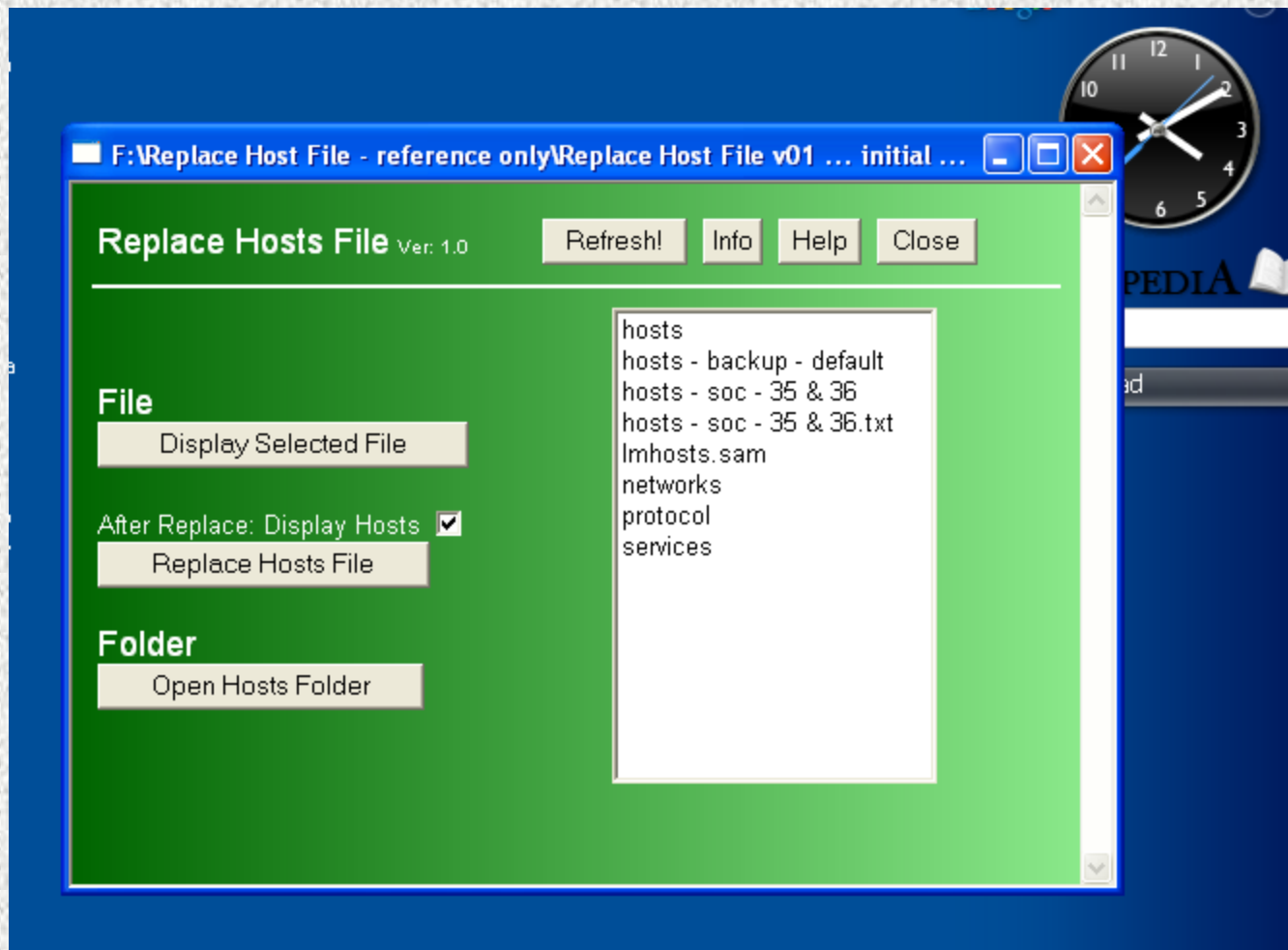
(However)

- Observed training issues
- Observed comments - "This is a pain"
- Observed loss of time getting to the right environment
- \*\* Observed silence during deployment testing, or complaints about difficulties

# Change Host File - Proposals?

- Document the procedure
- (or)
- Create an "app" to change host file

# Change Host File - Demo



# Change Host File - Notes

- There were apps, they just didn't work or weren't documented, couldn't be made to work
- There was no "useable" methodology - I ended up making some Batch Files
- Later I learned about HTML Applications (available since 1995)
- Some QA groups do not need to change host files so often (but still on deployment)
- Time and effort to develop than the same time and effort saved "on the job"

# Data Format Manipulation I- Context

- Project X - Need to compute MICR Line (on cheque - Magnetic Ink Character Recognition) (Test Data) for about 100 records
- Need to mask account numbers (substitute last 2 digits with 99)
- Need to send the data to a third-party

# Data Format Manipulation I- Context

**\$**      **#**      **Account / transit**      **MICR Line**

106.44	100000006	09555-004 0337	100000006 09555-004 0399 0000010644
107.44	100000007	90666-004 9148	100000007 90666-004 9199 0000010744
109.66	100000009	026077744 1020-0744756	100000009 026077744 1020-7447599 0000010966

- MICR Line = cheque #, Account / transit, \$

# Data Format Manipulation I- - Opportunity?

- We do it
  - Better to give the exact desired result to the third-party provider (less chance of error, misunderstanding)
- (or)
- They do it
  - The 3<sup>rd</sup>-party provider has the responsibility to format the data

# Data Format Manipulation I- Proposals?

- We do it
  - Use keyboard (manual)
  - \*\* Use "automation" (Excel macro, VBA - Visual Basic for Applications)
- (or)
- They do it

# Data Format Manipulation I- Solution

- We did it
  - VBA Program
- About 15 lines (*it was worth the effort and paid off in quality, no complaints from third-party provide - our "downstream client", we ended up having to compute several data sets, at the last minute - all much quicker and more accurately than doing it via keyboard operations*)

# Data Format Manipulation

## II- Context

- Requirement to transform about 250 files of regular plain text to text in XML format (for an automotive web site)

Brand X

The best car in the world

Weight 2000 lbs

Height 2 feet

Motor 6 cylinder

```
<title>Brand X</title>
```

```
<Intro>The best car in the world</intro>
```

```
<weight>2000 lbs</weight>
```

```
<height> 2 feet</height>
```

```
<motor>6 cylinder</motor>
```

# Data Format Manipulation

## II- Context

- Requirements:
  - Meet schedule to deliver result
  - Accurate mark-up
  - [possibility of changing mark-up requirements]
- Year: 2000 [think of programming technologies available at that time]

# Data Format Manipulation II- Proposals?

- Cut and paste via keyboard (3 people, several weeks) [estimated time]
- (or)
- Use a program (off the shelf, or specially-written)

# Data Format Manipulation II- Solution

- I wrote a specially-written program
- Functional Spec: Wrote a "simple" parser, process all files, review automatically for errors
- Technical spec: Written in APL programming language

# Data Format Manipulation II- Discussion

- (Year 2000)
- Problem given to QA team (-> BSA challenge)
- Company had lots of talented Java, JavaScript programmers [ but no-one "volunteered" ]
- Lack of experience / interest in this sort of challenge (text manipulation)
- Now more choice of tools

# Systems Thinking I - Project Reference Number - Context

- QA Team works with many (small) projects at one time
- Lots of email arrives with arbitrary headings (what project is it?)
- Project references are inconsistent (what project are we talking about?)

# Systems Thinking I - Project Reference Number - Opportunity?

- There's no problem. That's the way it is
- (or)
- Opportunity to
  - Reduce confusion
  - Identify and categorize items faster

# Systems Thinking I - Project Reference Number - Proposal

- Use the reference number from work order system (or standard project name)
- Encourage others to use reference number
- Set up an Outlook rule ("programming") to route emails into the appropriate Inbox folder
  
- People reply using the previous email
- A reference number usually already exists
- Can use more than one reference or name in an Outlook rule
- Exceptions don't break the system - Any email not using this can be manually handled
- Encourages use of work order system & QC (reduce email)

# Systems Thinking I - Project Reference Number - Results

- With some success I promoted this technique at a major telecom company
  - Success Factors
    - I was in a position to do this, as QA Team Lead
    - I was established there
    - Small QA team
    - Extremely useful technique for me (:>)
    - Well-used interface to Work Order System
    - [conversely] "Richard is so ..."

[... and in another situation...]

# Systems Thinking II - Host On Demand - Context

- Project X - Some very repetitious and long sequences of mainframe commands to get to the screens we are testing
- What is HOD? 3270 terminal emulator to access mainframe from workstation
- HOD has a very powerful "macro processor"
- Isn't commonly used in the QA / BA circles in current organization

# Systems Thinking II - Host On Demand - Opportunities / Proposals?

- Reduce the effort to key in the mainframe commands required to get to the screens being tested
- Use the "macro recorder" to produce small "scripts" containing command sequences

# Systems Thinking II - Host On Demand - Results

- I used the macro recorder
- It's saving me tons of time and making me more effective

# Systems Thinking II - Host On Demand - Discussion

- Use of "scripts" requires some "programming" techniques / thinking
- Business System Analysts showed interest - Not aware or are hesitant to use it (Procedure too technical) - some programming training is required, manual is very large
- Developers - We don't need it. We don't like to be shielded from the "real commands" - we'll forget them (-- different role)
- The few macros I used had errors, caused errors, didn't work, from time to time
- Decided to keep quiet about using it

# More complex tasks

- Opportunities for proposing and using "real" applications
- Using - Requires NO programming background, has "real" payoff
- Creating - Requires some programming background /interest

# Access to Tools - Context

- Analysts, testers need access to basic tools
  - Time Reporting System
  - Work order system
  - Quality Center
  - Collections of templates
  - Sharepoint (and specific libraries)
  - Testing environments (or home page for ...)
  - \*Team Orientation Guide
- Browser favourites - Not so convenient to depend on when browser is used for testing, or is the object of testing

# Access to Tools - Opportunity?

- "There's no problem"
- (or)
- Opportunity to ...
  - Improve ease of access
  - Increase the awareness of available tools
  - Provide more effective training to QA group

# Access to Tools - Proposal

- Provide to each analyst / tester a "dashboard" containing links to tools of interest

# Access to Tools - Demo



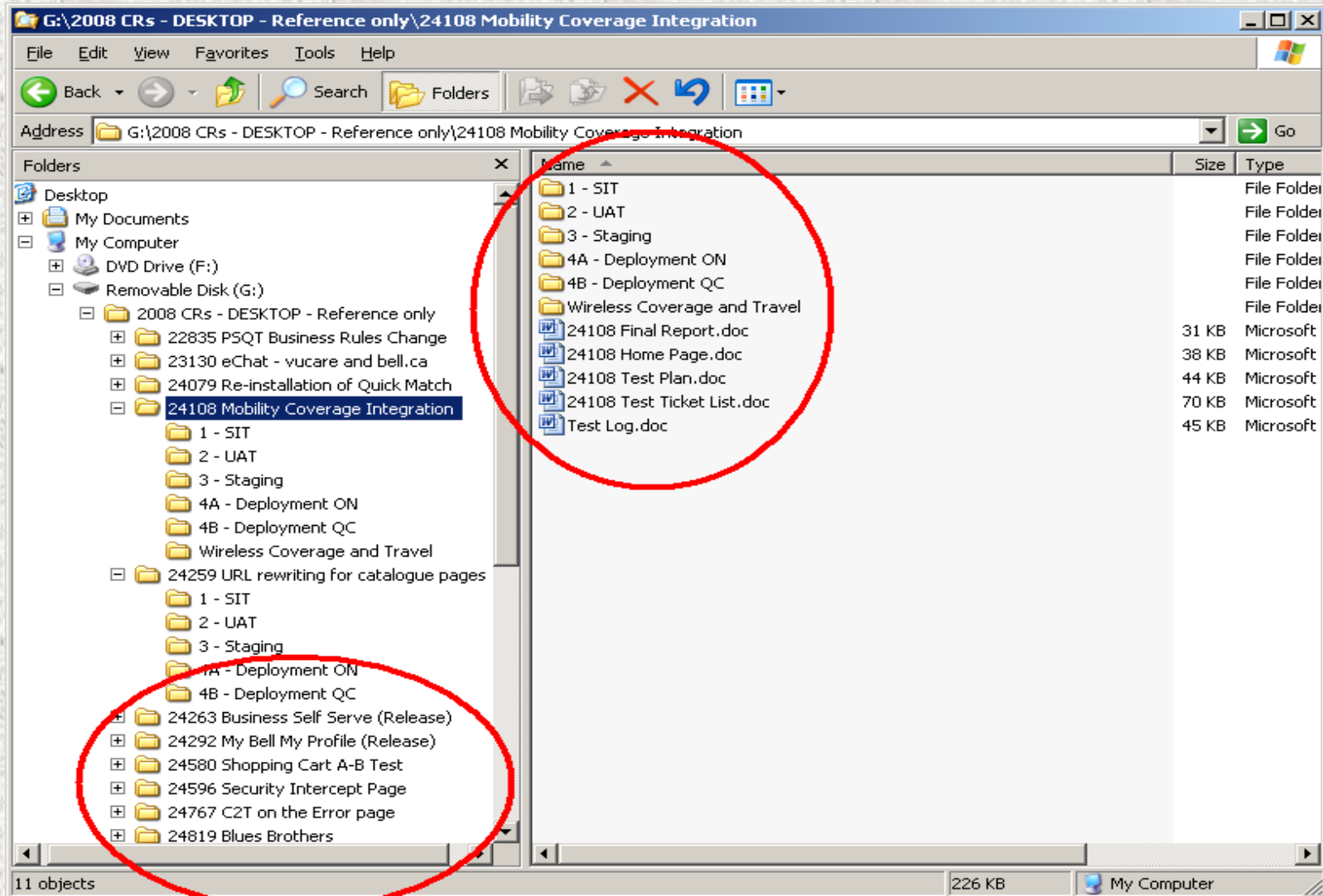
# Access to Tools - Comments

- If you are happy with status quo, don't change.
- If not, and you don't like dashboards, ...
- Very good programming tools exist for those who want to try different approaches.

## **\*\* Access to Projects -** **Context**

- QA Team works with many projects at a time
- We create and /or keep our projects documentation in folders (on desktop, in shared library)
- We encourage the use of templates for plans, test cases, etc.

# Access to Projects - Context



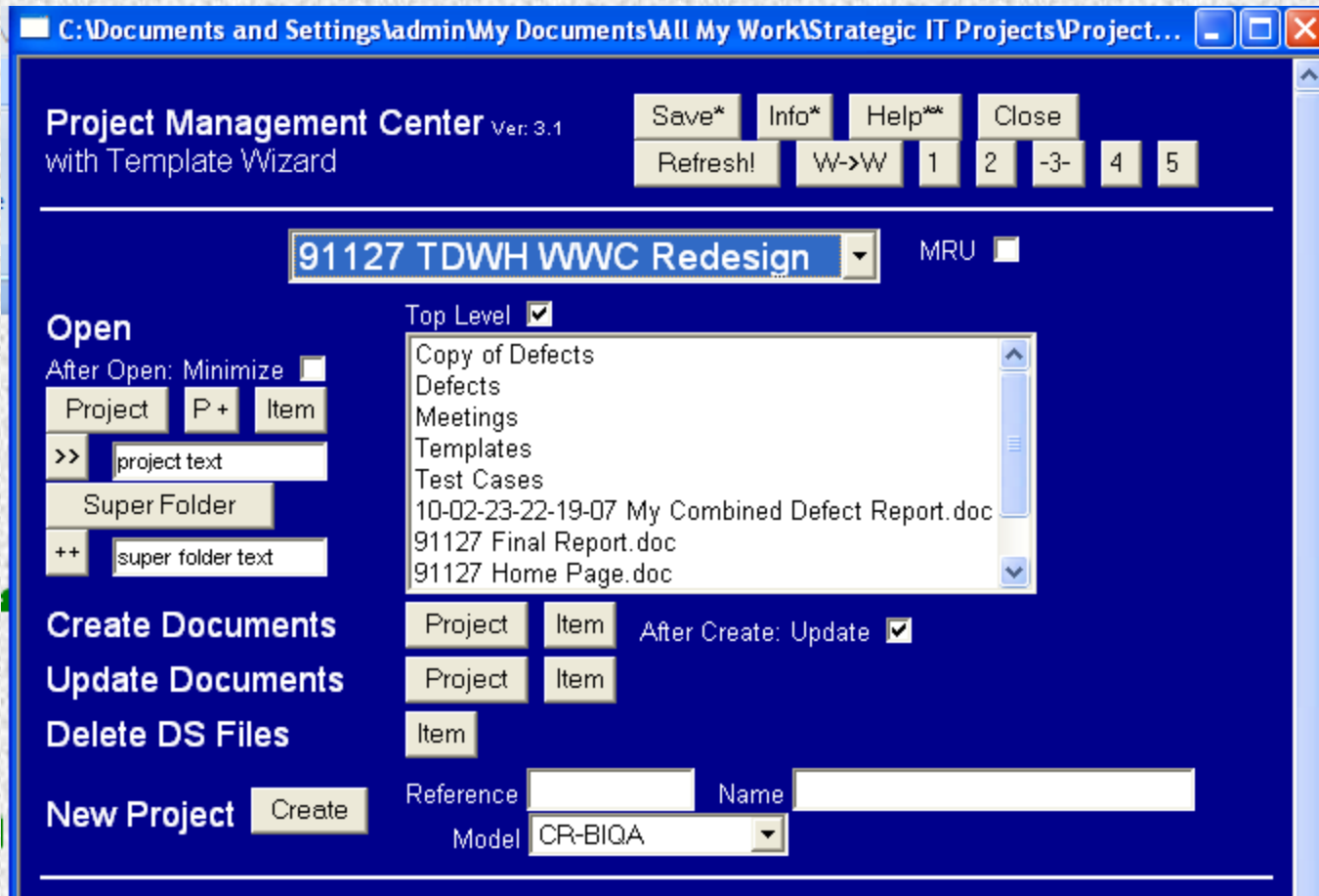
# Access to Projects - Opportunity?

- Opportunity to
  - Reduce time / effort to create project folders
  - Reduce the time / effort to access the project folders
  - Reduce the time / effort to copy & customize templates (e.g. test plan)
  - Increase the quality of our documentation

# Access to Projects - Proposal

- Provide application to
  - Create project folder with desired structure and documents
  - Provides ability to access folders quickly, on demand
  - Add value with a few useful "frills" (e.g. links) that would otherwise be impractical

# Access to Projects - Demo



# Access to Projects - Results

- Successful use (personal and in team)

# \*\* Create Forms and Reports

## - Context

- We make and use forms (templates) to create defect reports
- We file the (defect) reports in Quality Center
- Or
- Quality Center not available - We file the reports in a folder, create a summary, create a combined report
- It is tedious / slow to create these documents (in all my experience)

# Create Forms and Reports - Opportunity?

- Provide ability to create forms which is faster and more accurate and takes less effort

# Create Forms and Reports - Proposal

- Provide an application (software tool) which does this

# Create Forms and Reports

Test Case ID  Defect ID

Before Create:  No action  Stop at DS file  Stop at template  Show message

After Create:  No action  Open folder  Open document  Show message / Minimize

DS File:  P  A  S  Pick Text

Form  [Folder / Top Level] (DS File) All Projects

Summary Report  [Folder] (DS File) (Pick Text)

Combined Report  [Folder] (DS File) (Pick Text) Filter  ?

Project Summary Report  Super Folder (DS File) (Pick Text)

# Create Forms and Reports

- Defect Form

## Defect - M01.doc

DEFECT #	Summary	SEVERITY	STATUS	COMMENTS
M01	(OOS) PRODUCTION / TEST - 'back' button does not return you to the 'search results' (IE6, IE7, IE8)	3	1 - Open - analysis	- Needs further investigation before attempting fix

### Comment

R. Smith | 5 Jan 2010 - back button issue in IE, I am not sure if a fix is possible as this is a browser bug that occurs due to IE occasionally dropping the referrer tag, needs further investigation.

"Backspace key" seems to work correctly.

OS / Browser : XP - IE7.0 - FRENCH

Script #:

URL / Input: <http://www.w6.dev.tdcanadatrust.com/search/index.jsp>

**Expected:** Once you make a selection from the Search List, if you press the 'back' button you should be returned to the search list

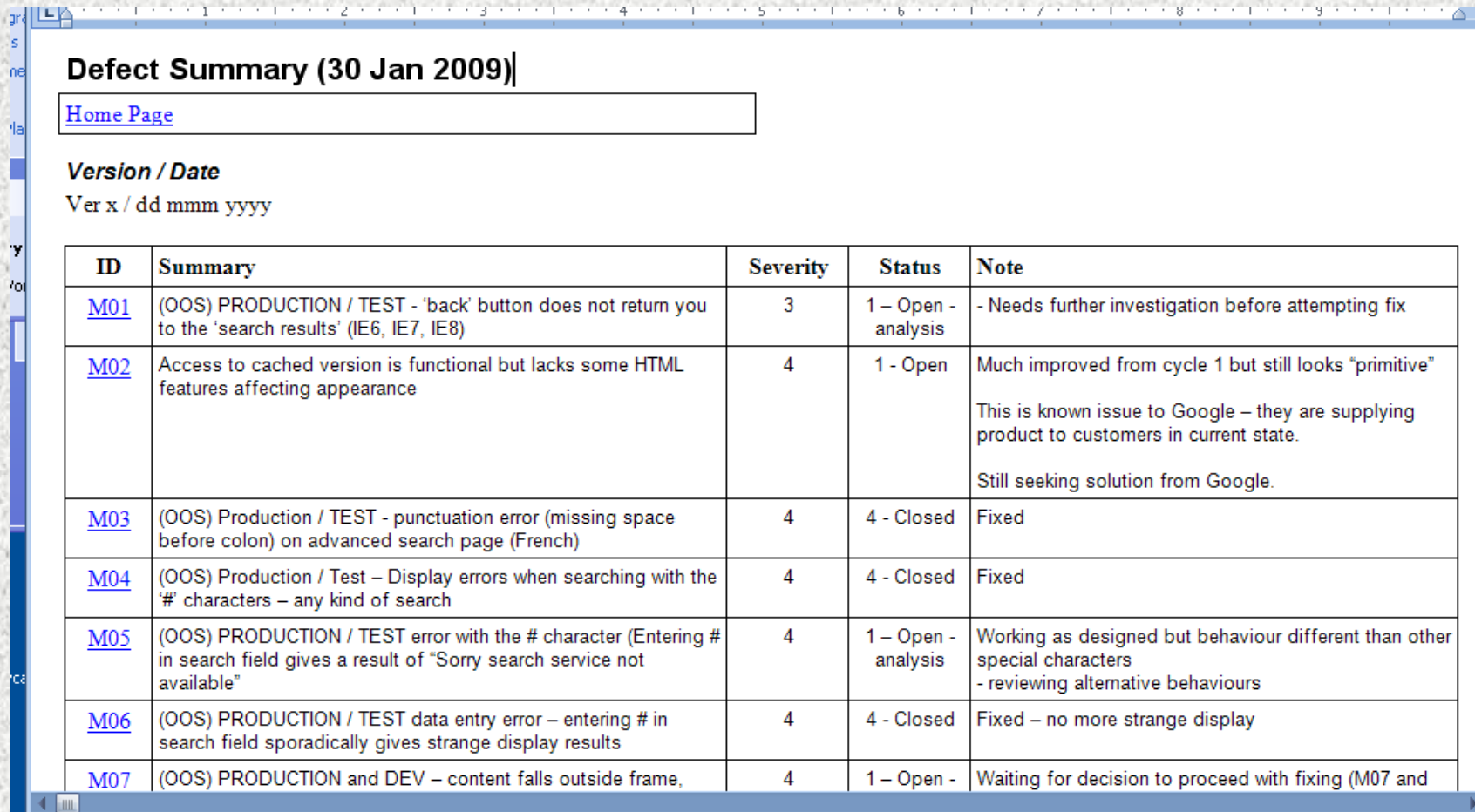
**Actual:** if you press the 'back' button you are returned to the 'search' home page, not the search list

Note - Pressing "backspace" works as desired: return's you to the search list.

**Description / Screen Captures:**

# Create Forms and Reports

- Summary Report



**Defect Summary (30 Jan 2009)**

[Home Page](#)

**Version / Date**  
Ver x / dd mmm yyyy

ID	Summary	Severity	Status	Note
<a href="#">M01</a>	(OOS) PRODUCTION / TEST - 'back' button does not return you to the 'search results' (IE6, IE7, IE8)	3	1 - Open - analysis	- Needs further investigation before attempting fix
<a href="#">M02</a>	Access to cached version is functional but lacks some HTML features affecting appearance	4	1 - Open	Much improved from cycle 1 but still looks "primitive" This is known issue to Google - they are supplying product to customers in current state. Still seeking solution from Google.
<a href="#">M03</a>	(OOS) Production / TEST - punctuation error (missing space before colon) on advanced search page (French)	4	4 - Closed	Fixed
<a href="#">M04</a>	(OOS) Production / Test - Display errors when searching with the '#' characters - any kind of search	4	4 - Closed	Fixed
<a href="#">M05</a>	(OOS) PRODUCTION / TEST error with the # character (Entering # in search field gives a result of "Sorry search service not available")	4	1 - Open - analysis	Working as designed but behaviour different than other special characters - reviewing alternative behaviours
<a href="#">M06</a>	(OOS) PRODUCTION / TEST data entry error - entering # in search field sporadically gives strange display results	4	4 - Closed	Fixed - no more strange display
<a href="#">M07</a>	(OOS) PRODUCTION and DEV - content falls outside frame,	4	1 - Open -	Waiting for decision to proceed with fixing (M07 and

# Create Forms and Reports

- Combined Report

**Google Search Appliance Upgrade**  
**Defects - Combined Report – Cycle 1**

**Version / Date**  
Ver 1 / 22 Dec 2009

In Scope ..... 2  
Defect - M02.doc..... 2

Out of Scope ..... 4  
Defect - M01.doc..... 4  
Defect - M03.doc..... 5  
Defect - M04.doc..... 6  
Defect - M05.doc..... 9  
Defect - M06.doc..... 11  
Defect - M07.doc..... 13  
Defect - M08.doc..... 15  
Defect - M09.doc..... 17  
Defect - M10.doc..... 19  
Defect - M11.doc..... 21  
Defect - R02.doc..... 23

.....Page Break.....

**In Scope**

*Defect - M02.doc*

DEFECT #	SEVERITY	TD STATUS	VENDOR STATUS	COMMENTS
M02				

Summary (max 1 line) : Access to cached version not functional

# Other Opportunities

- (Appeal to audience to consider opportunities from their own working environment, and sharing with others)

# Programming Methods

- Good results with ...
  - HTML Applications
    - VBScript and HTML
    - For more info and references, see Wikipedia article on "HTML Application", or just google it
  - VBA - Visual Basic for Applications
- Command (Batch) Files - not powerful enough for these applications
- Jscript and HTML - also an HTML Application, but documentation harder to find
- Ruby [open source - not tried yet]
- Perl, Python, Visual Studio [not tried yet]

# Programmed in VBA

UserForm1

Project Management Center

Selection Tool Utilities Save\* Info\* Help\*\* Close A Close

Tech Tools H W-> <-W 0 1 2 3

Open  MRU

CR Management Tool - Super Folder

Select Data Set Refresh! Project P + Item

VBA Test Data

After Open: Minimize

After Open: Set documents to this size

Default  Portrait  Landscape

11111 New Project with title that goes  
22223 New project  
55555 CNW search box testing  
66666 No Documents Top Level  
91127 TDWH WWC Redesign  
99999 Empty Folder  
PROJA Project with one Defect  
Project with No ID  
PROJX with 5 Char Initial String  
01-Nov-2010 Project Report.doc  
10-02-07 Project Summary Report.doc  
10-02-21 Project Report.doc  
Project Schedule.xls

Copy of Defects  
Defects  
Meetings  
Templates  
Test Cases  
10-02-23-22-19-07 My Combined Defe  
91127 Final Report.doc  
91127 Home Page.doc  
91127 Project Log.doc  
Defect - D13.doc

Create Project Create

Create Documents Project Item  After Create: Update

Update Documents Project Item

Delete DS Files Item

Test Case ID TC16 Defect ID D02 Variable Text

Before Create:  
 No action  Stop at DS file  Stop at template  Show message

After Create:  
 No action  Open folder  Open document  Show message  Minimize

DS File: [DS] Blank Form Pick Text Home Page

P  A  S

Form OK [Item (Folder) / Top Level] (DS File)  Top Level  All Projects

Summary Report OK [Item (Folder)] (DS File) (Pick Text)

Combined Report OK [Item (Folder)] (DS File) (Pick Text) Filter All  ?

Project Summary Report OK Super Folder (DS File) (Pick Text)

# Benefits [of creating useful tools]

- Save time and effort at critical times in the testing process
- Time and effort can be directed to "real" quality assurance & testing
- Better work environment (training)
- Have access to methods that can't be done "manually"
  
- Ability to suggest programmed solutions
- Personal "fulfillment" in using a "systems" approach

# Challenges to Change

- Analysts / Testers are rational - They follow their methods for a reason
  - A particular (unstated / assumed) requirement
  - Current expertise
  - Something they have to work around
- Work processes are like spider webs (poke it somewhere, it shifts somewhere else)

# Acceptors

- We have a desire to do a quality job
- Increasing expectations and requirements for faster testing turnaround
- Available Centers of Excellence in organizations
- Increasing sophistication and availability of suitable programming resources
- Internet provides resources [Google]
- Increasing awareness of possibilities

# Resistors - I

- “Programming” is not trivial
- “Programmed” solutions hide the internals
- “Programmed” solutions introduce defects
- We can and do rely on manual methods

# Resistors - II

- We get used to the way things are done
  - Google "Levine the Genius Tailor" - Gerald Weinberg
- Management sometimes allows time for the tedious stuff and if we exceed, they expect results quicker next time.
- "It's part of the job, and I'm proud of it."
- Lack of training and support
- "We rarely get "credits" for cleaning up the mess." - (process improvement and OPA!)

# Key Points

- Paying attention to better ways of doing our daily tasks provides big payoffs
- Automation is powerful / essential tool
- A useful development tool - HTML Applications
- There's lots of opportunities out there.

# Further Reading

- Internet resources
- Related Books:
  - VBA for Modelers, S. Christian Albright
  - Excel and Access Integration, Michael Alexander, Geoffrey Clark
  - The Psychology of Computer Programming, Gerald Weinberg
  - Zen and the Art of Motorcycle Maintenance: An Inquiry into Values, Robert Pirsig
  - Everyday Scripting with Ruby (for Teams, Testers, and You), Brian Marick

# Discussion

- (*Discussion with audience followed presentation*)