VASmalltalk
7.5 and Beyond

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instantiations

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Slides available at:
http://www.instantiations.com/company/detail/smalltalk-events.html

Agenda

- Introduction
- VA Smalltalk 7.5 to 7.5.2
- Future Directions
- Stats
- Q&A

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- **Introduction**
- VA Smalltalk 7.5 to 7.5.2
- Future Directions
- Stats
- Q&A

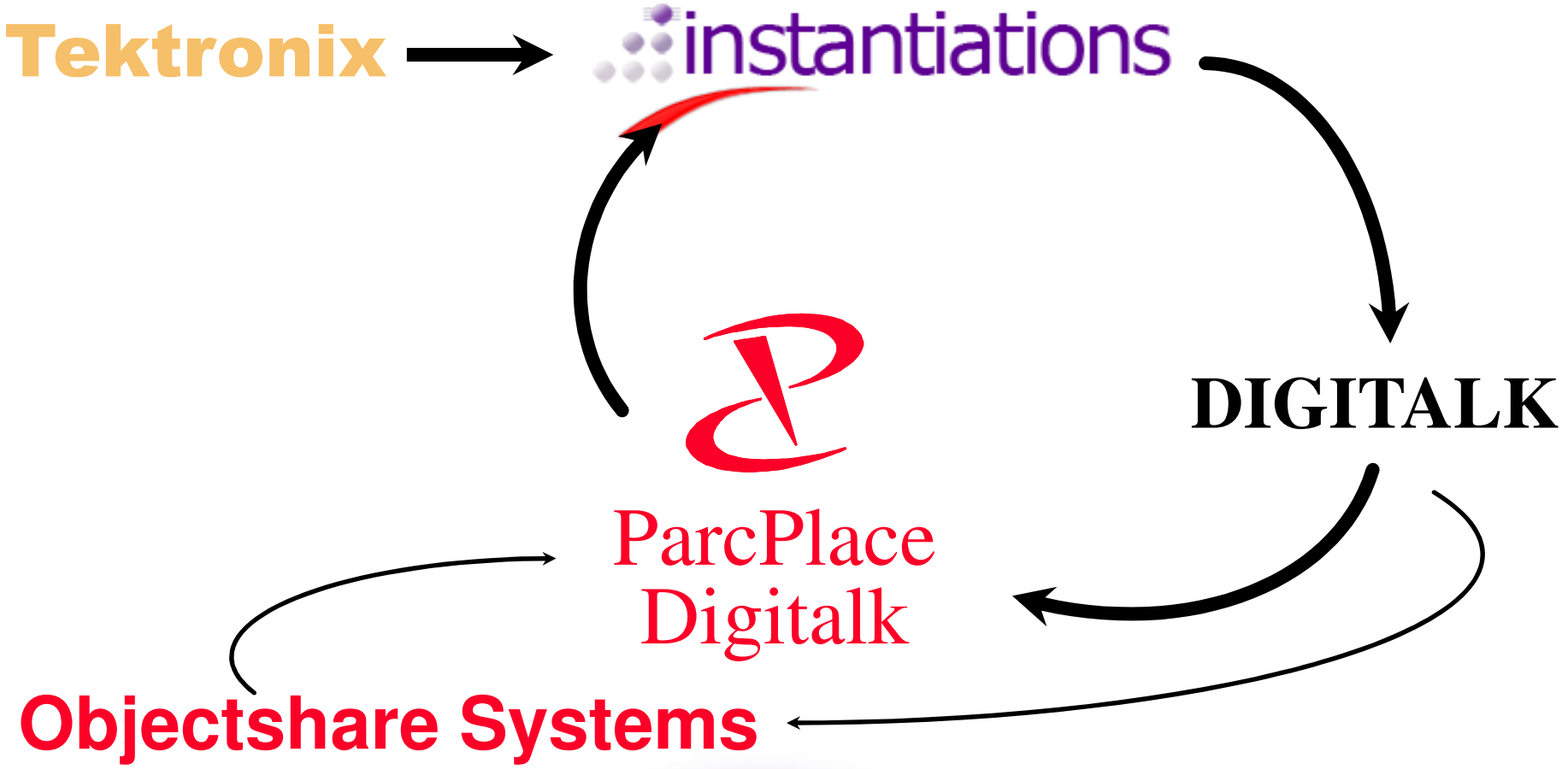
Who am I?

- First saw (Digitalk) Smalltalk in 1987; first used Smalltalk in late ’80s; full-time since 1990
- Joined original IBM Smalltalk prototype team in 1990
- Joined IBM VisualAge Smalltalk development team as a founding member in 1991
- Team Lead and Chief Architect of IBM VisualAge Smalltalk from 1997 to 2007
- Retired from IBM and joined Instantiations in February 2007 to lead VA Smalltalk development team

Introducing Instantiations

- Multi-faceted software company (re)founded in 1997
- Creates and markets leading edge development tools for enterprise software developers (VA Smalltalk, Rational, WebSphere, Eclipse)
- Strategic partnerships:
  - IBM Advanced Business Partner
  - Eclipse Foundation Member
- Established Fortune 1000 customer relationships
- Hundreds of Smalltalk customers worldwide

Instantiations History



Agenda

- Introduction
- **VA Smalltalk 7.5 to 7.5.2**
- Future Directions
- Stats
- Q&A

VA Smalltalk 7.5.2

- Windows Vista (32- and 64-bit) support
- SuSE, Red Hat, and Ubuntu Linux (32- and 64-bit) support
- Windows Large Address Support
- Native Oracle 10 support
- Windows Vista themes
- Web Services Demo
- Refactoring Browser and MED extensions
- SUnit and SUnit Browser
- ENVY/QA
- Browser Enhancements

New in 7.5.2

Windows Vista Support

- User Account Control (UAC)
- Windows Aero
- Help

User Account Control - 1

- Users
  - Standard
  - Administrator (runs as standard user)
- Applications (aka Processes)
  - Mode
    - asInvoker (default)
    - highestAvailable
    - requireAdministrator
  - Controlled with manifest file or properties

User Account Control - 2

- VA Smalltalk apps use manifests

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<assembly xmlns="urn:schemas-microsoft-com:asm.v1" manifestVersion="1.0">
  <assemblyIdentity version="7.5.0.0" processorArchitecture="X86"
     name="Instantiations.VASmalltalk.abt" type="win32" />
  <description>VA Smalltalk Development Executable</description>
  <trustInfo xmlns="urn:schemas-microsoft-com:asm.v3">
    <security>
      <requestedPrivileges>
        <requestedExecutionLevel level="asInvoker" uiAccess="false" />
      </requestedPrivileges>
    </security>
  </trustInfo>
</assembly>
```

User Account Control - 3

- Most VA Smalltalk executables run “asInvoker”
- Some need “requireAdministrator”
  - emsrv.exe – installs itself as a service
  - abtntsir.exe – installs VA Smalltalk application as a service
  - setup.exe – write to protected directories and registry keys

File / Registry Location - 1

- Standard install location
  - Per-machine files:
    %ProgramFiles%\Instantiations\VA Smalltalk\<version>
    - Cannot modify files in this location
  - *Per-user files:
    %UserProfile%\(My)Documents\Instantiations\VA Smalltalk\<version>
  - *Start menu shortcut's "Start in:" points to per-user directory
  - *Shared R/W files (manager):
    %AllUsersProfile%\Instantiations\VA Smalltalk\<version>\manager

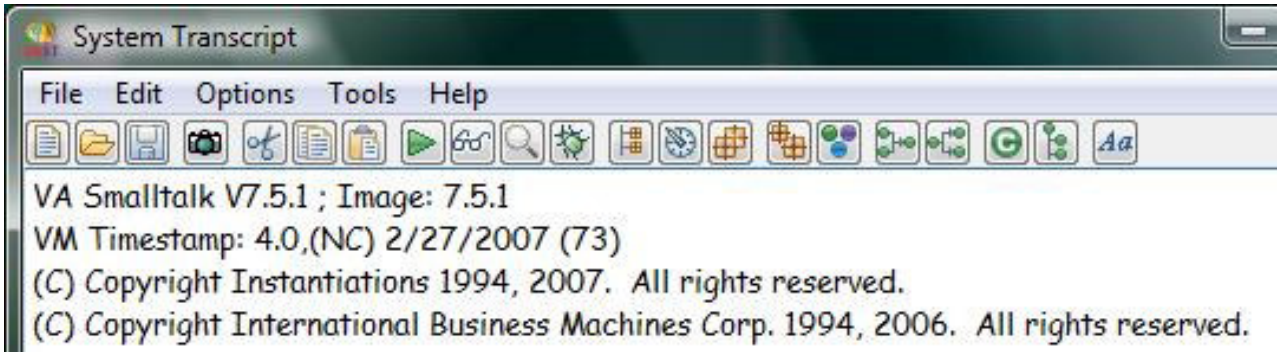
* Will be done automatically in future release; must be done manually with V7.5

File / Registry Location - 2

- User-specified install location
  - All files go in selected install directory
  - No restrictions on access/update

Windows Aero

- Windows Aero is the premium visual experience of Windows Vista
  - transparent glass design
  - subtle window animations
  - new window colors

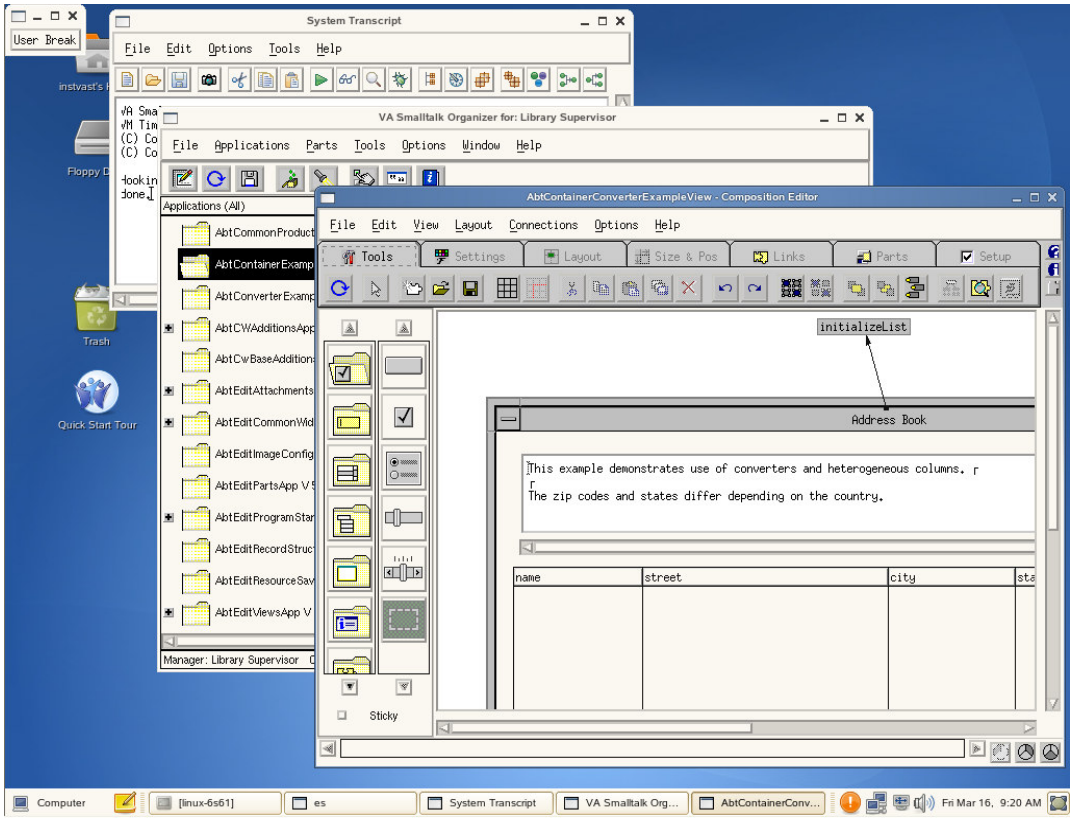


Windows Help

- .hlp files deprecated
  - Must download and install Windows Help to view
  - GF/ST help files converted to .chm files and shipped side-by-side with .hlp files

SuSE and Ubuntu Linux Support

- X-Window-based graphics
- Motif-based widgets
- Same features as Red Hat Linux
- Standalone and team development environments
- 32- and 64-bit processors supported



Windows Large Address Support

- Allows applications to use up to 3GB of address space on Windows
  - VA Smalltalk executables linked with /LARGEADDRESSAWARE option
  - Add /3GB switch to Windows boot.ini file to enable support

Oracle 10 Features

- LOBs (BLOBs and CLOBs)
  - LOBs are files stored by Oracle with a pointer to the file kept in the DB table
  - Previously, users stored binary data by having the DB table hold the information itself
- Bfiles
  - Bfiles are files controlled by the OS with a pointer to the file stored in the DB table
  - Major disadvantage is if the file is moved or deleted then the Bfile pointer in the DB table becomes invalid
- Timestamp

Windows Vista themes

- Windows XP introduced new look and feel; Windows Vista enhanced it
  - By default it isn't enabled for VA Smalltalk applications
- How do I enable my application?
  - Manifest is best – handles standard controls
  - Explicit invocation in code necessary for custom controls (ex: User-drawn Button)

The Manifest

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<assembly xmlns="urn:schemas-microsoft-com:asm.v1" manifestVersion="1.0">
  <assemblyIdentity version="7.5.0.0" processorArchitecture="X86"
      name="Instantiations.VASmalltalk.abt" type="win32" />
  <description>VA Smalltalk Development Executable</description>
<!--  Windows Theme support disabled for Windows XP - can be enabled for Windows
      Vista by removing comment delimiters
  <dependency>
    <dependentAssembly>
      <assemblyIdentity type="win32" name="Microsoft.Windows.Common-Controls"
       version="6.0.0.0" processorArchitecture="X86" publicKeyToken="6595b64144ccf1df"
       language="*" />
    </dependentAssembly>
  </dependency>
-->
</assembly>
```

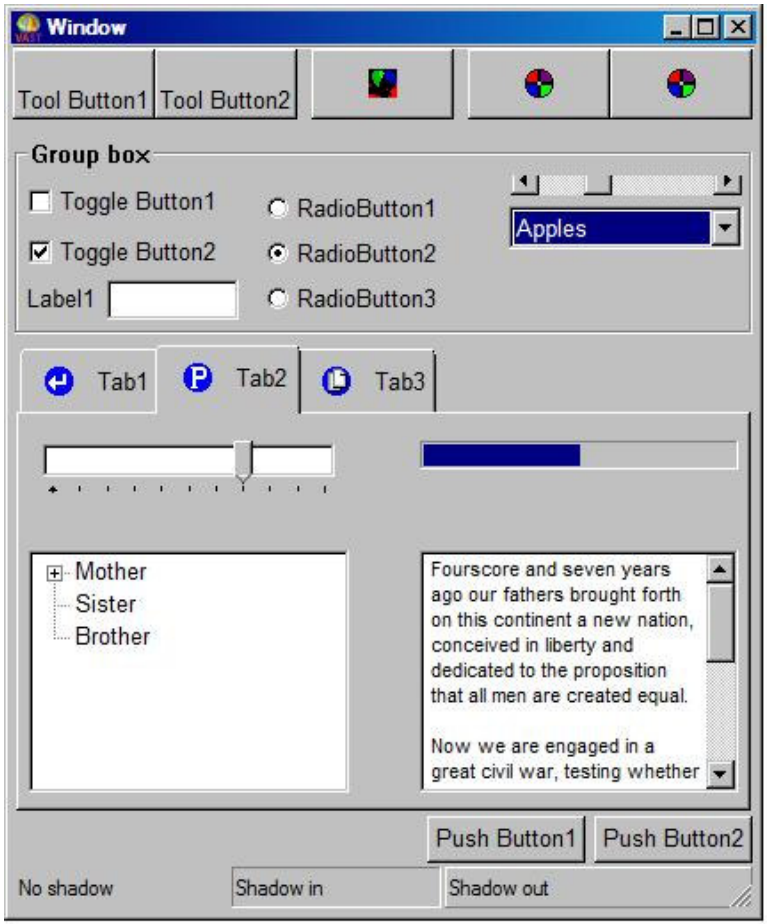
Affected Controls

- Common Widgets
  - TextBox
  - MainMenu
  - ContextMenu
  - HScrollBar
  - VScrollBar
  - ListBox
  - ListView
  - ComboBox
  - Button
  - RadioButton
  - CheckBox
  - GroupBox
- Windows Controls
  - TabControl
  - TrackBar
  - ProgressBar
  - ToolBar
  - StatusBar
  - TreeView
  - DataGrid *
  - RichTextBox *
  - DateTimePicker *
  - MonthCalendar *
  - Splitter *

* Control not currently supported by VA Smalltalk

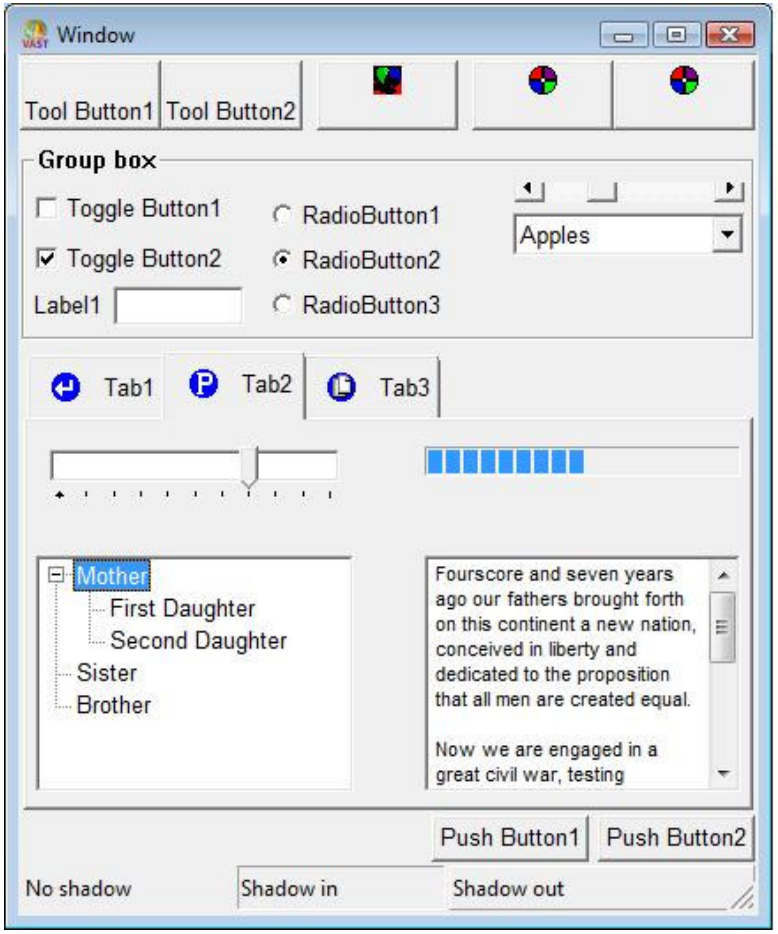
Windows Classic

- Looks like Windows NT 4.0



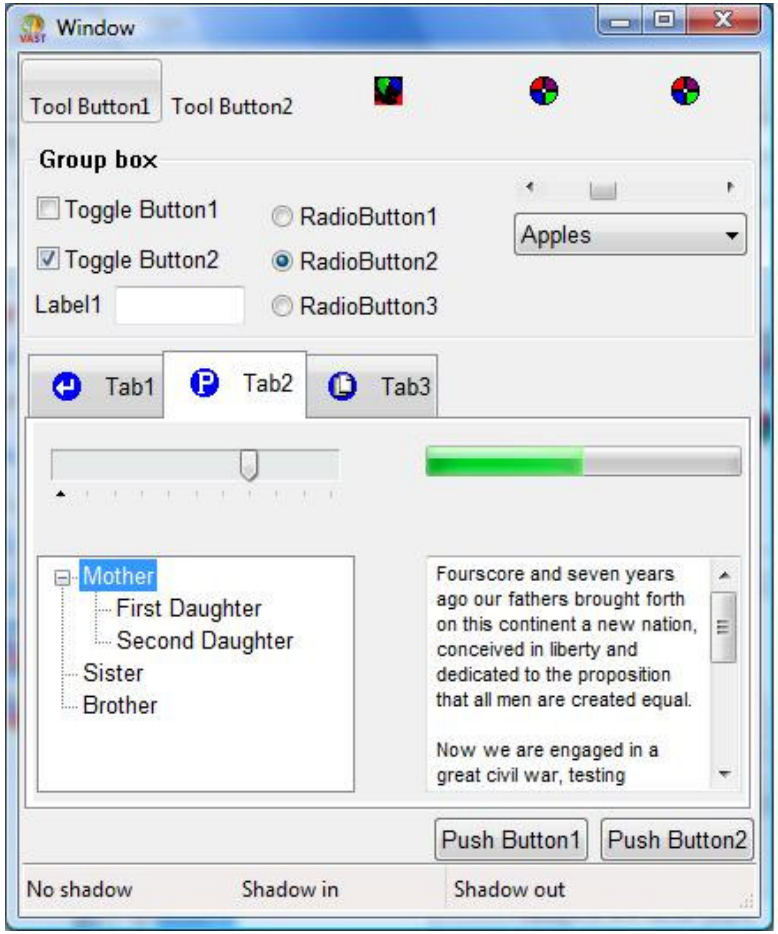
Windows Vista – no manifest

- Identical to Windows XP with no manifest except for Vista window border



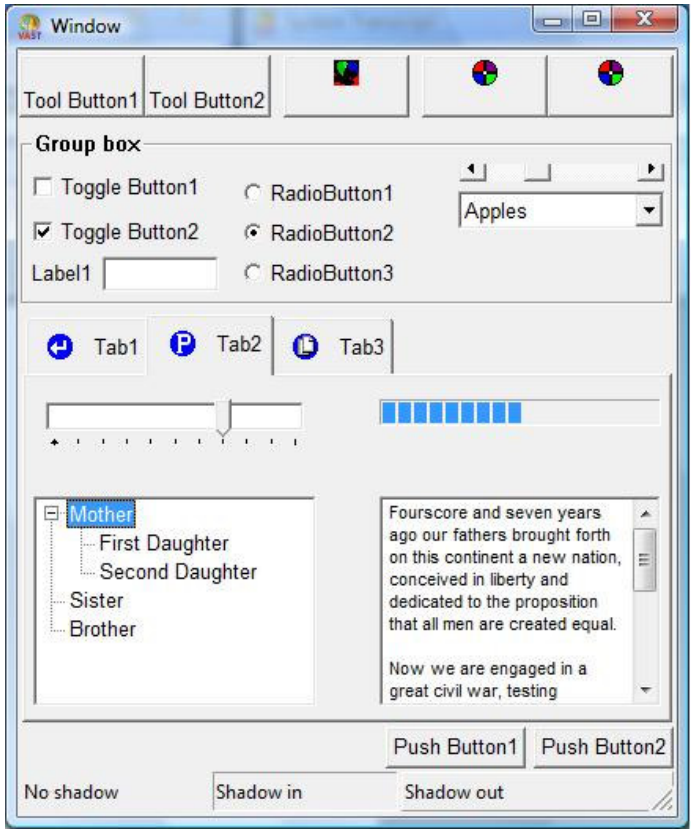
Windows Vista - manifest

- Full Aero appearance
  (with sufficient hardware)

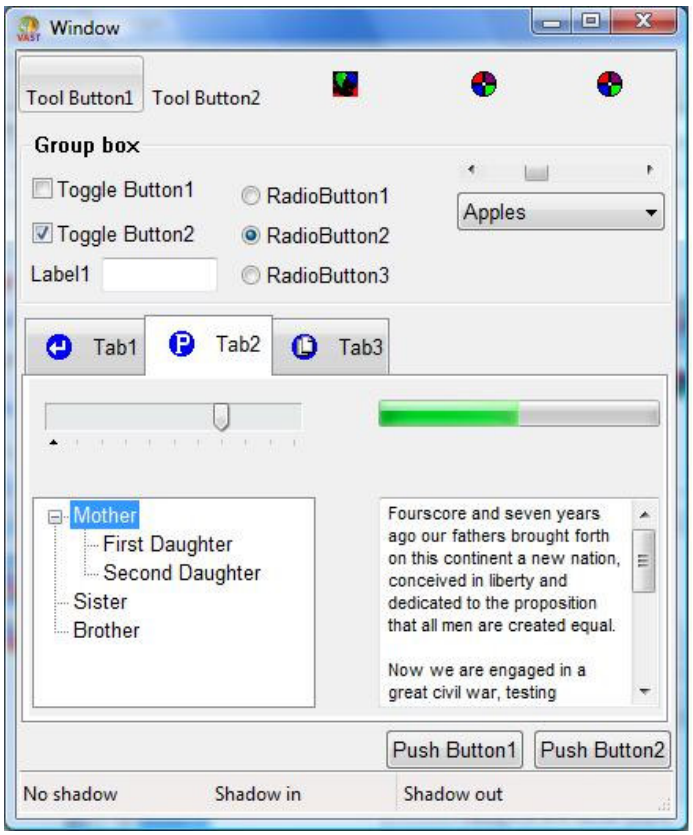


Windows Theme Comparison

No manifest



Manifest



Windows Themes Additional Items

- WidgetKit add-on products are not theme-aware
- WindowBuilder Pro for Smalltalk uses only widgets from base VA Smalltalk (including user-drawn widgets) and so is as theme-aware as base VA Smalltalk

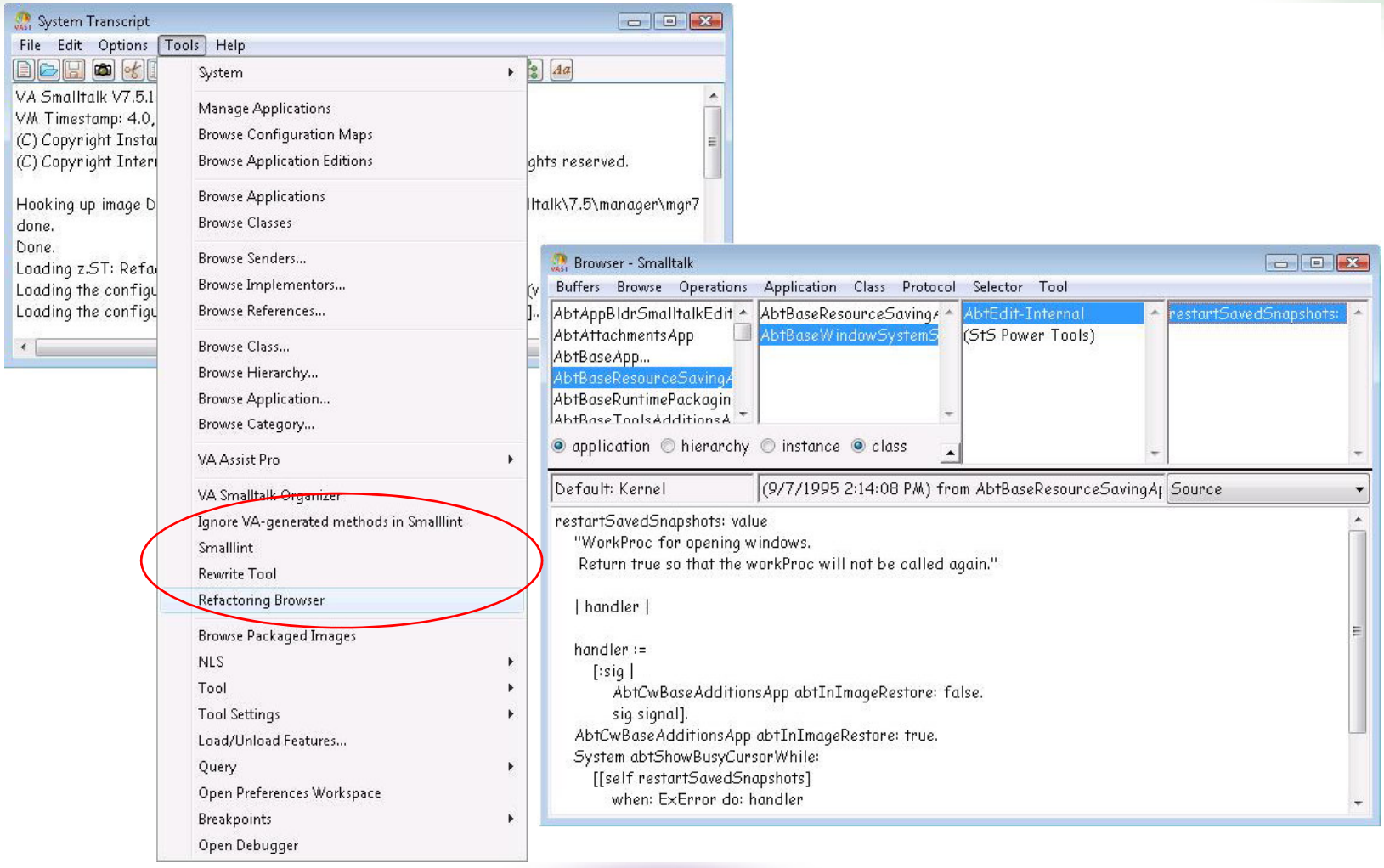
Web Services Demo

- The Web services demo steps you through converting a group of Smalltalk classes into a web service
- Based on the web services insurance example
- Allows you to inspect a live web services framework

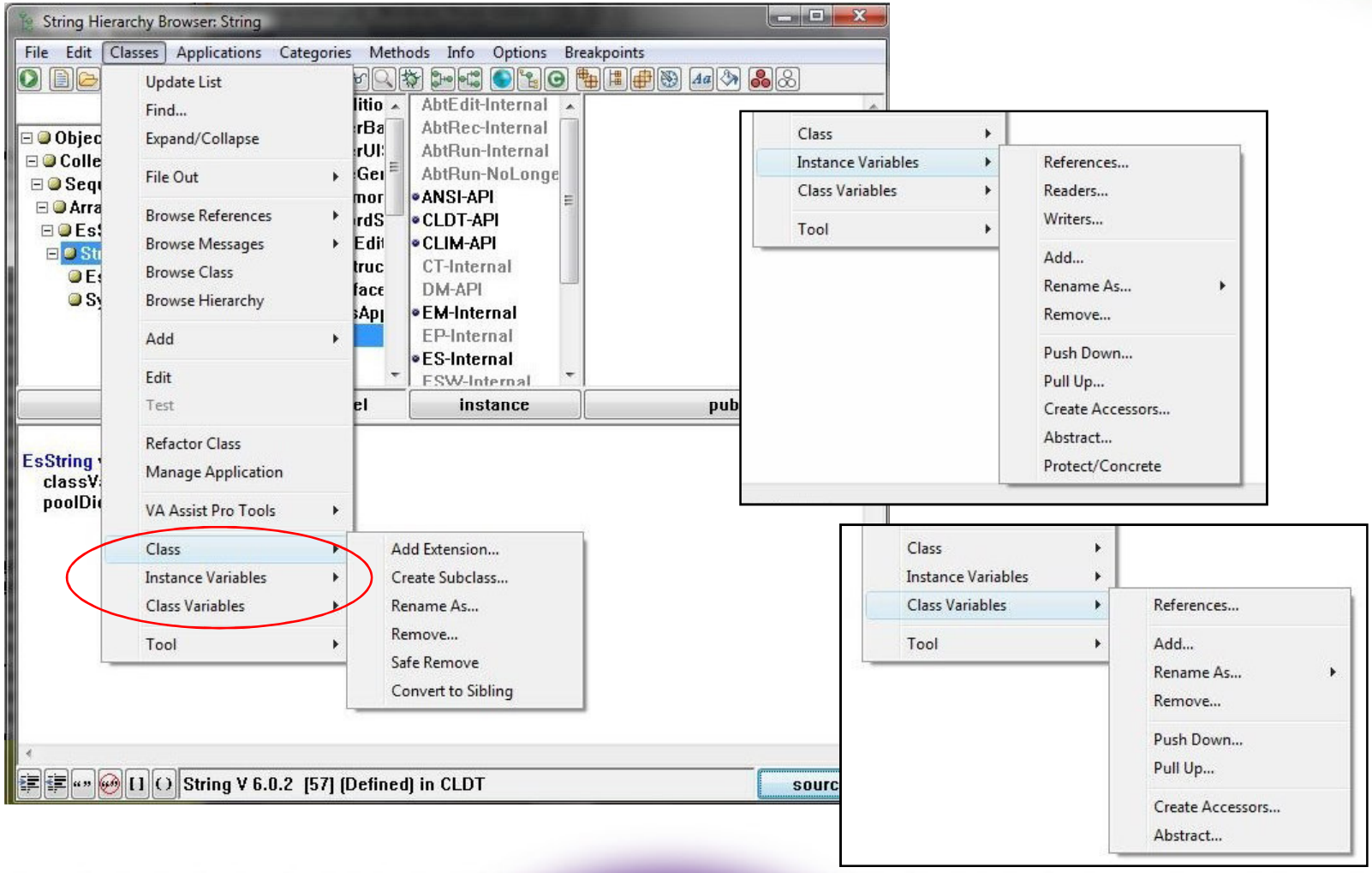
Refactoring Browser and Mastering Envy Developer RB Extensions

- Both the Refactoring Browser and the MED extensions load as a single feature
- Refactoring Browser launches from:
  - Tools Menu on the System Transcript
  - Classes and Class menu pulldown on standard browsers
- MED Extensions are added to Classes and Class menu pulldown on standard browsers

Refactoring Browser

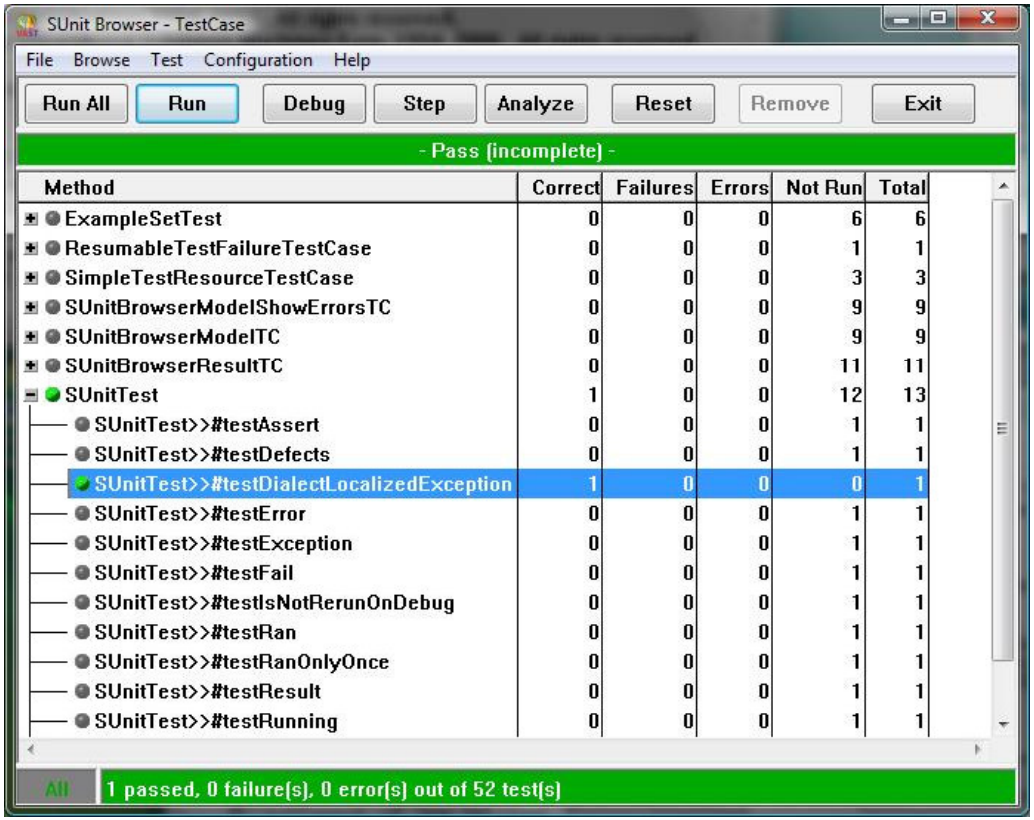


MED Extensions



SUnit Browser

- Framework for developing unit and integration test suites in Smalltalk
- Test browser locates and runs selected tests and reports results



Acknowledgments

- Thanks to John Brant for developing the original Refactoring Browser and Niall Ross and his CampSmalltalk compatriots for maintaining and extending it
- Thanks to Joseph Pelrine (www.metaprog.com) for permission to include the Mastering Envy Developer Tools
- Thanks to Kent Beck for the original SUnit testing framework, Joseph Pelrine and his CampSmalltalk compatriots for maintaining and extending it, and Jeffrey Odell for the SUnit Browser

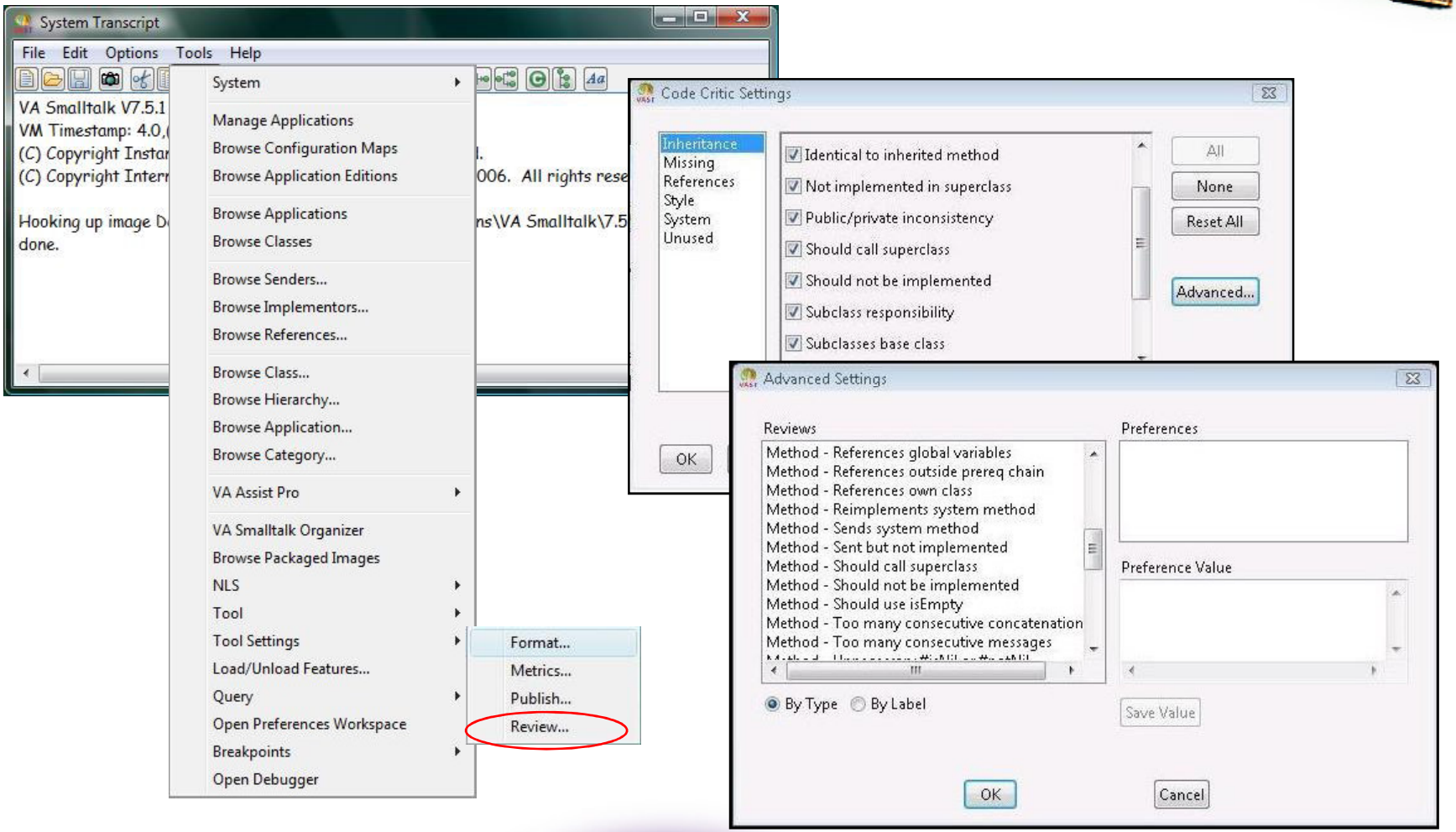
ENVY/QA

- A Set of 5 Quality Assurance Tools Plus a Framework
  - Code Critic
  - Code Metrics
  - Code Coverage
  - Code Formatter
  - Code Publisher
  - Extensible QA Framework

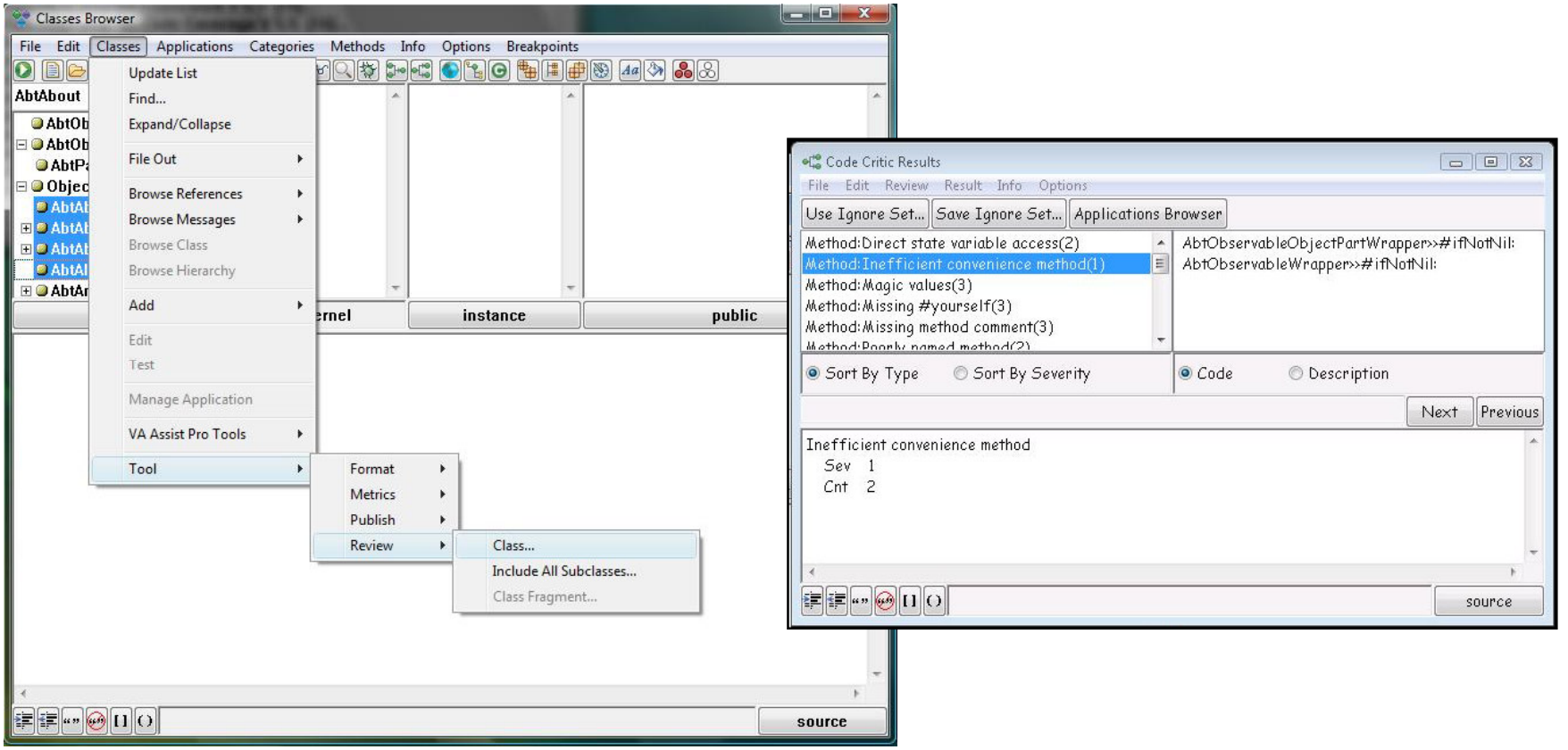
Code Critic

- Analyzes methods, classes, applications, and configuration maps for potential common problems.
- Has an extensible set of reviews.
  - A review is a specific type of measure that executes over code elements, and either completes successfully or produces warnings.
- Integrates fully with the existing development browsers
  - Use **Tool->Review** in applicable development browsers.
- Lets you customize settings, save and load them from files.
- Provides an open and extensible framework that lets you easily create new code reviews

Code Critic Settings



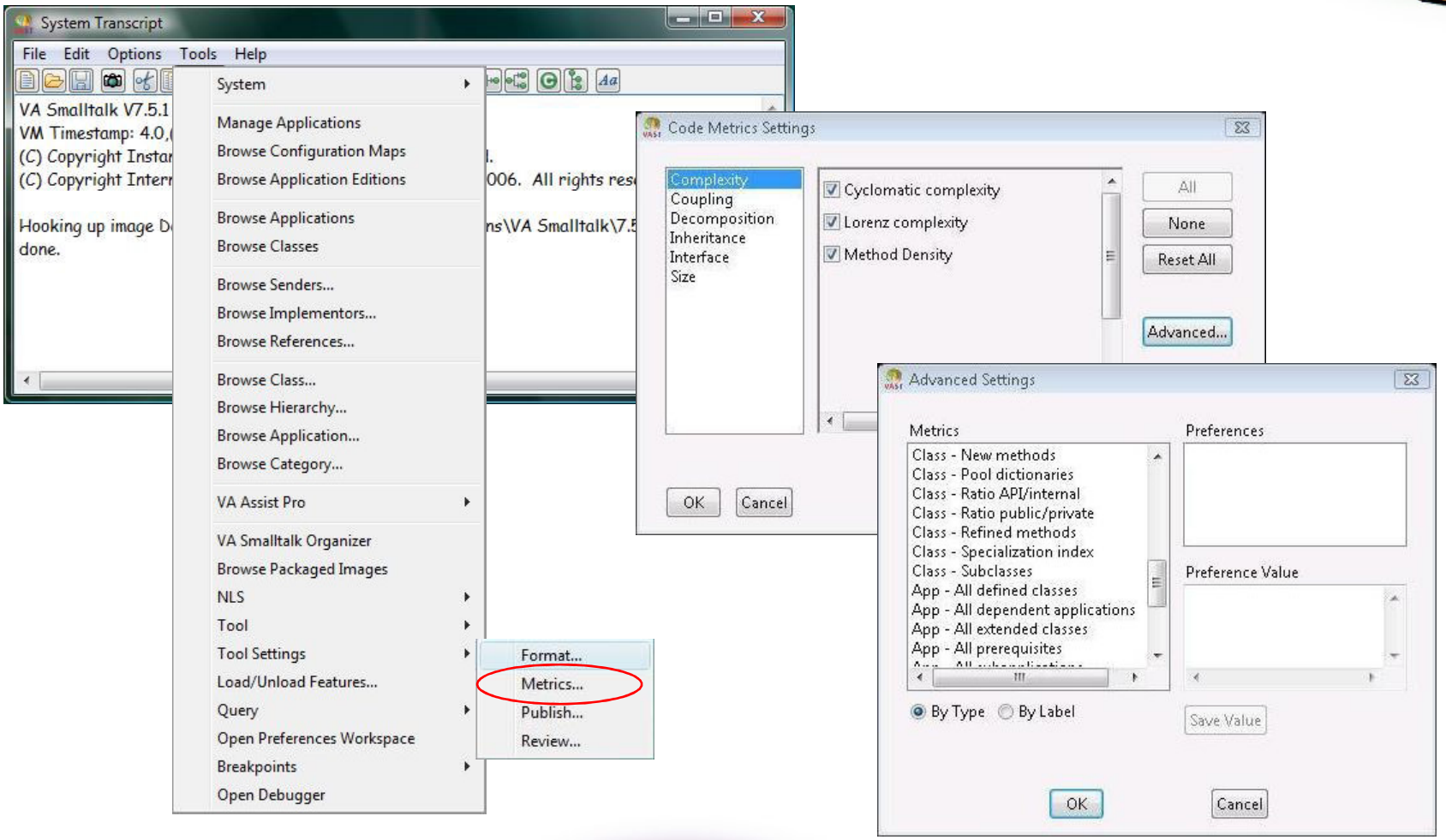
Code Critic Results



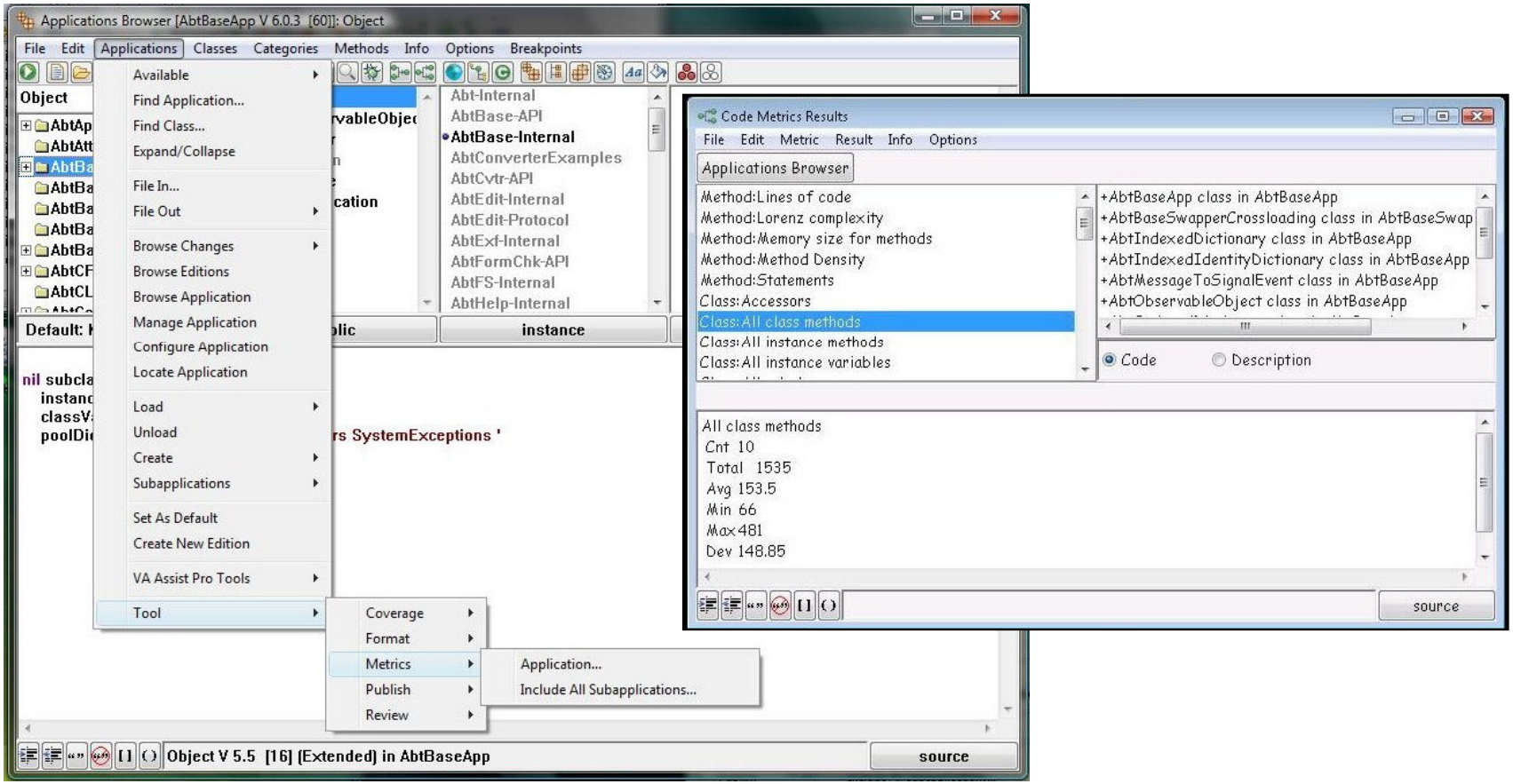
Code Metrics

- Compute a set of static metrics for code
- Fully integrated with the development browsers
- Provides an extensible set of metrics, which:
  - Are specific types of measures that execute over code elements and return a numerical result
  - Have an upper and a lower threshold
    - Results between these thresholds are in range
    - Other results are out of range and need to be examined in more detail
- Typical uses:
  - Isolate areas of the system that are highly coupled
  - Estimate the complexity of a component
- Results are viewed using the **Code Metrics Results Browser**
  - Code elements can be modified in this browser

Code Metrics Settings



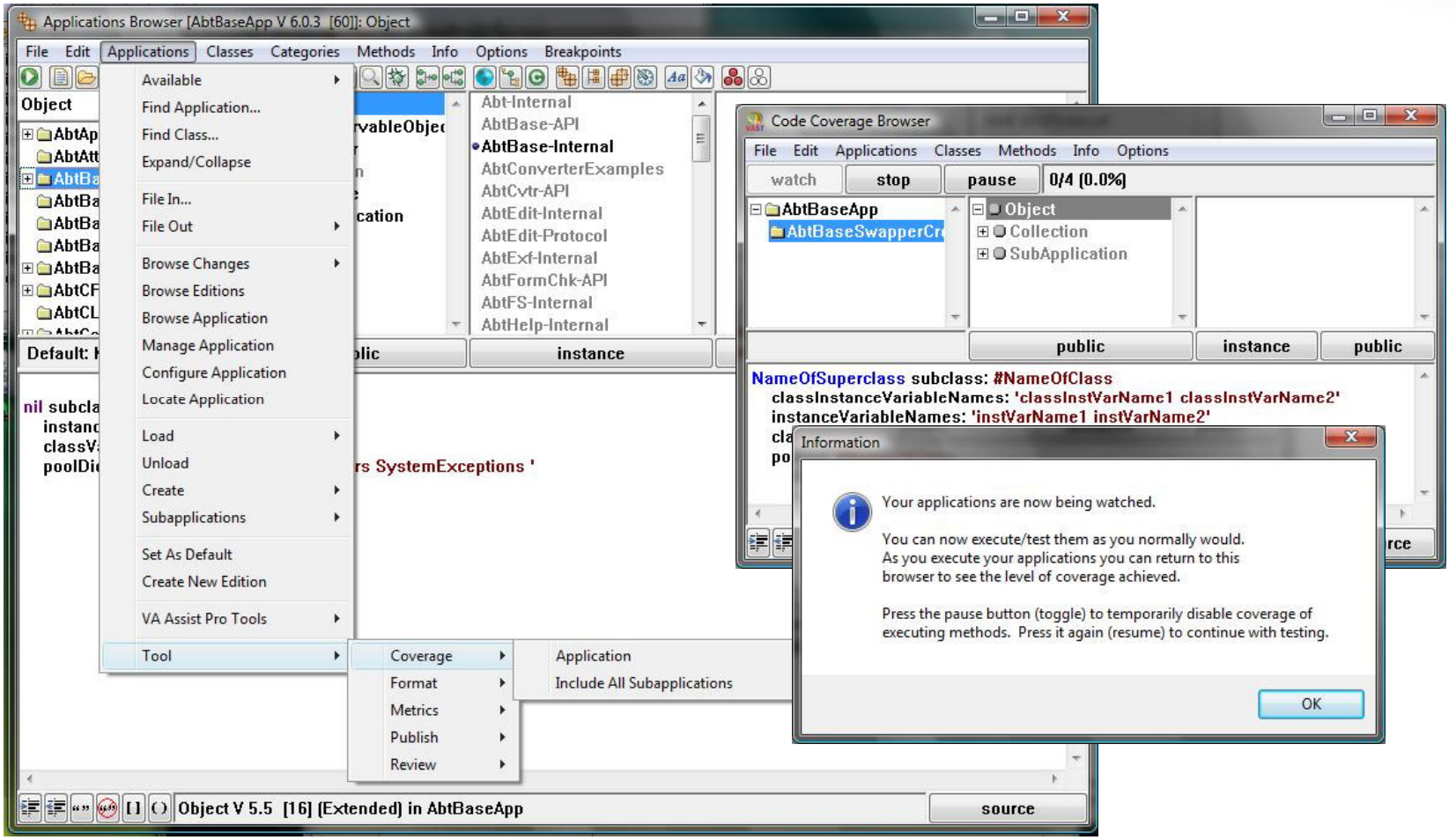
Code Metrics Results



Code Coverage

- Help determine whether test cases provide complete test coverage
- Common uses:
  - Evaluate test cases as you develop the software
  - Design test cases that maximize the test coverage of applications
  - Set up reusable test coverage configurations
  - Verify the amount of coverage obtained by regression test suites
- Integrated fully with development browsers

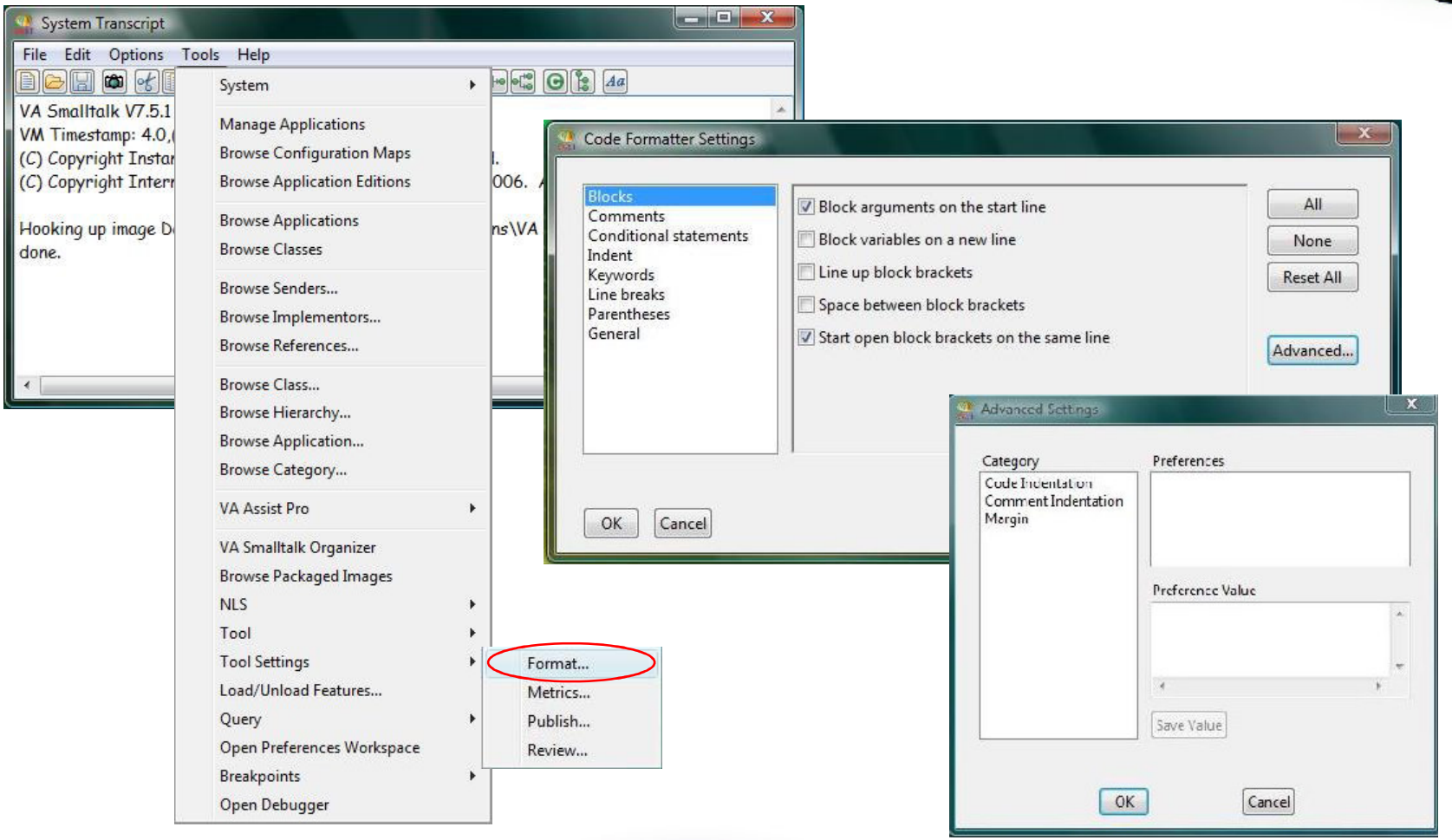
Code Coverage Results



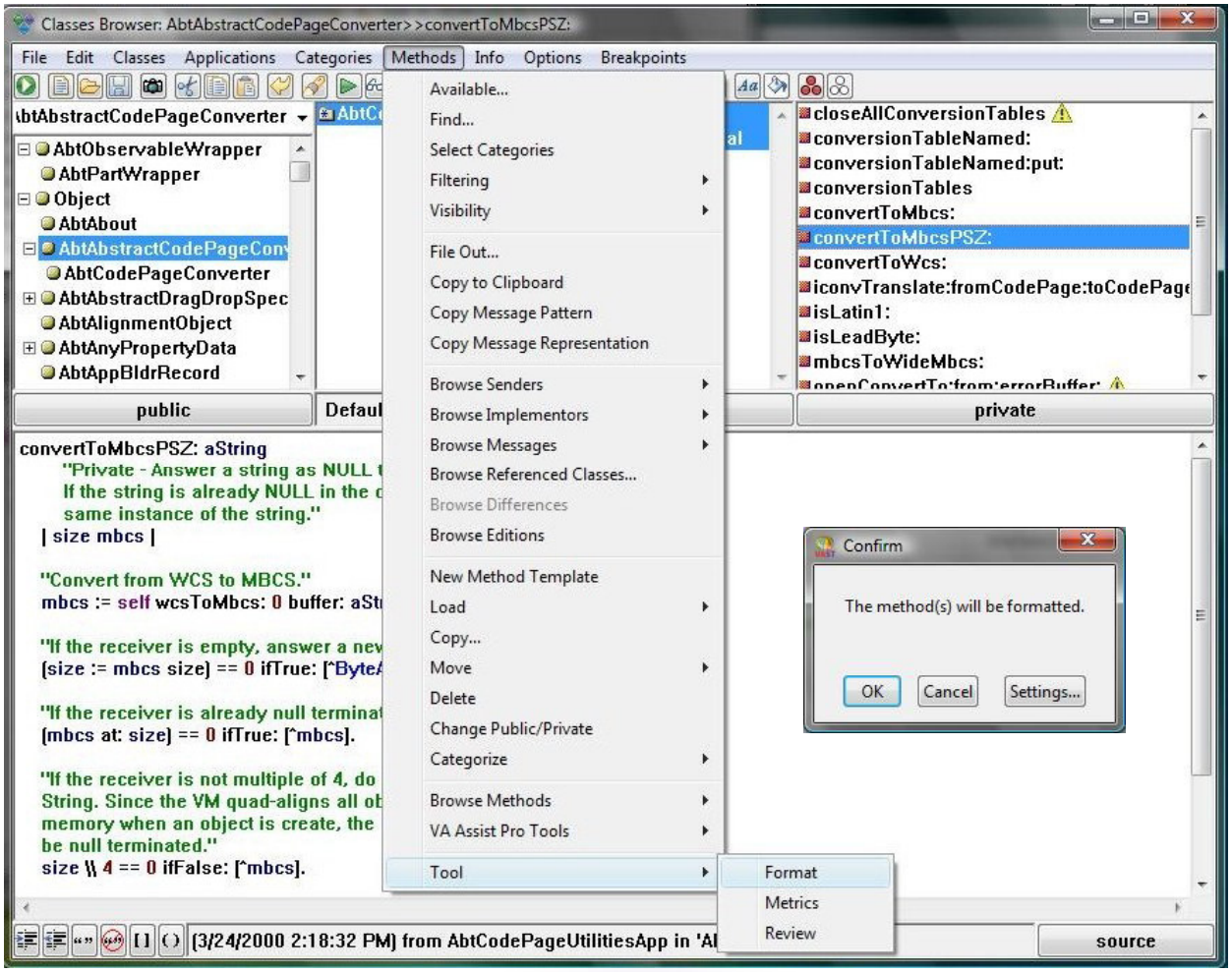
Code Formatter

- Format Smalltalk source code
- You can format:
  - Classes
  - Class hierarchies
  - Applications
  - Configuration maps
  - Method source while you are editing it
- Custom controls let you define your preferred formatting style
- Preview mechanism lets you determine quickly how the code will look

Code Formatter Settings



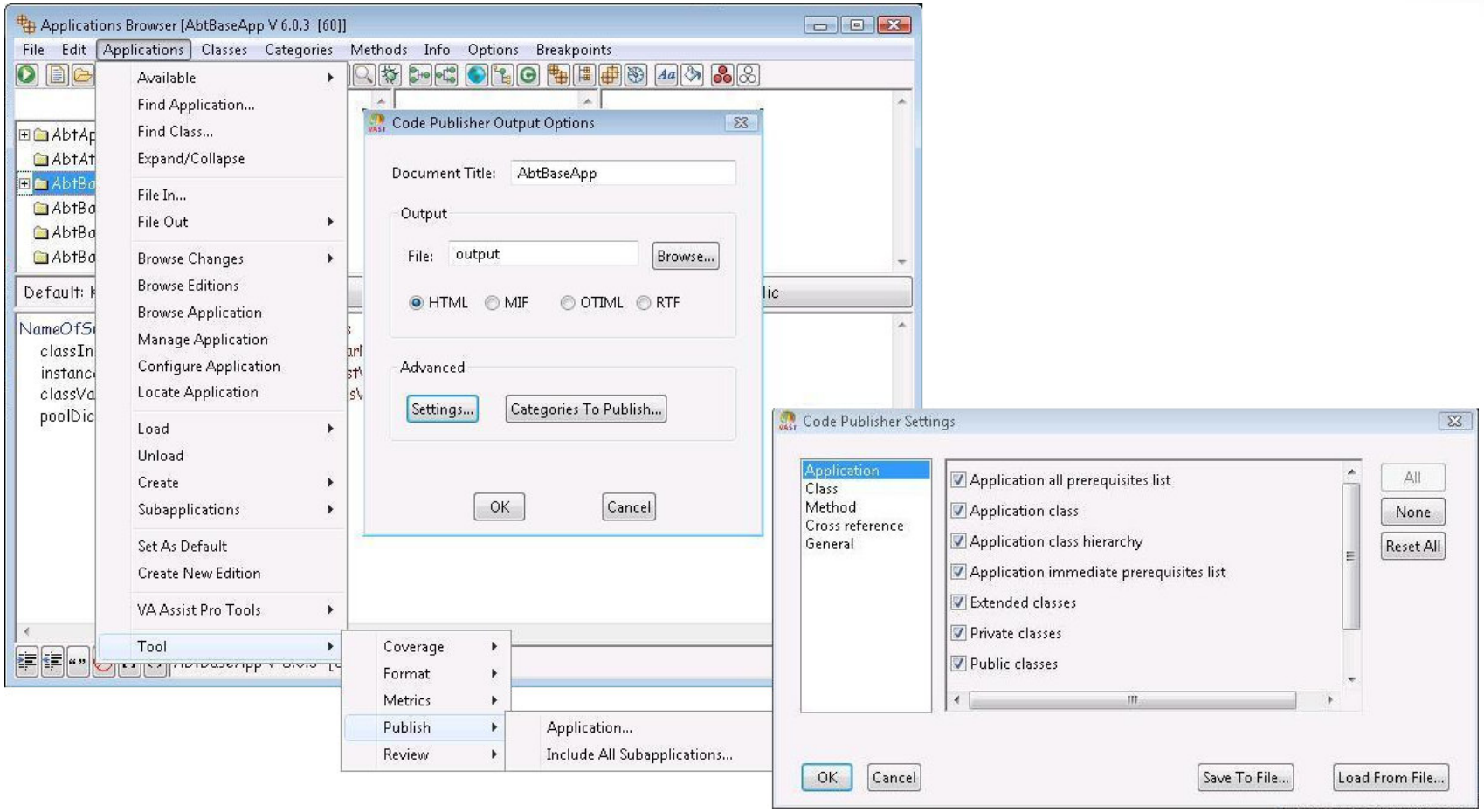
Code Formatter Results



Code Publisher

- Produces typeset-quality manuals from applications, classes, and methods
- Customizable structure can easily create documents such as:
  - Only the API methods and their comments
  - In-depth manuals containing code, cross-reference tables, and quick look-up indexes to be used during code reviews
- Code Publisher can produce various formats:
  - LaTeX
  - RTF
  - MIF
  - HTML
  - SGML (OTIML DTD)
- HTML manuals
  - Are internally hyperlinked to let you navigate easily online
  - Embedded GIF images are included in HTML output to further improve readability

Code Publisher Settings

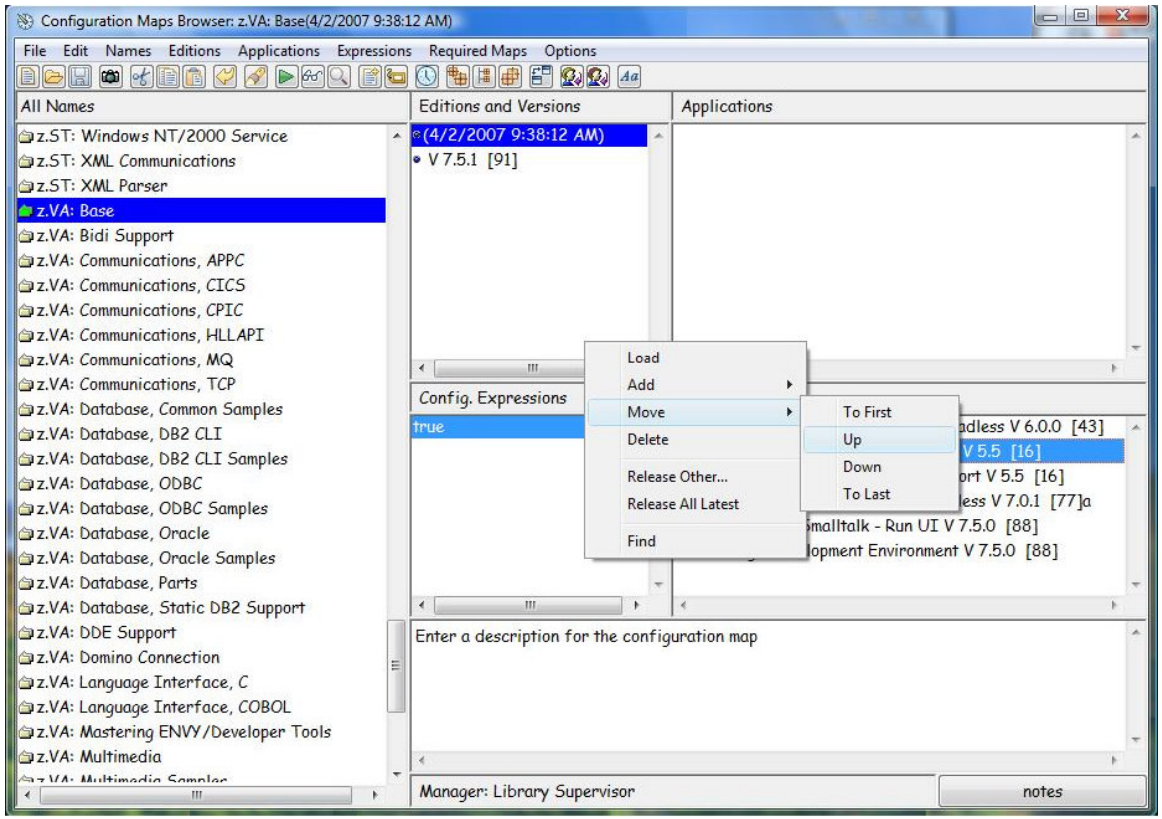


Extensible QA Framework

- Build new QA tools without learning the details of the browsers
- **ENVY**/*QA* built using an open and extensible tools framework
  - Use to develop new QA tools easily
  - Tool registers the types of objects on which it operates
  - Framework ensures that tool is displayed in the appropriate development browsers

Configuration Maps Browser

- Required Maps lineup management
  - Required Maps -> Move submenu extended w/ **Up** and **Down**
  - Complements **To First** and **To Last**
  - Enabled in base and VA Assist
  - Complements VA Assist drag-and-drop approach

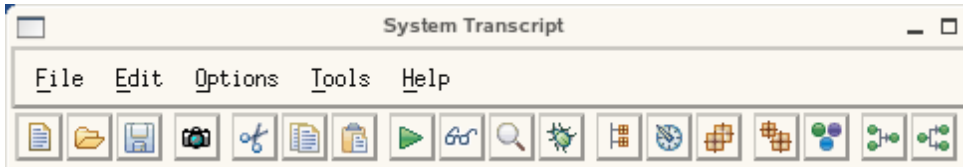


Updated Browser Icons

- Old icons used unmasked bitmaps

- New icons look good on all platforms
  - Windows

  - Linux



Agenda

- Introduction
- VA Smalltalk 7.5.2
- **Future Directions**
- Stats
- Q&A

Future Directions

- Seaside
- Web Services
- IDE Enhancements
- Install
- Database
- Documentation

Seaside Motivation

- Several web presence frameworks
  - WebConnect
  - Web services
- Each has its strength, but all are heavy-weight
- Smalltalk community seems to be coalescing on one primary approach

Seaside Status

- Currently porting Seaside 2.8 to VA Smalltalk
- Running on Server Smalltalk (SST)
  - Using built-in HTTP(S) server
  - Using external HTTP(s) server such as Apache
- Challenges
  - Continuations rely on underlying execution state reification (context) which has a different implementation
  - Class library differences

Seaside Approach

- Investigate ‘adapting’ VA Smalltalk context implementation to support continuations
- Map roles and responsibilities of Squeak classes used by Seaside to VA Smalltalk classes
- Initial Steps
  - Make Counter Example work in VA Smalltalk
  - Create Seaside Compatibility Layer to keep API consistent (use SPORT?)

Web Services Tools

- XML editor
- Ease the translation between XML and Smalltalk classes
- Automate the definition of a Smalltalk-based web service
- Diagnostic tools
  - TCP/SOAP Monitor

Web Services Information

- Improve documentation
  - How the framework processes WSDL
  - How XML data is mapped to Smalltalk classes
  - How SOAP messages are sent/received
- Add examples and test cases addressing the basic building blocks of a web service
  - complex data types
  - soap messaging

IDE Enhancements

- Consolidate IDE branches and extensions functionality into standard browsers
  - Trailblazer
  - VA Organizer (and its children)
  - VA Assist
  - ENVY/QA
  - RB
  - Mastering ENVY/Developer
- On Windows, move IDE onto Windows Controls
- Reorganize/enhance examples; make all examples available from Examples Launcher

Install

- Single install package for client/manager
  - Initial install
  - Reinstall of current release (aka “repair”)
  - Upgrade install of fix pack
  - Uninstall
- Work seamlessly on Vista with User Account Control (UAC)
- Work on all supported *nix platforms without manual intervention

Database

- Evaluate and schedule enhancements
  - DB2 V9
  - Oracle 11g
- Evaluate porting GLORP for object persistence

Documentation

- Replace existing HTML help with PDF or CHM
- Maintain cross-book search capability
- Maintain invocation from VA Smalltalk menus and F1

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- Future Directions
- **Statistics**
- Q&A

VA Smalltalk Statistics

- >6000 downloads
- >2200 active users (>15% increase in last 12 months)
- >225 customer companies

- >130 forum threads
- >550 forum posts
- >800 support cases
- >200 bugs fixed since 7.0

More info about VA Smalltalk

General Info: vast@instantiations.com

Sales: sales@instantiations.com

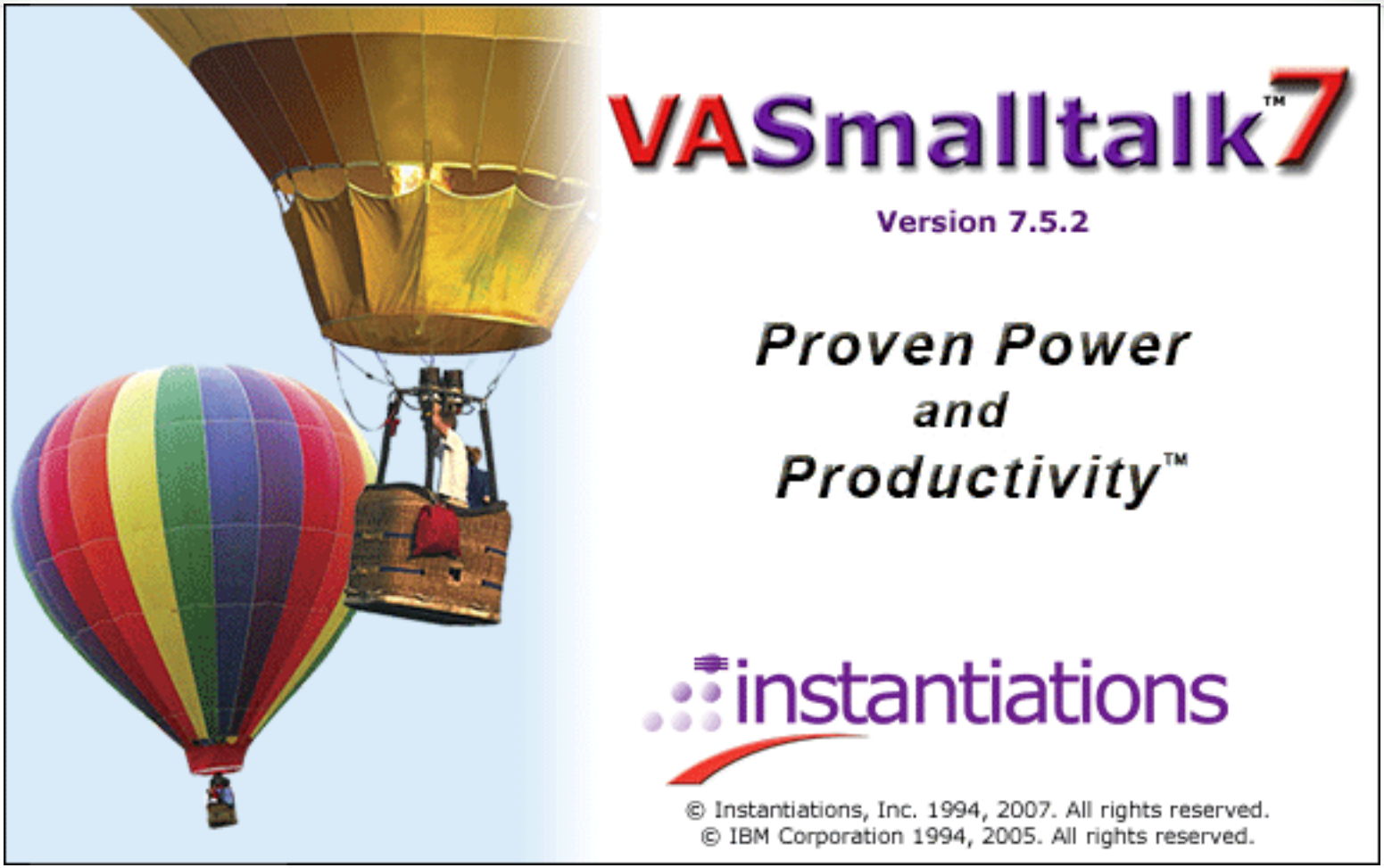
Support: vast-support@instantiations.com

John O'Keefe: john_okeefe@instantiations.com

Forum: www.instantiations.com/forum

Slides available at http://www.instantiations.com/company/detail/smalltalk-events.html

Questions?



Slides available at
http://www.instantiations.com/company/detail/smalltalk-events.html

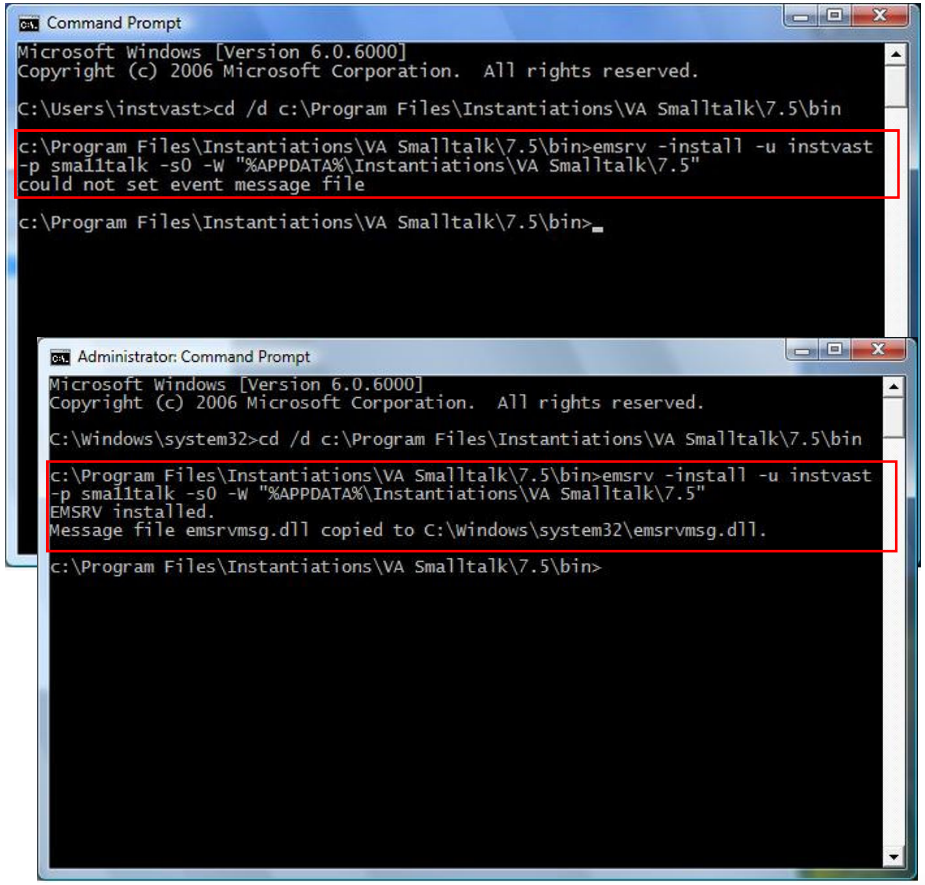
Backup charts

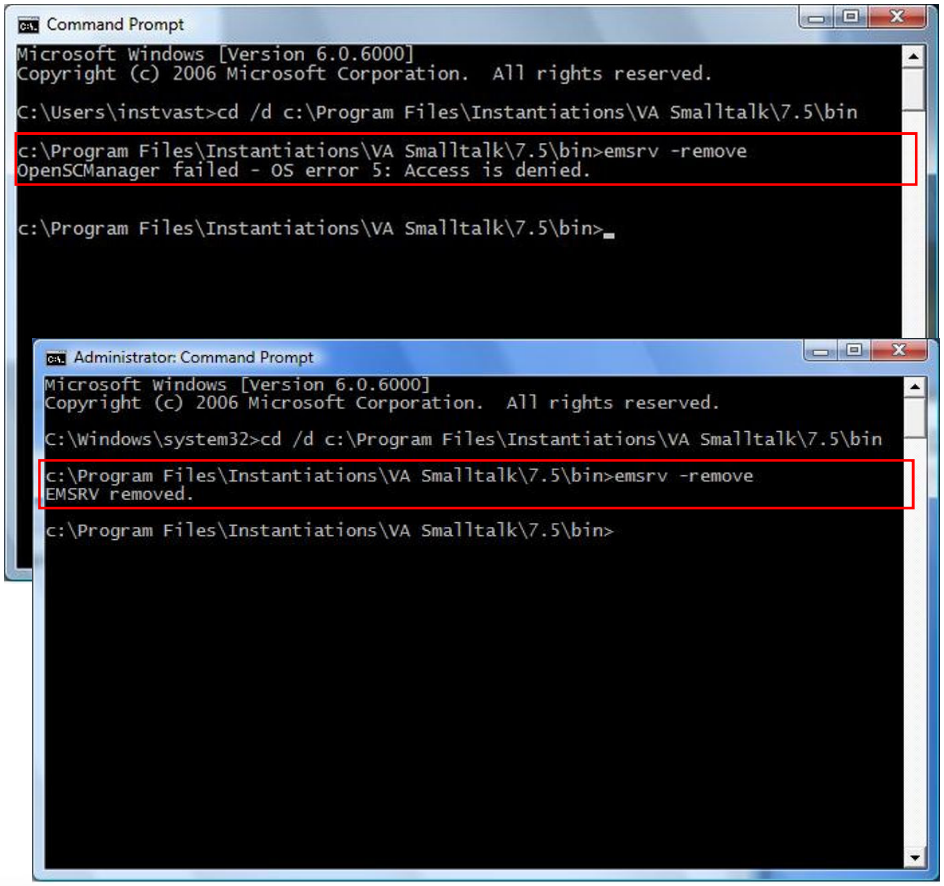
Our Smalltalk History

Instantiations has contributed to the Smalltalk industry continuously since 1984.

- 1984: Instantiations' co-founders developed the world's first commercial version of Smalltalk at Tektronix.
- 1988: Founded Instantiations Inc. (first incarnation) and became one of the most prominent Smalltalk product and consulting companies in the world.
- 1992: Instantiations acquired by Digitalk, Inc. and lead design & development of Digitalk's VSE product line.
- 1990's: Digitalk was a major partner of IBM in the creation and marketing of Smalltalk technology.
- 1993: Co-founders of Instantiations founded ObjectShare Systems, a major Smalltalk product vendor and creator of WindowBuilder Pro & WidgetKits, which was acquired by ParcPlace-Digitalk in 1996.
- 1995: Digitalk was acquired by ParcPlace forming ParcPlace-Digitalk. Current Instantiations employees made major contributions to the development and marketing of VisualWorks™ Smalltalk.
- 1997: Instantiations Inc. (second incarnation) was formed in 1997 by the Tektronix/ Instantiations/ ObjectShare team. The company has offered products and services to the Smalltalk industry since its inception.
- 2004: IBM and Instantiations form relationship where Instantiations provides support for VisualAge® Smalltalk.
- 2005: IBM and Instantiations form relationship under which Instantiations releases VA Smalltalk 7.0.
- 2006: VA Smalltalk 7.0.1 released.
- 2007: VA Smalltalk 7.5, 7.5.1 and 7.5.2 released with support for Windows Vista, SuSE, Ubuntu, SUnit and Refactoring Browser.

User Account Control - 4

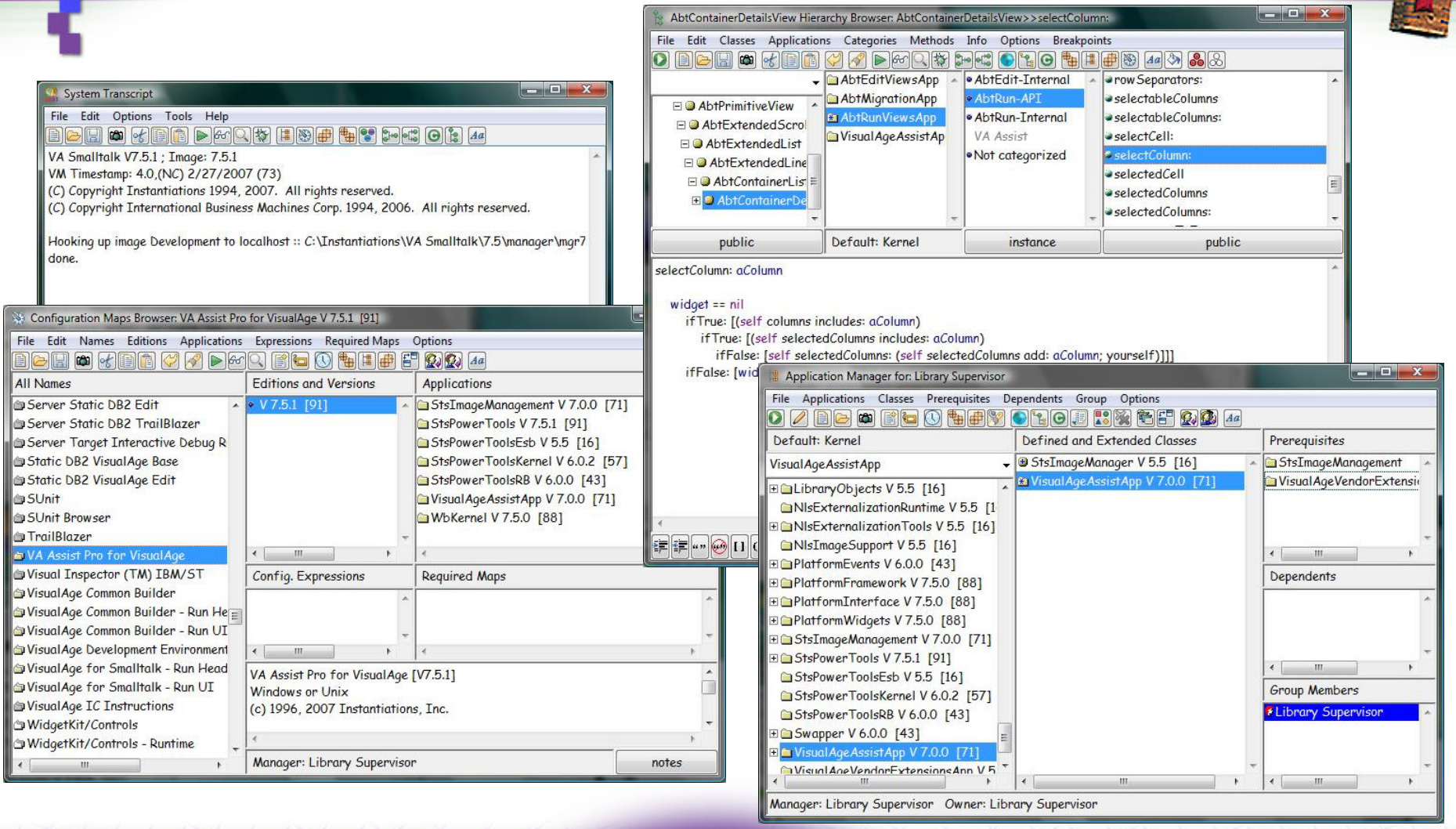




File / Registry Location - 0

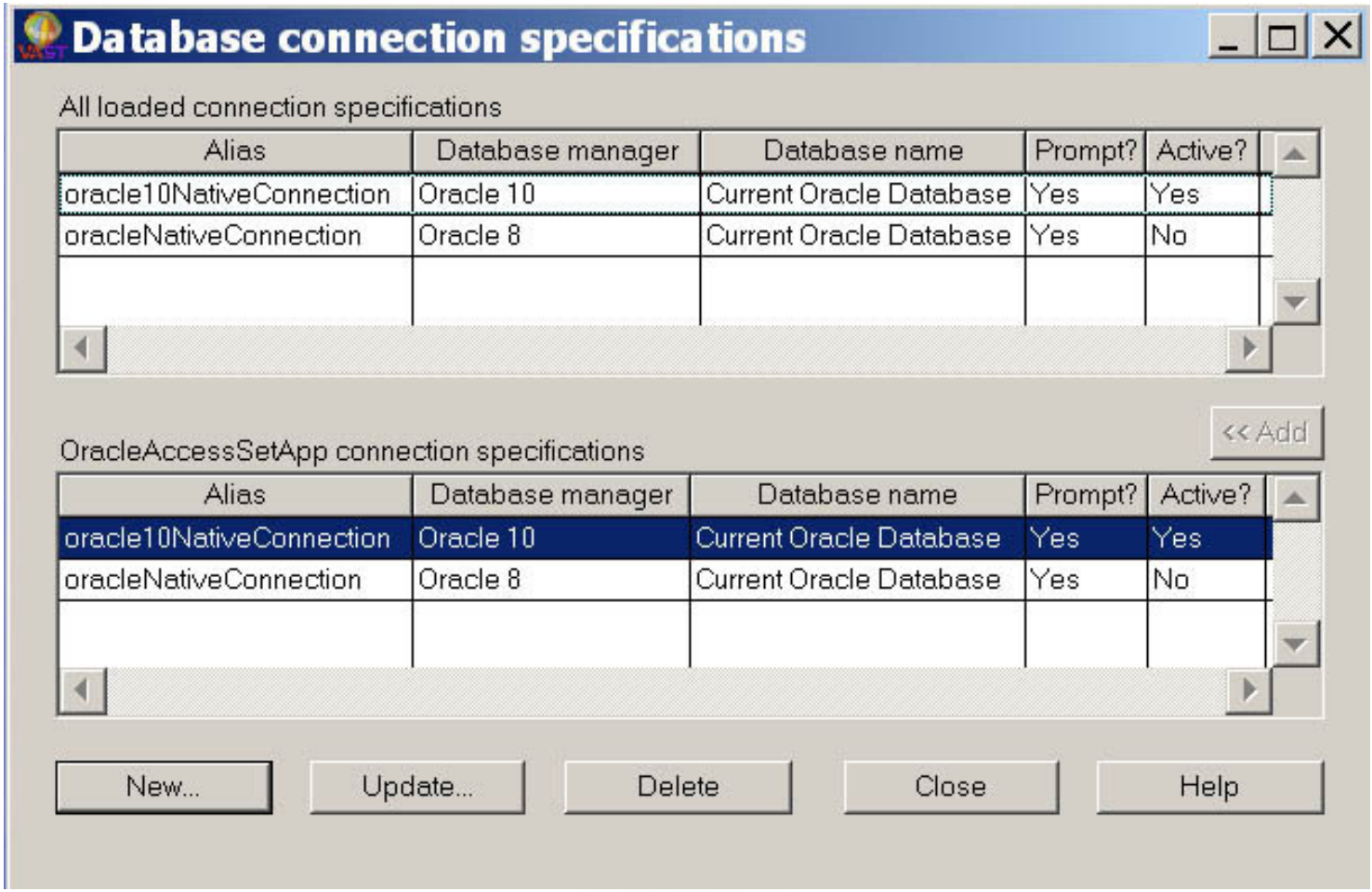
- Per-machine
  - %ProgramFiles%
  - HKLM\Software
  - HKLM\System\CurrentControlSet\Services
- Per-user
  - %UserProfile%\(My)Documents

Windows Aero - Examples



VASmalltalk7 instantiations Build Quality Software 7.5 and Beyond

Native Oracle 10 Support



LOBs - 1

- BLOBs and CLOBs are handled the same way in VA Smalltalk 7.5
- Steps for manipulating LOBs are:
  - Step 1 – Create the table

```
connection createTableNamed: ‘blob_table' definition:
'(id number, data blob)'.
```

  - Step 2 - Insert an Empty LOB

```
table := connection openTableNamed: 'blob_table’.
(newRow := table emptyRow)
        at: #ID put: 1;
        at: #DATA put: AbtOracleEmptyBlob new.
table addRows: (OrderedCollection with: newRow).
```

LOBs - 2

- Step 3 - Write data to the LOB

```
sqlString := 'select * from blob_table where id = 1
  for update'.
```

(Note: The ‘for update’ is important as it locks the DB row).

```
lobLocator := (dict at: 'DATA') locatorAddress.
AbtOracleLobBuffer new
  writeFileToLob: lobLocator
  file: fromFile
  connection: connection
```

LOBs - 3

- Reading Data from a LOB

```
sqlString :=  'select * from blob_table where id = 1'.
lobLocator := (dict at: 'DATA') locatorAddress.
filename := CwFileSelectionPrompter new title: 'Output
  file'; prompt.
AbtOracleLobBuffer new
  writeLobToFile: toFile
  lob: lobLocator
  connection: connection
```

SQL & PL/SQL - 1

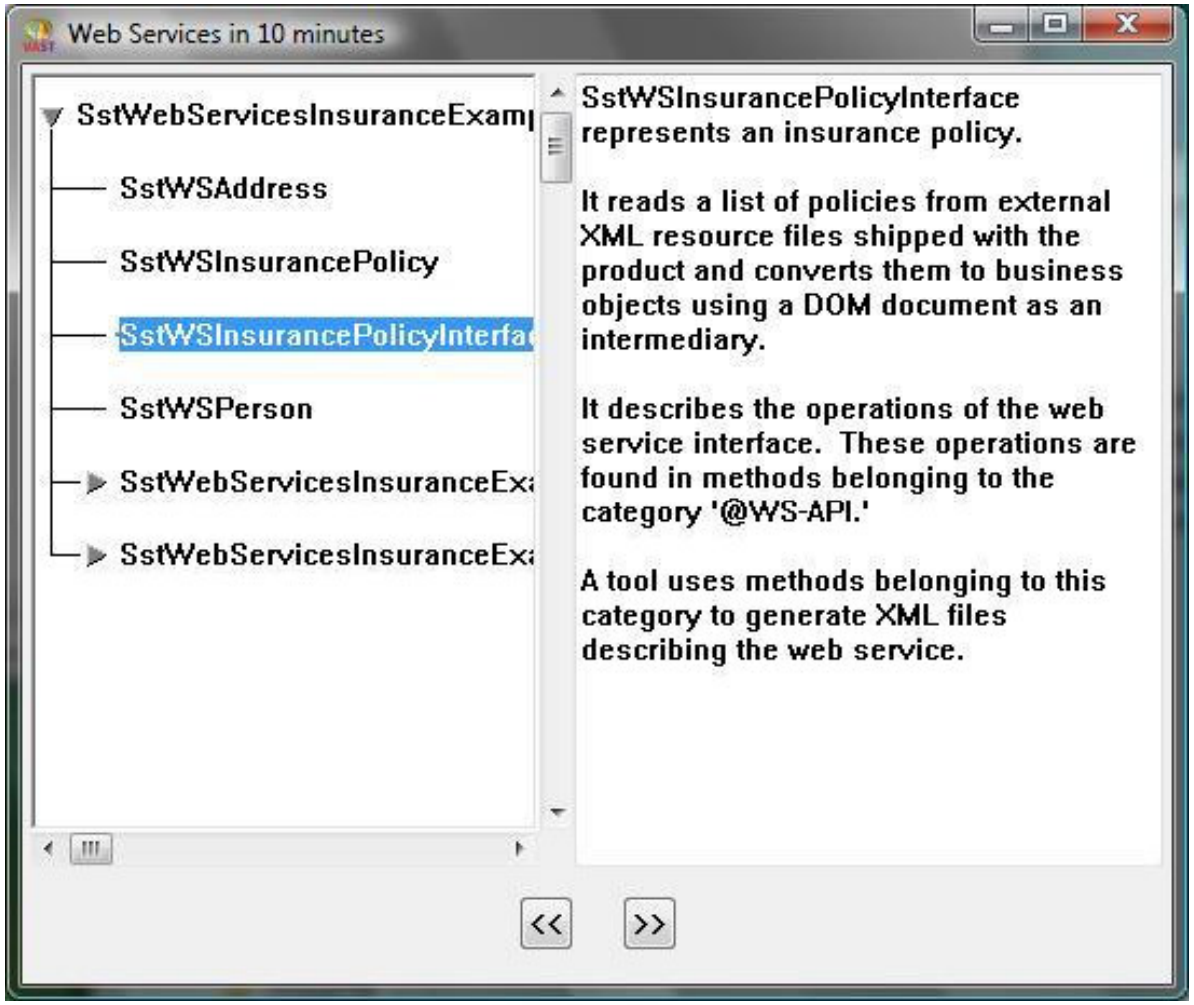
- Bugs fixed for Oracle:
  - 7.5 24225 - Cannot invoke stored procedures without parameters
  - 7.5 24226 - nullsOk is preset incorrectly for host variables
  - 7.5 24227 - implementsStoredProcs should be a class method
  - 7.5 24228 - Oracle RAW fields broken with 6.0.3 change
- The following high level code did not work in previous versions of VA Smalltalk when using native Oracle:

```
table := connection openTableNamed: 'test1'.
rows := Array new: 30.
"add rows to the 'rows' ivar"
table addRows: rows ifError: [:ex | ex inspect].
```

SQL & PL/SQL - 2

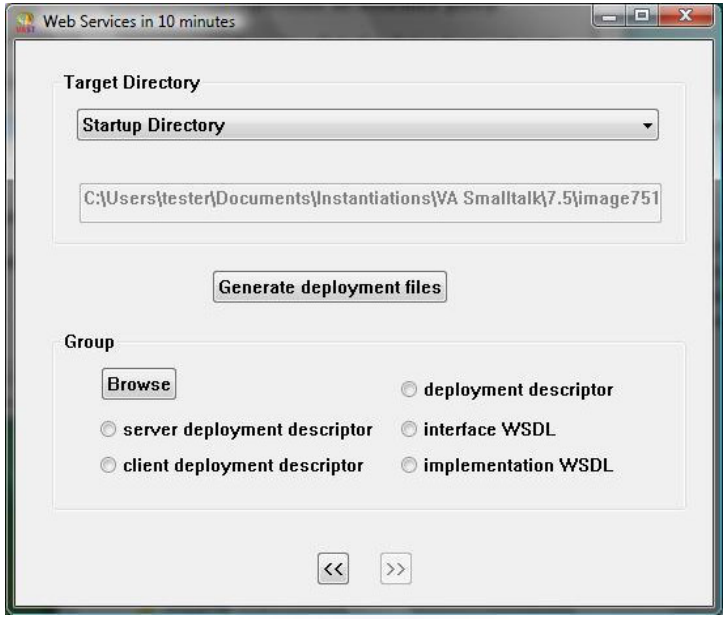
- Example SQL Scripts Included
  - Creating tables at a high level
  - Inserting and Selecting Rows at a high level
  - Manipulating Rows at a lower level
  - Executing SQL statements directly
- Example PL/SQL Scripts Included
  - Passing in/out simple types like Date, Strings, and Numbers
  - Passing in and out array or numbers and strings
  - Not implemented yet is passing a cursor in/out as a variable
- Complete examples come with the product and are downloadable from http://www.instantiations.com/

Web Services Demo - 2



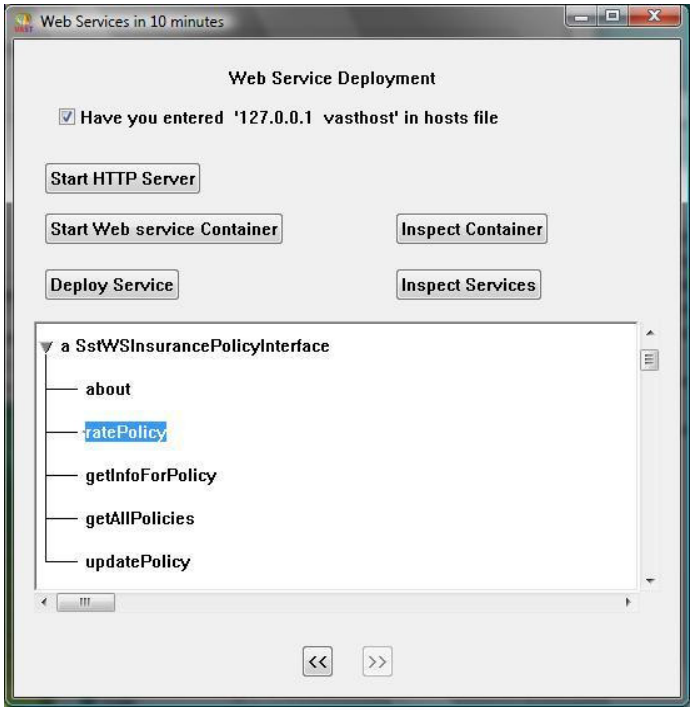
Web Services Demo - 3

- Uses tool to generate deployment descriptor and interface definition XML files required by every web service

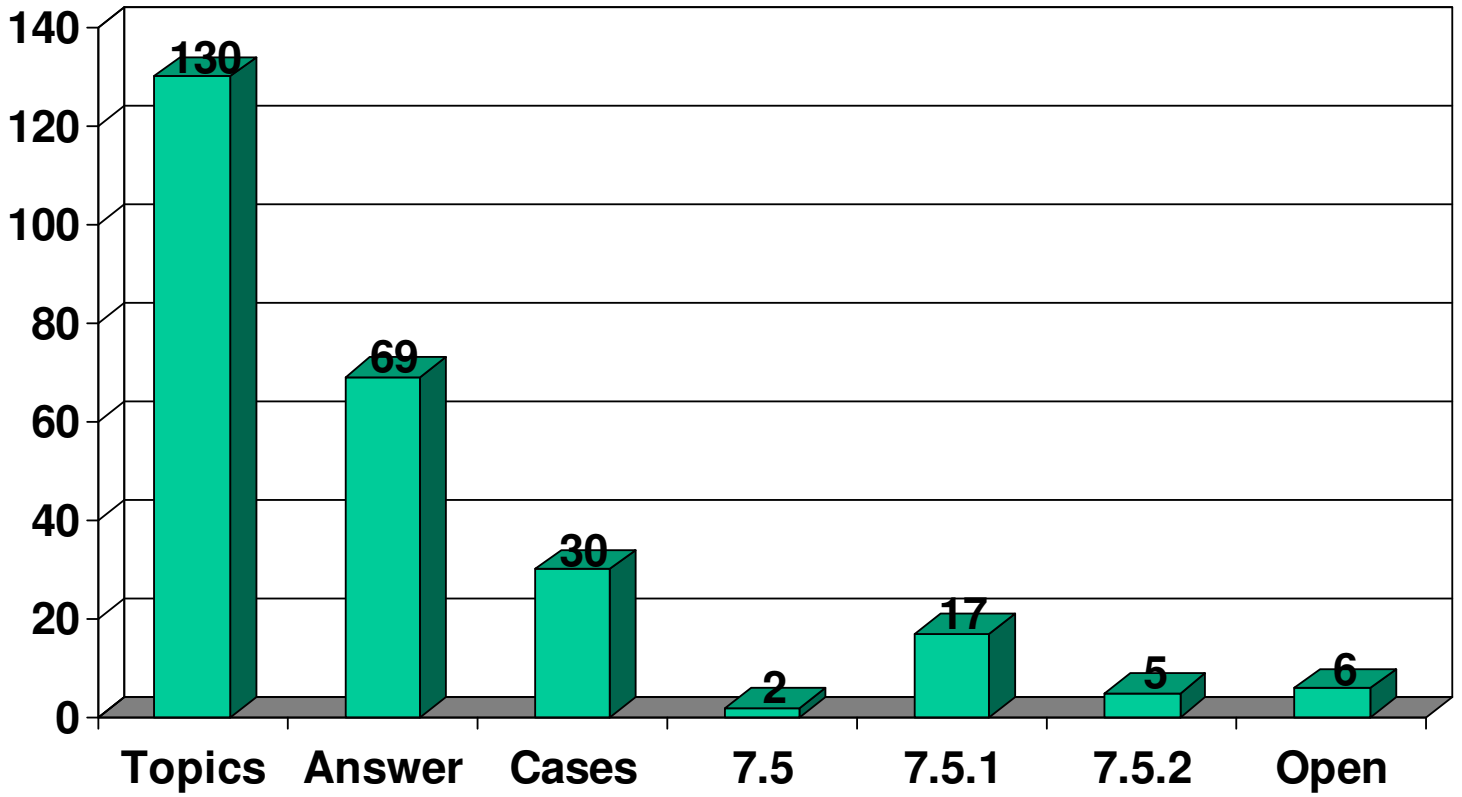


Web Services Demo - 4

- Deploys and invokes the service using the web service framework and the XML files



VA Smalltalk Forum



Technical Support