Session SCH290

Debugging Essentials

Rick Schummer
White Light Computing, Inc.
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Who Am I?

- President of White Light Computing, Inc.
- Co-authoring: What's New in Nine
- Co-author: *Deploying Visual FoxPro Solutions*
- Co-author: *MegaFox: 1002 Things You Wanted to Know About Extending Visual FoxPro*
- Co-author: *1001 Things You Wanted to Know About Visual FoxPro* (KiloFox)
- VFP MVP and MCP
- Author of WLC HackCX & MenuDesigner
- raschummer@whitelightcomputing.com

Objective

- Improve the day-to-day debugging adventures
- Reduce the time to solve problems
- Introduce some debugging enhancements delivered in VFP 9 (Europa)

What you can learn…

- Using the Scientific Method
- Testing vs. Debugging
- Debugging basics
- Reset to factory settings
- Start the debugger
- Loading configurations
- Fixing "Source not available"

What you can learn…

- Hidden Tips
- Rerunning code (instant replay)
- Sophisticated breakpoints
- Coverage Profiler tips
- Finding undeclared variables
- VFP 9 (Europa) changes

Scientific Method

- Make an observation
- Formulate questions
- Create hypothesis/prediction
- Fix and test
- Evaluate results
- Make a decision

Testing vs. Debugging

- Testing proves requirements
  - Written requirements
- Debugging is problem solving
  - Construction phase
  - Defects in testing
  - Better with experience

Yesteryear or not?

- FoxPro 2.6 DOS/Windows
  - Trace Window
  - Debug Window
- Still in use
- Lots of applications being converted to newer technology and requirements are in the code

Debugger Basics

- Configure the debugger
  - Fox Frame or Debug Frame
  - Windows and options
  - Fonts, Colors
- Shortcut keys
- Drag and Drop

Debugger Basics

- Changing values
- Throttle
- Fix
- SYS(1270)

Factory Settings

- CLEAR DEBUG
  - Clears breakpoints, watch expressions, and output window
  - Resets windows
  - Does not clear color settings (registry)
- Debug Frame: menu option
- Program to clear settings

Start Debugger Code

- DEBUG
- SET STEP ON
- ASSERT
- SUSPEND
- DebugMode() – F1 Tech VFE
  - Optional DEBUG/SUSPEND
  - Will not crash runtime

Debugger Configurations

- Debug Frame only
- Load/Save settings
- Customize Watch Window for a particular scenario
- Trick to sort the items in Watch Window

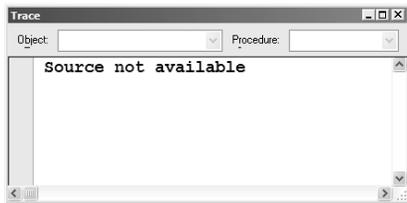## Source Code Lost?

Hidden Tips

- Trace: Find dialog
- Output: Mismatched types
- Call Stack: Ordinal Position
- Watch Window: Dialog function problem
- Locals: Filter on types of memory variables

Instant Replay

- Set Next Statement
- Accidentally hit the Step Out or Step Over
- Change values and try again save rerunning code

Pushed to the Breakpoint

- Location
- Location when true expression
- True expression
- Expression changes
- Pass count
- Enabling and disabling
- Skipping the breakpoint dialog

When does the code run?

- Tracking Events
- What methods were executed and in what order
- BindEvents()
- Access and Assign Methods

Coverage Profiler

- Profile Mode for performance
  - Bottlenecks
  - Hits
- Coverage Mode to ensure all code tested
  - Shows what code was not executed
  - Character to indicate missed code is configurable.

Coverage Profiler

- Started programmatically or via menu in Debug Frame
- Analyze the log file
- Creating Add-ins

Breaking Up Long Lines

- SQL Selects
- IF conditions
- REPORT FORM

Undeclared Variables

- VFP 7 introduced _vfp.LanguageOptions
- Debug Output Window
- Only code that is executed
- Undeclared variable analyzer tool

Europa

- Watch Window Errors
- Output Window mouse wheel enabled
- Reports can be debugged
- SET COVERAGE command at runtime
- CLEAR ERROR

Tricky Bugs

- Objects are not what they appear
- Module performance
- Variable scoping
- Event firing

Questions?

- If there is time for questions that have not been asked during session, now is a great time to ask
- Feel free to ask me questions about the topic at any time during the conference
- Contact information is in the white paper if you want to ask after the conference

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Web Update

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This session will have web updates.

Thank you!

Please remember to fill out
your evaluation.