

cf**united**
the premier coldfusion technical conference

June 18 - 21, 2008
Washington DC

Interactive Step Debugging with the CF8 Debugger



Charlie Arehart
Independent Consultant
charlie@carehart.org



Produced 26-Jun-08

www.cfunitied.com

Topics

- Introduction to Step Debugging
- Debugging Demo
 - CF8 Debugger
- Debugger Features
- Why Use Debugging over CFDUMP, etc.
- Tips and Traps
- Learning More, FAQs, etc.

About Charlie Arehart

- Independent consultant since April 2006
- 11 yrs CF experience (26 in Enterprise IT)
 - Member, Adobe Community Experts
 - Certified Adv CF Developer (4 - 7), Cert. Adobe Instructor
 - Writer in FAQU, Adobe DevCenter, CommunityMX, CFDJ, more
 - Contributor to all three Ben Forta CF8 books
 - Frequent speaker to user groups, conferences worldwide including CFUnited, cf.Objective, webDU, webManiacs, Scotch on the Rocks et al
 - Run the Online ColdFusion Meetup (coldfusionmeetup.com)
 - Living in Alpharetta, Georgia (north of Atlanta)
- Web home at www.carehart.org
 - 200+ blog entries, 60+ articles, 70+ presentations, more
 - UGTV: Recorded presentations by over 100 CFUG speakers
 - Tools/Resources to Consider: 700+ tools/resources in 100+ categories
 - Consulting: available for troubleshooting, tuning, training
 - For as few as days, hours, or even minutes; remote or on-site

Solution CF 8

- The session discusses the CF 8 Debugger, from Adobe
 - Free with CF8
 - Adobe ColdFusion 8 Extensions for Eclipse
 - <http://www.adobe.com/support/coldfusion/downloads.html#cfdevtools>
 - Works only on CF8
- Those on CF 6 or 7 should consider:
 - FusionDebug, from Intergral
 - Commercial product (www.fusiondebug.com)
 - Works on 6, 7, and 8
- Both are very similar, and yet different
 - This talk focuses only on the CF8 debugger

Introduction to Step Debugging

- Understanding interactive debugging
 - What can it do for you?
 - Step through code line-by-line (where needed)
 - View variables, in all scopes, at that point
 - Watch particular expressions, to observe changes
 - Even change variables on the fly during execution
 - And more
- Both based on Eclipse
 - But don't let that scare you!
 - Even if using DW, HS, use Eclipse just for debugging

Debugger Demo

- Let's see it in action

Demoed Features

- Set breakpoints, stepped through code
 - Viewed variables, watched expressions
- Showed simple CFML code (CF Example Apps)
 - Showed query data in variables pane
- Showed CFC-based code (Model Glue, Mach II)
 - Showed scopes available in CFC methods (var and this scopes)
 - Showed how stack is interactive
 - click to jump to lines in chain above current instruction
- Showed debugging Flex, Ajax apps
 - Could also debug web svcs, Application.cfc, gateways, scheduled tasks
- Showed debugging inside CFSCRIPT
 - Can also debug within CFWRITE, CFMAIL, CFSAVECONTENT, etc.

About Underlying Eclipse

- What is Eclipse?
 - Free Java-based editor, greatly extensible
 - Also the basis of Flex Builder, CFEclipse
 - can add debugger to those, or have separate Eclipse installation
- Why did Adobe build this atop Eclipse?
 - Built-in debugging features, just connected to CF
- Easy to install Eclipse plug-in (3.1, 3.2, 3.3)
 - CF8 docs, articles explain how to install the plug-in
 - I also have written a 20+ page chapter with details
 - URLs for these offered at the end of the talk

Server Installation

- Debugger requires minor modification of the CF server to be debugged
 - CF8 Admin has Debugger Settings > “allow line debugging” checkbox
- In order to use the CF8 debugger, you must have enabled RDS during installation of CF
 - If you did not, you need to enable it
 - See http://www.adobe.com/go/tn_17276

CF8 Debugger Relies on RDS

- You then need to know the RDS password defined for your server (in the CF Admin)
 - Or take advantage of the new multiple RDS user feature in the Security section of the ADMIN
- You will use this RDS password (or username/password) in the CF8 Eclipse debugger setup steps
 - Window>Preferences>ColdFusion>RDS configuration
 - Documentation shared later offers more details
- Can test RDS and debugger setup
 - Window>Preferences>ColdFusion>RDS configuration>Test Debugger/Connection

Benefits Over CFDUMP/CFOUTPUT

- Can debug when a CFOUTPUT/CFDUMP may not be possible
 - What are some examples?
 - CFCOMPONENT/CFFUNCTION OUTPUT=false
 - CFSILENT
 - When generating non-HTML output
 - Flex/Flash, Flash Remoting, Ajax, web services clients, etc
- Debugging Application.cfc, event gateways, scheduled tasks
- Ever forget to remove debugging output?
- And a dozen other reasons
 - See more details on all these at:
 - http://carehart.org/blog/client/index.cfm/2006/9/7/fusiondebug_part2_why_use_versus_cfdump

Other Features

- CF Admin setting for “timeout requests in x seconds” will affect debugging
 - Timeout will generate timeout popup error in CF8 debugger
 - Either disable or increase the value in Admin
 - Or use CFSETTING RequestTimeout=“xx” on pages being debugged
- Viewing generated HTML output
 - CF8 debugger offers window to view that
 - Window>Show View>Other>Debug Output Buffer

Other Features (cont.)

- Breaking on run-time exceptions
 - CF8 debugger can be configured to break on exceptions
 - window>preferences>coldfusion>debug settings
 - Will stop on most (not all) error (pops up window in debugger, error shown to user when done debugging)
 - Even stops and shows pages you were not debugging
 - Note that it also stops on code that throws errors
 - Could be a negative in some code
 - Note there's a fix related to this in the new CF8 Cumulative Hot Fix
 - <http://www.adobe.com/go/kb402466>

Other Features (cont.)

- Ability to control variables shown
 - selectable via window>preferences>coldfusion>debug settings>Debugger Scopes
- Ability to set variables on the fly
 - In either the Variables or Expressions panes, right-click and choose “Change Value”
- Ability to set watch expressions from code
 - via Expressions window
- You can debug remote or central server (test, production)
 - Only first requesting user of a page will be debugged
 - Multiple developers can debug on one server (could do in test)
 - RDS security controls who is allowed to access debugger

Other Features (cont.)

- If file edited outside of Eclipse, breakpoints won't move (affects both)
 - May end up on line that keeps breakpoint from firing
- Can disable debugging temporarily
 - “Disable checkpoints” option in Eclipse
 - “stop debugging” button in CF8 Admin (for CF8 debugger)

Tips

- No need to create mappings if Eclipse and CF on same machine
 - Run>Debug>ColdFusion Application>yourconfig
 - Otherwise, use “add mapping” there indicating both Eclipse and CF path
- Favor Step-over to Step-Into
 - Will step into tags like CFDUMP, CFSAVECONTENT, etc, which actually are CFM files
 - cfusion\wwwroot\WEB-INF\cftags
 - Gets error in CF8 debugger

Tips (cont.)

- In multiserver edition
 - Must edit jvm.config by hand
 - Jvm.config for multiserver in C:\JRun4\bin
 - See docs for details
 - Also, consider creating unique config for cf instance (rather than at jrun4 level), otherwise CF may not start in some situations
 - <http://mkruger.cfwebtools.com/index.cfm/2006/4/17/multiserver>
 - <http://www.doughughes.net/index.cfm?event=viewEntry&entryId=244>

Tricks

- Available shortcuts in Eclipse
 - Breakpoint: ctrl-shift-b
 - Step into/over/return/resume: f5/f6/f7/f8
 - Commands also available on “run” menu
 - Double-click on stack trace line/breakpoints list
 - Opens file at that line
- If Debugger installed but not visible
 - use Window>Open Perspective>Other>Debug
- If Navigator pane not visible
 - use Window>Show View>Other>General>Navigator
- If Expressions tab not visible
 - use Window>Show View>Other>Debug>Expressions

Tricks (cont)

- Find command in Variables, Expressions panes
 - Ctrl-f, or right-click+find
 - Available wildcards: ? And *
- Can copy variable/vals to clipboard with “Copy variables”
- Can “group” breakpoints, by file/project, or “working sets”
- Can export/import breakpoints

Learning More

- Documentation: CF8 ColdFusion Developer's Guide
 - http://livedocs.adobe.com/coldfusion/8/htmldocs/using_debugger_1.html
 - About the ColdFusion Debugger
 - Installing and uninstalling the ColdFusion Debugger
 - Setting up ColdFusion to use the Debugger
 - About the Debug perspective
 - Using the ColdFusion Debugger
 - Viewing ColdFusion log files
 - http://livedocs.adobe.com/coldfusion/8/htmldocs/help.html?content=basiconfig_19.html

Learning More (cont.)

- Other resources
 - My chapter in ColdFusion 8 Web Application Construction Kit Volume 2: Application Development
 - *"Using the CF8 Debugger"* (25 pages)
 - Available online
 - <http://www.forta.com/books/0321515463/CFWACK8-2-EChapters.pdf>
 - My FusionAuthority Quarterly Update article in CF8 Special Edition
 - *"The ColdFusion 8 Debugger Explained: Interactive Step Debugging for ColdFusion 8"*

Learning More (cont.)

- Other resources (cont.)
 - “Using the ColdFusion 8 step-through debugger for Eclipse”, Brian Szoszorek
 - <http://www.adobe.com/devnet/coldfusion/articles/debugger.html>
 - “Getting Started With The ColdFusion Debugger”, Ben Forta
 - <http://www.forta.com/blog/index.cfm/2007/5/30/CF8-Debugger-Getting-Started>
 - ColdFusion 8 Debugger Resources and Tips
 - <http://www.thecrumb.com/2007/08/31/coldfusion-8-debugger-resources-and-tips/>

FAQs

- Does it work with CF4, 5, 6, or 7?
 - No, works only with CF 8
 - FusionDebug runs on 6, 7, or 8
- Does it run on Linux? OS X? other platform
 - Yes, runs on any platform that runs Eclipse
 - and can debug any server that runs ColdFusion
- How much does it cost?
 - It's free
- Is it included in CF 8 Standard, Enterprise, and Developer editions?
 - Yes
- How do I get support?
 - CF Support forums (General)
 - <http://www.adobe.com/cfusion/webforums/forum/index.cfm?forumid=1>

FAQs (cont.)

- Does it support debugging Javascript? Actionscript? Java?
 - No, that's left to other debuggers
 - Eclipse already can debug Java, and FlexBuilder can debug ActionScript
 - Other tools offer Javascript debugging inside Eclipse
 - JavaScript Eclipse Debugger Plug-ins:
 - <http://www.apтана.com/>
 - <http://www.myeclipseide.com/index.php?module=htmlpages&func=display&pid=270#jsdebug>

Conclusion

- Great solution, finally, for CFML debugging
- It can be challenging to get started
 - Please refer to the resources I've written
- Yes, it's based on Eclipse
 - But again, you can continue to use your favorite editor, and just use Eclipse for debugging
- Getting used to relying on debugger
 - The challenge is simply remembering to use it!
 - Try for yourself and see if it doesn't help

Questions on presentation

- Charlie Arehart
 - charlie@carehart.org
- I'd really appreciate your feedback
 - <http://carehart.org/feedback/>
- Also available for setup and implementation consulting
 - Also other developer productivity coaching, system admin and tuning support, and more
 - Remote or on-site
 - Again, for as little as days, hours, even minutes
 - <http://carehart.org/consulting/>
- Finally, evaluations...

Evaluations

- **Title:** DDT228 - Interactive Step Debugging with the CF8 Debugger
- **Speaker:** Charlie Arehart