CFMX Hidden Gems

What's new? More than you may know

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Agenda
- Quick Run-down of Popular New CFMX Features
- The Hidden Gems (20 detailed, 20 others listed)
- Comparing Pro and Enterprise
- Where to Learn More
- Q&A

The Big New Things
- Underlying J2EE standards-based foundation
- ColdFusion Components (CFC’s)
- Integrated XML and Web Services
- Flash integration and remoting

Not as Big, But Promoted
- CFFUNCTION
- User Authentication (CFLOGIN)
- Sandbox/Resource Security
- Leveraging JSP Custom Tags (CFIMPORT)
- CFCHART
- Auto Compilation of Code into Java
- Extended Java Integration
- Unicode (internationalization)
- Improved debugging and tracing (CFTRACE)

The Hidden Gems

Cookies Set Before CFLOCATION No Longer Lost!
- In CF5, running cookie_set.cfm would yield no output
- Cookies set before a CFLOCATION did not take
- In CFMX, this is no longer the case (not documented)

Cookie_set.cfm
<cfcookie name="test" value="bob"
<cflocation url="cookie_test.cfm"
<cfif isdefined("cookie.test")>
<cfoutput>#cookie.test#</cfoutput>
</cfif>

Cookie_test.cfm
<cfif isdefined("cookie.test")>
<cfoutput>#cookie.test#</cfoutput>
</cfif>
- In CFMX, outputs “bob”, meaning the cookie was set
Pre-compiling CF Templates

- Can precompile CF templates
  - Could be useful to speed up first-time execution of templates
  - Can also use to perform syntax check
- Save the code below as PreCompile.bat in C:\
  ```java
  set MX_INSTALL=d:\cfusionMX
  $MX_INSTALL\runtime\jre\bin\java -classpath
  $MX_INSTALL\lib\cfusion.jar coldfusion.tools.Compiler -webroot %1 -webinf $MX_INSTALL\wwwroot\WEB-INF \%
  ```
- Change first line to reflect location of your CFMX installation
- This version is different than earlier ones
- Solves problem of compiling code outside the default webroot
- My October CFDJ article covers this subject in more detail

Precompiling Code for Unix

```sh
#!/usr/bin/sh
MX_INSTALL=/opt/coldfusionmx
JAVA=$MX_INSTALL/jre/bin/java
$JAVA -classpath $MX_INSTALL/lib/cfusion.jar coldfusion.tools.Compiler -webroot $1 -webinf $MX_INSTALL/wwwroot/WEB-INF $1
``` 

Server-side Redirect

- CFLOCATION does client-side redirect
- CFMX’s forward, in GetPageContext, does server-side
  ```cfsystem
  // transfer control to a CF page
  GetPageContext().forward("someFile.cfm")
  </CFSYSTEM>
  ```
- See my June 2002 CFDJ article, “New Possibility in CFMX: Server-side Redirects”
- Available online at systemanage.com (articles)
- Also, see my CF_FORWARD custom tag
  ```
  ```
- Encapsulates the CF code needed, adds some features

New Variable Scopes Available as Structures

- We previously had session, application, form, URL,
  and other scopes available as structures
- Could use CFLOOP COLLECTION to loop over them, for instance
- Now CFMX allows treatment of these that way as well:
  - Variables
  - Server
  - Caller

CFMX Tag Updater for CF Studio

- Get access to tag insight, tag help, etc. for CFMX tags
  and updated attributes and functions
- Download and unzip it to the root of your Studio installation
  - Be sure to choose "overwrite existing files"
- Works for either Studio 4.x or 5
- Also, updated help at:
  ```
  http://download.macromedia.com/pub/homesite/updates/cfml_ref.zip
  ```
  - Instructions are for HomeSite+, but apply to Studio/HS

New Variable Scopes Available as Structures (cont.)

```cfsystem
<CFSET name="bob"> <cfdump var="#variables#">
<cfoutput>
<cfloop collection="#server.os#" item="i"> #i# #server.os[i]#<br>
</cfloop>
</cfoutput>
</cfsystem>
New Custom Tag features

- CFIMPORT tag, while intended for importing JSP tag libraries, can be used to group and use custom tags
- <CFIMPORT TAGLIB="pathname" PREFIX="chooseaname"/>
- Can then refer to custom tags (yes, even CF ones)
  - <chooseaname:tagname ...>
  - Where tagname previously would have been used as <CF_tagname> or <CFMODULE TEMPLATE="tagname.cfm">
- Allows grouping of tags together in a single dir
  - Also more easily refer to them in any relative dir
    (without CFMODULE)

“Server-side HTML”, “Adaptive Tags”

- Using the previous CFIMPORT of CFML taglibs, can leave off PREFIX attribute or set to empty string
  - And then ANY non-CF tag on the page (HTML, WML, etc.) will be treated as a custom tag if one of the same name is defined in taglib
  - <FORM> would become call to form.cfm template
  - If one exists in the CFIMPORTed library
  - Allows override of basic HTML tags to perform server-side pre-processing

CFSETTING REQUESTTIMEOUT attribute

- Previously could set timeout for a page by passing REQUESTTIMEOUT as URL parameter:
  - http://<somedomain>/sometemplate.cfm?requesttimeout=123
  - Would cause page to “timeout” as far as CF is concerned if it took longer than 123 seconds
  - Could be useful if you knew a given page was likely to exceed the default timeout (set in CF Admin)
  - Also, even if a user knew how to do it also, couldn’t easily do it via form submission
- Now, can do on page-by-page basis programmatically
  - <CFSETTING REQUESTTIMEOUT="nn"> (seconds)
  - Surprise: old approach is no longer valid. Ignored.

J2EE Session Variables

- In addition to traditional CF Session variables, can choose to use J2EE Session variables
  - Leverages a JSessionID that’s assigned
    - Rather than the traditional CFID and CFTOKEN
  - Value is created fresh with each new session
- Allows sharing of session variables between CF and JSP templates/servlets and more
  - Also enables non-persistent cookie for sessions
  - See next page
  - Must enable in Administrator
    - Server Settings>Memory Variables>Use J2EE Session Variables

J2EE Session Variables (cont.)

- Problem: CF Sessions don’t end on browser close
  - CFID/CFTOKEN stored in persistent cookies (to support client variables as well)
  - Opening new browser window will still see session
- Solution: J2EE sessions do “close” when browser closes
  - JsessionId stored as non-persistent cookie
  - If all windows closed, new window will get new JsessionId
  - Old session still exists in server, but browser no longer has connection to it, so effectively “closed”

- Netscape and IE act a little differently
  - In Netscape (4.73 in my testing)
    - All instances of browser, regardless of how opened, share same JsessionId. When last is closed, session is “closed”
  - In IE (5.5 in my testing):
    - Browser windows opened with Ctrl-N or File>New>Window share same JsessionId
    - Windows opened with Start>Programs>Internet Explorer, or Desktop or Task Tray Launcher create new JsessionId
    - Technically, then, could close some windows and “close” their session while others remain open
    - Still, when all are closed, all sessions are “closed”
Optional UUID for CFTOKEN

- The value of the CFTOKEN cookie (used for session and client variables) is by default a simple random integer.
- Now have option to have CFMX set that value to a Universally Unique IDentification number (UUID).
- A UUID guarantees a unique identifier for the token.
- Benefits: more secure, more difficult to guess.
- May appear as: 15ce46ab4e29af0a-AF695847-F92F-344A-133252991FB6C3B5
- Set in Administrator:
  - Server Settings>Settings>Use UUID for CFTOKEN.
- Was optional in CF 4.5 and 5 via registry hack.

URLSessionFormat() Function

- When using session variables, if browser doesn’t support cookies, you are responsible for passing CFID and CFTOKEN (and/or JSessionID) on.
  - `<A HREF=>`, `<FORM ACTION=>`, `<CFLOCATION URL=>`, more.
- Can now have CF automatically determine if browser supports cookies.
  - If so, it will add SessionID info (CFID and CFTOKEN and/or JSessionID) to URL.
- Example:
  - `<a href=""$URLSessionFormat("MyPage.cfm?name=bob")"">some link</a>`

URLSessionFormat() Function
(cont.)

- Works whether J2EE sessions are used or not.
- Only appends sessionid info if cookies are not supported.
  - Technically, if no sessionid cookies (CFID/CFTOKEN or JSessionID for J2EE sessions) are passed to page.
- Without J2EE sessions, the function returns:
  - MyPage.cfm?name=bob&cfid=xxxx&cftoken=xxxxxxx
- Using J2EE sessions, the function may return:
  - MyPage.cfm;JSESSIONID=8030949691025145133137?name=bob&cfid=xxxxx&cftoken=xxxxxxx
  - Note addition of JSessionID before querystring.
  - Potential problem discussed shortly.
- Will still add CFID/CFTOKEN if client variables in use.

J2EE Session Challenges

- Sessionid cookies won’t be passed on very first visit to site, even if cookies are supported.
  - So URLSessionFormat will append sessionid info even if cookies are supported by browser.
- Also, CFLOCATION will append JSessionid info.
  - If using J2EE sessions and JSessionid cookie doesn’t exist (whether cookies not supported or just first visit).
  - Even AddToken="no" won’t stop it adding that.
  - No big deal, except…

J2EE Session Challenge on IIS

- Jsessionid appended before query string not supported by IIS (haven’t tested apache).
  - Will cause a 404, even if the filename exists.
- Again, problem is:
  - Using J2EE sessions.
  - When cookies aren’t supported by browser (or first time visitor with no sessionid cookies), and
  - either URLSessionFormat or CFLOCATION are used.
- Don’t use URLSessionFormat function if using on IIS w/J2EE sessions.
  - If need to support browsers that don’t allow cookies.
  - Be careful about using CFLOCATION to sites that use IIS (even if YOUR site is using the built-in CFMX web server).
Try/Catch in CFSCRIPT, UDFs

- Can now perform try/catch handling in CFSCRIPT
  - CFSCRIPT is at heart of User Defined Functions
  - So can now do so in UDFs
- No support yet for equivalent of CFTHROW
  - To throw error out of script or UDF to caller
- Also, catch is not listed inside try as with <CFCATCH>

```
<cfscript>
function test() {
  name="bob";
  try{
    //note that myname is not defined. Throws error
    if (myname is "bob") {
      writoutput("ok");
    }
  }
  catch(any excpt){
    writeOutput("This is an error!");
  }  
}
</cfscript>
```

Evaluation within Expressions

- Can now do evaluations within expressions, without evaluate()

```
<cfquery datasource="cfsnippets" name="get1">
  select * from parks
</cfquery>
```

- Prior to CFMX, would need an evaluate here
  - Intentional change, according to MM reps
  - Return to previous way of working

Miscellaneous

- Examples in online CFML Reference are now housed at Macromedia.com (avoids security issues)
- But example apps still exist at http://yourserver/cfdemos/exampleapps/index.cfm
- Locking concerns in CFMX have changed
- Running CFMX on Mac OS X
- Free CFMX hosting (non-production basis)
  - https://www.hostmysite.com/cfmx.hms

Miscellaneous (cont.)

- You should learn about Resource/Sandbox Security in CFMX
  - Basic and Advanced Security of prior releases is gone
  - As is reliance on Netegrity SiteMinder
  - Basic Security settings are NOT carried forward in upgrade to CFMX
  - CFREGISTRY, CFEXECUTE tags unrestricted by default
  - Much easier to configure and with mostly more functionality
  - Docs are confusing. See livedsoc.macromedia.com for comments offered on many pages

  See my 2 articles at new Macromedia Security Developer Center to learn about new security features
  - ColdFusion Security, Part Two: Sandbox/Resource Basics

- Can view information about underlying JVM

```
<cfset sys = createObject("Java", "Java.lang.System")>
<cfoutput>
  JVM name: #sys.getProperty("Java.vm.name")#<br>
  JVM version (build): #sys.getProperty("Java.vm.version")#<br>
  JVM class path: #sys.getProperty("Java.class.path")#<br>
</cfoutput>
```

- Name of class being referenced (ie, Java.lang.System) is case-sensitive
  - Reference to methods within CFML (getProperty above) are not
- See the Java 2 Library documentation for more information
Miscellaneous (cont.)

- Can indicate alternative directory for templates outside of normal [cfusionmx_home]wwwroot
  - Add an additional line like the following to [cfusionmx_home]wwwroot/WEB-INF/run-web.xml
    ```xml
    <virtual-mapping>
      <resource-path>/altptr/*</resource-path>
      <system-path>C:/altdir/</system-path>
    </virtual-mapping>
    ```
  - Where "altptr" is a prefix to point to code in "altdir" as:
    ```xml
    http://[yourserver]/altptr/template.cfm
    ```
- See "Configuring the Macromedia ColdFusion MX built-in web server" for more:
  - http://www.macromedia.com/support/coldfusion/adv_development/config_builtin_webserver/

Miscellaneous (cont.)

- Two Security Bulletins recently announced
  - Patch available for default Missing Template page in ColdFusion MX
  - ColdFusion MX Enterprise Edition's JSP™ functionality should be disabled in shared, hosted environments
  - CF's admin settings are now saved in [cfusion_home]lib as xml files
    - neo-runtime.xml, neo-query.xml, neo-verity.xml, etc.
    - Rather than in the registry, as previously

Variety of Other Changes

- Still more:
  - Creating "java stubs" for use with COM objects
  - New commenting flexibility
  - Pseudo-constructors in CFCs
  - Useful GetPageContext function provides access to underlying J2EE PageContext object
  - Interesting server.ColdFusion.ServiceFactory object
  - Admin "Server Reports" feature has gone missing
  - Enhancing dynamic class reloading
  - Saving java source code from compilation of CF templates
  - Turning off the Admin password without entering Admin
    - These last three are currently covered in my blog: cfmxplus.blogspot.com

Variety of Other Changes

- New CFMX Features not in Professional
  - Enhanced Java integrations
    - Support of JSPs and servlets, sharing data between them and CF templates
  - Server sandbox security
    - Instead have Resource Security, covering all apps
  - Features that Do Remain in Pro
    - J2EE Session variables (enabled in Admin)
    - Chart caching (set in Admin)
Getting Started Resources

- Getting Started Resources at Macromedia
  http://www.macromedia.com/software/coldfusion/resources/get_started/
- Getting Started Resources Installed on Server
  http://localhost:8000/CFIDE/administrator/welcome.cfm
  - Offers 4 groupings of new features by developer type
  - Links to example applications
- Examples installed on server
  http://[yourserver]/cfdocs/exampleapps/index.cfm
- Interactive Feature Tour at Macromedia
  http://www.macromedia.com/software/coldfusion/productinfo/features/flash_feature_tour/

Upgrade Docs/Resources

- Upgrade Guide
  http://www.macromedia.com/software/coldfusion/productinfo/upgrade/
  - Lists top 10 features, pricing info
- Upgrade FAQ
  http://www.macromedia.com/software/coldfusion/productinfo/faq/upgrade/
- Feature Comparison Grid (CF5 vs CFMX)
  http://www.macromedia.com/software/coldfusion/productinfo/upgrade/comparison.html
- Feature Comparison Grid (Detailed, and Pro vs Ent)

New Docs

- 4 standard CFML documentation books updated
  - Installing ColdFusion MX
  - Administering ColdFusion MX
  - CFML Reference
  - Developing ColdFusion MX Applications with CFML
- 5 new books:
  - Getting Started Building ColdFusion MX Applications
  - Migrating CF5 Applications
  - Using Server-Side ActionScript in ColdFusion MX
  - Using ClusterCATS
  - Working with Vertly Tools

The MM Book on CFMX

- “Developing ColdFusion MX Applications with CFML”
  - User Guide that many never see
  - Redesigned, now 900 printed pages!
  - Of course, several chapters cover updated features
    - Some chapters discuss old subjects in new and better ways such as …

The MM Book on CFMX (cont.)

- Several new chapters such as:
  - Chapter 10 Writing and Calling User-Defined Functions
  - Chapter 11 Building and Using ColdFusion Components
  - Chapter 13 Designing and Optimizing a ColdFusion Application
  - Chapter 17 Developing Globalized Applications
  - Chapter 22 Using Query of Queries
  - Chapter 29 Using the Flash Remoting Service
  - Chapter 30 Using XML and WDDX
  - Chapter 31 Using Web Services
  - Chapter 32 Integrating J2EE and Java Elements in CFML Applications

Where to Find Documentation

- Available on CFMX server
  - At [yourserver]/cfdocs/dochome.htm
  - Also, now in Start>Programs>CFMX
  - Links to docs and getting started have returned (links were missing in CF 5)
  - Note new Java-based search feature in docs
- PDFs of all docs downloadable at:
  http://www.macromedia.com/support/coldfusion/documentation.html
  - Also livdocs.macromedia.com
  - Now offers CFMX docs as well as CF5 and others
- Purchase from Macromedia for $50
Beyond the Docs

- Doc update:
  http://www.macromedia.com/v1/Handlers/index.cfm?id=22811
- Doc additions:
  http://www.macromedia.com/v1/Handlers/index.cfm?id=22993
- Release notes:
  http://www.macromedia.com/support/coldfusion/releasenotes/mx/relea
  senotes_mx.html
  - Link offered within Administrator, though none in start>programs nor at site under resources and notes
- And don’t miss DesDev site for examples, articles
  http://www.macromedia.com/desdev/mx/coldfusion/
- And the example site:
  http://examples.macromedia.com/coldfusion/examples/

My Resources

- Currently 5 CFMX-related articles in ColdFusion Developers
  Journal
  - Precompiling CFMX Templates (Oct 2002)
  - CFMX Hidden Gems (Sept 2002)
  - New Possibilities for Session and Client Variable Handling in CFMX
    (August 2002)
  - New Possibility in CFMX: Server-side Redirects (June 2002)
  - Using JSP Custom Tags in CFMX: What, Why, and How (May
    2002)
- 2 articles at new Macromedia Security Developer Center
  - ColdFusion Security, Part One: Understanding Sandbox/Resource
    Security
  - ColdFusion Security, Part Two: Sandbox/Resource Basics
- Each available online at www.systemanage.com (articles)
- Also, see my blog at cfmxplus.blogspot.com

My Resources (cont.)

- Planned CFMX-oriented One Day seminars:
  - CFMX in Depth: Opportunities and Challenges
  - Getting Started with XML and Web Services in CFMX
  - DreamWeaver MX For CF/Studio Users
  - Understanding CFMX/J2EE Integration For Those With No Java Experience
- These are in addition to 14 others on other CF topics
- More info at www.systemanage.com (Seminars)

Summary

- There are many more new features, aspects of popular features
  - Than are being discussed in common talks and articles
- Best solution is to read all manuals
  - And release notes, doc updates, etc.
- Equally important, if not more
  - Try out the installed example apps, examples at DesDev Center, examples in docs, own examples
- Share your experiences with others
  - Consider writing your own articles for DesDev, CFDJ
- Hope this has all been helpful and motivating

Contact Information

- Happy to answer questions related to talk
  - Email: carehart@systemanage.com
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- Also available for
  - Training (custom or pre-written)
    - CF, DB, JRun/J2EE, Javascript, wireless, and more
  - Consulting (very short-term)
    - best practices, architecture, setup
  - Developer Group Mentoring