CFMX Hidden Gems

What's new? More than you may know

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SysteManage: *our practice makes you perfect* ℠

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">
    ```
  - 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:**
  ```
  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 %1
  ```
- **Change first line to reflect location of your CFMX installation**
- **Run with this, pointing to a directory, for example:**
  ```
  C:\> PreCompile c:\cfusionMX\wwwroot\yourdir\
  ```
- **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

```
#!/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
  ```
  <CFSCRIPT>
  // transfer control to a CF page
  GetPageContext().forward("someFile.cfm")
  </CFSCRIPT>
  ```
- **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**
  - http://devex.macromedia.com/developer/gallery/info.cfm?ID=C0DB 78BB-617C-11D6-840300508B94F380&method=Full
  - Encapsulates the CF code needed, adds some features

CFMX Tag Updater for CF Studio

- **Get access to tag insight, tag help, etc. for CFMX tags and updated attributes and functions**
- **http://www.macromedia.com/software/coldfusionstudio/productinfo/resources/tag_updaters/**
  - 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

- **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

New Variable Scopes Available as Structures (cont.)

```
<CFSET name="bob">

<cfdump var="#variables#">

<cfdump var="#server#">

<CFOUTPUT>
<CFLOOP collection="#server.os#" item="i">
  #i# #server.os[i]#<br>
</CFLOOP>
</CFOUTPUT>
```

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 for 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"

J2EE Session Variables (cont.)

- **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: 15ce46ab4e29a f0a-AF695847-F92F-344A-13325 2991FB6C3B5
- **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")#">
  ```

URLSessionFormat() Function (cont.)

- **Works whether J2EE sessions are used or not**
- **Only appends sessionid info if cookies 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=xxxxxxxx
  ```
- **Using J2EE sessions, the function may return:**
  ```
  MyPage.cfm;JSESSIONID=803094969102514533137?name=bob&
      cfid=xxxx&cftoken=xxxxxxxx
  ```
  - Note addition of;JSessionID <u>before</u> querystring
    - Potential problem discussed shortly
  - Will still add CFID/CFTOKEN if client variables in use

URLSessionFormat() Function (cont.)

- **Can also embed URLEncodedFormat (ugly, but works)**
  ```
  <cfoutput>
  <a href="#URLSessionFormat
  ("MyPage.cfm?name=#URLEncodedFormat("billy bob")#")#">some
     link</a>
  </cfoutput>
  ```
- **Last 3 topics (J2EE sessions, UUID for CFTOKEN, URLSessionFormat)**
  - covered in my August 2002 CFDJ article, "New Possibilities for Session and Client Variable Handling in CFMX"

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 if:**
  - 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>**

Try/Catch in CFSCRIPT, UDFs

```
<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>
<cfoutput>
#test()#
</cfoutput>
```

Evaluation within Expressions

- **Can now do evaluations within expressions, without evaluate()**
  ```
  <cfquery datasource="cfsnippets" name="get1">
   select * from parks
  </cfquery>

  <cfoutput>
  Time used: #cfquery.executiontime/1000#  seconds
  </cfoutput>
  ```
- **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]/cfdocs/exampleapps/index.cfm
- **Locking concerns in CFMX have changed**
  - http://www.macromedia.com/v1/Handlers/index.cfm?ID=23021&Method=Full
- **Running CFMX on Mac OS X**
  - See useful third part of 3-part series at http://www.oreillynet.com/pub/a/javascript/2002/08/08/coldfusion_three.html
- **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 livedocs.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 One: Understanding Sandbox/Resource Security
  - ColdFusion Security, Part Two: Sandbox/Resource Basics

Miscellaneous (cont.)

- **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.version")#
  (#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**
  - http://java.sun.com/j2se/1.3/docs/api/index.html

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\jrun-web.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: 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
    - http://www.macromedia.com/v1/Handlers/index.cfm?ID=23047
  - ColdFusion MX Enterprise Edition's JSP™ functionality should be disabled in shared, hosted environments
    - http://www.macromedia.com/v1/Handlers/index.cfm?ID=23046
- **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

Miscellaneous (cont.)

- **Restarting the CFMX service in Windows**
  - The "start" and "restart" buttons in Services may timeout trying to start. Instead, consider creating shortcuts to do:
    - net stop "ColdFusion MX Application Server"
    - net start "ColdFusion MX Application Server"
- **Admin "Logging Settings" page now allows setting of "max file size" for log files**
  - Will archive files once they reach that size
    - Default is 5 meg
  - "max num of archives" will cause deletion of oldest when max is reached
    - Default is 10
  - Means that you may be losing logs if not paying attention

Variety of Other Changes

- **See docs and release notes for more:**
  - Several Query of Query enhancements
  - Several CFLDAP changes
  - CFMAIL spooling option changes
  - Sort order in ListSort, ArraySort
  - Date processing functions have short, medium, long formats
  - Localization functions now follow Java standard rules
  - Several Regular Expression support changes
  - CFTHROW can now throw an OBJECT
  - CFLOG now always writes thread, date, and time
  - CFHTTP reading text file in as query, new FIRSTROWASHEADERS attribute

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

  - Enabling 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

Pro vs. Enterprise

- **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:8500/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)**
    http://www.macromedia.com/software/coldfusion/whitepapers/pdf/ColdFusionMXFeatureGrid_03.pdf

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 Verity 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 livedocs.macromedia.com**
    - Now offers CFMX docs as well as CF5 and others
- **Purchase from Macromedia for $50**
    - http://dynamic.macromedia.com/bin/MM/store/US/product.jsp?category=/BooksVideos/Documentation/ColdFusionServer&type=FULL

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/releasenotes_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**
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  - Web: www.systemanage.com

- **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