HIDDEN GEMS IN FUSIONREACTOR

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- Most think they "know" what FR can do
  - In my experience, most know/use only a fraction its capability
  - Ranging from major features to modest but useful minor ones
- In this talk, we'll uncover such hidden gems
  - Am speaking those experienced or rather new to FR
  - Focus is on practical aspects you may have missed, not every detail
- Session will be recorded, shared with those who registered
- Let's start with a couple of quick polls

HOPING YOU LEARN A TON

- Anyone interested in troubleshooting/tuning servers
  - Admins, managers, developers, devops
- Whether using any CFML engine
  - ColdFusion, Lucee, Railo, BlueDragon
- Or any Java application or server
  - Tomcat, JBoss, Wildfly, Jetty, WebSphere etc.
  - Or java applictions: Solr, Confluence, etc.
- FusionReactor implemented simply as a javaagent
- And is a low-cost, low-impact, reliable tool
  - Trusted for 10 years by thousands of shops worldwide (25,000th license recently sold)

WHO DOES THIS TALK APPLY TO?

- Charlie Arehart, independent consultant
  - Focused on CF server troubleshooting, primarily
  - Also helping those using Railo, Lucee, or JEE app servers
- Have served clients through my own consulting for 10 years
  - Also provide Intergral consulting (cfconsultant.com)
  - As well as FR training and occasional assistance with FR support

WHO AM I?

- Of course, FR monitors your CFML or Java app server
  - Tracking every request, and details about each
  - And every query, and details about each
  - Info on heap use, cpu, etc.
- And many focus on slow requests/queries, high cpu/memory
  - FR helps easily see **when** and **where** such problems happen
- But folks often left wondering <u>why</u>
  - The answers are usually there, with just a little effort…

KEY FEATURES YOU LIKELY KNOW

- Features everyone **_should_** know about:
  - Stack tracing
    - to identify line of code, while request is currently running
  - FR CP alerts
    - to show tremendously useful info by email at time of hangup
  - Logs
    - To track nearly all FR data over time
    - Self-managed to not take up space, and high-speed, so little impact
  - End-user performance monitoring (time spent getting to/from client)
- These are all covered in FastTrack training, docs, site feature pages

KEY FEATURES YOU MAY MISS

- Gems common to FR 5, 6 (and maybe FR 4)

- Gems unique to FR 6

LET'S MOVE ON TO THE "HIDDEN GEMS"

GEMS COMMON TO FR 5, 6

- Did you notice the Metrics<Web Metrics page:
  - Shows how long your instance (CF or whatever) has been up?
  - Shows count/list of requests by status code (500, 404, etc)?
    - See also *Requests>Response Codes*
  - Offers links under each graph to focus on that graph over time?
  - Offers button to change showing last minute vs last hour
- Did you know you can change or add to what's graphed?
  - Try adding current sessions/total to memory graph
  - Note option to reset to defaults
- …

"HIDDEN" IN PLAIN SIGHT

- Did you know you can click element legend in any graph to hide that series of data?

- Did you notice most pages have a "clear history" button?

- Did you notice you can select any page to be "home page"?

- Did you notice FR 5+ is a responsive/adaptive UI?

- Did you know there's online help for FR? *FusionReactor>Help* menu

  - Or http://docs.intergral.com/display/FR61/

"HIDDEN" IN PLAIN SIGHT (CONT.)

- Did you know you can see size of various jvm spaces?
  - *Resources>Memory Spaces* (see drop-down in top right)
  - Or size of heap vs total non-heap spaces
    - *Resources>Memory Heap/Non Heap*
- Did you notice the *Metrics>Web Metrics* page offers a button to perform garbage collection (major GC)?
- Did you notice *Resource>Garbage Collection*
  - Tracks major ("mark sweep") and minor ("scavenge") GCs
  - Shows how often they happen, and how long they take on avg
  - This is also logged: gc-PS-MarkSweep.log and gc-PS-Scavenge.log

HOW'S YOUR "MEMORY"?

- Did you know the value of stack tracing a running request?
  - And of option to "stack trace all", on *Requests>Activity*
- Did you know you can "stop tracking" a request?
  - Removes impact from graphs/CP alerts, but still shown in lists
- You may notice option to kill requests
  - Won't kill a request stuck waiting for something outside of CF (queries, cfhttp calls, cfftp calls, file i/o, etc.)

HANDLING RUNNING REQUESTS

- Did you notice that many list pages can show things "by application"
  - If an option labelled "all apps" appears in top right, click to see them
  - Helps better isolate issues if unique "per application"
  - App name determined automatically
    - or can be set programmatically

TRACKING THINGS BY APPLICATION

- Nearly everything in FR is logged
    - Logs are stored in file system:
    - Current hour: [FusionReactor]\instance\[instancename]\log
    - Previous hours: [FusionReactor]\instance\[instancename]\archive
        - Zipped up at top of each hour, or upon instance restart
        - Kept for 30 days by default
- Documentation of log columns:
    - See "FusionReactor User's Guide">Logging>Log Files Available in FusionReactor
        - In older releases, was on page "Overview of FusionReactor Logs"
- …

FR LOGS: THE BLACK BOX RECORDER

- Can import logs to Excel/OpenOffice Calc
  - Search online help for "excel"
- Consider also FusionAnalytics (separately purchased)
  - Which imports logs into DB, rolling up aggregate data also
  - Then offers ability to view FR data over jvm restarts
  - Also offers powerful additional reports (as it runs outside JVM)

FR LOGS: THE BLACK BOX RECORDER (CONT.)

- *Requests>Longest requests* vs *Slow requests* pages
  - And *JDBC>Longest Transactions* vs *Slow transactions* pages
- JDBC vs Transactions sections
- Also *Metrics>Web Metrics* vs *Metrics>Metrics*
  - Main difference is button in top right corner of Metrics page
  - Lets you change among transaction types
  - Changes charts and count sections of page to focus on that type

"DIFFERENCES" YOU MAY NOT NOTICE

- User agent logging
  - In *Requests>Settings>Request Logging*
  - In *Protection>Settings>Email Settings*
- Email settings (for CP alerts, daily reports)
  - In *FusionReactor>Settings>Email settings*
  - Can enter multiple addresses, comma separated
  - May be able to send from "fr-servername@yourdomain.com"
    - Even if the address doesn't "really " exist. Depends on your mail server
    - Try it, using "Send test email" feature
- …

THINGS YOU MAY WANT TO ENABLE

- If behind a LB, FR can obtain original client IP address from header
  - In *Requests>Settings>Proxy*
    - You can find IP header (if any) in request details>Headers tab
  - If your header is not offered in dropdown o Proxy page, just type/paste in the header name

THINGS YOU MAY WANT TO ENABLE

- Can bookmark any page as favorite: each page has own url

- Can copy shortcut created for FRAM on desktop, point to FR

- Can access FR via external web server by default

  - For CF, use http://[yourserver]/fusionreactor.cfm/findex.htm

  - Can disable this with *FusionReactor>Enable/Disable* page

TWEAKS TO PROVIDE EASE OF ACCESS

- You may know about logs: did you know you can see them online?
  - See FR menu, then Logs. Note drop down in top right
  - Most "settings" pages control amount shown, most recent 128k by default
  - Some logs not shown there, but found in *FusionReactor>Plugins* pages
- Did you know you if a page ends in error, can see details?
  - See request details>Error Details tab
- …

MORE ABOUT FEATURES YOU MAY USE

- Did you know about the various full-screen graph pages:
  - The "live" graph shows averages over one second
  - The "hour" graph shows averages over 5 seconds
  - The "day" graph shows averages over one minute
  - The "week" graph shows averages over hour
- Can view (but not change) interval in URL, as type argument

MORE ABOUT FEATURES YOU MAY USE (CONT.)

- Regarding CP alerts, can control which requests should not trigger them
  - See *Protection>Restrictions*
  - Can add a request to CP restrictions from any list of requests
- Can even control which requests should not appear anywhere
  - See *FusionReactor>Restrictions*

MORE ABOUT FEATURES YOU MAY USE (CONT.)

- Available mobile apps
  - For use with FR Enterprise, pointing to URL of Enterprise Dashboard
- Available API (FRAPI)
  - http://docs.intergral.com/pages/viewpage.action?pageId=38863209
- Available developer license:
  - http://www.giancarlogomez.com/2015/12/fusionreactor-developer-edition.html

MISCELLANEOUS GEMS FOR FR 5/6

FR 6 HIDDEN GEMS

- Production Debugger

- Production Profiler

- Again, covered in Fast Track training, docs, site feature pages

- Both offered in new "Ultimate Edition"

- Our focus here is on things you might miss

MAJOR NEW FR 6 FEATURES

- Memory use now tracked PER request, query, transaction
  - Viewable in request/query/trx details, and new *Requests>Req. by Mem*
  - More: http://www.fusion-reactor.com/evangelism/Transaction-Memory-Values-Explained
- System Resources (in Enterprise, Ultimate editions)
  - Track system CPU, memory usage, Network Traffic and Disk I/O
  - Track all running processes
  - Via *System Resources* option on left
- …

OTHER NEW FR 6 FEATURES

- CF Metrics and CF System Metrics
  - Track CF metrics like db pool stats, template cache size, query cache size, more
  - Some values shown only if CF Enterprise Svr Mon features enabled
  - Via Metrics option on left
- New *Requests>Applications* page, to view more breakdown by app
- …

OTHER NEW FR 6 FEATURES (CONT.)

- Improved Relations tab (on request details)
  - Breaks down kinds of operations within a request (that FR monitors queries, httpclient, etc.)
  - And new Aggregates tab, to more simply aggregate that info
- Can view aggregate totals of CFHTTP URLs across ALL requests: *Transactions>External Resources*

- …

OTHER NEW FR 6 FEATURES (CONT.)

- New weekly, monthly reports (in Enterprise, Ultimate editions)
  - Tracking counts of requests, queries, their durations, 404s, sessions, etc
  - Daily report available in FR Standard, since FR 5
    - FR6 offers extended daily report in Enterprise/Ultimate
  - More:
    - http://www.fusion-reactor.com/daily-report-email/
    - http://www.fusion-reactor.com/evangelism/FusionReactor-Daily-Reports
- …

OTHER NEW FR 6 FEATURES (CONT.)

- Changes to style of FR CP email alerts
  - Html formatted, tabular layout
  - Thread id now offered with list of request details at top
- For the graph pages for time and activity
  - Can choose to switch between "time" to "activity" with button in top right
- Now on to more "hidden gems" in FR6…

OTHER NEW FR 6 FEATURES (CONT.)

- Sessions now tracked in *User>Sessions*
  - Was previously hidden in *Metrics>Custom Series*
  - Now includes tracking of session creation, removal, option to view per application
  - Can show sessions per application. See bottom of page
    - Can control with *User>Settings>Sessions*
- New tail feature in FR UI log viewer (for current hour logs)
  - See *FusionReactor>Logs*, then "Tail" button in top right of UI
- …

FR 6 HIDDEN GEMS

- Debugger can send emails (with vars) rather than pause request
  - And you can click line number in stack trace to set beakpoint there
  - Also in error details or profiler display of template names/line numbers
- New default to not count "untracked requests" against CP threshold
  - *Protection>settings>web request quantity settings>untracked requests*
- New option to Track CFML line execution times, code coverage (disabled by default)
  - *http://docs.fusion-reactor.com/display/FR61/FusionReactor+ColdFusion+Line+Performance+Profiler*

FR 6 HIDDEN GEMS (CONT.)

- Option to obfuscate SQL in UI (hides customer data w/in the sql)
  - *JDBC>settings>transaction settings>obfuscate sql data*
- Option to generate JDBC SQL Explain Information on very slow queries
  - *JDBC>settings>query plan settings*
- Can customize the daily/weekly/monthly reports
  - Can control many aspects of reports
  - Can set different emails for reports (as opposed to CP Alerts)
    - *FusionReactor>plugins>active plugins>FusionReactor Reports Config*
- …

FR 6 HIDDEN GEMS (CONT.)

- Can "stop profiling" a running request (button on far right)
- Can change profiler default of triggering at > 200 ms, see:
  - *FusionReactor>plugins>active plugins>FusionReactor Low Cost Profiler*

- Still many more gems we could identify
  - Both for FR6 and for earlier releases
    - Compression, Content Filters, AMF dissection
  - But we're out of time

FR 6 HIDDEN GEMS (CONT.)

CONCLUSION

- So, have I met my objective? Did you learn a lot
  - Lots more to FR than most people realize!
  - Even for those who may use it regularly
- Quick poll
- Again, recording link to be shared with those who registered
  - This webinar will be repeated, planned to be monthly for now
- We'd welcome your feedback on the session
  - Or other sessions you may be interested to see
- Further questions: email sales@fusion-reactor.com