MIGRATING CF ADMIN SETTINGS BETWEEN VERSIONS, SAFELY

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- Have you ever wanted to…
  - Migrate all admin settings to initially setup some CF instance, based on another?
    - Or migrate SOME admin settings, but not all?
  - May want to do this between:
    - one CF version and another (like CF11 or 2018 and CF2023)
    - one CF instance and another, whether on same machine or another
    - or perhaps between a CF instance and a Lucee instance or vice-versa
  - How would you do these?
- Ever wished you could compare settings/identify differences between instances?

HAVE YOU EVER WANTED TO…

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- First will show two "traditional" approaches to migrating admin settings:
  - **Migration wizard** at first launch of CF Admin
  - **CAR file** feature, within CF Admin
- Will discuss <u>one approach to avoid</u>: copying neo-*.xml files
- Then will show two more modern approaches:
  - **cfsetup** (cli, new in CF2021)
  - **cfconfig** (commandbox module)
- Will offer some considerations about admin settings migration
- Finally, options to easily <u>compare</u> CF admin settings across instances, versions

TODAY'S TOPICS/DEMOS

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- I focus on CF server troubleshooting, as an independent consultant
  - Assist organizations of all sizes, experience levels
  - Work <u>remotely</u>: safe, secure, easy via **shared desktop** (zoom, meet, teams, etc.)
  - **Solve most problems in less than an hour**, teaching you also as we go
  - **Satisfaction guaranteed**
  - More on rates, approach, online calendar, etc at *carehart.org/consulting*
- But to be clear, I'm not selling anything in this session! ☺
  - Just sharing my experience, and that of others

- Presentation online at *carehart.org/presentations*

ME.ABOUT()

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MIGRATING CF ADMIN SETTINGS

With "traditional" tools

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- Runs optionally on first launch of CF Admin
  - If installer detects previous version on same machine
  - Screenshots:
    - *cfdownload*.adobe.com/pub/adobe/coldfusion/migration_guide/CF2023-migration_guide.pdf#page=7
  - Logs: migration.log, migrationexception.log in CF logs folder
- …but what if you missed that chance?...

CF INSTALLER "MIGRATION WIZARD"

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- Can also be triggered to run again
  - *carehart.org/blog/client/index.cfm/2014/11/11/import_cfadmin_settings_anytime_using_import_wizard*
  - In brief:
    - copy neo*.xml files from previous release to a particular folder in new release
    - modify adminconfig.xml file telling it to re-run the wizard
    - log into/refresh CF Admin, which will trigger running it again
  - Probably not wise to run after you've added other settings

CF INSTALLER "MIGRATION WIZARD" (CONT.)

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- Long-standing tool from earliest days of CF
  - Can be used anytime, to export/import some or all CF Admin settings
- See "Packaging & Deployment" section of CF Admin, to create/deploy archive
  - Note: if "nothing happens", see if browser is warning of need to enable popups
- Offered in CF Standard since CF11 (was Enterprise-only before that)
  - *carehart.org/blog/client/index.cfm/2014/11/11/cf11_hidden_gem_CF_archives_in_standard*
- Demo
- Logs: car.log in CF logs folder, and one for each export or import
- CAR file is really just a zip: can explore/extract it
- Con: requires CF Admin UI, not suited to automation or headless environments

COLDFUSION ARCHIVE (CAR) MECHANISM

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- This is a shortcut some have taken, and others even recommend

- Generally a <u>bad idea</u>, as file format and features can change

  - Especially if done between different versions of CF

  - But even between SAME CF version

- Also, passwords within the files are encrypted by the current CF instance

  - Cannot be decrypted on the new instance, even if the same CF version

  - Migration Wizard and CAR feature both handle the needed decryption on import

    - More on this later

- …so what are the better/more modern options? …

WHAT <u>NOT</u> TO DO: COPY NEO*.XML FILES BETWEEN INSTANCES

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MIGRATING CF ADMIN SETTINGS

With more modern tools

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- New with CF2021, a CLI tool to view/manage CF Admin settings

  - Not to be confused with other new CF2021 CLI tool, CFPM, for package mgt

- Found in CF's config\cfsetup folder (not within cfusion\bin like other tools)

- I'll point to resources with more (docs, and an entire talk I've done on it)

- Let's take a brief, closer look…

CFSETUP (CLI TOOL)

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- Briefly, offers several key commands:
  - *help*
  - *show category,* to see all categories for settings
  - *show* **all** settings
  - **show [category]** – to list all in a category
  - **show [category]** [**itemname**] – to list details of that item in that category
  - *get, set*, *add*, *delete* individual settings (within named categories)
- Or particularly important for this presentation:
  - *export, import* all settings, or all in a category, to/from a json file

RUNNING CFSETUP

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- CLI can be run <u>imperatively</u>, such as:
    - **C:\ColdFusion2023\config\cfsetup\cfsetup show all C:\ColdFusion2023\cfusion**
- or <u>interactively</u> such as
    - **cd C:\ColdFusion2023\config\cfsetup**
    - **cfsetup**
    - **show all C:\ColdFusion2023\cfusion**
    - **show category**
    - More in a moment
- Note that the CF instance DOES NOT need be running!
- Even works with CF2018, and earlier (though docs suggest it's not supported)
    - **show all C:\ColdFusion2018\cfusion**

CFSETUP DEMOS

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- *alias* **cf2023 C:\ColdFusion2023\cfusion (allows use of "cf2023" for commands below)**
- *show* **datasource** *cf2023*
- *show datasource* **cfartgallery** *cf2023*
- *get* **datasource cfartgallery** *login_timeout* **cf2023**
- *set* **datasource cfartgallery login_timeout=31 cf2023**
- *get* **runtime** *timeoutRequestsAfterSeconds cf2023*
- *set* *runtime* **timeoutRequestsAfterSeconds=61 cf2023**

- *export all* **cf2018.json C:\ColdFusion2018\cfusion**
- *import all* **cf2018.json cf2023**

- *export* **datasource** *cf2018_dsn.json C:\ColdFusion2018\cfusion*
- *import* **datasource cf2018_dsn.json cf2023**

CFSETUP DEMOS (CONT.)

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- Some settings require CF restart to take effect (but not notified of this)
- If you get error, "JAVA_HOME is not set", just need to set it
  - Can do so temporarily, pointing to CF's own built-in JVM, such as:
    - Windows: *set JAVA_HOME=C:\ColdFusion2023\jre*
    - Linux: *export JAVA_HOME=/opt/ColdFusion2023/jre*
- More on stored passwords and using "passphrase" in a moment
- Additional documentation on CFSETUP
  - *helpx.adobe.com/coldfusion/using/cfsetup-configuration-tool.html*
  - *cfdownload.adobe.com/pub/adobe/coldfusion/migration_guide/CF2023-migration_guide.pdf#page=11*
  - My talk, "Using Adobe's "new" CFSetup tool to manage CF Admin settings for ANY CF version"

- And before that was created, Commandbox had added a powerful module…

MORE ON CFSETUP

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- ▸ Again, is a tool that works with CommandBox (from Ortus Solutions, open source)
  - ▸ Originally a REPL for CFML, later a way to easily start, manage instances of CF, Lucee
- ▸ CFConfig is a "module" (also open source) you can add to Commandbox
  - ▸ Note that it works **NOT ONLY with "box" instances** you may create
  - ▸ But **can be pointed to config file folder for <u>ANY CF or Lucee instance</u>**
    - ▸ <u>Whether **running or not**</u> (technically, can even be a copy of settings folder from elsewhere)
    - ▸ Or can point to a commandbox server name or any cfconfig.json file
- ▸ Also can export or import settings, <u>even ACROSS engines</u> (CF to Lucee, or vice-versa)
- ▸ *forgebox.io/view/commandbox-cfconfig*
  - ▸ *ortussolutions.com/blog/introducing-cfconfig-a-new-way-to-manage-your-cf-servers-configuration-from-the-command-line*
- ▸ …

CFCONFIG: COMMANDBOX CLI TOOL

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- Download and extract Commandbox (box executable), if not yet installed
  - Box executable, available for Windows, MacOS, Linux
  - See commandbox site/docs for more
- Implement cfconfig module (if not pre-installed as in recent commandbox versions)
  - **box install commandbox-cfconfig**
- Can also run cfconfig commands <u>imperatively</u>, using **box cfconfig <command>**
  - Or <u>interactively</u>: run *box*, THEN run **cfconfig** (or other box commands)
- Offers *from* (and/or *to*) arg that names folder holding config settings (or cfconfig.json or server)
  - <u>For CF</u>, folder with lib/neo-runtime.xml file, so for example C:/ColdFusion2023/cfusion
  - <u>For Lucee web</u> context: folder with lucee-web.xml.cfm file, such as C:\lucee\tomcat\webapps\ROOT\WEB-INF\lucee
  - <u>For Lucee server</u> context: folder with /context/lucee-server.xml file, such as C:\lucee\tomcat\lucee-server

RUNNING CFCONFIG

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- ▸ Key cfconfig commands (demos in a moment):
    - ▸ **cfconfig help**
    - ▸ **cfconfig show** all settings
    - ▸ **cfconfig show** or **set** individual settings
    - ▸ **cfconfig list**, **save** to, **delete** from grouped settings (like dsn's, mappings, etc)
    - ▸ **cfconfig export** *or* **import** all settings, to/from a json file
        - ▸ Optional *includelist/excludelist* to name settings to be transferred, as well as *append* option
        - ▸ <u>Can</u> export from one engine, then import that into another, or…
    - ▸ **cfconfig transfer** all settings, directly from one instance/engine to another
        - ▸ Same optional configurability with *includelist/excludelist*, *append*
- ▸ …

RUNNING CFCONFIG (CONT.)

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- Let's try some examples:
  - *cfconfig show from=C:\ColdFusion2023\cfusion*
  - *cfconfig show property=requesttimeout from=C:\ColdFusion2023\cfusion*
    - Or can leave off argnames:
    - *cfconfig show requesttimeout C:\ColdFusion2023\cfusion*
  - *cfconfig set requesttimeout=0,0,0,61 to=C:\ColdFusion2023\cfusion*
    - Would need to restart CF to take effect
  - *cfconfig export cf2018config.json C:\ColdFusion2018\cfusion*
  - *cfconfig import cf2018config.json C:\ColdFusion2023\cfusion*
  - *cfconfig transfer C:\ColdFusion2018\cfusion C:\ColdFusion2023\cfusion*
  - *cfconfig transfer C:\ColdFusion2023\cfusion C:\lucee\tomcat\lucee-server*

CFCONFIG DEMOS

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- Both do many of the same things (at least conceptually)
  - And each does things the other does not
- If already using Commandbox or want to be, cfconfig may be 1st choice
  - Otherwise for CF, cfsetup may be best choice
  - If using Lucee, or both CF and Lucee, only cfconfig works with Lucee
- Both work with older versions of CF (and cfconfig also works with older Lucee)
- Both can be used to automate configuration
  - Lucee 6 now incorporates cfconfig-based configuration
    - *dev.lucee.org/t/what-is-new-in-lucee-6-part-2/13248*
- Indeed, both can be used to configure containers…

CFSETUP VS CFCONFIG

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- Automated configuration of **Adobe CF Docker images**
  - They support import of CAR files, if placed in **/data** folder within image/volume
  - Support **setupscript** environment variable, naming CFM file to use Admin API
    - *helpx.adobe.com/coldfusion/using/docker-images-coldfusion.html*
  - CF2021 adds **importCFSettings** env var, naming json file created with cfsetup
- **Commandbox Docker images** for CF or Lucee
  - Support **cfconfigfile** env var, naming json file created with cfconfig
  - They also support naming specific cfconfig settings as individual env vars
  - And still more: *hub.docker.com/r/ortussolutions/commandbox/*

DOCKER "MIGRATION" OPTIONS

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OTHER CONSIDERATIONS

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- ▶ What about passwords (datasources, scheduled tasks, cloud services, etc.)?
  - ▶ Stored in encrypted form (in neo*.xml files, and in CAR)
  - ▶ Decrypted by CF using seed (stored in seed.properties file) that's different between instances
- ▶ All CF (and Ortus) migration features designed to handle this
  - ▶ But do beware about CARs, which hold encrypted values AND decryption key
    - ▶ *coldfusion.adobe.com/2020/07/importance-of-securing-car-files/*
  - ▶ cfsetup export offers a passphrase feature to encrypt those, for storing json file at-rest
    - ▶ See my talk on cfsetup (or CF docs) for more on this
  - ▶ cfconfig export <u>stores the unencrypted passwords</u> in its json file, so be careful

WHAT ABOUT ADMIN SETTINGS USING PASSWORDS?

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- Other security-oriented admin settings
  - Some might reduce security of the instance to which they are being migrated
  - Since CF2016, CAR and migration features are designed to handle, report, log this
- Beware regarding JVM args:
  - Those from one instance/version/machine may not work on import to another:
    - Path to Java itself (if changed from CF's default)
    - JVM args supporting a tool not implemented for new instance (such as FusionReactor)
    - Args perhaps specific to a given Java version
  - Beware that such problems won't be exhibited until CF is restarted
    - which you may not think to do after import/migration…so read on before trying…

OTHER MIGRATION CONSIDERATIONS

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- Before a migration, consider backing up the files that would change, typically:
  - Neo*.xml files (in cfusion/lib, or [instancename]\lib)
  - Jvm.config (in cfusion/bin, or [instancename]\bin)
  - Note that **cfsetup import DOES do a backup of what would change**
    - Stored in **cfusion/lib/cfsetup_backup** folder
- After import, <u>do a CF restart</u> to confirm that it CAN restart/work with new settings
  - If not, check what changed, including migration/car import logs, etc.
  - Compare things to the backup made above

- …and we could call it a day, but speaking of comparing, if we have time …

A BEST PRACTICE: RESTART AFTER IMPORT

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COMPARING CF ADMIN SETTINGS

Several, perhaps surprising ways

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- Compare using two browser tabs, going page by page in Admin

- Better: comparing CF Admin "Settings>Settings Summary" page

  - Shows about 95% of all CF admin settings, on one screen

  - Can view on two browser tabs/screens

  - Or view as a pdf: available "Save as PDF" button on that page

- Better still, let your computer do the work! …

"TRADITIONAL" APPROACHES

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- Better still: use BeyondCompare (or any compare tool)
  - Use "select all" in browser on "settings summary" content
    - Copy/paste text from the two instances into BeyondCompare (line 1 on both sides)
  - Can easily see admin differences between one instance and another
    - Even between one CF version and another!
- Demo
- Bonus: **using BeyondCompare to directly compare cfconfig json export** or even **neo XML files**
  - Many compare tools can't handle single line json or XML
  - Check out optionally downloadable free "formats" called "json sorted", "xml sorted"
    - *scootersoftware.com/download.php?zz=moreformats*
  - Demo, if time

COMPARING "SETTINGS SUMMARY"

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- Of course, it can handle comparing your code, logs, and <u>any</u> text

- Best trial in IT: 30 days of USE (so once a week for 30 weeks!, for instance)

  - Also low-cost to buy, starting at $35 (one-time cost)

- *scootersoftware.com*

MORE ON BEYONDCOMPARE

- Commandbox CFConfig *diff* command
  - *cfconfig diff from=C:\ColdFusion2018\cfusion to=C:\ColdFusion2023\cfusion*
  - Can add *--valuesdiffer*, to see *only* the differences
    - Note when comparing two engines/versions:
      - If one engine/version has a given setting, but the other does not, not shown in --valuesdiffer
      - See available *--fromonly* and *--toonly* args, to help with that
  - Can also save diff as a "report" (html or PDF)

- … Time to wrap it up …

CFCONFIG ALSO OFFERS "DIFF"

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- Recall the various links I've offered (for CF and Lucee/Ortus)

- My talk on cfsetup and related migration/update topics (carehart.org/presentations):

  - 'Using Adobe's "new" CFSetup tool to manage CF Admin settings for ANY CF version'

  - "Installing CF2023: choices, challenges, and solutions"

  - "Migrating apps to ColdFusion 2023 from earlier versions"

  - "Hidden Gems in CF2023"

  - "The Many Capabilities of the CF Package Manager, cfpm"

  - "Updating the Java underlying ColdFusion: considering it, doing it"

RESOURCES

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- Again, many ways to do migration and comparison of CF/Lucee Admin settings
  - Migration:
    - CF "migration wizard" on first-run of admin, or as configured to re-run
    - CF CAR file mechanism
    - cfsetup (CF2021 and later)
    - Commandbox CFConfig module
  - Settings comparison, via:
    - Browser tabs (eyeball differences in each page or settings summary)
    - Beyondcompare of settings summary
    - CFConfig diff feature
- Reach out to me with questions/share feedback (direct or publicly)
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SUMMARY

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