

# OPTIONS FOR RUNNING REDIS (OR VALKEY, ETC.), LOCALLY OR AS-A-SERVICE



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- ▶ Are you considering use of Redis (or plug-compatible alternatives like Valkey)?
  - ▶ Perhaps for caching, or as a document store/db?
  - ▶ Or as an alternative repository for sessions in CF or Lucee (or other app servers)?
- ▶ You need to run *SOME* implementation of it, whether local or as-a-service
  - ▶ We'll discuss several ways to run Redis or such alternatives
  - ▶ Many are free, some come at a cost (perhaps with added benefits)
- ▶ All are fairly simple to implement, and one should suit your situation...

# INTRO

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- ▶ We'll discuss and demo options to run Redis (or alternatives)...
  - ▶ Via an installer (on Linux, MacOS, or Windows)
    - ▶ Can easily implement on Windows with CF API Manager datastore (will discuss)
    - ▶ Perhaps implemented on a VM (or via WSL on Windows)
  - ▶ Via containers (docker/podman, containers as a svc, Kubernetes, etc.)
  - ▶ Via cloud platforms (AWS, Azure, GCP)
  - ▶ Or via specific Redis-as-a-service solutions
- ▶ Also a bit on recent Redis license change, available Redis alternatives
- ▶ You could have any of above running literally in minutes, to start testing/using

## TODAY'S TOPICS/DEMOS

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- ▶ I focus on CF/Lucee server troubleshooting, as an independent consultant
  - ▶ Assist organizations of all sizes, experience levels
  - ▶ Work remotely: 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](https://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](https://carehart.org/presentations)



ME.ABOUT()

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- ▶ While this talk is on the Online ColdFusion Meetup, and speaks to CF/Lucee folks
  - ▶ Topic really is generic to a wider audiences, anyone interested in Redis/alternatives
- ▶ That said, CF or Lucee folks should see my other talk
  - ▶ Using Redis for session storage in CF and Lucee: why, and how it's easily done
  - ▶ Offered at CFCamp this past June and offered again at CF Summit coming up
    - ▶ [carehart.org/presentations/#redis\\_sessions](http://carehart.org/presentations/#redis_sessions)

## ADDITIONAL INFO

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# IMPLEMENTING VIA AN INSTALLER

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- ▶ Some folks find installers easiest to use, and they exist
  - ▶ But only Linux, MacOS binaries offered
  - ▶ *redis.io/docs/latest/get-started/*
- ▶ In the past they (and MS) offered Windows Redis installers, but no longer
  - ▶ Again, **other options today can suit Windows folks** (especially next one)
- ▶ Quick demo on Linux (see docs page above, showing install/start/stop)

## FINDING REDIS INSTALLERS/BINARIES

# IMPLEMENTING ON WINDOWS VIA AN COLDFUSION API MGR

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- ▶ Note that Adobe's CF API Manager datastore **is just a Redis installer**
  - ▶ And it offers a Windows installer, though it is an older Redis, version 3
  - ▶ Still, it works fine for CF (or Lucee) storage of Redis sessions
- ▶ Download from [helpx.adobe.com/coldfusion/kb/coldfusion-downloads.html](https://helpx.adobe.com/coldfusion/kb/coldfusion-downloads.html)
  - ▶ Can get "API Manager Add On" only vs full api mgr
  - ▶ See "Download Adobe ColdFusion (2023 release) Developer Tools"
    - ▶ And then see "ADD-ON INSTALLERS FOR COLD FUSION (2023 RELEASE) API MANAGER"
  - ▶ Available for Windows, Linux, MacOS, Solaris
  - ▶ Until today, the CF2023 downloads page mistakenly offered only the FULL API Mgr installer. That's been fixed
    - ▶ Even so, I've learned that the API Manager didn't change for 2023, so you can use either

## DOWNLOADING THE CF API MGR INSTALLER

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- ▶ So again, you could implement either the full API Manager installer, or just the add-ons installer
  - ▶ Either way, can choose to implement only the datastore (which is redis)
- ▶ If full installer, it asks for license key (or can choose 30-day trial)
  - ▶ The trial affects only the API Manager itself, not this Datastore!
- ▶ Add-ons installer won't prompt for license
- ▶ Quick demo

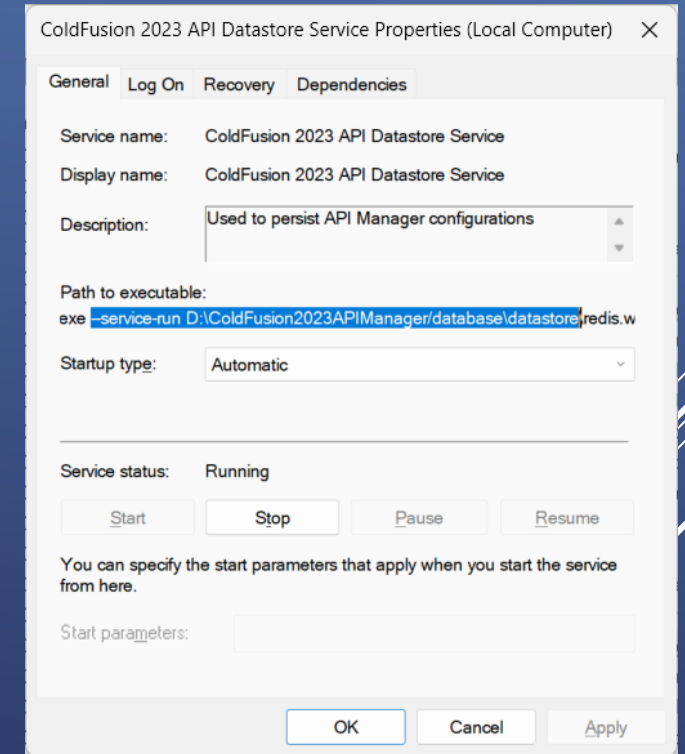
## IMPLEMENTING THE CF API MGR

- ▶ If full installer:
  - ▶ Defaults to implementing in `\ColdFusion2023APIManager\database\datastore`
- ▶ If add-ons installer:
  - ▶ Defaults to `\ColdFusion2023APIManagerAdd-ons\datastore`
- ▶ Beware: if you implement adds-on when full installer has been run already
  - ▶ It implements only this service once: ColdFusion 2023 API Datastore Service
    - ▶ Which will continue to run the full datastore, not the add-ons one

# CF API MGR CONFIG FILES

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- ▶ Once installed, find Redis password in [redis.windows.conf.properties](#)
  - ▶ named in Windows Service definition
- ▶ Password is on an uncommented line with its value, such as:
  - ▶ requirepass 42CBF896F7DC9761BB5EEBC04D13B766
- ▶ Can configure this API Manager as clustered Redis ([adobe.com/go\\_datastorecluster](#))
  - ▶ While the page refers to CF2021 and shows screenshots for CF2016, it should work with the CF2023 API Mgr datastore



# CF API MGR (REDIS) PASSWORD

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- ▶ Here's a topic applying to that API Mgr or ANY install of Redis
  - ▶ Redis can be installed on local machine or another in your network
- ▶ If Redis is not on same machine as Redis client (such as running CF/Lucee):
  - ▶ May need to open that machine's (or network) firewall for Redis port
- ▶ May also need to change Redis config file "bind" value
  - ▶ Might default to 127.0.0.1, presuming to be on same machine as client
  - ▶ Change to the machine hosting Redis (what IP is "called"), then restart Redis
- ▶ Can watch using network tools that report ports/bindings, like telnet
  - ▶ Or see Windows Resource Monitor "network" tab "listening ports" section
  - ▶ Look for change in "address" column from "ipv4 loopback" to this listening ip
- ▶ More on configuring/securing Redis install:
  - ▶ [redis.io/docs/latest/operate/oss\\_and\\_stack/management/](https://redis.io/docs/latest/operate/oss_and_stack/management/)

## INSTALLING REDIS ON ANOTHER MACHINE

# IMPLEMENTING ON A VM

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- ▶ Maybe you don't want to (or can't) install Redis on any machine you have
  - ▶ Can, of course, install it on a vm and use it that way
- ▶ I can't cover all vm options, but main ones are
  - ▶ MacOS: Parallels, VMWare, VirtualBox
  - ▶ Windows: Hyper-V, VMWare, VirtualBox
    - ▶ Even Windows Sandbox, for an ephemeral local testing experience
  - ▶ Linux: VMWare, VirtualBox
- ▶ Installing Redis on those would be same experience as your own machine
  - ▶ And same caveat from my previous page, "Installing Redis on another machine"

## VM OPTIONS

# IMPLEMENTING VIA WSL (ON WINDOWS)

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- ▶ For those unaware, WSL (Windows Subsystem for Linux) is a free option that can be enabled on Windows 11, 10 machines
  - ▶ Enables a VM-like experience, enabling a real Linux kernel on Windows
  - ▶ On which you can easily deploy any of many Linux distros, then use like a VM
  - ▶ Really far more than “just like a VM”, in terms of integration with Windows
    - ▶ but that’s beyond the scope of this talk
- ▶ Just know many installation resources for Redis (and alternatives) will suggest it
  - ▶ Allowing you to install Redis (or other Linux software) “on Windows” “like as a vm”
- ▶ Quick demo

# ABOUT WSL

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# IMPLEMENTING VIA CONTAINERS

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- ▶ Many installation resources for Redis (and alternatives) will also suggest this
  - ▶ As an alternative to either an installer, a VM, or WSL
- ▶ Containers are indeed a powerful technology, well-suited to something like Redis
  - ▶ Some resources will presume you know what it is, or may focus on some one option
- ▶ Again this talk can't get into alternatives, but they include running containers via:
  - ▶ Docker (Docker Desktop)
  - ▶ Podman
  - ▶ Containers as a service (such as on AWS, Azure, GCP)
  - ▶ And whether using Docker Compose, Kubernetes, or other mechanisms
- ▶ Let's consider one option that might apply most widely to test/demo Redis...

## BACKGROUND

- ▶ Docker offers Docker Desktop, now for Windows, MacOS, and even Linux
  - ▶ Implements a vm to run containers, adding a management layer and interface
  - ▶ Free for personal use, educational use, and in small business
    - ▶ Companies with more than 250 ee's or US\$10M annual revenue must license
- ▶ Enables full suite of docker commands on your machine (the "host")
  - ▶ Also offers UI for viewing, managing images, containers, and more
- ▶ More: [docker.com/products/docker-desktop/](https://docker.com/products/docker-desktop/)
- ▶ Quick demo

# ABOUT DOCKER DESKTOP



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# IMPLEMENTING VIA REDIS-AS-A-SERVICE SOLUTIONS

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- ▶ Perhaps have saved the best for last
  - ▶ Maybe you don't want to/ can't install something like Redis locally or on network
  - ▶ Or maybe you want a simple option to "test things out" before committing to install
- ▶ There are multiple providers (Redis and others) offering Redis-as-a-service
  - ▶ You just signup online, and instantly have your own Redis db to use
- ▶ Some are free, some are low-cost to start up (but costs can add up)
  - ▶ Still, you get all the benefits of a managed service, which is worth the cost for many
- ▶ Let's consider some options

# BACKGROUND

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- ▶ Redis offers Redis Cloud ([redis.io](https://redis.io))
  - ▶ Lets you create one free Redis database
  - ▶ Has low limits, but capable to demonstrate this capability (for CF or Lucee)
- ▶ Login to *redis.io*,
  - ▶ Create free account
    - ▶ “free” plan and its limits are shown under “compare plans” at *redis.io/pricing*
    - ▶ Create database as “cache”, choose “30 mb” size (give it any name you like)
    - ▶ Copy its ‘public endpoint” (domain and port), and “default user password”
- ▶ Use these to configure redis client (redis-cli, redis UI, CF or Lucee admin, etc)
- ▶ Quick demo...

# REDIS CLOUD

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- ▶ **Aiven** (*aiven.io*), free and commercial
  - ▶ (“**Aiven for Caching**” is Redis: *aiven.io/caching*)
  - ▶ See also their Aiven for DragonFly, Valkey (alternatives I’ll discuss shortly)
- ▶ **Digital Ocean Managed Databases for Redis**, commercial
  - ▶ *digitalocean.com/products/managed-databases-redis*
- ▶ **Upstash** (*upstash.com*), free and commercial

## OTHER REDIS-AS-A-SERVICE OPTIONS



# IMPLEMENTING VIA CLOUD PLATFORMS

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- ▶ Maybe you're already deploying infrastructure in the cloud
- ▶ All the major cloud providers offer Redis-as-a-service
  - ▶ **Amazon ElastiCache for Redis**
  - ▶ **Azure Cache for Redis**
  - ▶ **Google Memorystore for Redis**
  - ▶ **Alibaba ApsaraDB for Redis**, and Alibaba Tair
  - ▶ **Tencent DB for Redis**
- ▶ Some offer free tiers, most are low-cost to start up (but costs can add up)
  - ▶ Again, you get all the benefits of a managed service, which is worth the cost for many
- ▶ See online resources for each of the above, for clear intros, setup, usage info

# OPTIONS

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# REDIS LICENSING CHANGE, AND REDIS ALTERNATIVES

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- ▶ Change as of Redis 7.4 (July 2024)
  - ▶ Moved to “dual license” (RSAL/SSPL) rather than previous BSD
  - ▶ Still open source, so no change to your USE of Redis
    - ▶ Mostly affects only managed service providers/cloud providers offering Redis services
  - ▶ And does not affect use of previous versions at all
  - ▶ More:
    - ▶ [redis.io/blog/redis-adopts-dual-source-available-licensing/](https://redis.io/blog/redis-adopts-dual-source-available-licensing/)
    - ▶ [redis.io/blog/what-redis-license-change-means-for-our-managed-service-providers/](https://redis.io/blog/what-redis-license-change-means-for-our-managed-service-providers/)
- ▶ FWIW, similar changes happened with MongoDB, Elasticsearch, Terraform, etc.
  - ▶ Still, the IT world has blown up over this “unprovoked war of aggression”
  - ▶ And alternatives have come out of the woodwork (though some existed previously)

# REDIS LICENSING CHANGES

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- ▶ There are many plug-compatible Redis alternatives: some free, some commercial
  - ▶ Some downloadable (some for Windows), some as Docker images, some as cloud services
  - ▶ **Dragonfly** ([dragonflydb.io](https://dragonflydb.io))
  - ▶ **Garnet** ([github.com/microsoft/garnet](https://github.com/microsoft/garnet))
  - ▶ **KeyDB** ([keydb.dev](https://keydb.dev))
  - ▶ **Kvrocks** ([kvrocks.apache.org](https://kvrocks.apache.org))
  - ▶ **Memurai** ([memurai.com](https://memurai.com))
  - ▶ **Redict** ([redict.io](https://redict.io))
  - ▶ **Valkey** ([valkey.io](https://valkey.io))
- ▶ More: [cf411.com/redisdb](https://cf411.com/redisdb) (where I track if downloadable, what's offered for free)

# REDIS ALTERNATIVES

- ▶ Some may feel I “buried the lede” in mentioning Valkey last
  - ▶ To be clear, it’s just last alphabetically in that final list!
- ▶ But it’s taken the IT world by storm, since the Redis licensing change
  - ▶ Many former Redis maintainers moved to Valkey
  - ▶ Major cloud providers are backing it
- ▶ More:
  - ▶ [techcrunch.com/2024/03/31/why-aws-google-and-oracle-are-backing-the-valkey-redis-fork/](https://techcrunch.com/2024/03/31/why-aws-google-and-oracle-are-backing-the-valkey-redis-fork/)
- ▶ But nothing about it changes anything shared so far
  - ▶ It’s one of several alternatives that can be used instead of Redis, are compatible

## A BIT ON VALKEY

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- ▶ As for Redis, there's of course more one CAN learn about working with it:
  - ▶ CLI and UI options for managing Redis
  - ▶ Monitoring Redis
  - ▶ Viewing data in Redis
  - ▶ Configuration options, tuning options
  - ▶ SSL/TLS
  - ▶ Replication and clustering
  - ▶ And more
- ▶ No time in this session to cover that, but ample resources exist online
  - ▶ And I covered the first three in my other talk on Using Redis for CF/Lucee sessions

MORE YOU CAN LEARN

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- ▶ [redis.io/docs/latest/get-started/](https://redis.io/docs/latest/get-started/)
- ▶ [redis.io/docs/latest/operate/oss\\_and\\_stack/management/](https://redis.io/docs/latest/operate/oss_and_stack/management/)
- ▶ [redis.io/docs/latest/operate/oss\\_and\\_stack/install/install-redis/#install-redis-properly](https://redis.io/docs/latest/operate/oss_and_stack/install/install-redis/#install-redis-properly)
- ▶ [carehart.org/presentations/#redis\\_sessions](https://carehart.org/presentations/#redis_sessions)
- ▶ More at the other links I've shared previously

RESOURCES (IN CLOSING)

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- ▶ It's easy to implement Redis (and plug-compatible alternatives), whether via:
  - ▶ Installer on your machine, or in a vm, or via WSL (on Windows)
  - ▶ Or via containers (however you deploy them)
  - ▶ Or via cloud platforms you may use (or want to), whether AWS, Azure, GCP, etc.
  - ▶ Or via dedicated Redis-as-a-service solutions
  - ▶ And there are plug-compatible alternatives to Redis
- ▶ Most above are free, some are commercial. All are fairly simple to implement
  - ▶ I leave you to explore more about Redis, using/managing/monitoring it, etc.
- ▶ Reach out to me with questions on talk/share feedback (direct or publicly)
  - ▶ Slack, Github, X, Fb, Li, Skype, etc. simply as @carehart
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## SUMMARY

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