Installation & Set-up

How to install and start Stardog and Stardog Studio

Taught by:

Brendan Newlon
Solutions Architect

Learning Objectives

- How to install and start Stardog on several types of systems, including installation steps for:
  - macOS
  - Linux with Package Managers (Debian or RPM)
  - Docker
  - Windows
- How to launch or manage Stardog and Stardog Studio after installation is complete

System Requirements

System Requirements: Java

Stardog 7.3+ is tested on Java versions 8 and 11, and requires sun.misc.Unsafe. Note that Stardog does not run on any other versions of Java.

- To check your version of Java in macOS or Linux, run the following command from the terminal:

```
java -v
```

- To check the version in Windows, open a command prompt and run:

```
java -version
```

You can get Java 8 or 11 from Oracle or use a version from OpenJDK.

Verified Operating Systems

Stardog is verified to run on:

- Ubuntu 16.04 and 18.04
- RHEL 7
- CentOS 7
- Amazon Linux 2
- Recent versions of OSX
- Microsoft Windows Server 2019

Installation on macOS

Installation on macOS with Homebrew

- To install, run the following in a terminal:

```
brew install stardog-union/tap/stardog
```

- Set the STARDOG_HOME environment variable:

```
export STARDOG_HOME = /var/stardog
```

- If you have a license key, add it to your STARDOG_HOME directory or set a STARDOG_LICENSE_PATH environment variable to its location

```
cp stardog-license-key.bin $STARDOG_HOME
```

Note: It's also possible to install manually from the .zip file.

Installation on Linux

Notes on Linux Package Managers

- We recommend installing via a package manager for convenience and because using a package manager will ensure that dependencies such as Java are installed if they are not already present
- If you use Homebrew, follow the instructions for macOS installation
- It's also possible to install manually by using wget to download the zip file

Installation on Debian Based Linux

- To install Stardog on Debian Based Systems using apt-get, run the following commands in a terminal (specifying the version to install):

```
curl http://packages.stardog.com/stardog.gpg.pub | apt-key add
```

```
echo "deb http://packages.stardog.com/deb/ stable main" >> /etc/apt/sources.list
```

```
apt-get update
```

```
apt-get install -y stardog[=<version>]
```

This will first add the Stardog gpg key to the system and then fetch and install the Stardog deb package.

Installation on RPM Based Linux

- To install Stardog on RPM Based Systems using yum run the following commands:

```
curl http://packages.stardog.com/rpms/stardog.repo > /etc/yum.repos.d/stardog.repo
```

```
yum install -y stardog[-<version>]
```

Installation on Amazon EC2

- Certain Amazon EC2 instances do not let you redirect output into `/etc/yum.repos.d` as specified above. On such instances install Stardog like so:

```
sudo yum-config-manager --add-repo http://packages.stardog.com/rpms/stardog.repo
```

```
sudo yum-config-manager --enable stardog
```

```
yum install -y stardog[-<version>]
```

Installation via Docker

Installing via Docker

- Install Docker and confirm the docker daemon is running:

```
docker version
```

- The latest release of Stardog is available on Docker Hub. Pull the image from Docker Hub with:

```
docker pull stardog/stardog:latest
```

- The STARDOG_HOME directory is located in /var/opt/stardog/ in the Docker image. This is the directory where all the Stardog databases and other files will be stored

Configuring Memory Settings

- If needed, you can change the default JVM memory settings for Stardog by setting the STARDOG_SERVER_JAVA_ARGS environment variable like so:

```
docker run -v ~/stardog-home/:/var/opt/stardog -p 5820:5820 -e
STARDOG_SERVER_JAVA_ARGS="-Xmx8g -Xms8g -XX:MaxDirectMemorySize=12g"
stardog/stardog
```

Installation on Windows

Installation on Windows

Stardog versions 7.3.0 and later can be installed using our Windows installer beta release.

- Download and unzip the installer zip file
- Navigate into the unzipped `\bin\` subfolder
- Copy the full path to that directory

Set Environment Variables - 1/2

- Open the Environment Variables editor from *“Control Panel” > “System” > “Advanced system settings” > Switch to “Advanced” tab > “Environment variables”*
- In the top section for user variables, select the “Path” variable and click “Edit” and then “New”
- Paste the directory path for the `\bin\` subdirectory and click “OK”

Set Environment Variables - 2/2

- Create a folder anywhere on your computer to be used as the location for Stardog database files and copy the full path to that directory
- At the top of the Environment Variables window, click “New” to create a new user variable
- Enter the variable name `STARDOG_HOME` and paste the path to the new folder you created as the variable value
- Click “OK” to add the variable, then close the Environment Variables and System Properties windows

How to Launch and Manage Stardog

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Starting & Stopping Stardog Server

In macOS, Windows, or if you used Homebrew to install in Linux, use the following commands in a terminal or command prompt to manage Stardog Server:

- To start the Stardog server:

```
stardog-admin server start
```

- To stop the server:

```
stardog-admin server stop
```

Starting & Stopping Stardog Server on Linux

If you installed via a package manager (other than Homebrew), Stardog will be configured to start on boot via systemd. It can be started, restarted, or stopped by the systemctl tool as shown below:

- To start the Stardog server:

```
systemctl start stardog
```

- To stop the server:

```
systemctl stop stardog
```

- To restart the server:

```
systemctl restart stardog
```

Start the Stardog server in Docker

- Because `stardog-admin server start` (the command to start up the Stardog server)is the entry point for the Docker image, you **must** instruct Docker to mount a home directory with a valid license from your host machine at `/var/opt/stardog` in the image. For example:

```
docker run -it -v ~/stardog-home/:/var/opt/stardog -p 5820:5820 stardog/stardog
```

- In this example, `~/stardog-home/` is a Stardog home directory that only contains a Stardog license file. `var/opt/stardog` is the location of Stardog home in the Docker image
- The contents of the release zip (binaries, docs, helm charts) are located in `/opt/stardog/`

Customizing Stardog's Environment

- To customize the environment in which stardog is run the file /etc/stardog.env.sh can be altered with key value pairs, for example:

```
export STARDOG_HOME=/var/opt/stardog
export STARDOG_SERVER_JAVA_ARGS="-Xmx4g -Xms4g -XX:MaxDirectMemorySize=6g"
```

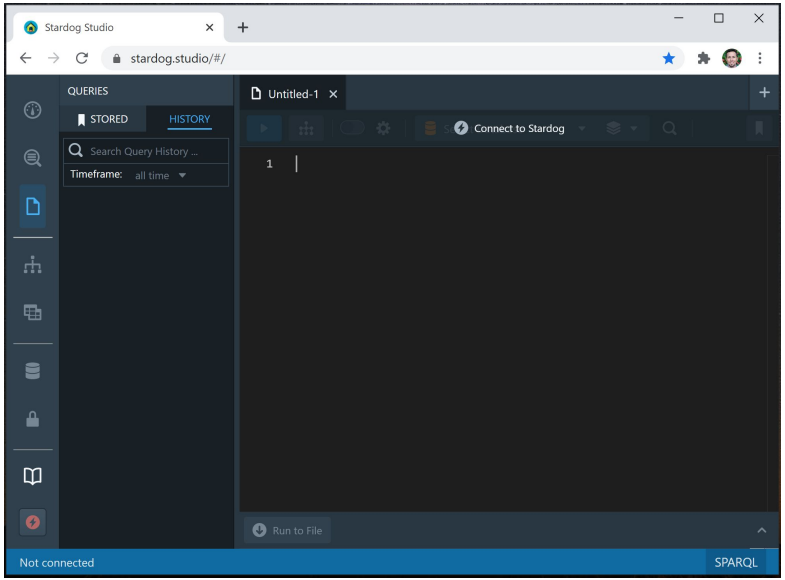
- By default, the STARDOG_HOME environment variable will be set to /var/opt/stardog as seen above. This is the directory where all the Stardog databases and other files will be stored. You may change this environment variable

Launching Stardog Studio

Launching Stardog Studio

Stardog Studio is opened in your web browser.

- Start your Stardog Server
- Navigate to http://stardog.studio
- Click “Connect to Stardog” at the top
- To connect to your local server, click the tab for a “New Connection” and press “Connect” keeping all defaults



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Thank you

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