# Automating your CI/CD Stack with Java and Groovy Hands on Lab

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## Step 0: Install tools

This lab requires the following:

1. Docker
2. Docker images
3. Groovy
4. The ability to run curl

### Docker

To install Docker, follow the instructions at: <https://docs.docker.com/install/>

Validation:

At the command line, run **docker –version**. (Small version differences are ok in the output)

$ docker --version

Docker version 18.06.0-ce, build 0ffa825

### Docker images

These images take up 1.2GB combined. So as not to tax the conference network, please pull them in advance. This will also let you deal with any corporate internet proxies while you are still at work and can ask for help.

At the command line run:

**docker pull sonatype/nexus3:3.13.0**

**docker pull jenkins/jenkins:lts**

**Note: “latest” will probably work. These version numbers are the ones I tested with.**

$ docker pull sonatype/nexus3:3.13.0

3.13.0: Pulling from sonatype/nexus3

256b176beaff: Pull complete

18d124afa1e9: Pull complete

9bb412307f82: Pull complete

Digest: sha256:19d186d5bc8be1ea4f7bae72756baa830e79bf20aae0e9e7b1a0c7d3ce7ac136

Status: Downloaded newer image for sonatype/nexus3:3.13.0

$ docker pull jenkins/jenkins:lts

lts: Pulling from jenkins/jenkins

55cbf04beb70: Pull complete

1607093a898c: Pull complete

9a8ea045c926: Pull complete

d4eee24d4dac: Pull complete

c58988e753d7: Pull complete

794a04897db9: Pull complete

70fcfa476f73: Pull complete

806029475e0c: Pull complete

67959b355155: Pull complete

41f7bc92e17c: Pull complete

4d8bfa352101: Pull complete

feeaf56eeeff: Pull complete

eb47b9331a05: Pull complete

0d8477309478: Pull complete

24190549c833: Pull complete

e6b4510f18f4: Pull complete

b08067308d47: Pull complete

dbe0078ec7bf: Pull complete

db473578f869: Pull complete

c53900f2171b: Pull complete

896628ca8631: Pull complete

Digest: sha256:8d4a5ad1ed1b5c4b5c5a73ba5341eaa18953afabac2703a77921ae1abd5cd822

Status: Downloaded newer image for jenkins/jenkins:lts

### Groovy

Follow the instructions at: <http://groovy-lang.org/install.html>

Note: Please download Groovy 2.X rather than 3.X. Version 3.X is in alpha at the time of writing this lab.

Validation:

At the command line, run **groovy –version**.(Small version differences are ok in the output)

$ groovy -version

Groovy Version: 2.5.2 JVM: 1.8.0\_45 Vendor: Oracle Corporation OS: Mac OS X

### Disk space

This lab uses about 1.5 GB of disk space (not counting Docker itself.) The last step of the lab explains how to recover disk space.

### The ability to run curl

If you are running Mac, Linux or Windows 10, you don’t need to do anything. If you are running an older version of Windows, you can install <https://www.cygwin.com>.

Validation:

At the command line, run **curl https://www.oracle.com/code-one/index.html** and ensure the output isn’t an error message.

## Step 1: Start tools

In this lab, we use basic Docker to make setup simple. We do not set up a volume to persist the data since the emphasis is Groovy setup.

### Install Nexus

At the command line, run:

**docker run -d -p 8081:8081 --name nexus sonatype/nexus3:3.13.0**

Validation

In a browser, go to <http://localhost:8081>. If you do not see Nexus, wait 15 seconds and try again. (It could take up to a minute)

### Install Jenkins

At the command line, run

**docker run -d -p 8080:8080 --name lts jenkins/jenkins**

Validation

In a browser, go to [http://localhost:8080](http://localhost:8081).

## Basic Nexus Scripting

### Run your first Groovy script

Let’s confirm what version of Groovy is being used.

1. Login using admin/admin123.
2. Click the gear icon to get the administration options



1. In the left navigation, scroll down and choose the last time “Tasks”
2. Click “Create Task”
3. Choose “Admin: Execute Script”
4. Enter a task name.
5. For the script source, enter:

**log.info 'Hello Oracle Code One!** **'**

**log.info GroovySystem.version**

1. For task frequency, choose “Manual”
2. Save
3. Click Run



1. Click “Yes” to confirm
2. Click Summary tab. Depending on how fast you are, it will either say Running or Waiting. Refresh if it is still running to confirm it completes.



1. In the left navigation go to Support > Logging > Log Viewer
2. Notice your logging is there:



### Looking in the task log on the command line

There’s not generally a reason to look in the task log. But it gives us a good opportunity to poke around on the command line. We developers like exploring!

1. In a new command line tab/window, run

**docker exec –it nexus bash**

1. **cat /nexus-data/log/tasks/<script name from the log>**
2. Confirm you see 8 lines.
3. Now find the main nexus.log and run

**tail –f nexus.log**

1. In your browser, re-run your Groovy task. How many lines do you see added to the tail output? It’s not 8 lines. Can you figure out the difference between the nexus log and task log?

### Writing your own script

Now try to write your own Groovy script that prints out a countdown. The output includes the arrows and should be:

--> 10

--> 9

--> 8

--> 7

--> 6

--> 5

--> 4

--> 3

--> 2

--> 1

Blast off!

Tip for Groovy developers: the log.info method takes a Java String and not a GString.

Check the output in both a browser (nexus log) and command line (task log).

**Challenge**: can you write the Groovy code in two lines of no more than 40 characters each?

### log vs println

1. In your prior example, change **log.info** to **println**.
2. Run the task
3. Check the output in both the browser and command line task log. Where do you see it?

## Final step: Cleanup

### Stop containers

Remember you can enter the first couple characters of the hash rather than the whole thing.

**docker ps**

**docker stop <hash1>**

**docker stop <hash2>**

### If want to reclaim disk space

Remove containers and images

**docker ps –a**

**docker rm <hash1>**

**docker rm <hash2>**

**docker images**

**docker rmi <hash1>**

**docker rmi <hash2>**

## References

<https://hub.docker.com/r/jenkins/jenkins/>

<https://github.com/jenkinsci/docker/blob/master/README.md>

<https://hub.docker.com/r/sonatype/nexus3/>