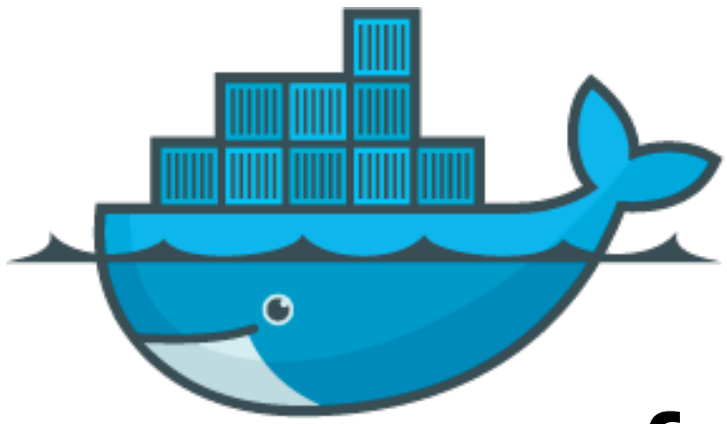


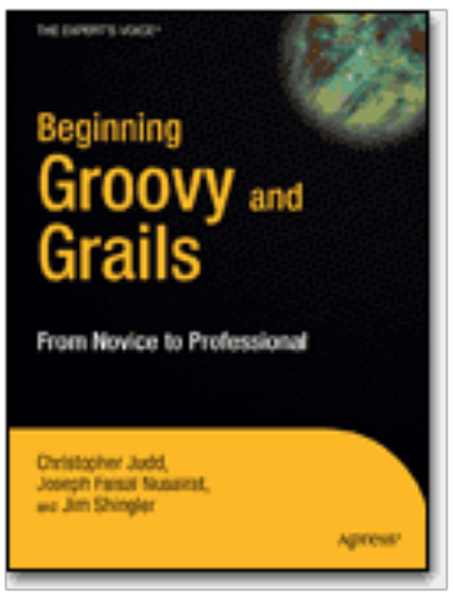
docker for Devs

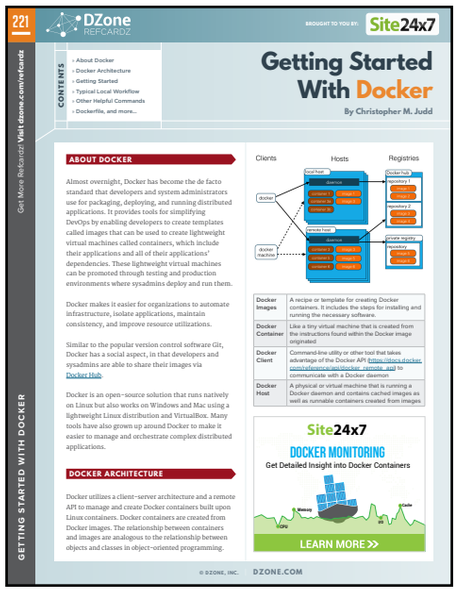
Christopher M. Judd

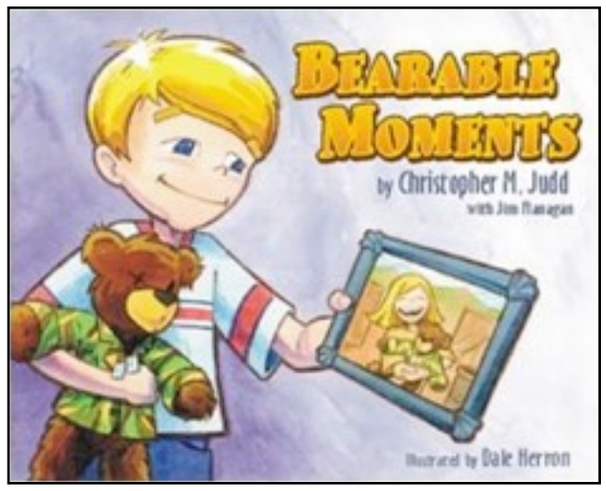
Christopher M. Judd

CTO and Partner at Manifest Solutions

Central Ohio Java Users Group leader



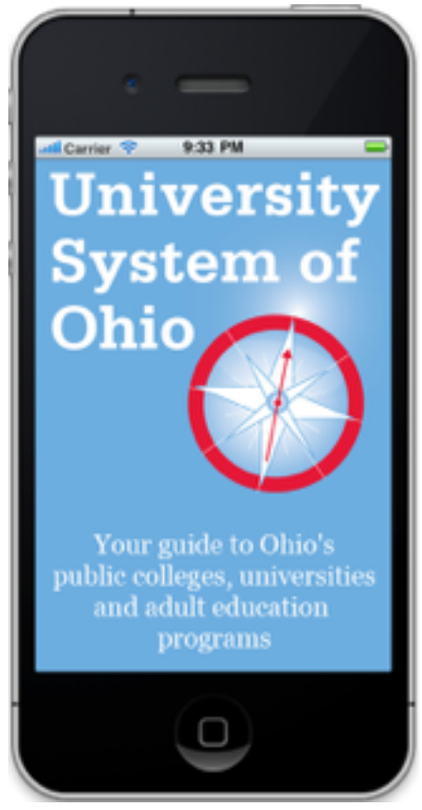





Carrier
9:32 PM
Remarkable
Ohio
Ohio | eTech Ohio
SITE OF OHIO'S FIRST STATEHOUSE

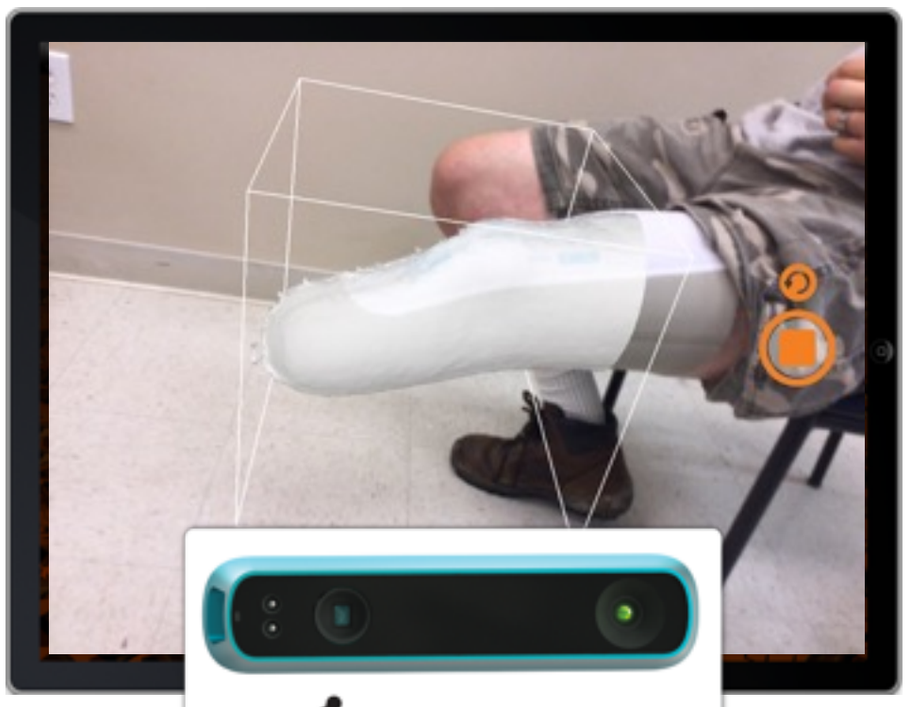

More
THE TABERNACLE
Pillar of Fire
Next

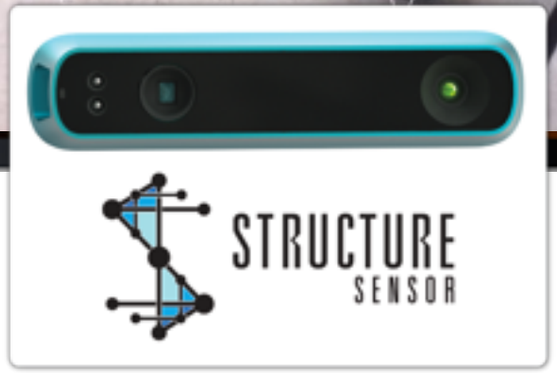

Zaner-Bloser
Handwriting
ABC
abc
123
Help
ZB
© Copyright Zaner-Bloser 2010


Carrier
9:33 PM
University System of Ohio
Your guide to Ohio's public colleges, universities and adult education programs


Carrier
12:29 PM
GERMAN VILLAGE SOCIETY
Welcome to historic German Village!
Shop
Dine
Stroll
Stay
Events
Donate

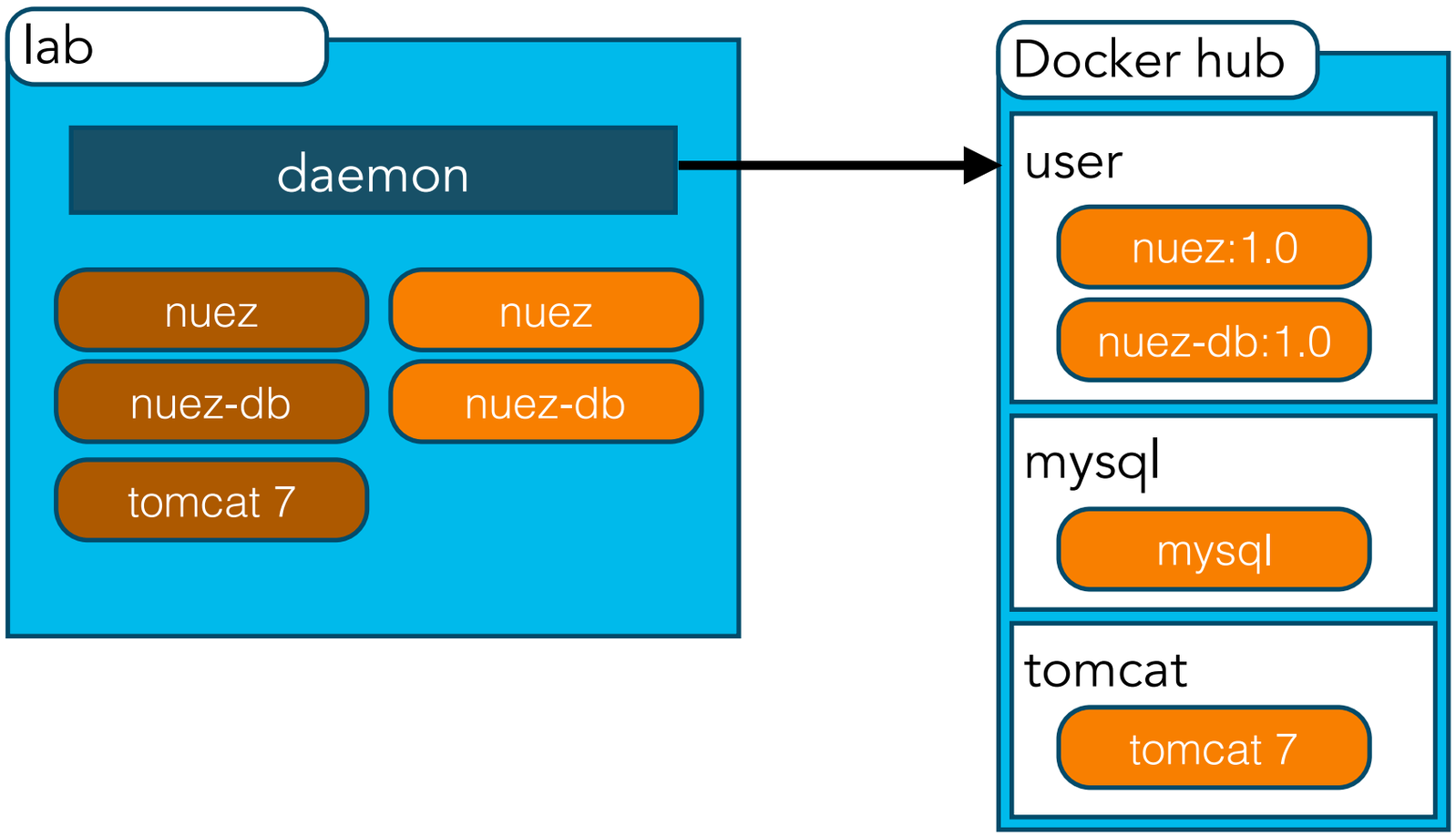

AT&T
6:00 PM
Pick a Subject
General Facts
Psychology & Philosophy
Religion
Civilization
History
Geography
Social Sciences
Political Science
Law
Education
Music

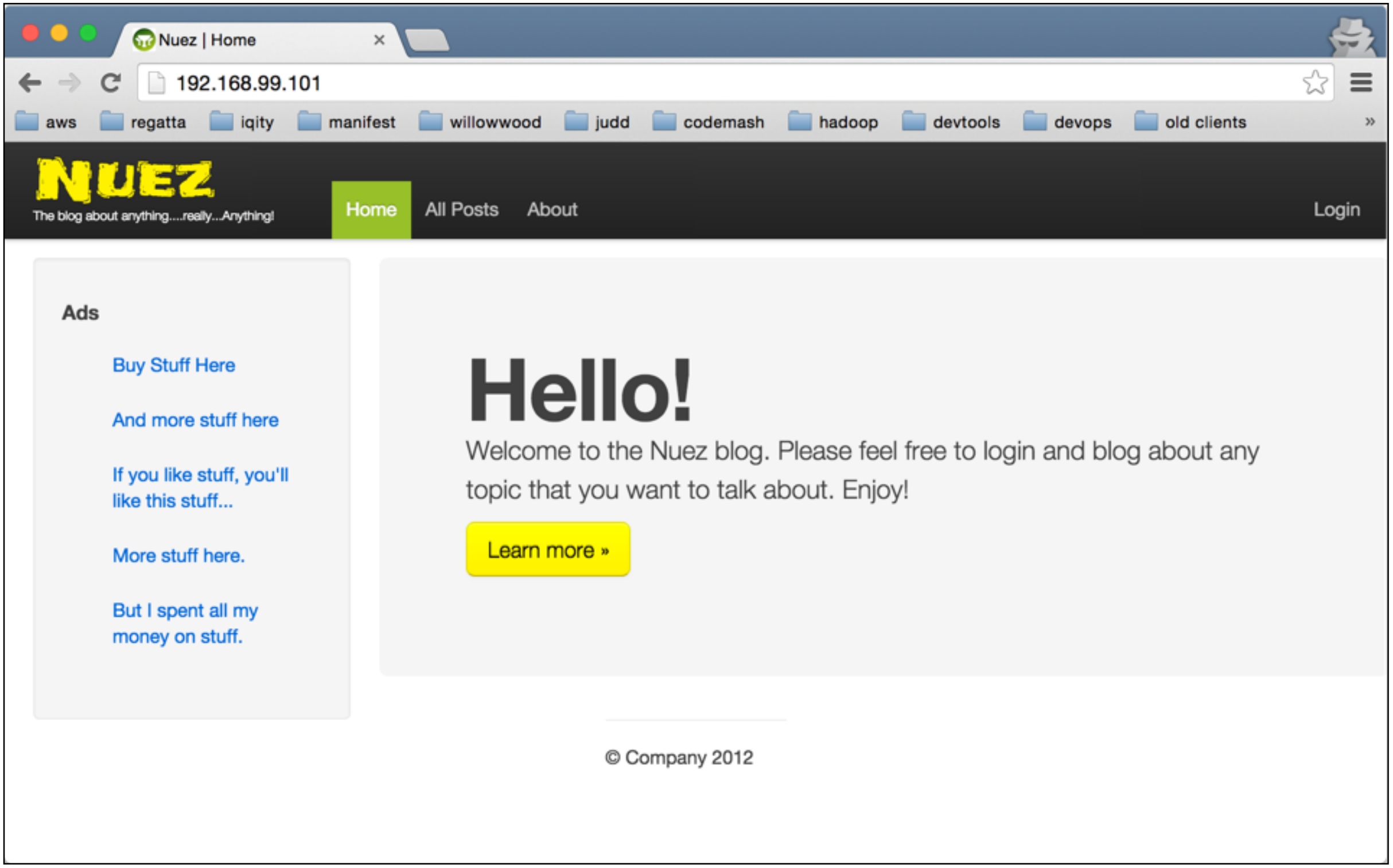



STRUCTURE
SENSOR


AT&T
10:09 AM
Ohio
PocketBallot


Carrier
2:21 PM
imSafe
mobile security worldwide


lab
daemon
nuez
nuez
nuez-db
nuez-db
tomcat 7
Docker hub
user
nuez:1.0
nuez-db:1.0
mysql
mysql
tomcat
tomcat 7


Nuez | Home
192.168.99.101
aws
regatta
iqity
manifest
willowwood
judd
codemash
hadoop
devtools
devops
old clients
NUEZ
The blog about anything....really...Anything!
Home
All Posts
About
Login
Ads
Buy Stuff Here
And more stuff here
If you like stuff, you'll like this stuff...
More stuff here.
But I spent all my money on stuff.
Hello!
Welcome to the Nuez blog. Please feel free to login and blog about any topic that you want to talk about. Enjoy!
Learn more »
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Pull requests Issues Gist

Christopher M. Judd

cjudd

Judd Solutions
Columbus Ohio
github@juddsolutions.com
http://juddsolutions.blogspot.c...
Joined on Jan 3, 2009

32 Followers **16** Starred **0** Following

Organizations

Contributions | Repositories | Public activity

Edit profile

nuez | Search | All Public Private Sources Forks Mirrors | New

nuez-compose

★0 ⑂0

Docker composition for the nuez-db and nuez web application.

Updated 44 minutes ago

nuez-docker

★0 ⑂0

An example of a docker file that creates an image for nuez from a URL.

Updated 20 hours ago

nuez

Groovy ★1 ⑂3

forked from zendern/nuez

Updated 21 hours ago

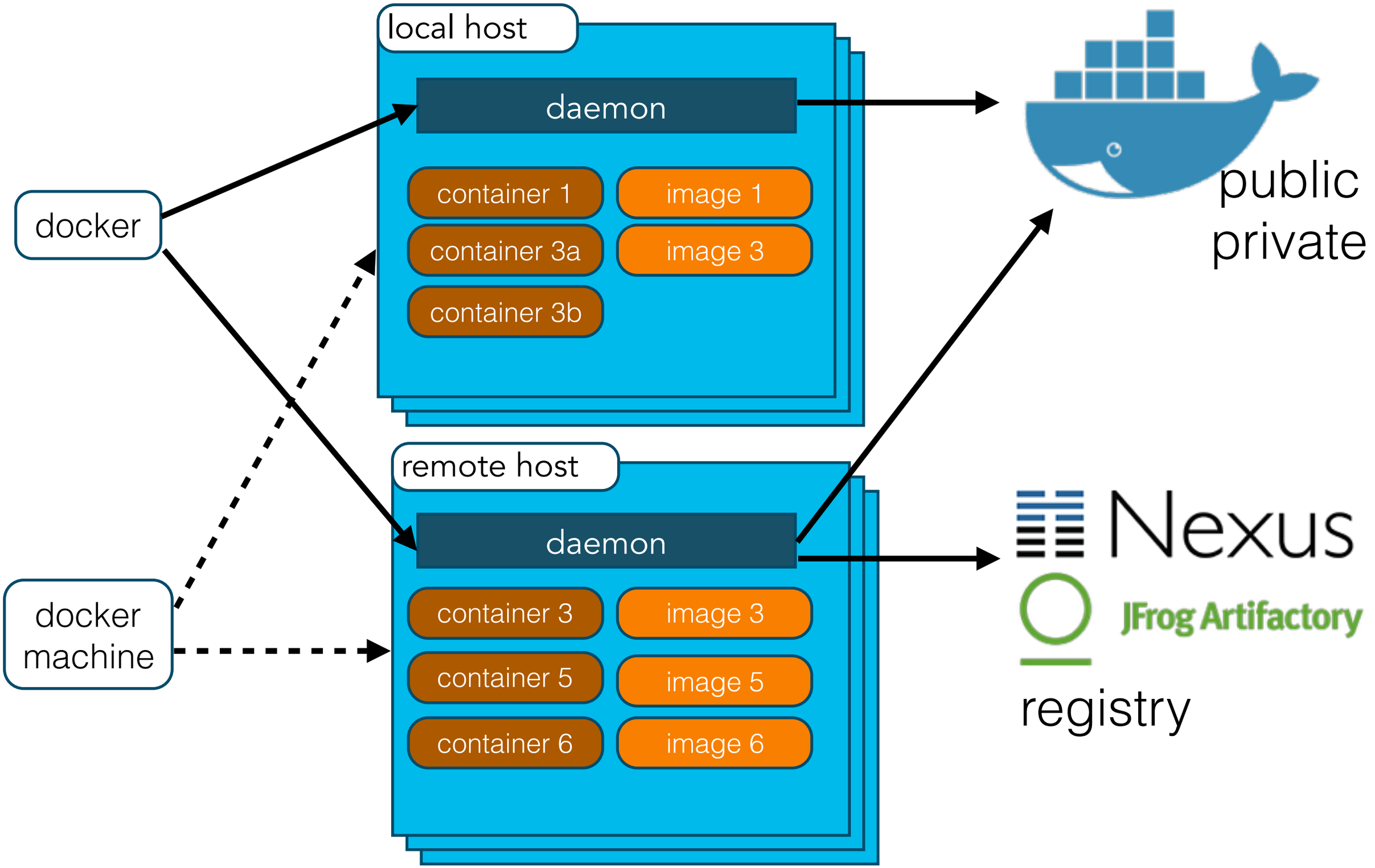
nuez-db

★0 ⑂0

Docker configuration for nuez-db

Updated a day ago

https://github.com/cjudd/nuez
https://github.com/cjudd/nuez-db
https://github.com/cjudd/nuez-docker
https://github.com/cjudd/nuez-compose


local host
daemon
container 1
image 1
container 3a
image 3
container 3b
docker
public
private
remote host
daemon
container 3
image 3
container 5
image 5
container 6
image 6
docker
machine
Nexus
JFrog Artifactory
registry

Composing Docker API

dev

daemon

swarm

Docker hub

discovery service

docker

swarm

nginx

nginx

cluster

swarm-master

daemon

swarm-agent

swarm-agent-master

swarm-node-1

daemon

swarm-agent

nginx

swarm-node-2

daemon

swarm-agent

nginx

ubuntu

swarm-node-3

daemon

swarm-agent

nginx

ubuntu

DigitalOcean

amazon web services™

https://s3.amazonaws.com/cmj-presentations/docker-codemash-2016/index.html

CONTENTS

Getting Started With Docker

By Christopher M. Judd

ABOUT DOCKER

Almost overnight, Docker has become the de facto standard that developers and system administrators use for packaging, deploying, and running distributed applications. It provides tools for simplifying DevOps by enabling developers to create templates called images that can be used to create lightweight virtual machines called containers, which include their applications and all of their applications' dependencies. These lightweight virtual machines can be promoted through testing and production environments where sysadmins deploy and run them.

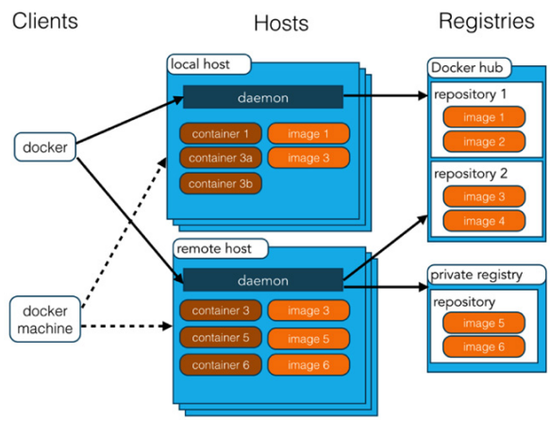
Docker makes it easier for organizations to automate infrastructure, isolate applications, maintain consistency, and improve resource utilizations.

Similar to the popular version control software Git, Docker has a social aspect, in that developers and sysadmins are able to share their images via Docker Hub.

Docker is an open-source solution that runs natively on Linux but also works on Windows and Mac using a lightweight Linux distribution and VirtualBox. Many tools have also grown up around Docker to make it easier to manage and orchestrate complex distributed applications.

DOCKER ARCHITECTURE

Docker utilizes a client-server architecture and a remote API to manage and create Docker containers built upon Linux containers. Docker containers are created from Docker images. The relationship between containers and images are analogous to the relationship between objects and classes in object-oriented programming.



Docker Images	A recipe or template for creating Docker containers. It includes the steps for installing and running the necessary software.
Docker Container	Like a tiny virtual machine that is created from the instructions found within the Docker image originated
Docker Client	Command-line utility or other tool that takes advantage of the Docker API (https://docs.docker.com/reference/api/docker_remote_api) to communicate with a Docker daemon
Docker Host	A physical or virtual machine that is running a Docker daemon and contains cached images as well as runnable containers created from images

https://dzone.com/refcardz/getting-started-with-docker-1

My Journey to Enlightenment

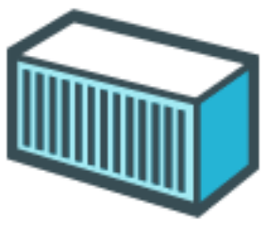
https://www.flickr.com/photos/kubina/942527814/


Start
Ivan
Skype
Reading List
Internet Explorer
Help+Tips
SkyDrive
34°
Washington D.C.
Snow
Today
34°/22° Clear
Tomorrow
31°/21° Mostly Sunny
Weather
Desktop
Photos
mint.com
New to the Store
Mint.com
Free Not yet rated
1
Football-Friendly: Chef Marcus Samuelsson's...
Maps


docker

An open platform for distributed applications for developers and sysadmins

Build



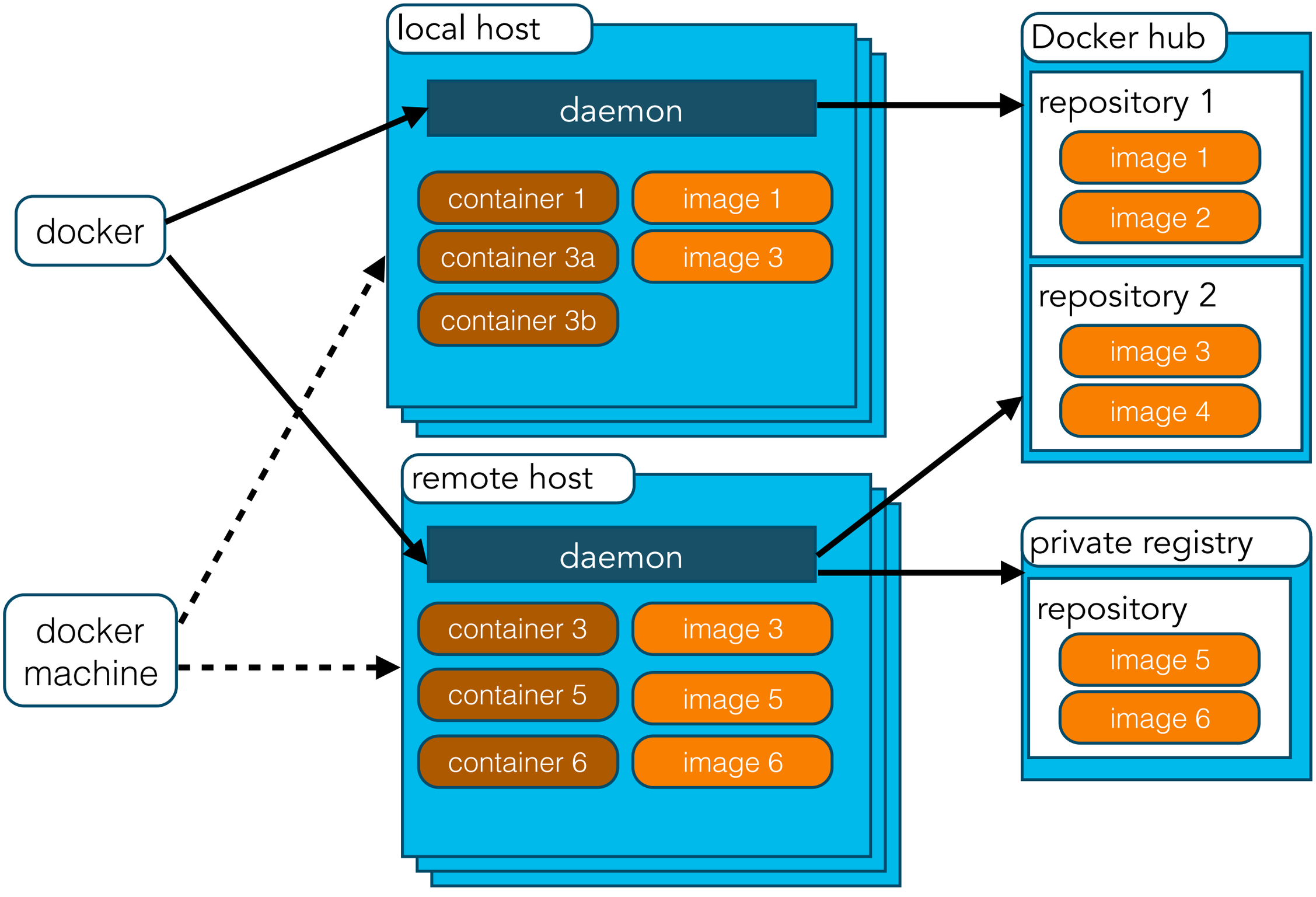
Ship

Run

Clients

Hosts

Registries



- infrastructure automation
- sandboxing/isolation
- maintain consistency
- better resource utilization
- easy experimentation

infrastructure automation

Run the following commands

1. apt-get mysql unless you are on CentOS
2. vim /etc/timezone
   and add America/New_York
3. vim /etc/mysql/my.cnf
   and add federated
   and add lower_case_table_names = 1

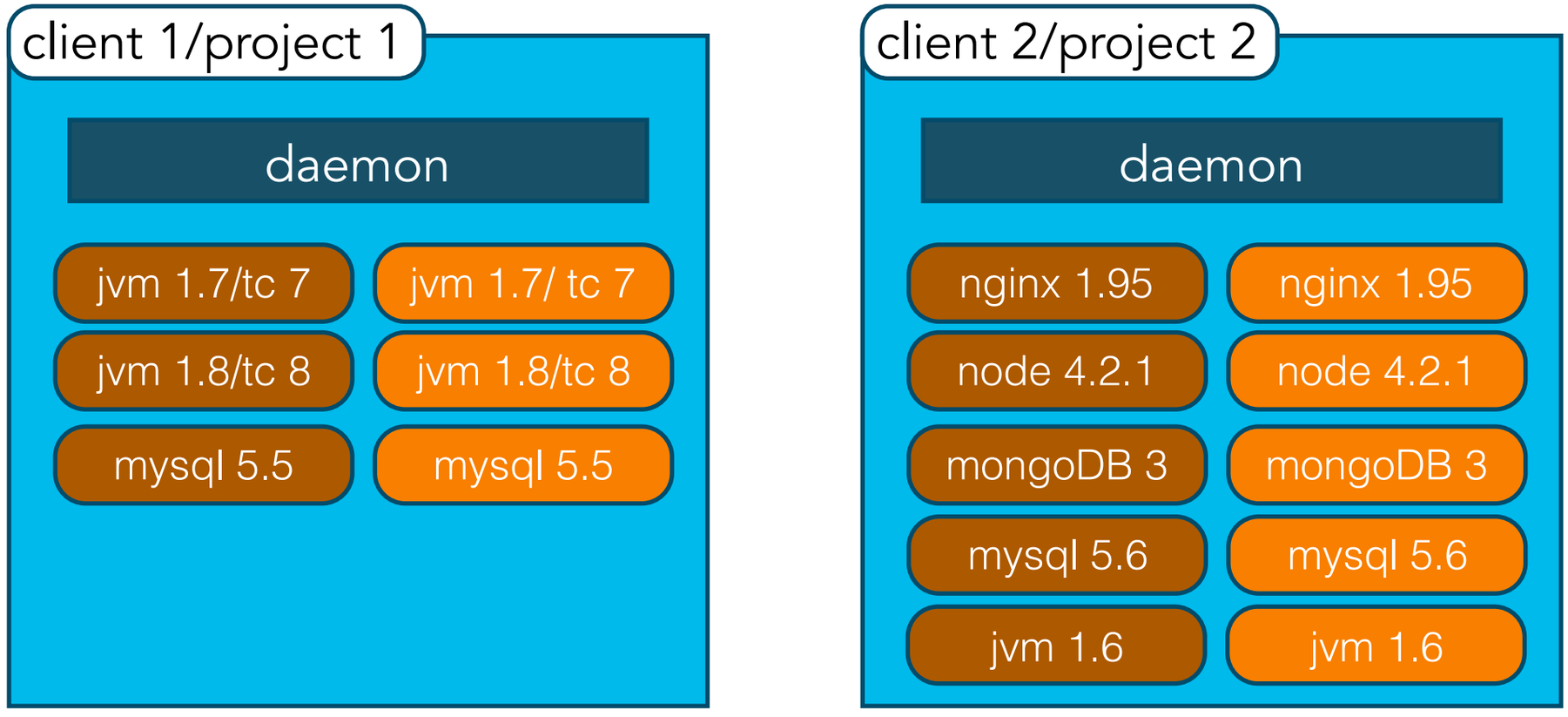
infrastructure automation

```
FROM mysql:5.5.45

COPY my-custom-entrypoint.sh /
COPY docker-entrypoint-initdb.d /docker-entrypoint-initdb.d/

RUN echo America/New_York | tee /etc/timezone
          && dpkg-reconfigure --frontend noninteractive tzdata
RUN echo "federated" >> /etc/mysql/my.cnf
RUN echo "lower_case_table_names = 1" >> /etc/mysql/my.cnf

ENTRYPOINT ["/my-custom-entrypoint.sh"]
CMD ["mysqld"]
```

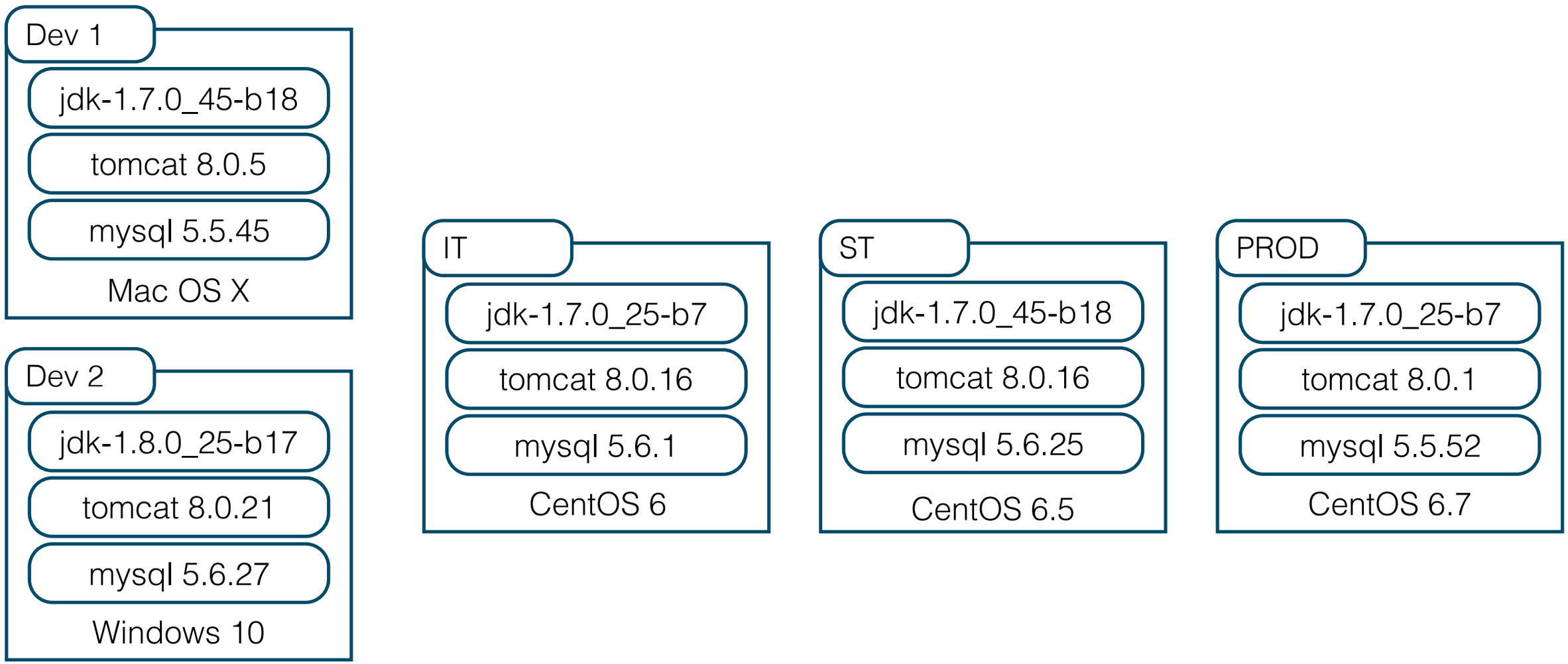
sandboxing/isolation

```
apache-maven-2.2.1
apache-maven-3.0.4
apache-maven-3.2.1
apache-tomcat-5.5.17
apache-tomcat-6.0.29
apache-tomcat-7.0.37
apache-tomcat-8.0.21
apache-tomcat-8.0.27
grails-1.3.5
grails-1.3.6
grails-1.3.7
grails-2.0.0
grails-2.1.1
grails-2.1.4
grails-2.2.1
grails-2.2.2
grails-2.3.10
groovy-1.7.10
groovy-2.0.5
groovy-2.1.1
groovy-2.2.2
jdk-1.6.0_65-b14-462
jdk-1.7.0_45-b18
jdk-1.8.0_25-b17
mysql-5.6.15
```

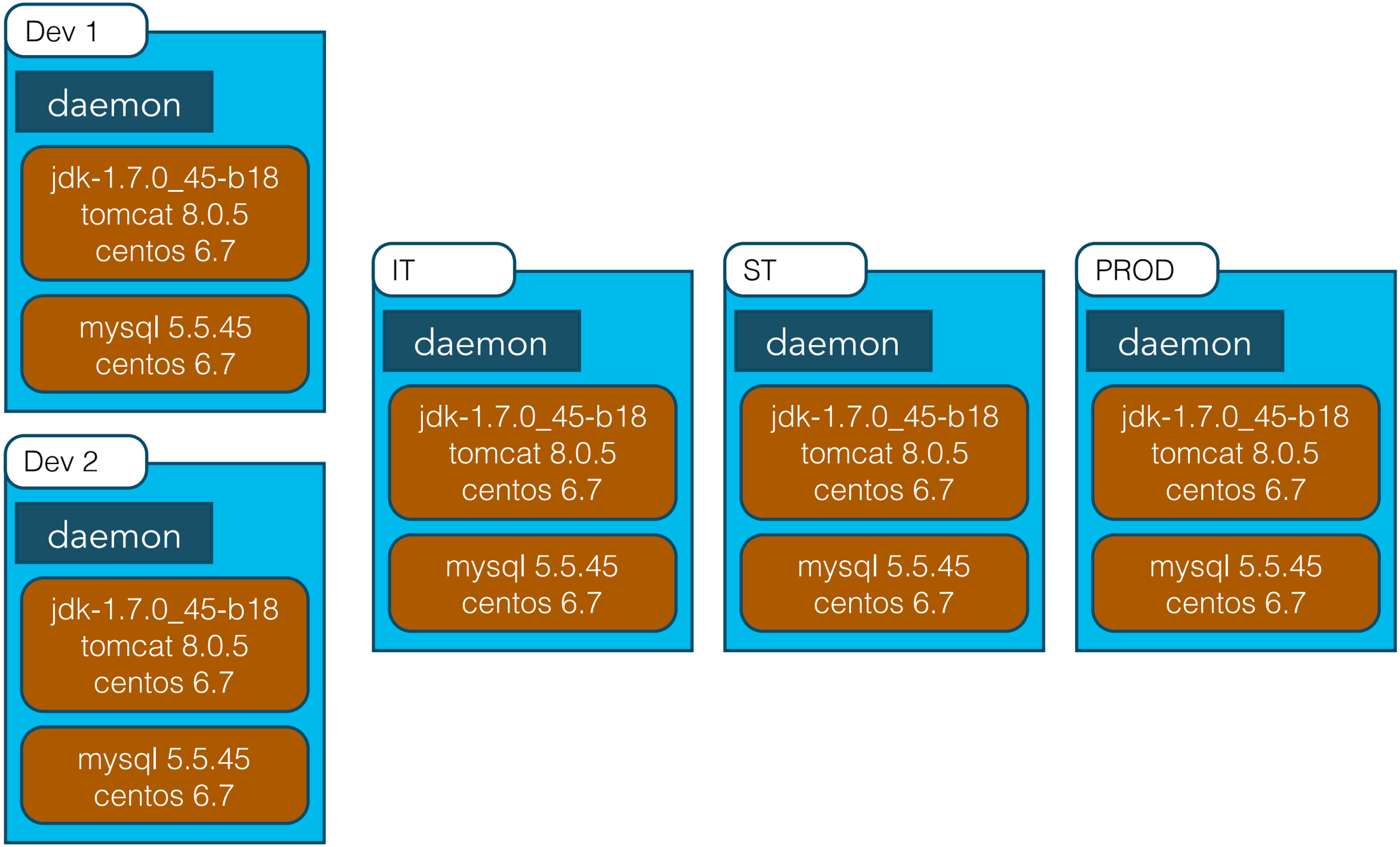
sandboxing/isolation



maintain consistency

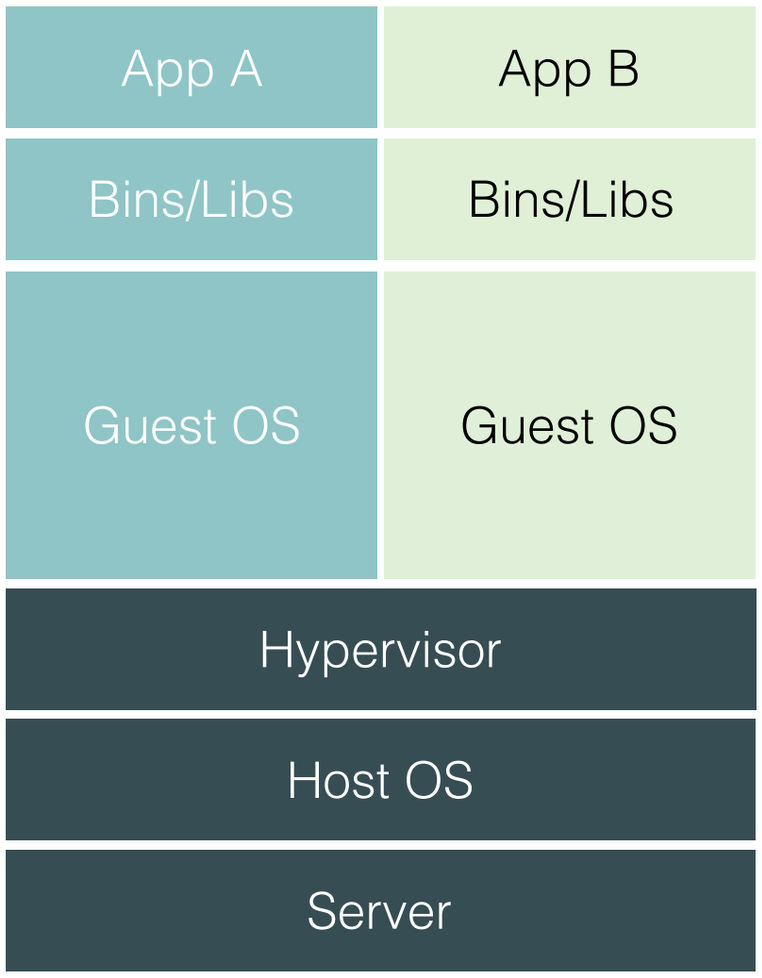


maintain consistency

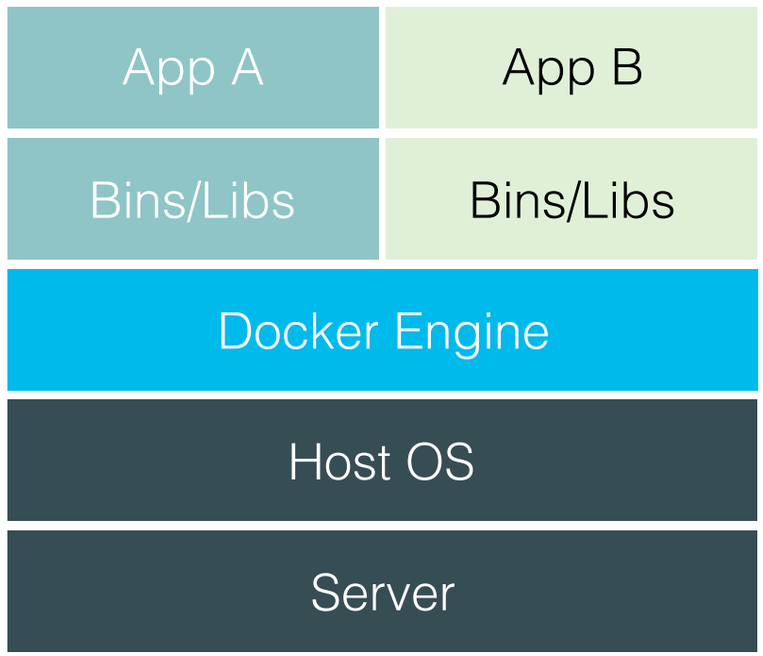


better resource utilization

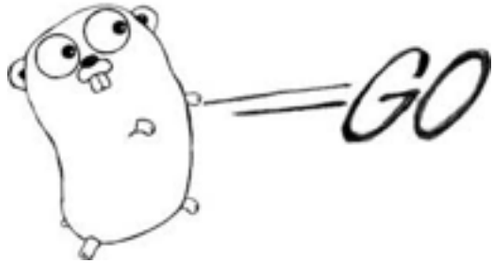
Virtual Machine



Docker



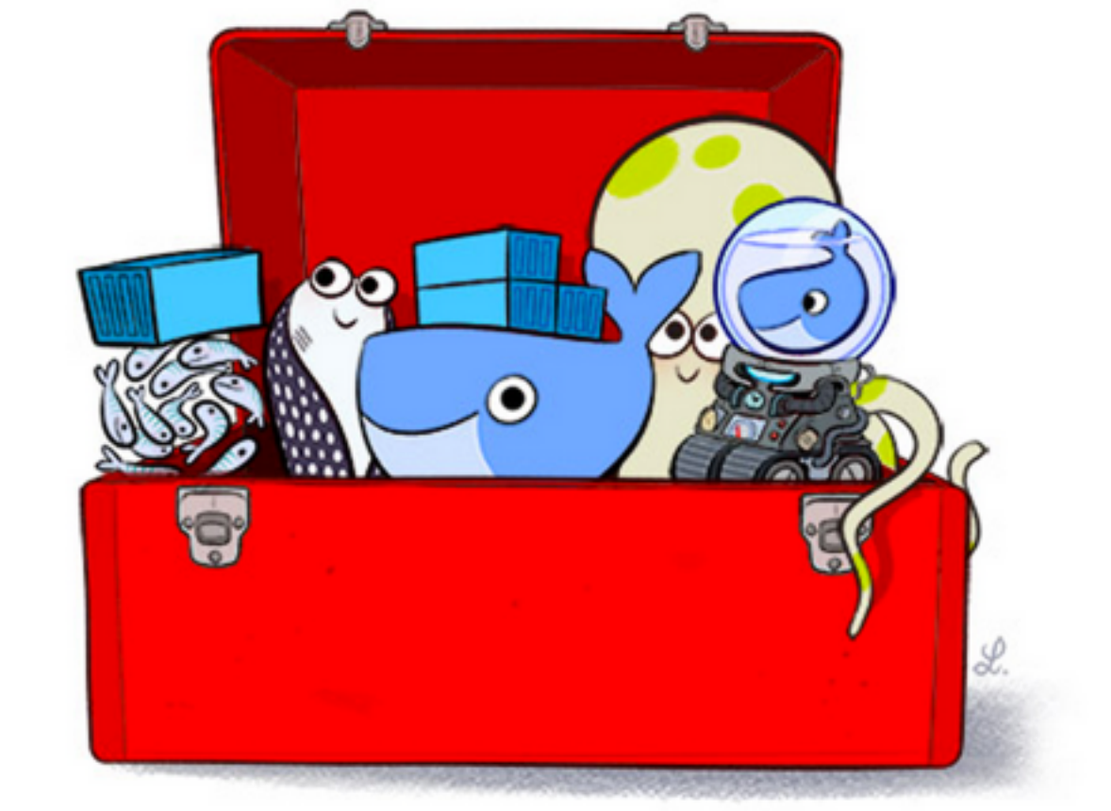
easy experimentation



Setup Docker

Docker Toolbox

Getting Started Guide (Mac) | Getting Started Guide (Windows) | Contribute to Toolbox



Download (Mac) Download (Windows)

Compatible with Mac OS X 10.8+ and Windows 7+

https://www.docker.com/toolbox

- Enable Virtualization
  - https://docs.docker.com/engine/installation/windows/
- Turn Off Hyper-V
  - `bcdedit /set hypervisorlaunchtype off`
  - restart
- Install latest version of Virtual Box (5.0.12)
- Install Docker Toolbox
  - uncheck “Install Virtual Box” checkbox

```
bcdedit /set hypervisorlaunchtype auto
```

Supported installation

Docker supports installation on the following:

- Amazon EC2 Installation
- Arch Linux
- Microsoft Azure platform
- Installation from binaries
- CentOS
- CRUX Linux
- Debian
- Fedora
- FrugalWare
- Gentoo
- Google Cloud Platform
- Install on Joyent Public Cloud
- Mac OS X
- Oracle Linux
- Rackspace Cloud
- Red Hat Enterprise Linux
- IBM SoftLayer
- openSUSE and SUSE Linux Enterprise
- Ubuntu
- Windows

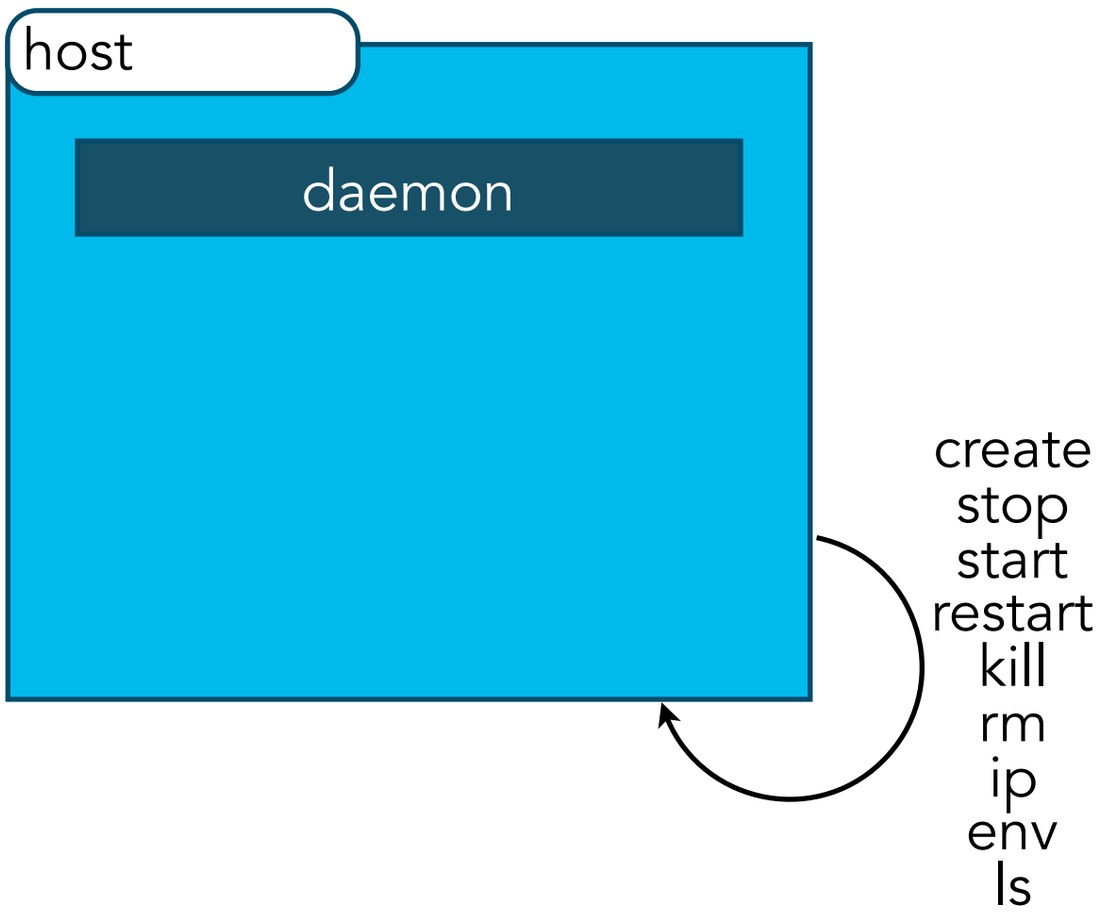
https://docs.docker.com/installation/

Lab 1

1. Install Docker for your specific platform

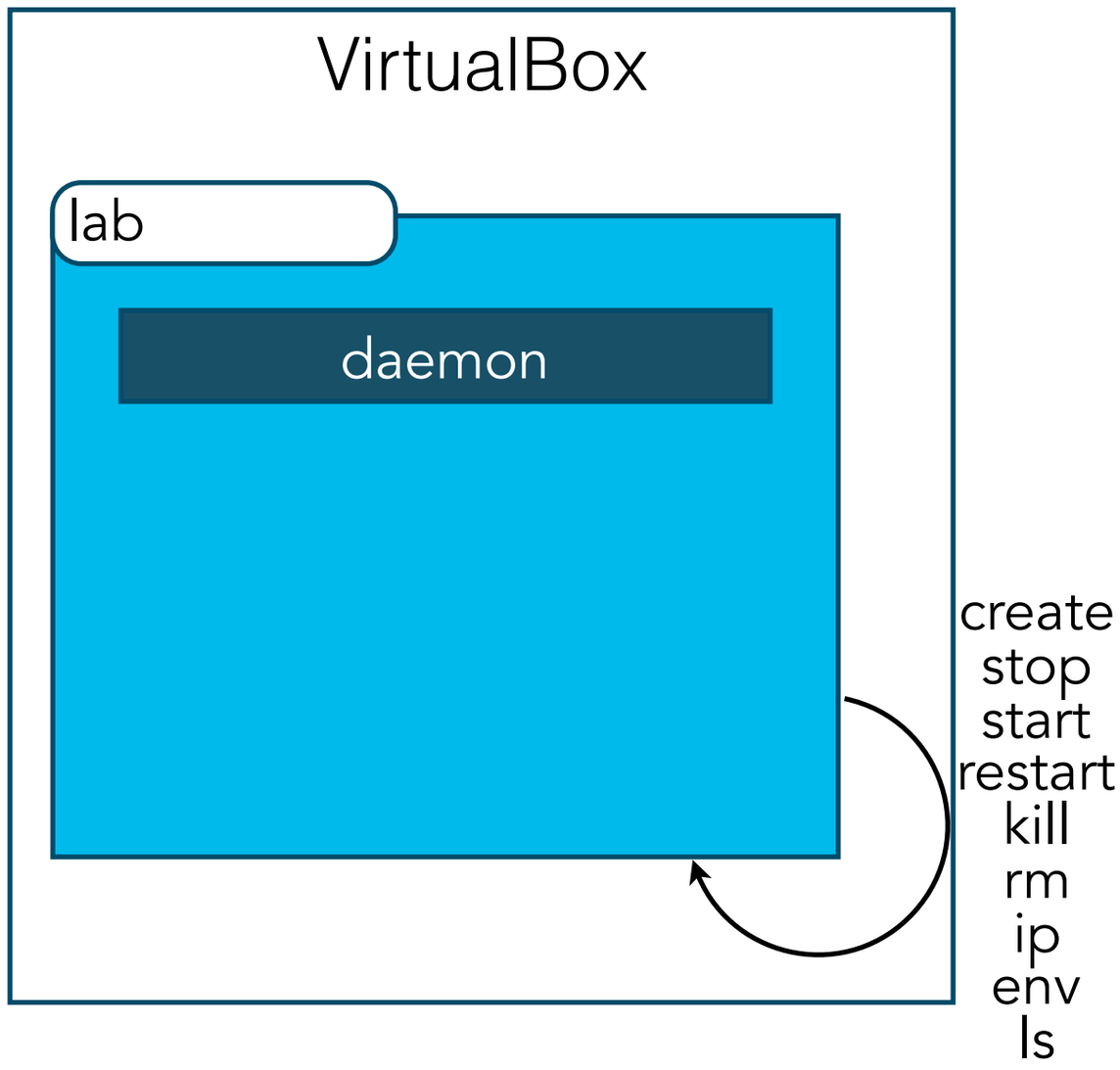
Create Machine

docker Lifecycle




```
docker-machine [OPTIONS] COMMAND [arg…]
```

docker Lifecycle




```
docker-machine [OPTIONS] COMMAND [arg…]
```

```
docker-machine create --driver=virtualbox lab
```

```
Creating VirtualBox VM...
Creating SSH key...
Starting VirtualBox VM...
Starting VM...
To see how to connect Docker to this machine, run: docker-machine env lab
```

```
docker-machine ls
```

```
NAME      ACTIVE   DRIVER       STATE     URL                         SWARM
default             virtualbox   Stopped
dev                 virtualbox   Running   tcp://192.168.99.101:2376
client1             virtualbox   Running   tcp://192.168.99.100:2376
client2             virtualbox   Stopped
lab                 virtualbox   Running   tcp://192.168.99.102:2376
```

docker-machine env lab

```
export DOCKER_TLS_VERIFY="1"
export DOCKER_HOST="tcp://192.168.99.102:2376"
export DOCKER_CERT_PATH="/Users/user/.docker/machine/machines/lab"
export DOCKER_MACHINE_NAME="lab"
# Run this command to configure your shell:
# eval "$(docker-machine env lab)"
```

eval "$(docker-machine env lab)"

docker-machine ls

NAME	ACTIVE	DRIVER	STATE	URL	SWARM
default		virtualbox	Stopped		
dev		virtualbox	Running	tcp://192.168.99.101:2376	
client1		virtualbox	Running	tcp://192.168.99.100:2376	
client2		virtualbox	Stopped		
lab	*	virtualbox	Running	tcp://192.168.99.102:2376	

```
docker-machine env --shell cmd lab
docker-machine env --shell powershell lab
docker-machine env --shell powershell lab | Invoke-Expression
```

Oracle VM VirtualBox Manager

New Settings Discard Start

Details Snapshots

- **Hadoop Playground** — Saved
- **musicbrainz** — Powered Off
- **Hadoop Tutorial 2015** — Powered Off
- **boot2docker-vm** — Powered Off
- **dev** — Aborted
- [redacted] — Running
- **default** — Powered Off
- [redacted] — Powered Off
- **lab** — Running

General

Name:	Hadoop Playground
Operating System:	Ubuntu (64-bit)

System

Base Memory:	2048 MB
Boot Order:	Floppy, Optical, Hard Disk
Acceleration:	VT-x/AMD-V, Nested Paging

Preview

Display

Video Memory:	12 MB
Remote Desktop Server:	Disabled
Video Capture:	Disabled

Storage

Controller: IDE	
IDE Secondary Master:	[Optical Drive] Empty
Controller: SATA	
SATA Port 0:	Hadoop Playground.vdi (Normal, 8.00 GB)

Audio

Host Driver:	CoreAudio
Controller:	ICH AC97

Network

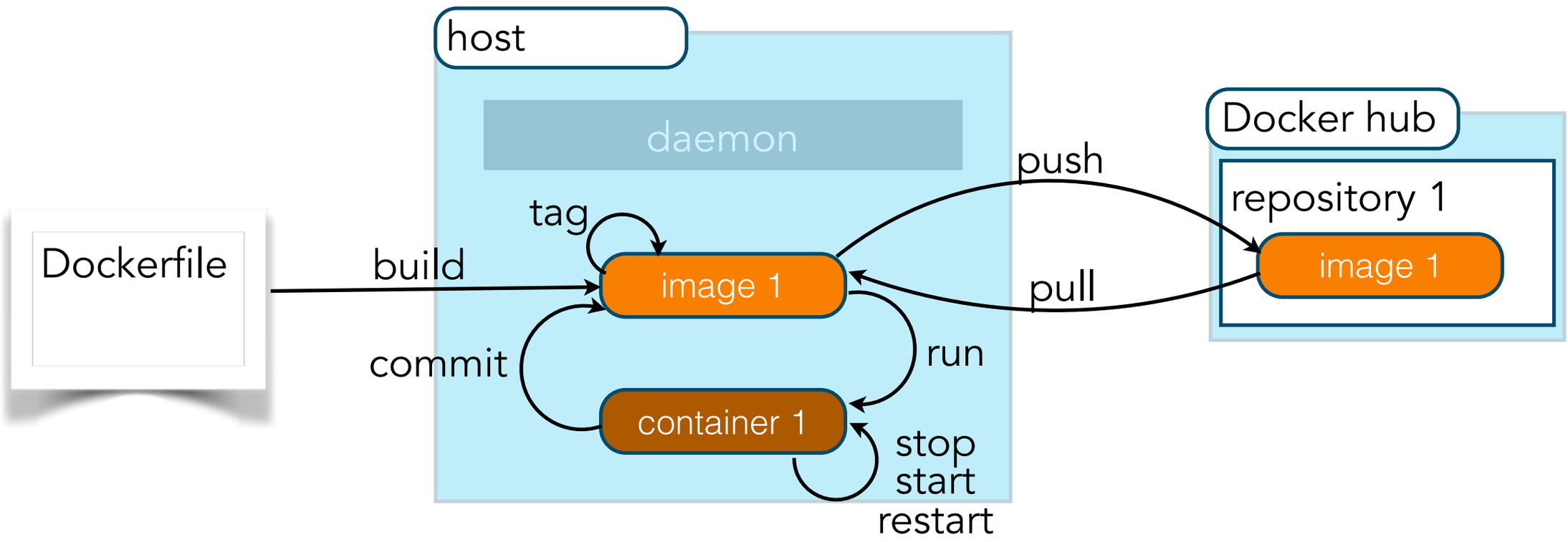
Adapter 1:	Intel PRO/1000 MT Desktop (NAT)
Adapter 2:	Intel PRO/1000 MT Desktop (Host-only Adapter, 'vboxnet0')

Lab 2

1. Create a new Docker Machine called lab

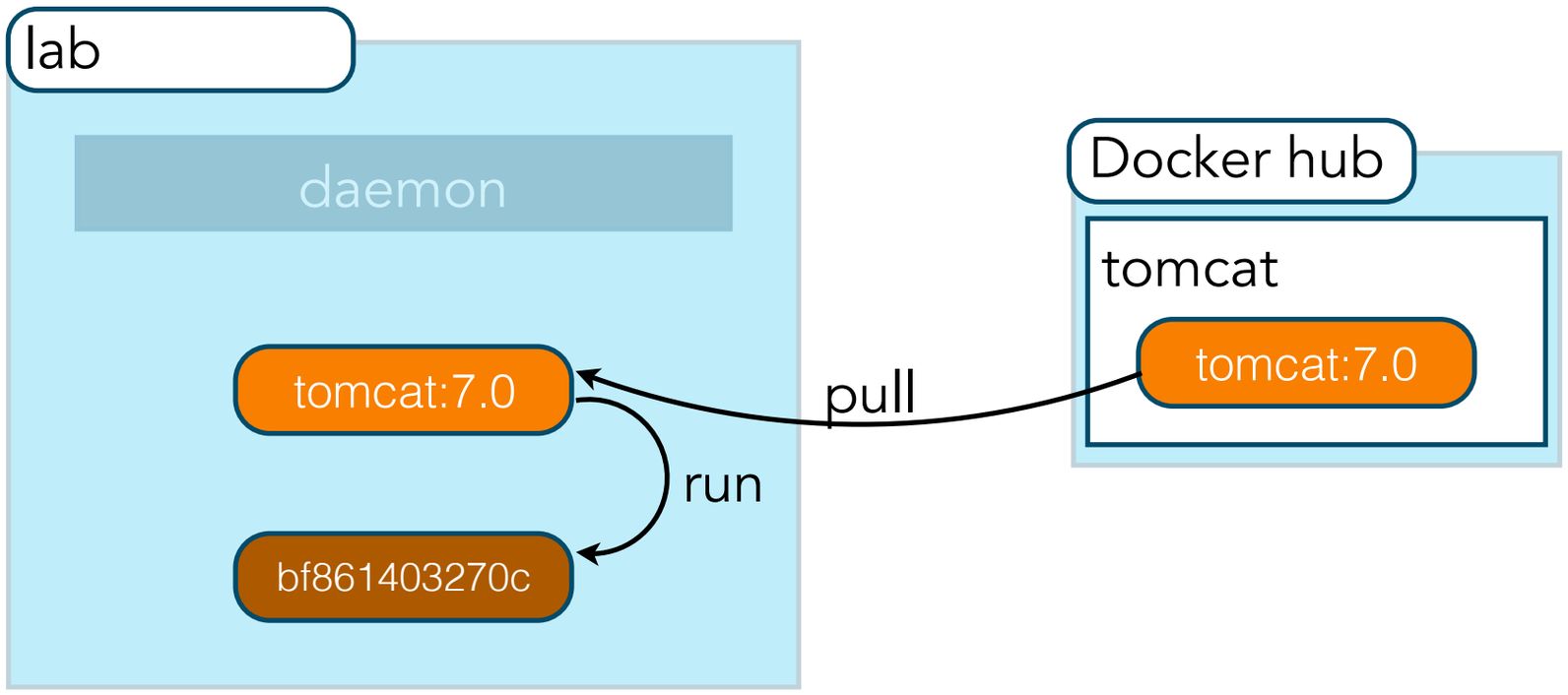
Docker Lifecycle

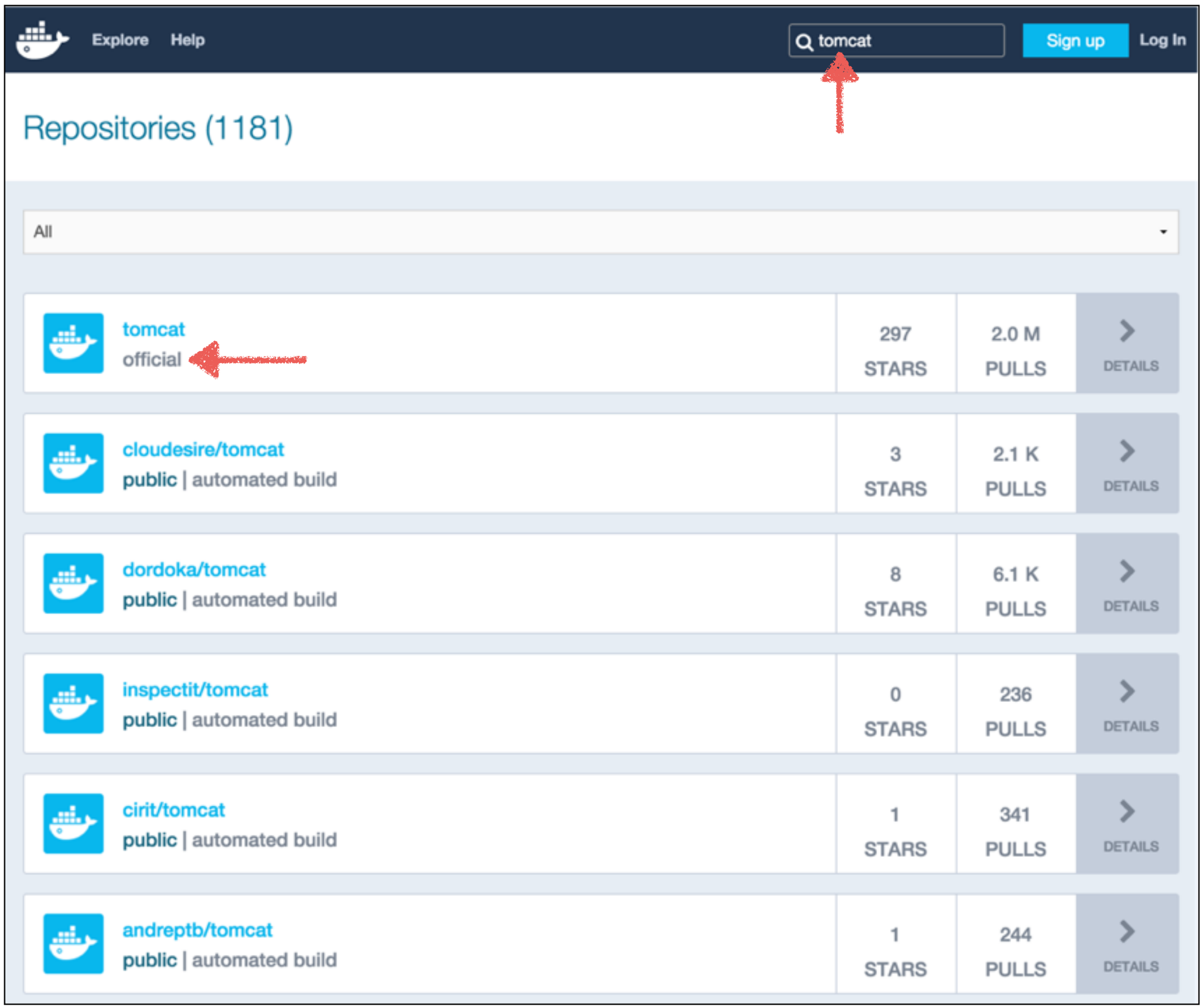
docker Lifecycle




```
docker [OPTIONS] COMMAND [arg…]
```

Finding & Running Containers


lab
daemon
tomcat:7.0
run
bf861403270c
pull
Docker hub
tomcat
tomcat:7.0



https://hub.docker.com/

Explore Help tomcat Sign up Log I

OFFICIAL REPOSITORY

tomcat ☆

Last pushed: 4 days ago

Repo Info Tags

Short Description

Apache Tomcat is an open source implementation of the Java Servlet and JavaServer Pages technologies

Docker Pull Command

```
docker pull tomcat
```

Full Description

Supported tags and respective `Dockerfile` links

- `6.0.44-jre7`, `6.0-jre7`, `6-jre7`, `6.0.44`, `6.0`, `6` (*6-jre7/Dockerfile*)
- `6.0.44-jre8`, `6.0-jre8`, `6-jre8` (*6-jre8/Dockerfile*)
- `7.0.64-jre7`, `7.0-jre7`, `7-jre7`, `7.0.64`, `7.0`, `7` (*7-jre7/Dockerfile*)
- `7.0.64-jre8`, `7.0-jre8`, `7-jre8` (*7-jre8/Dockerfile*)
- `8.0.28-jre7`, `8.0-jre7`, `8-jre7`, `jre7`, `8.0.28`, `8.0`, `8`, `latest` (*8-jre7/Dockerfile*)
- `8.0.28-jre8`, `8.0-jre8`, `8-jre8`, `jre8` (*8-jre8/Dockerfile*)

For more information about this image and its history, please see the relevant manifest file (`library/tomcat`). This image is updated via pull requests to the `docker-

How to use this image.

Run the default Tomcat server (`CMD ["catalina.sh", "run"]`):

```
$ docker run -it --rm tomcat:8.0
```

You can test it by visiting `http://container-ip:8080` in a browser or, if you need access outside the host, on port 8888:

```
$ docker run -it --rm -p 8888:8080 tomcat:8.0
```

You can then go to `http://localhost:8888` or `http://host-ip:8888` in a browser.

The default Tomcat environment in the image for versions 7 and 8 is:

```
CATALINA_BASE:   /usr/local/tomcat
CATALINA_HOME:   /usr/local/tomcat
CATALINA_TMPDIR: /usr/local/tomcat/temp
JRE_HOME:        /usr
CLASSPATH:       /usr/local/tomcat/bin/bootstrap.jar:/usr/local/tomcat/bi
```

The default Tomcat environment in the image for version 6 is:

```
CATALINA_BASE:   /usr/local/tomcat
CATALINA_HOME:   /usr/local/tomcat
CATALINA_TMPDIR: /usr/local/tomcat/temp
JRE_HOME:        /usr
CLASSPATH:       /usr/local/tomcat/bin/bootstrap.jar
```

The configuration files are available in `/usr/local/tomcat/conf/` . By default, no user is included in the "manager-gui" role required to operate the "/manager/html" web application. If you wish to use this app, you must define such a user in `tomcat-users.xml` .

License

View license information for the software contained in this image.

This image is officially supported on Docker version 1.8.3.

Support for older versions (down to 1.6) is provided on a best-effort basis.

Please see the Docker installation documentation for details on how to upgrade your Docker daemon.

User Feedback

Documentation

Documentation for this image is stored in the `tomcat/` directory of the `docker-library/docs` GitHub repo. Be sure to familiarize yourself with the repository's `README.md` file before attempting a pull request.

Issues

If you have any problems with or questions about this image, please contact us through a GitHub issue.

You can also reach many of the official image maintainers via the `#docker-library` IRC channel on Freenode.

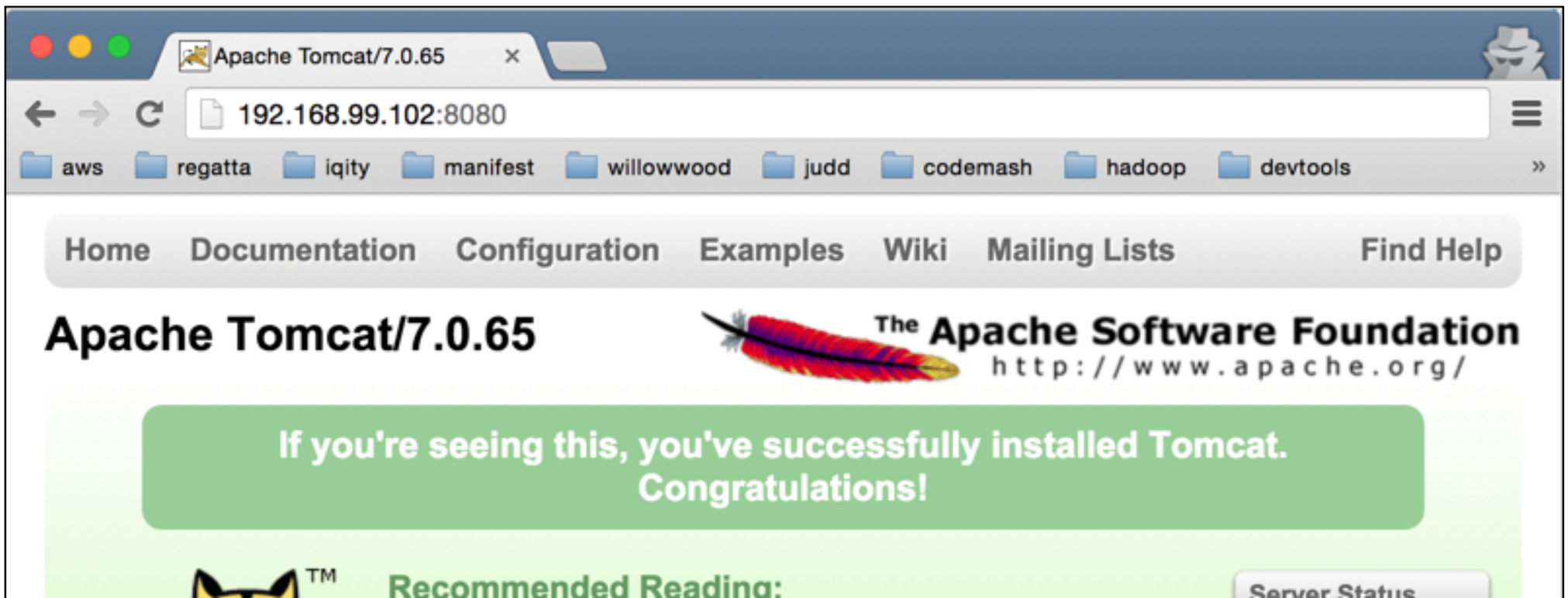
Contributing

You are invited to contribute new features, fixes, or updates, large or small; we are always thrilled to receive pull requests, and do our best to process them as fast as we can.

Before you start to code, we recommend discussing your plans through a GitHub issue, especially for more ambitious contributions. This gives other contributors a chance to point you in the right direction, give you feedback on your design, and help you find out if someone else is working on the same thing.

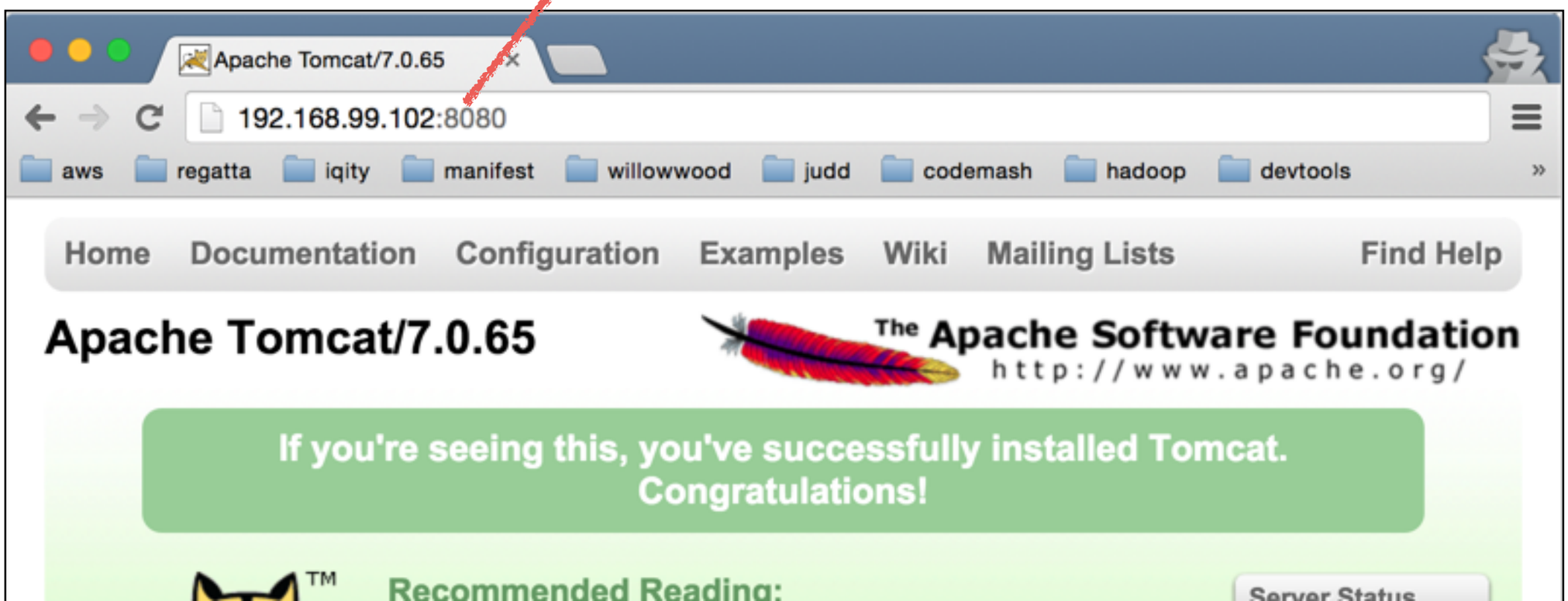
docker run -it --rm -p 8080:8080 tomcat:7.0-jre7

```
Using CATALINA_BASE:   /usr/local/tomcat
Using CATALINA_HOME:   /usr/local/tomcat
Using CATALINA_TMPDIR: /usr/local/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /usr/local/tomcat/bin/bootstrap.jar:/usr/local/tomcat/bin/tomcat-juli.jar
18-Oct-2015 23:34:47.365 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Server version:        Apache Tomcat/8.0.28
18-Oct-2015 23:34:47.366 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Server built:          Oct 7 2015 18:25:21 UTC
18-Oct-2015 23:34:47.367 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Server number:         8.0.28.0
18-Oct-2015 23:34:47.367 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log OS Name:               Linux
18-Oct-2015 23:34:47.368 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log OS Version:            4.0.9-boot2docker
18-Oct-2015 23:34:47.368 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Architecture:          amd64
18-Oct-2015 23:34:47.369 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Java Home:             /usr/lib/jvm/java-7-openjdk-amd64/jre
18-Oct-2015 23:34:47.369 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log JVM Version:           1.7.0_79-b14
18-Oct-2015 23:34:47.370 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log JVM Vendor:            Oracle Corporation
18-Oct-2015 23:34:47.370 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log CATALINA_BASE:         /usr/local/tomcat
18-Oct-2015 23:34:47.371 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log CATALINA_HOME:         /usr/local/tomcat
18-Oct-2015 23:34:47.371 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Djava.util.logging.config.file=/usr/local/tomcat/
conf/logging.properties
18-Oct-2015 23:34:47.372 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
18-Oct-2015 23:34:47.372 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Djava.endorsed.dirs=/usr/local/tomcat/endorsed
18-Oct-2015 23:34:47.372 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Dcatalina.base=/usr/local/tomcat
18-Oct-2015 23:34:47.373 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Dcatalina.home=/usr/local/tomcat
18-Oct-2015 23:34:47.373 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Djava.io.tmpdir=/usr/local/tomcat/temp
18-Oct-2015 23:34:47.373 INFO [main] org.apache.catalina.core.AprLifecycleListener.lifecycleEvent The APR based Apache Tomcat Native library which allows optimal
performance in production environments was not found on the java.library.path: /usr/java/packages/lib/amd64:/usr/lib/x86_64-linux-gnu/jni:/lib/x86_64-linux-gnu:/usr/
lib/x86_64-linux-gnu:/usr/lib/jni:/lib:/usr/lib
18-Oct-2015 23:34:47.519 INFO [main] org.apache.coyote.AbstractProtocol.init Initializing ProtocolHandler ["http-nio-8080"]
18-Oct-2015 23:34:47.546 INFO [main] org.apache.tomcat.util.net.NioSelectorPool.getSharedSelector Using a shared selector for servlet write/read
18-Oct-2015 23:34:47.559 INFO [main] org.apache.coyote.AbstractProtocol.init Initializing ProtocolHandler ["ajp-nio-8009"]
18-Oct-2015 23:34:47.561 INFO [main] org.apache.tomcat.util.net.NioSelectorPool.getSharedSelector Using a shared selector for servlet write/read
18-Oct-2015 23:34:47.562 INFO [main] org.apache.catalina.startup.Catalina.load Initialization processed in 812 ms
18-Oct-2015 23:34:47.607 INFO [main] org.apache.catalina.core.StandardService.startInternal Starting service Catalina
18-Oct-2015 23:34:47.618 INFO [main] org.apache.catalina.core.StandardEngine.startInternal Starting Servlet Engine: Apache Tomcat/8.0.28
18-Oct-2015 23:34:47.647 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory /usr/local/tomcat/
webapps/ROOT
```



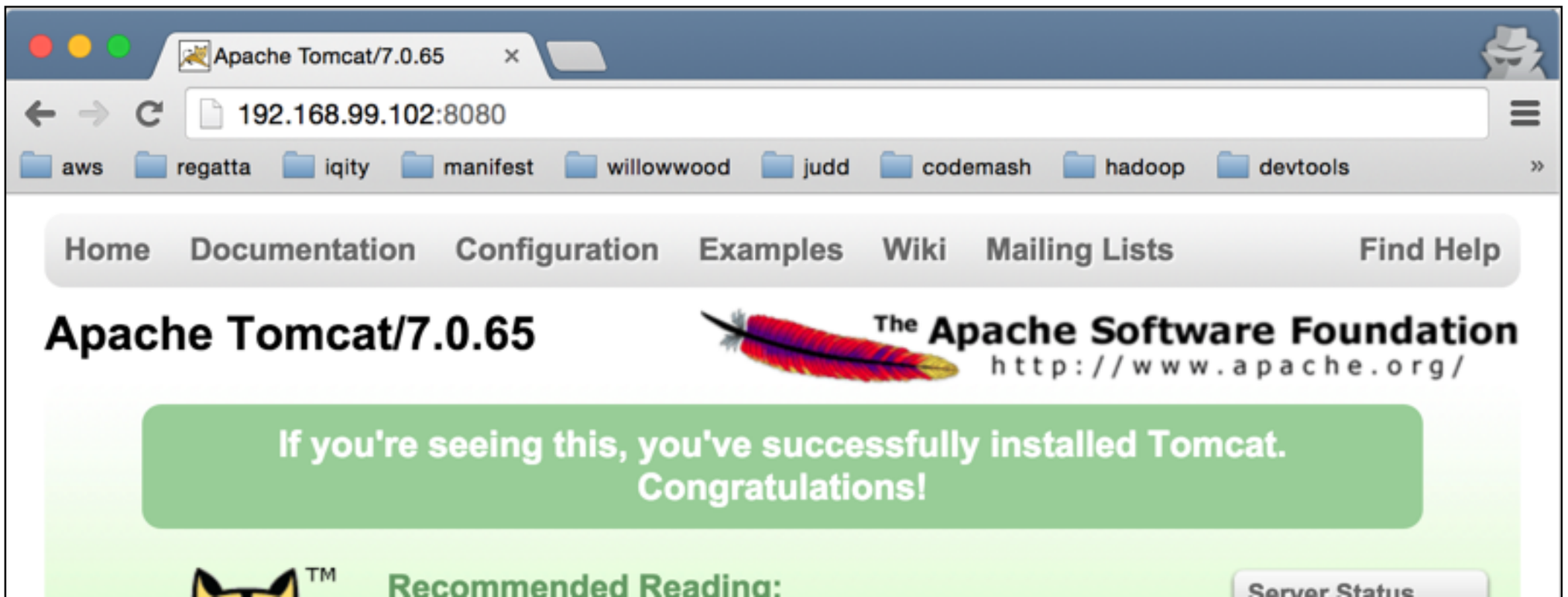
docker run -it --rm -p 8080:8080 tomcat:7.0-jre7

```
Using CATALINA_BASE:   /usr/local/tomcat
Using CATALINA_HOME:   /usr/local/tomcat
Using CATALINA_TMPDIR: /usr/local/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /usr/local/tomcat/bin/bootstrap.jar:/usr/local/tomcat/bin/tomcat-juli.jar
18-Oct-2015 23:34:47.365 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Server version:        Apache Tomcat/8.0.28
18-Oct-2015 23:34:47.366 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Server built:          Oct 7 2015 18:25:21 UTC
18-Oct-2015 23:34:47.367 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Server number:        8.0.28.0
18-Oct-2015 23:34:47.367 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log OS Name:               Linux
18-Oct-2015 23:34:47.368 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log OS Version:            4.0.9-boot2docker
18-Oct-2015 23:34:47.368 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Architecture:          amd64
18-Oct-2015 23:34:47.369 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Java Home:             /usr/lib/jvm/java-7-openjdk-amd64/jre
18-Oct-2015 23:34:47.369 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log JVM Version:           1.7.0_79-b14
18-Oct-2015 23:34:47.370 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log JVM Vendor:            Oracle Corporation
18-Oct-2015 23:34:47.370 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log CATALINA_BASE:         /usr/local/tomcat
18-Oct-2015 23:34:47.371 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log CATALINA_HOME:         /usr/local/tomcat
18-Oct-2015 23:34:47.371 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Djava.util.logging.config.file=/usr/local/tomcat/
conf/logging.properties
18-Oct-2015 23:34:47.372 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
18-Oct-2015 23:34:47.372 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Djava.endorsed.dirs=/usr/local/tomcat/endorsed
18-Oct-2015 23:34:47.372 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Dcatalina.base=/usr/local/tomcat
18-Oct-2015 23:34:47.373 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Dcatalina.home=/usr/local/tomcat
18-Oct-2015 23:34:47.373 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Djava.io.tmpdir=/usr/local/tomcat/temp
18-Oct-2015 23:34:47.373 INFO [main] org.apache.catalina.core.AprLifecycleListener.lifecycleEvent The APR based Apache Tomcat Native library which allows optimal
performance in production environments was not found on the java.library.path: /usr/java/packages/lib/amd64:/usr/lib/x86_64-linux-gnu/jni:/lib/x86_64-linux-gnu:/usr/
lib/x86_64-linux-gnu:/usr/lib/jni:/lib:/usr/lib
18-Oct-2015 23:34:47.519 INFO [main] org.apache.coyote.AbstractProtocol.init Initializing ProtocolHandler ["http-nio-8080"]
18-Oct-2015 23:34:47.546 INFO [main] org.apache.tomcat.util.net.NioSelectorPool.getSharedSelector Using a shared selector for servlet write/read
18-Oct-2015 23:34:47.559 INFO [main] org.apache.coyote.AbstractProtocol.init Initializing ProtocolHandler ["ajp-nio-8009"]
18-Oct-2015 23:34:47.561 INFO [main] org.apache.tomcat.util.net.NioSelectorPool.getSharedSelector Using a shared selector for servlet write/read
18-Oct-2015 23:34:47.562 INFO [main] org.apache.catalina.startup.Catalina.load Initialization processed in 812 ms
18-Oct-2015 23:34:47.607 INFO [main] org.apache.catalina.core.StandardService.startInternal Starting service Catalina
18-Oct-2015 23:34:47.618 INFO [main] org.apache.catalina.core.StandardEngine.startInternal Starting Servlet Engine: Apache Tomcat/8.0.28
18-Oct-2015 23:34:47.647 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory /usr/local/tomcat/
webapps/ROOT
```



docker-machine ip lab

192.168.99.102

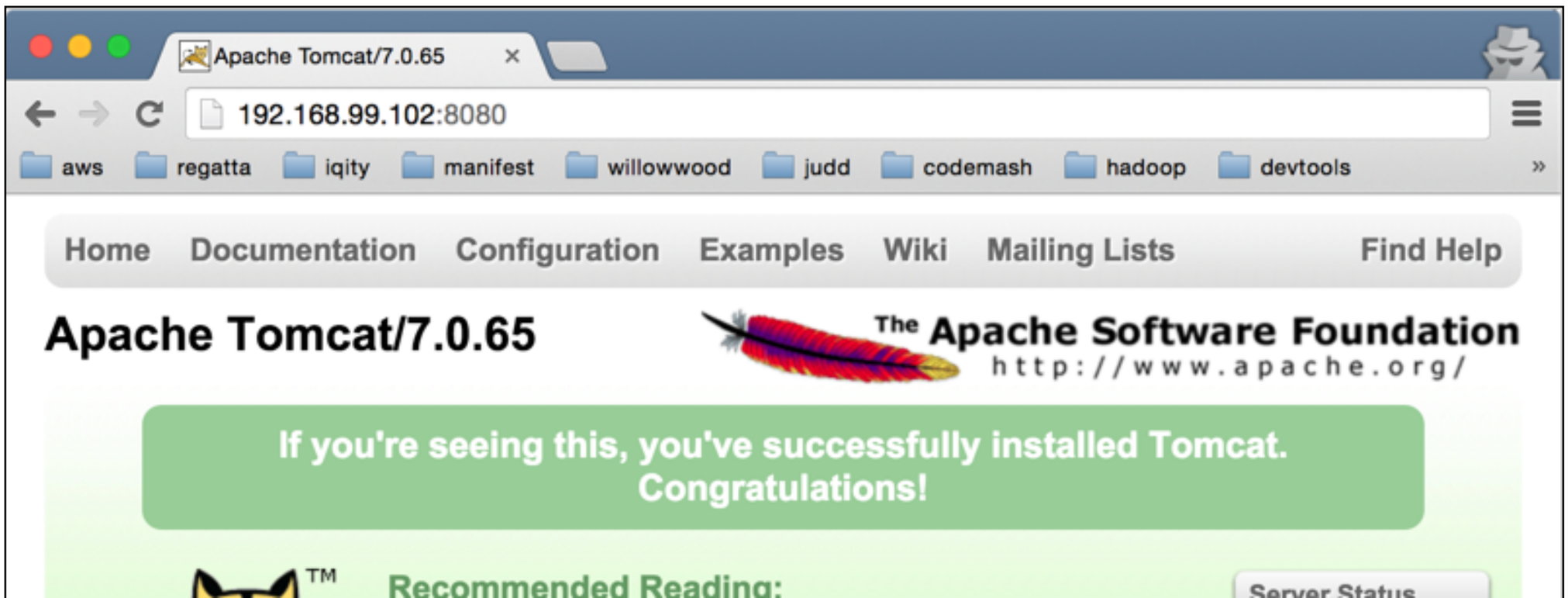


docker-machine ip lab

192.168.99.102

docker-machine ls

```
NAME      ACTIVE   DRIVER       STATE     URL                         SWARM
default            virtualbox   Stopped
dev                virtualbox   Running   tcp://192.168.99.101:2376
client1            virtualbox   Running   tcp://192.168.99.100:2376
client2            virtualbox   Stopped
lab                virtualbox   Running   tcp://192.168.99.102:2376
```

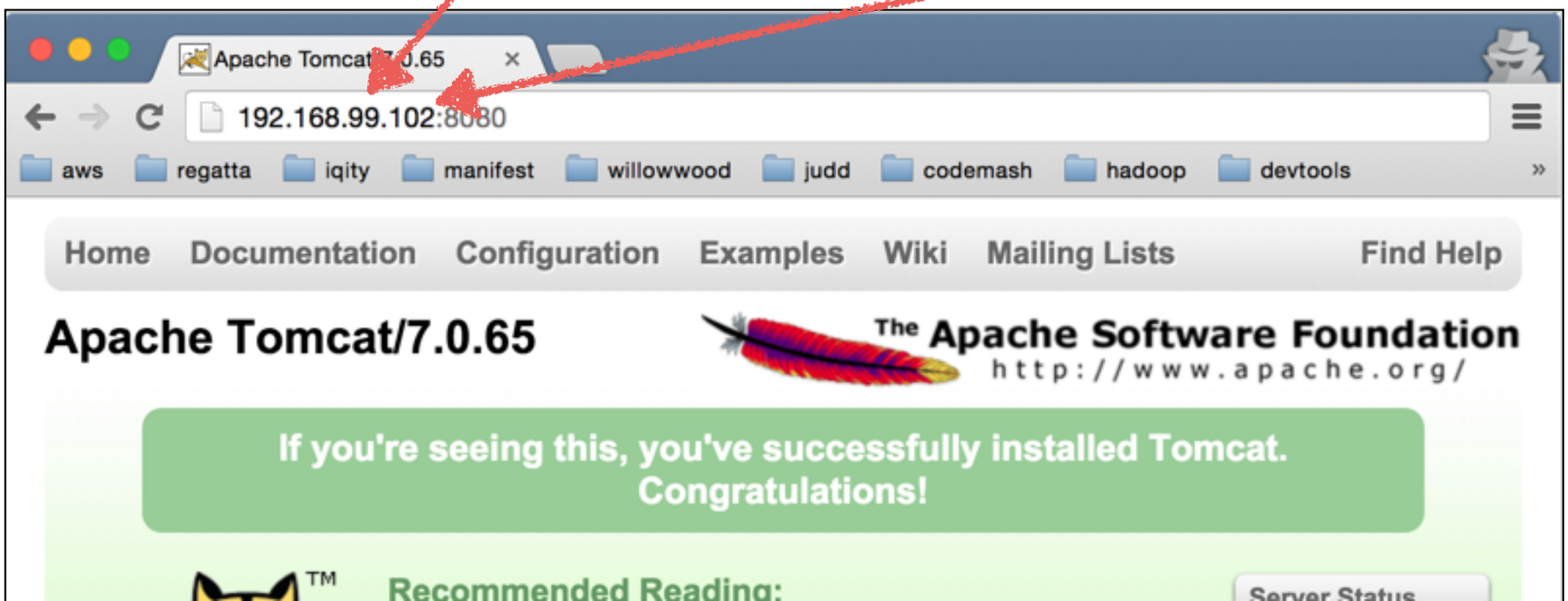


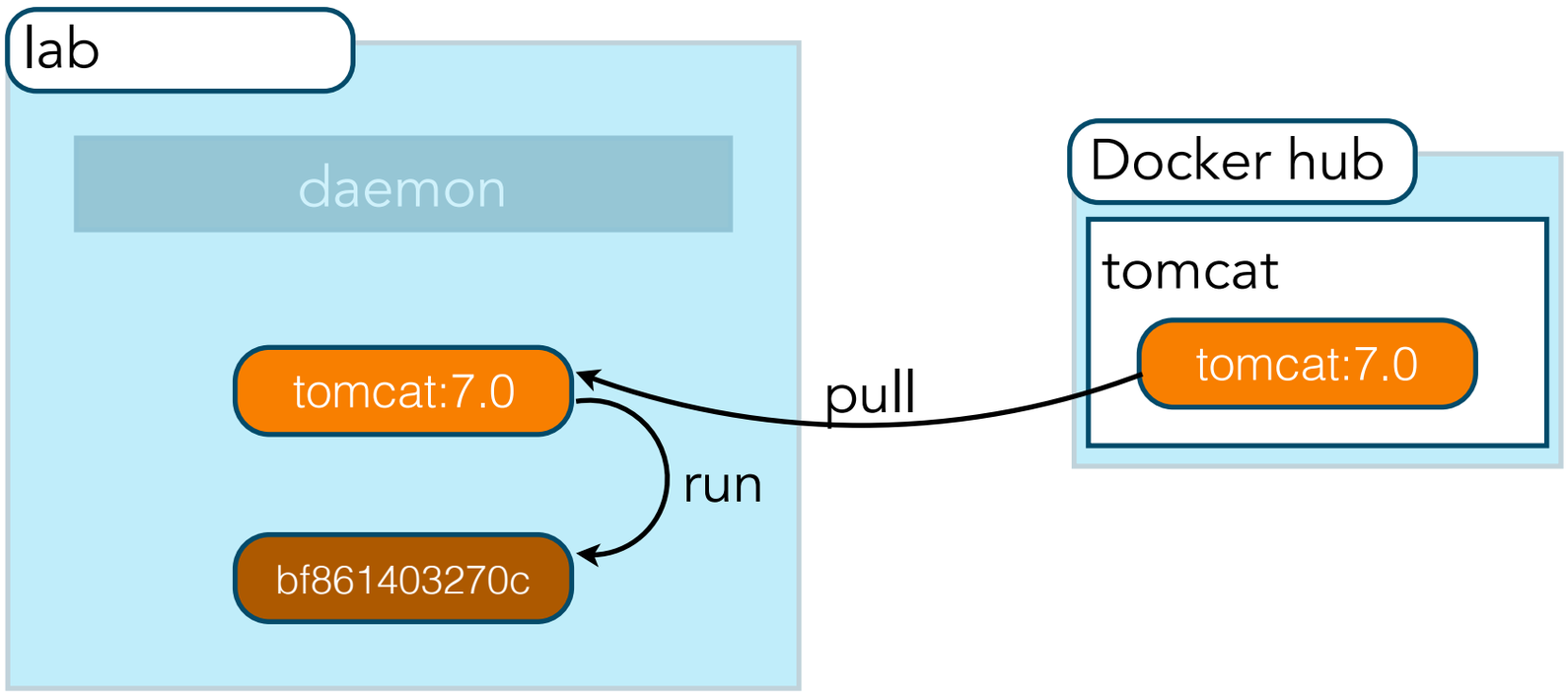
```
docker-machine ip lab
```

```
192.168.99.102
```

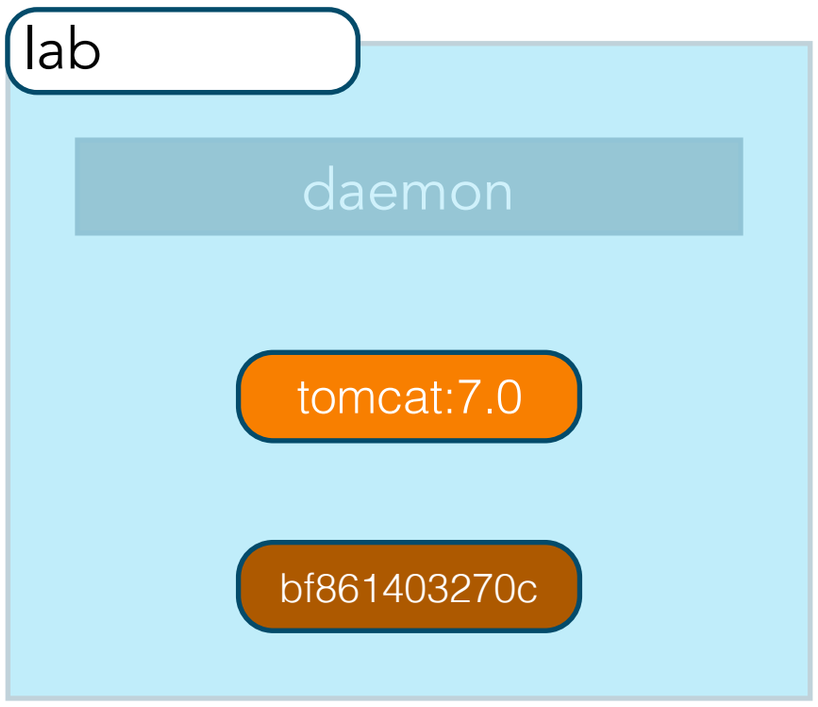
```
docker-machine ls
```

```
NAME      ACTIVE   DRIVER       STATE     URL                         SWARM
default             virtualbox   Stopped
dev                 virtualbox   Running   tcp://192.168.99.101:2376
client1             virtualbox   Running   tcp://192.168.99.100:2376
client2             virtualbox   Stopped
lab                 virtualbox   Running   tcp://192.168.99.102:2376
```



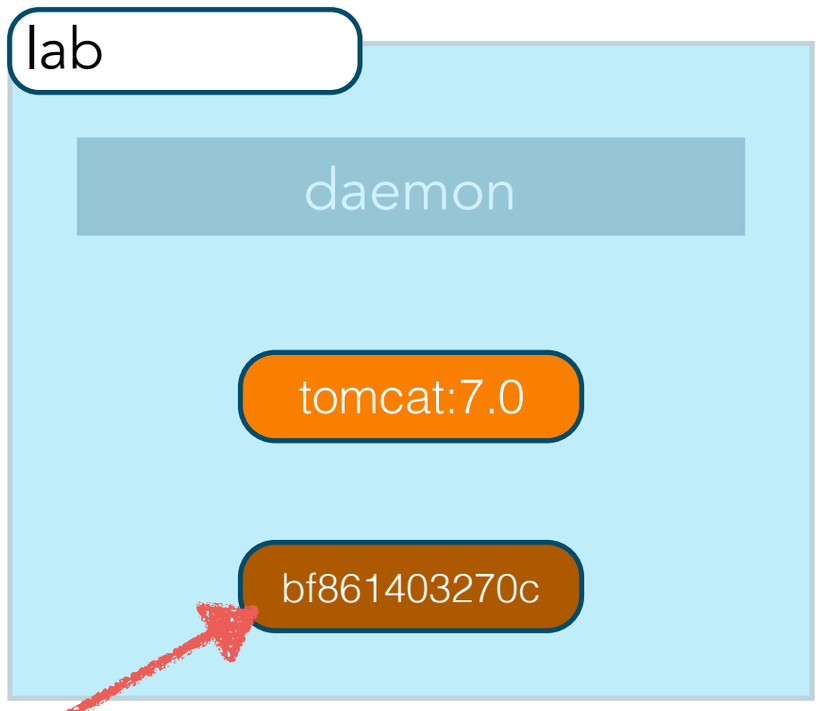



```
docker run -it --rm -p 8080:8080 tomcat:7.0-jre7
```



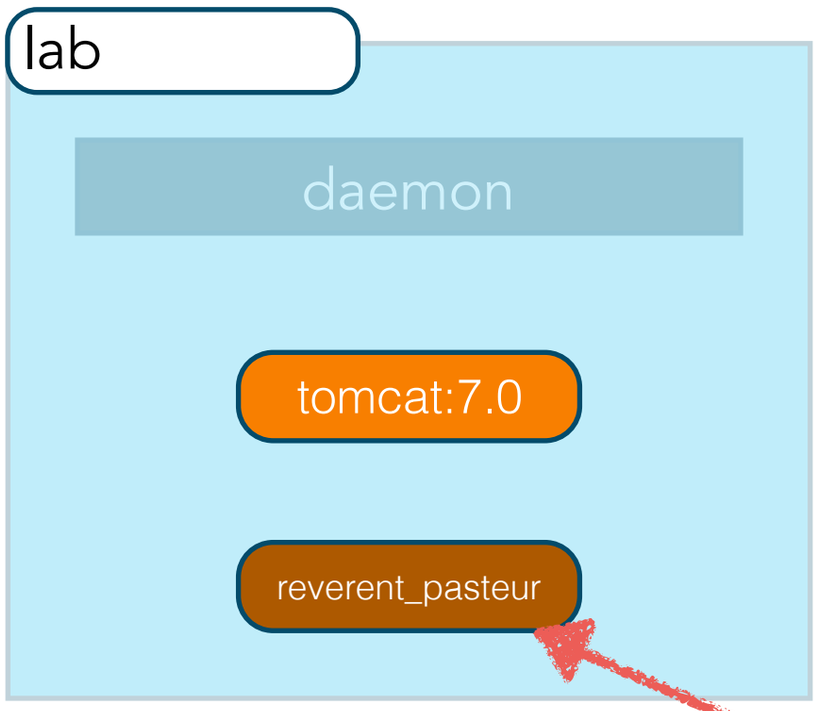
docker ps

```
CONTAINER ID  IMAGE              COMMAND             STATUS        PORTS                    NAMES
bf861403270c  tomcat:7.0-jre7  "catalina.sh run"  Up 2 seconds  0.0.0.0:8080->8080/tcp reverent_pasteur
```



docker ps

```
CONTAINER ID  IMAGE              COMMAND             STATUS         PORTS                    NAMES
bf861403270c  tomcat:7.0-jre7  "catalina.sh run"  Up 2 seconds  0.0.0.0:8080->8080/tcp  reverent_pasteur
```




```
docker ps
```

```
CONTAINER ID  IMAGE              COMMAND             STATUS         PORTS                    NAMES
bf861403270c  tomcat:7.0-jre7  "catalina.sh run"  Up 2 seconds  0.0.0.0:8080->8080/tcp reverent_pasteur
```

Lab 3

1. Run Tomcat 7.0-jre7 container
2. Validate you can see the Tomcat home page
3. Determine the name & id of your container
4. Shut the container down

Hint: you might want to use two command prompts to do this

Creating Images

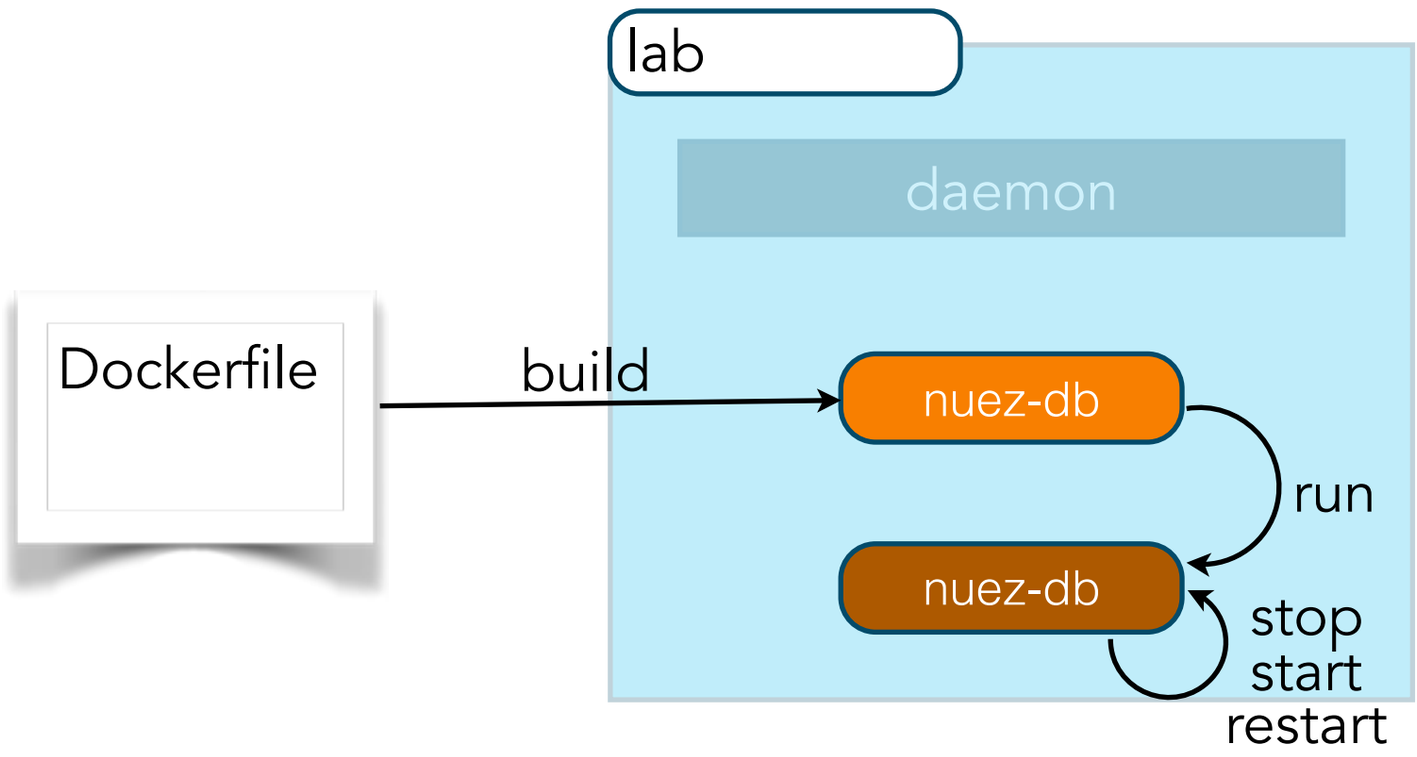
- Run container and manually install software
- Dockerfile

- ~~Run container and manually install software~~
- Dockerfile

Dockerfile

```
FROM mysql:5.5.45

RUN echo America/New_York | tee /etc/timezone && dpkg-reconfigure --frontend noninteractive tzdata
RUN echo "lower_case_table_names = 1" >> /etc/mysql/my.cnf

ENTRYPOINT ["/entrypoint.sh"]
CMD ["mysqld"]
```

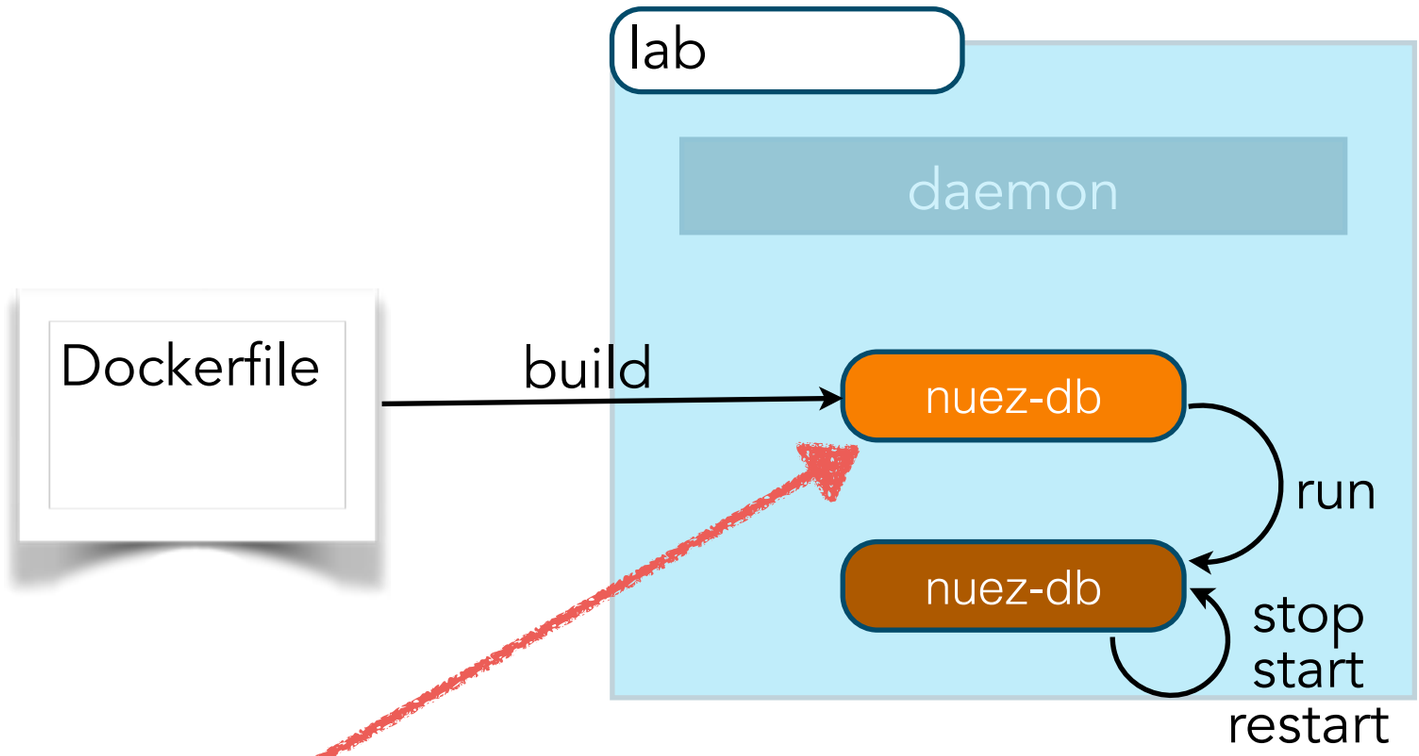
Instruction	Description
FROM	This is must be the first instruction in the Dockerfile and identifies the image to
MAINTAINER	Provides visibility and credit to the author of the image.
RUN	Executes a Linux command for configuring and installing.
ENTRYPOINT	The final script or application used bootstrap the container making it an
CMD	Provide default arguments to the ENTRYPOINT using a JSON array format.
LABEL	Name/value metadata about the image.
ENV	Sets environment variables.
COPY	Copies files into the container.
ADD	Alternative to copy.
WORKDIR	Sets working directory for RUN, CMD, ENTRYPOINT, COPY and/or ADD
EXPOSE	Ports the container will listen on.
VOLUME	Creates a mount point.
USER	User to run RUN, CMD and/or ENTRYPOIN instructions..




```
docker build -t nuez-db .
```

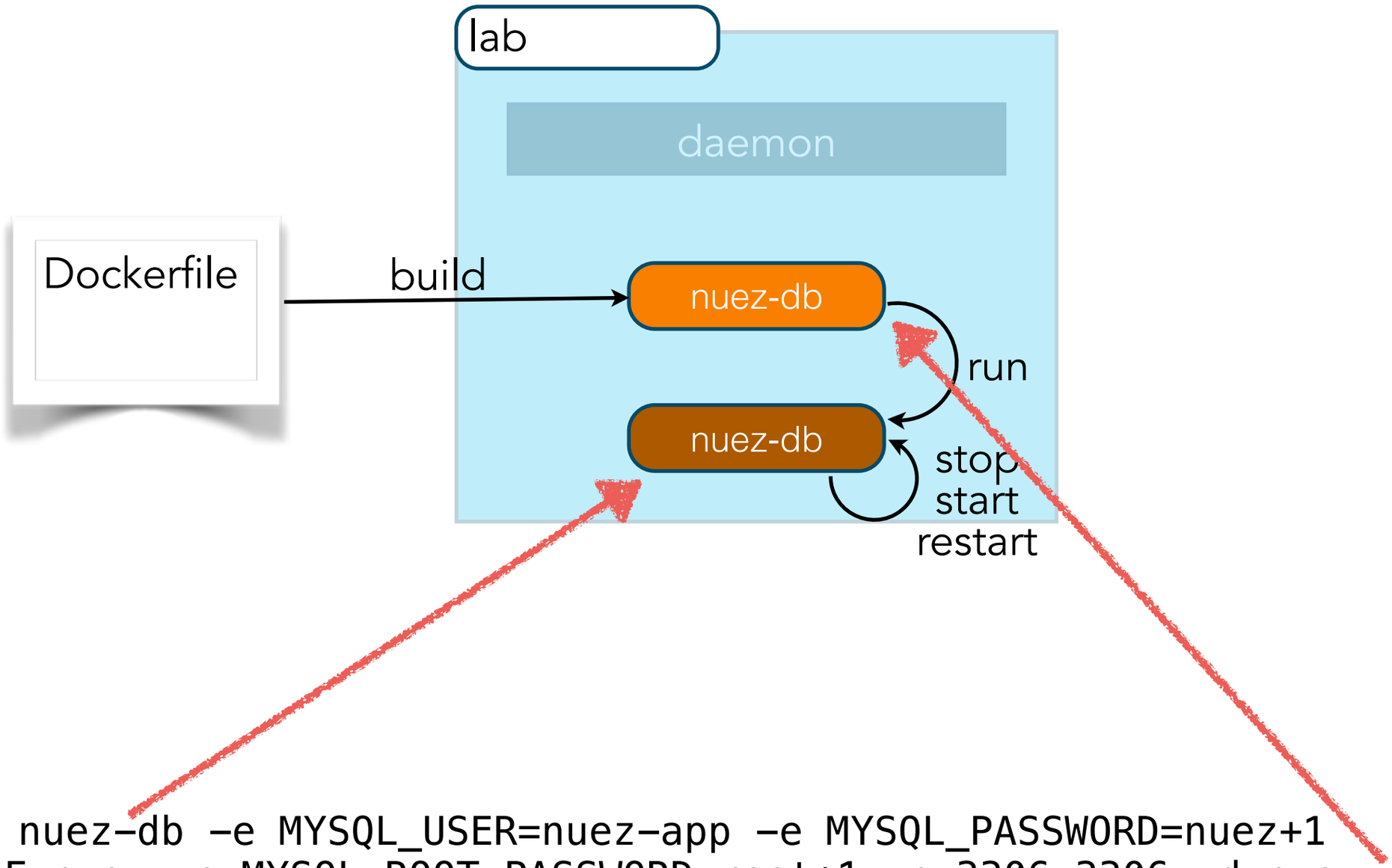
docker build -t nuez-db .

```
Sending build context to Docker daemon 35.33 kB
Step 0 : FROM mysql:5.5.45
5.5.45: Pulling from library/mysql
ba249489d0b6: Pull complete
19de96c112fc: Pull complete
2e32b26a94ed: Pull complete
637386aea7a0: Pull complete
f40aa7fe5d68: Pull complete
f9cc53679b1f: Pull complete
6b4bdd0d9a0c: Pull complete
066f73588b2c: Pull complete
8c7b0f689d1a: Pull complete
ea70677dc485: Pull complete
9d511b9dbf89: Pull complete
0896de2c270f: Pull complete
a29e02ef2642: Pull complete
bb322ed102e5: Pull complete
1c764f968123: Pull complete
2b884c0bb51d: Pull complete
0da0b10c6fd8: Pull complete
Digest: sha256:72a09a61824bdaf652e701fcbf0ee12f5b132d8fdeaf1629ce42960375de03cb
Status: Downloaded newer image for mysql:5.5.45
 ---> 0da0b10c6fd8
Step 1 : COPY docker-entrypoint-initdb.d /docker-entrypoint-initdb.d/
 ---> 46223bd058b1
Removing intermediate container bcbb6f31fed3
Step 2 : RUN echo America/New_York | tee /etc/timezone && dpkg-reconfigure --frontend noninteractive tzdata
 ---> Running in cb82914c1be9
America/New_York

Current default time zone: 'America/New_York'
Local time is now:      Sun Oct 18 20:53:55 EDT 2015.
Universal Time is now:  Mon Oct 19 00:53:55 UTC 2015.

 ---> 928355f67c39
Removing intermediate container cb82914c1be9
Step 3 : RUN echo "lower_case_table_names = 1" >> /etc/mysql/my.cnf
 ---> Running in 6ccd82a7286c
 ---> 6d23b9680c54
Removing intermediate container 6ccd82a7286c
Step 4 : ENTRYPOINT /entrypoint.sh
 ---> Running in c4c00462c691
 ---> 62ad0d0bc850
Removing intermediate container c4c00462c691
Step 5 : CMD mysqld
 ---> Running in 1cd40a7e38f8
 ---> 16f80cf33da2
Removing intermediate container 1cd40a7e38f8
Successfully built 16f80cf33da2
```

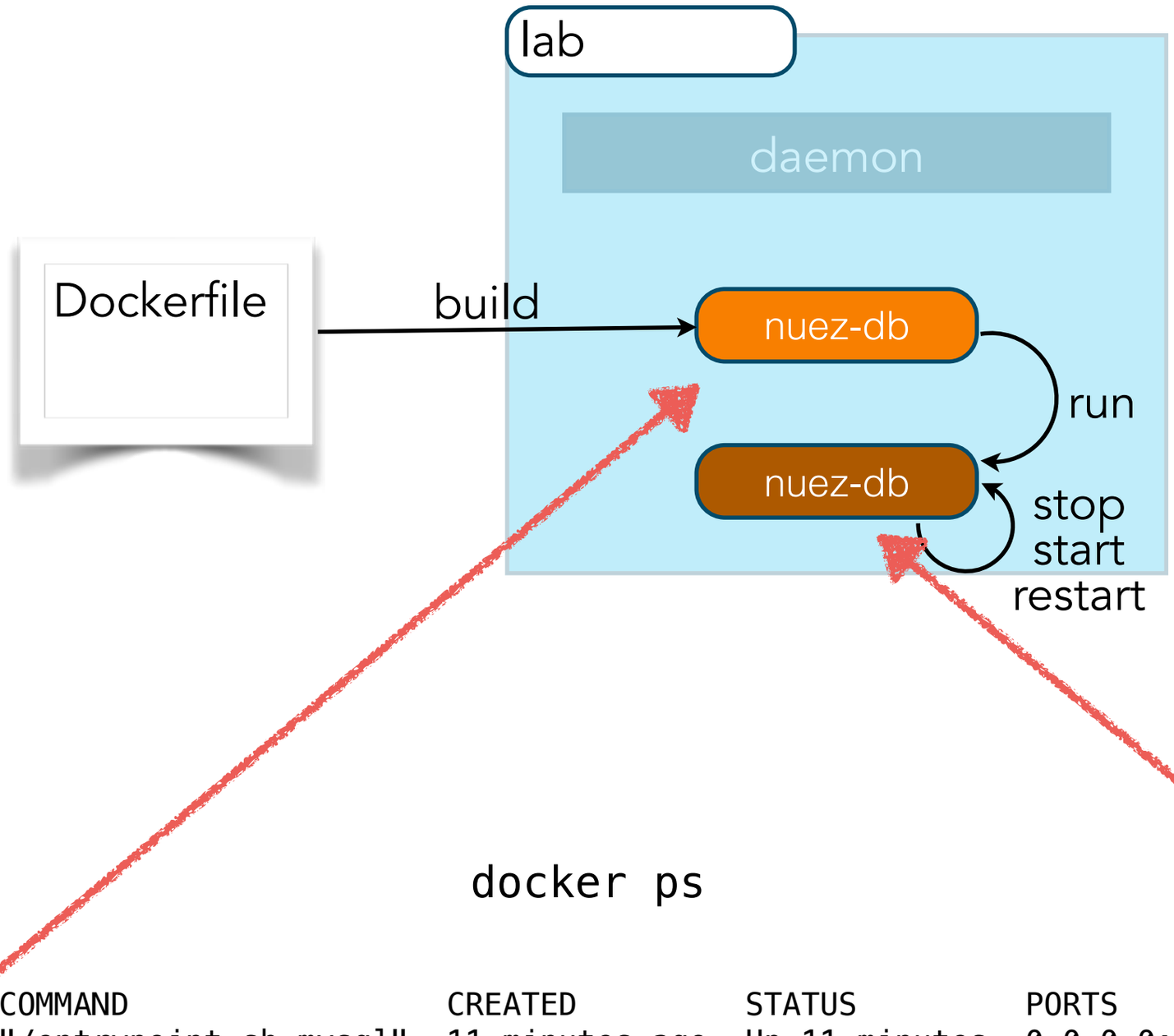



```
docker images
```

```
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
nuez-db             latest              16f80cf33da2        8 minutes ago       214.4 MB
tomcat              7.0-jre7            c6838f52cb84        4 days ago          347.7 MB
mysql               5.5.45              0da0b10c6fd8        5 weeks ago         213.5 MB
```




```
docker run --name nuez-db -e MYSQL_USER=nuez-app -e MYSQL_PASSWORD=nuez+1
  -e MYSQL_DATABASE=nuez -e MYSQL_ROOT_PASSWORD=root+1 -p 3306:3306 -d nuez-db

640a1bf669cc97763d51bc28865a5115a103e953336f8a7e90d50d61a108d0ec
```




```
docker ps
```

```
CONTAINER ID  IMAGE     COMMAND                  CREATED         STATUS         PORTS                    NAMES
640a1bf669cc  nuez-db   "/entrypoint.sh mysql"   11 minutes ago  Up 11 minutes  0.0.0.0:3306->3306/tcp   nuez-db
```

Lab 4

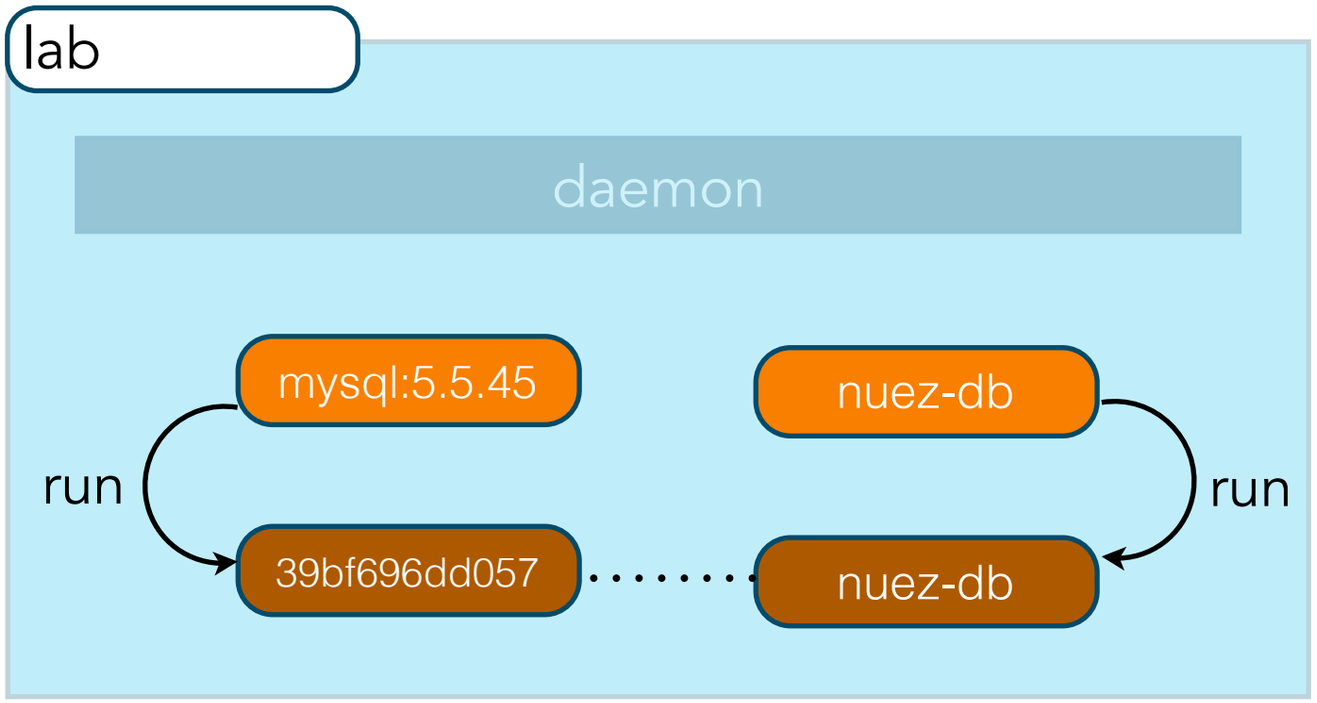
1. Create a nuez-db image with MySQL
2. Run nuez-db container as a daemon

Linking to Container

```
mysql -h 192.168.99.102 -u root -proot+1 nuez
```

or

```
docker run -it --link nuez-db:mysql --rm mysql:5.5.45 bash
mysql -h $MYSQL_PORT_3306_TCP_ADDR -u $MYSQL_ENV_MYSQL_USER -p$MYSQL_ENV_MYSQL_PASSWORD $MYSQL_ENV_MYSQL_DATABASE
```

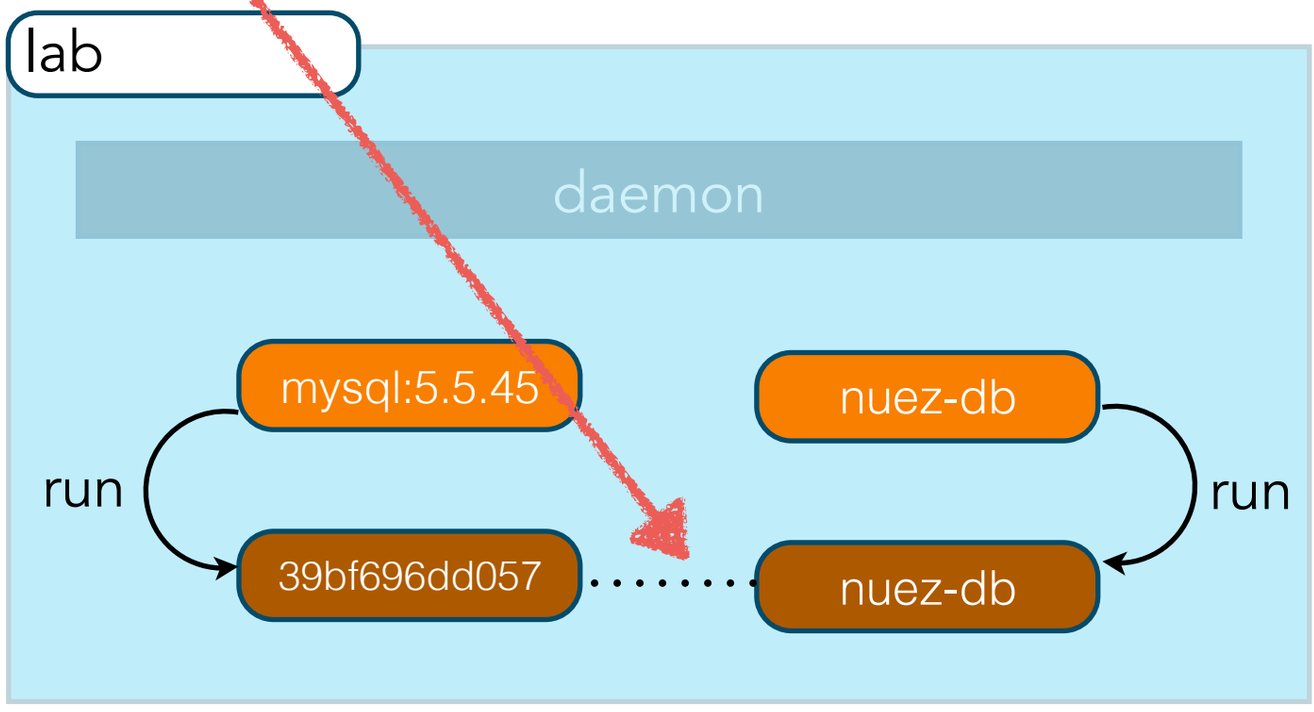


```
mysql -h 192.168.99.102 -u root -proot+1 nuez
```

or

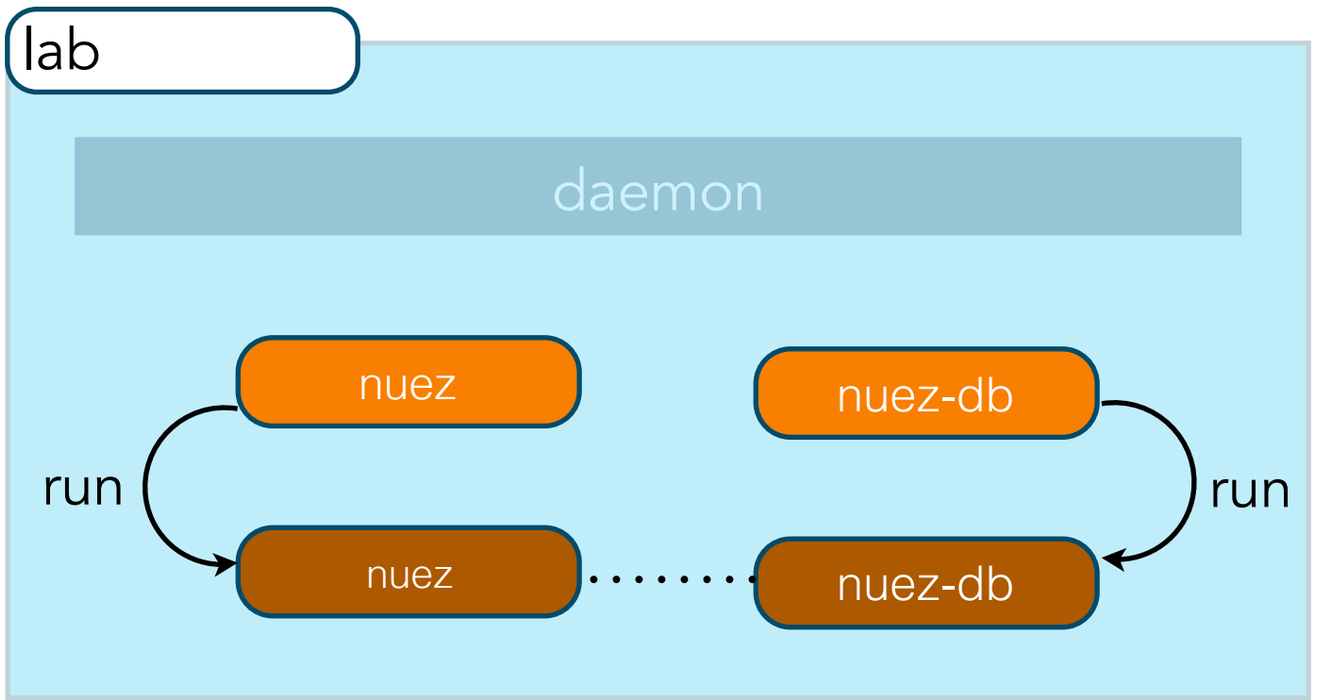
```
docker run -it --link nuez-db:mysql --rm mysql:5.5.45 bash
mysql -h $MYSQL_PORT_3306_TCP_ADDR -u $MYSQL_ENV_MYSQL_USER -p$MYSQL_ENV_MYSQL_PASSWORD $MYSQL_ENV_MYSQL_DATABASE
```

```
HOSTNAME=05f85a8745c2
MYSQL_ENV_MYSQL_DATABASE=nuez
MYSQL_ENV_MYSQL_ROOT_PASSWORD=root+1
TERM=xterm
MYSQL_VERSION=5.5.45
MYSQL_PORT_3306_TCP_PORT=3306
MYSQL_PORT_3306_TCP=tcp://172.17.0.28:3306
PATH=/usr/local/sbin:/usr/local/bin
MYSQL_ENV_MYSQL_USER=nuez-app
PWD=/
MYSQL_ENV_MYSQL_PASSWORD=nuez+1
MYSQL_ENV_MYSQL_VERSION=5.5.45
HOME=/root
SHLVL=1
MYSQL_PORT_3306_TCP_PROTO=tcp
MYSQL_NAME=/elated_franklin/mysql
MYSQL_MAJOR=5.5
MYSQL_PORT_3306_TCP_ADDR=172.17.0.28
MYSQL_ENV_MYSQL_MAJOR=5.5
MYSQL_PORT=tcp://172.17.0.28:3306
_=/usr/bin/env
```



Lab 5

1. Run a mysql command-line in a container and connect to the nuez-db.


lab
daemon
nuez
nuez-db
run
run
nuez
nuez-db

```
// remove for brevity

docker {
      dataSource {
          dbCreate = "update"
          url = "jdbc:mysql://${System.getenv()['MYSQL_PORT_3306_TCP_ADDR']}:${System.getenv()['MYSQL_PORT_3306_TCP_PORT']}/$
{System.getenv()['MYSQL_ENV_MYSQL_DATABASE']}"
          driverClassName = "com.mysql.jdbc.Driver"
          username = System.getenv()['MYSQL_ENV_MYSQL_USER']
          password = System.getenv()['MYSQL_ENV_MYSQL_PASSWORD']
          pooled = true
          properties {
             maxActive = -1
             minEvictableIdleTimeMillis=1800000
             timeBetweenEvictionRunsMillis=1800000
             numTestsPerEvictionRun=3
             testOnBorrow=true
             testWhileIdle=true
             testOnReturn=true
             validationQuery="SELECT 1"
          }
      }
  }
// remove for brevity
```

Dockerfile

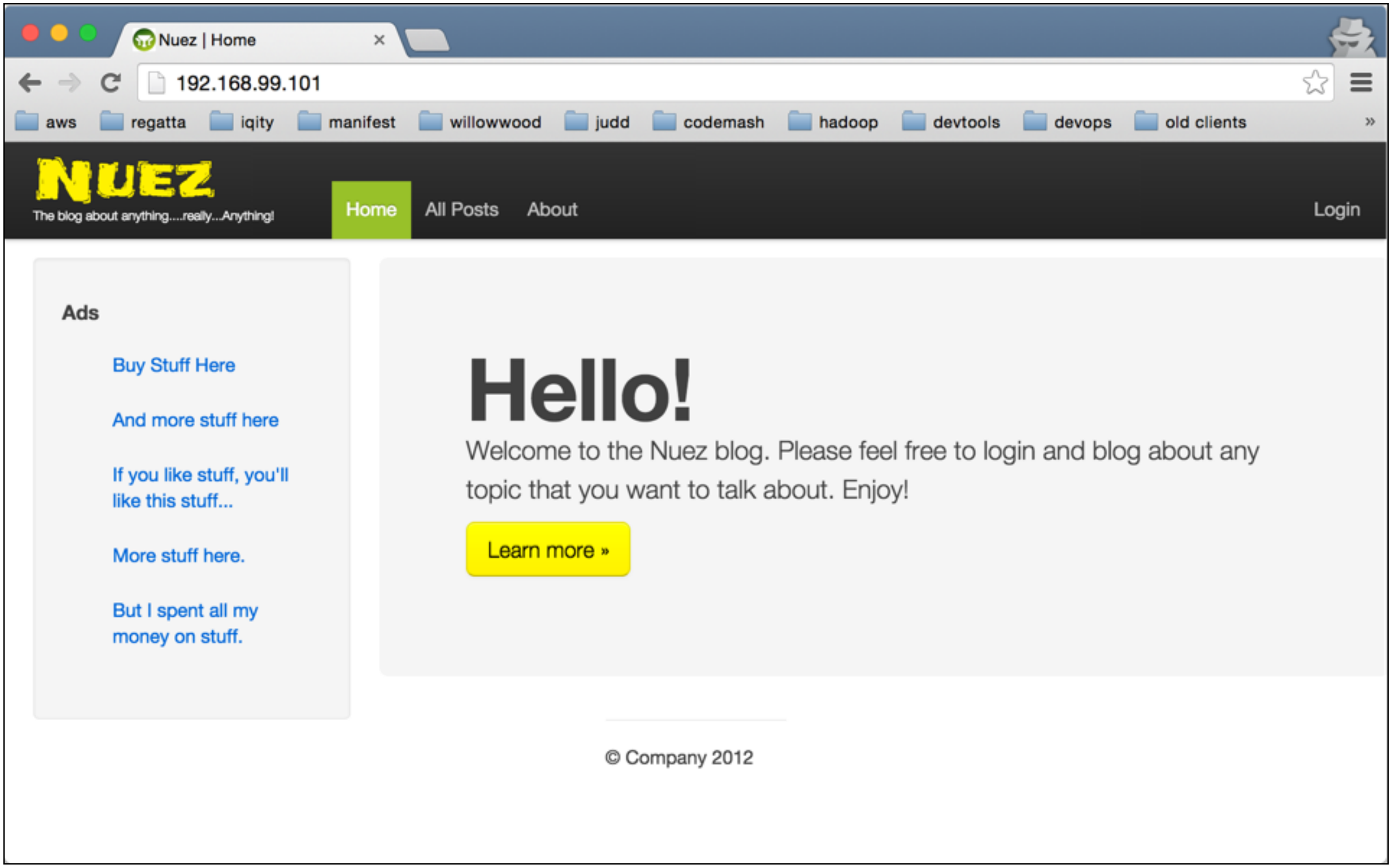
```
FROM tomcat:7.0-jre7

RUN rm -rf $CATALINA_HOME/webapps/ROOT
RUN rm -rf $CATALINA_HOME/webapps/ROOT.war
RUN rm -rf $CATALINA_HOME/webapps/docs
RUN rm -rf $CATALINA_HOME/webapps/examples
RUN rm -rf $CATALINA_HOME/webapps/manager
RUN rm -rf $CATALINA_HOME/webapps/host-manager

ENV CATALINA_OPTS -Dgrails.env=docker

ADD https://s3.amazonaws.com/cmj-presentations/docker-clouddevelop-2015/nuez-0.1.war
   $CATALINA_HOME/webapps/ROOT.war

CMD ["catalina.sh", "run"]
```

```
docker build -t nuez .
```

```
docker run -d --name nuez --link nuez-db:mysql -p 80:8080 nuez
```

or

```
docker run -it --rm --name nuez --link nuez-db:mysql -p 80:8080 nuez
```


Nuez | Home
192.168.99.101
aws
regatta
iqity
manifest
willowwood
judd
codemash
hadoop
devtools
devops
old clients
NUEZ
The blog about anything....really...Anything!
Home
All Posts
About
Login
Ads
Buy Stuff Here
And more stuff here
If you like stuff, you'll like this stuff...
More stuff here.
But I spent all my money on stuff.
Hello!
Welcome to the Nuez blog. Please feel free to login and blog about any topic that you want to talk about. Enjoy!
Learn more »
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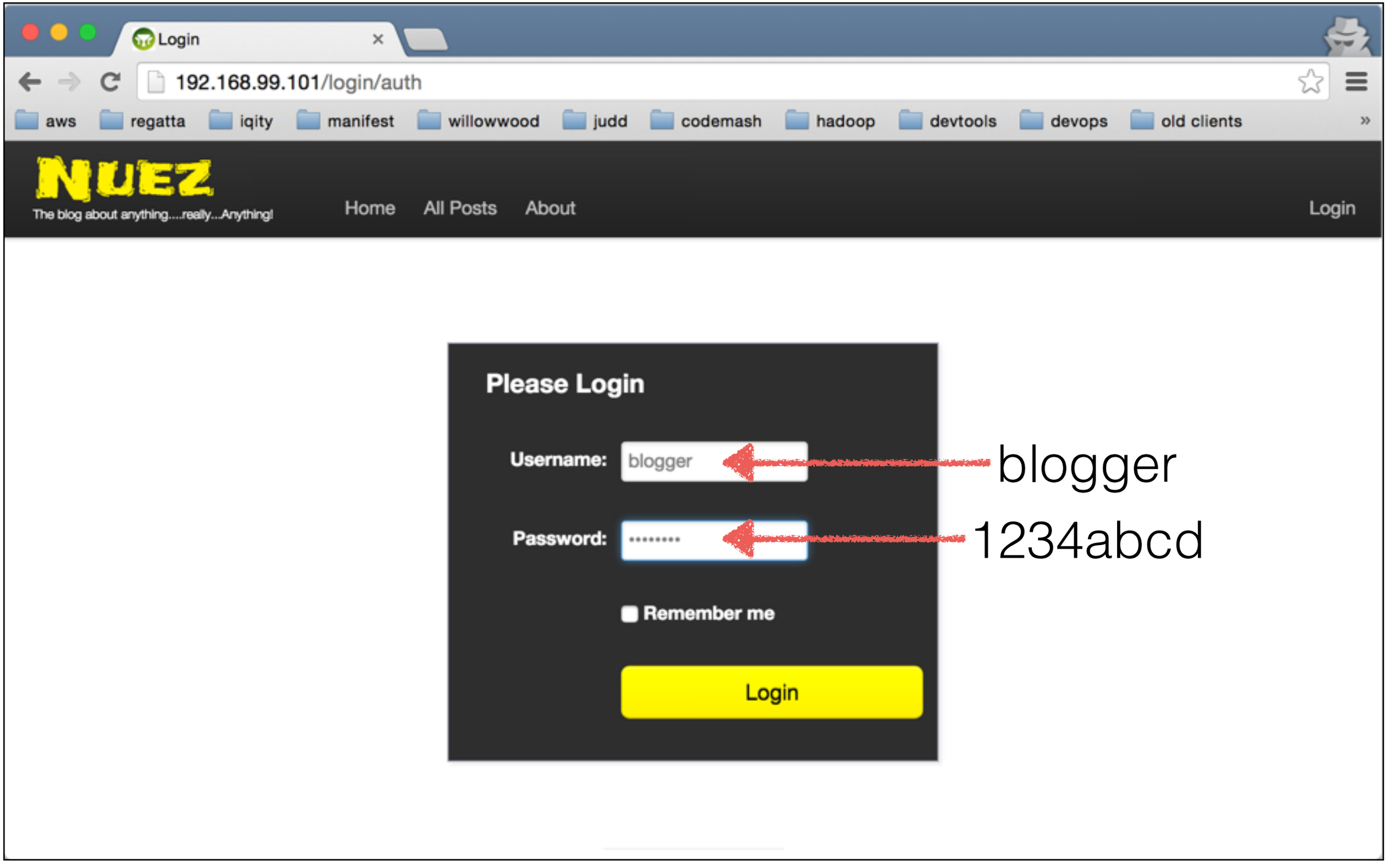

Login
192.168.99.101/login/auth
aws
regatta
iqity
manifest
willowwood
judd
codemash
hadoop
devtools
devops
old clients
NUEZ
The blog about anything....really...Anything!
Home
All Posts
About
Login
Please Login
Username:
blogger
Password:
Remember me
Login
blogger
1234abcd

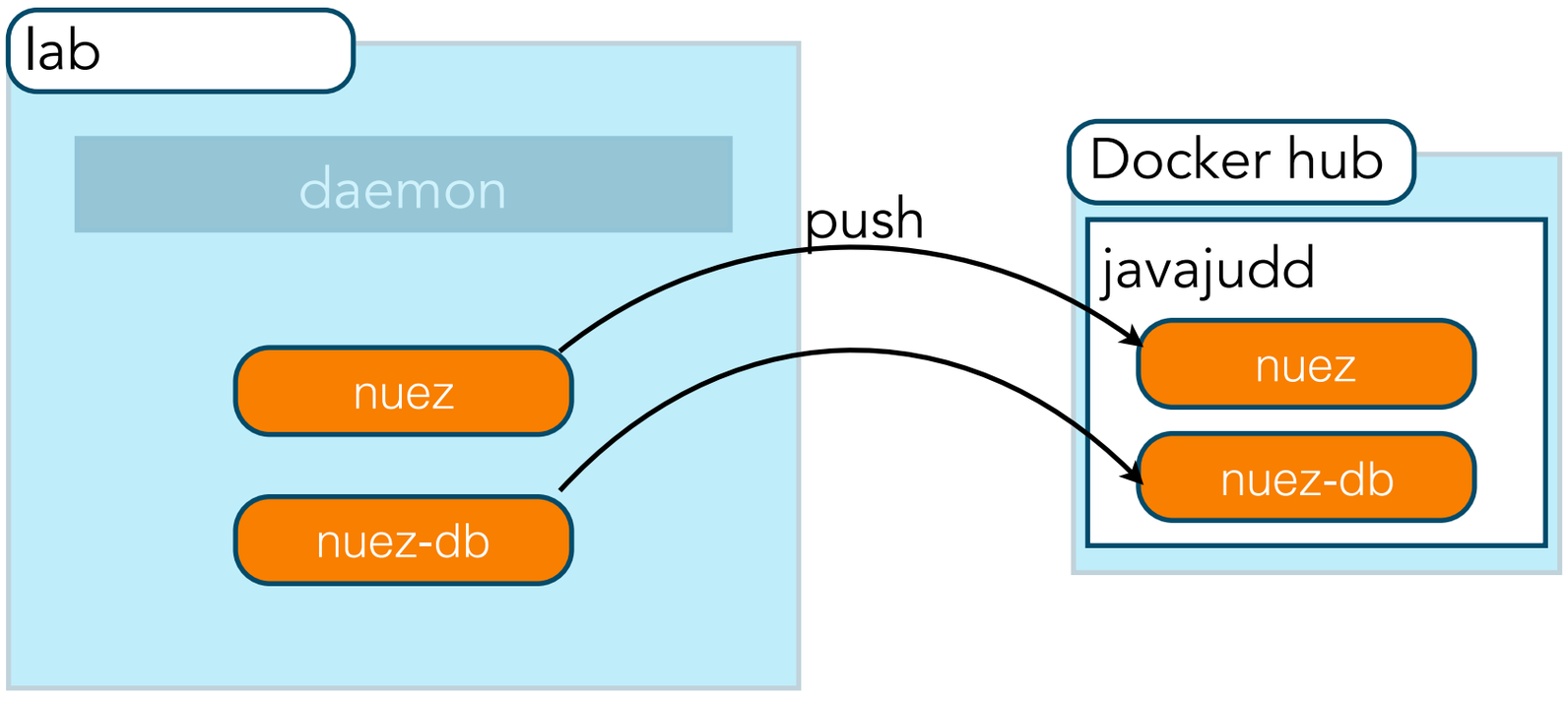
```
docker exec -it nuez bash
```

```
docker diff nuez
```

Lab 6

1. Create a nuez image containing Tomcat 7 and Java 7
2. Run the container
3. Test the container
4. Look at the Tomcat log files

Share Images


lab
daemon
nuez
nuez-db
push
Docker hub
javajudd
nuez
nuez-db

```
docker login

docker build -t javajudd/nuez-db:1.0 .
docker push javajudd/nuez-db

docker build -t javajudd/nuez:1.0 .
docker push javajudd/nuez
```

PUBLIC REPOSITORY

javajudd/nuez-db ☆

Last pushed: a few seconds ago

Repo Info | Tags | Collaborators | Webhooks | Settings

Short Description

Mysql container for hosting the nuez database.

Full Description

Full description is empty for this repo.

Docker Pull Command

```
docker pull javajudd/nuez-db
```

Owner

javajudd

Comments (0)

Add Comment

Dashboard Explore Organizations Search Create javajudd

PUBLIC REPOSITORY

javajudd/nuez-db ☆

Last pushed: a minute ago

Repo Info Tags Collaborators Webhooks Settings

Tags

Tag	Size
latest	70 MB
1.0	70 MB

Docker Pull Command

```
docker pull javajudd/nuez-db
```

Owner

javajudd

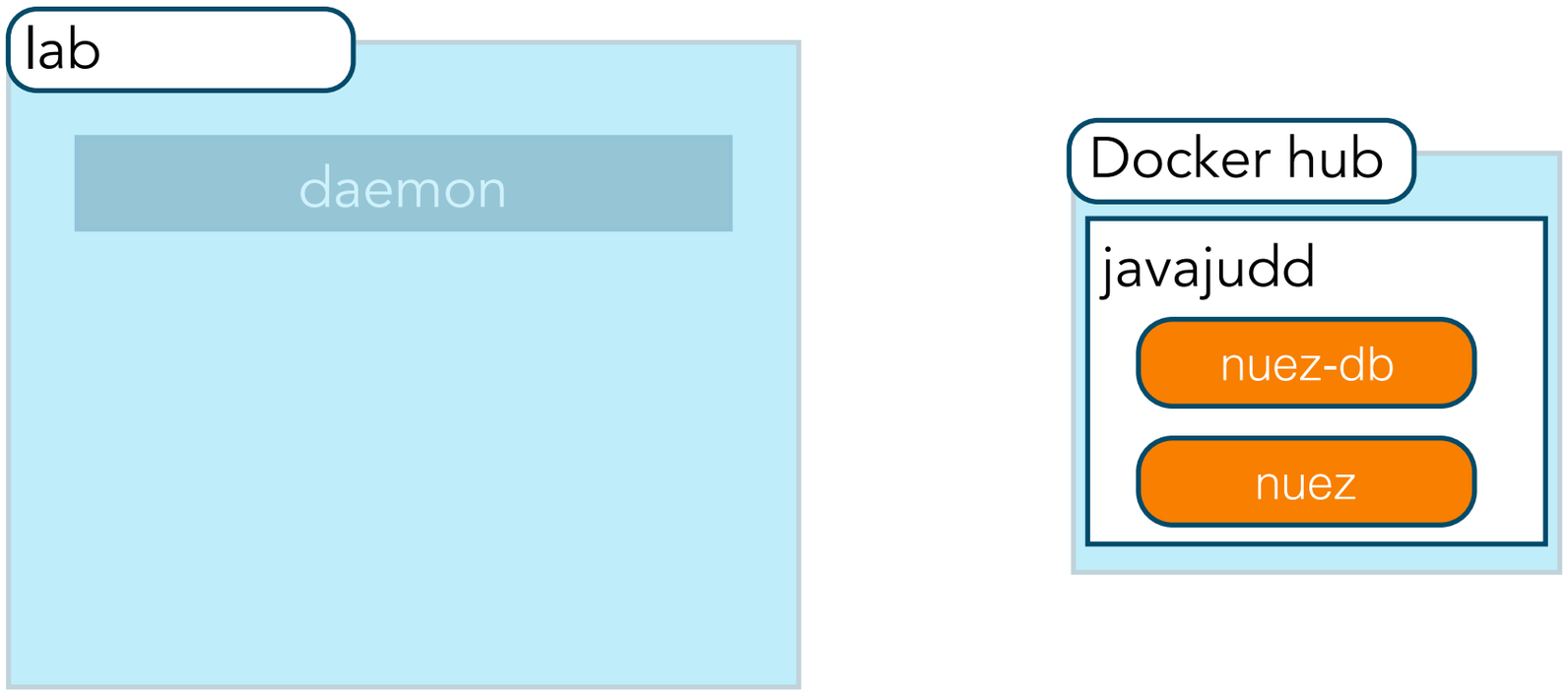
Comments (0)

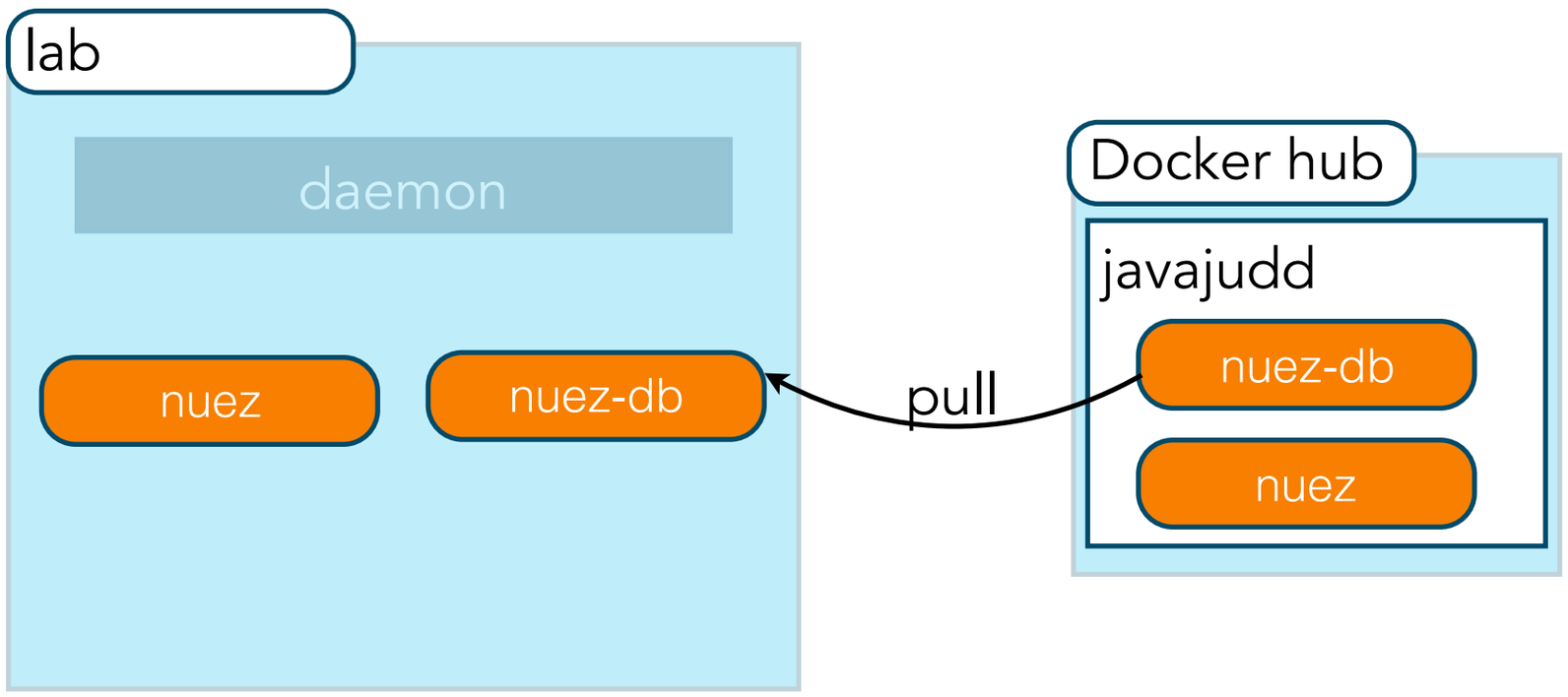
Add Comment

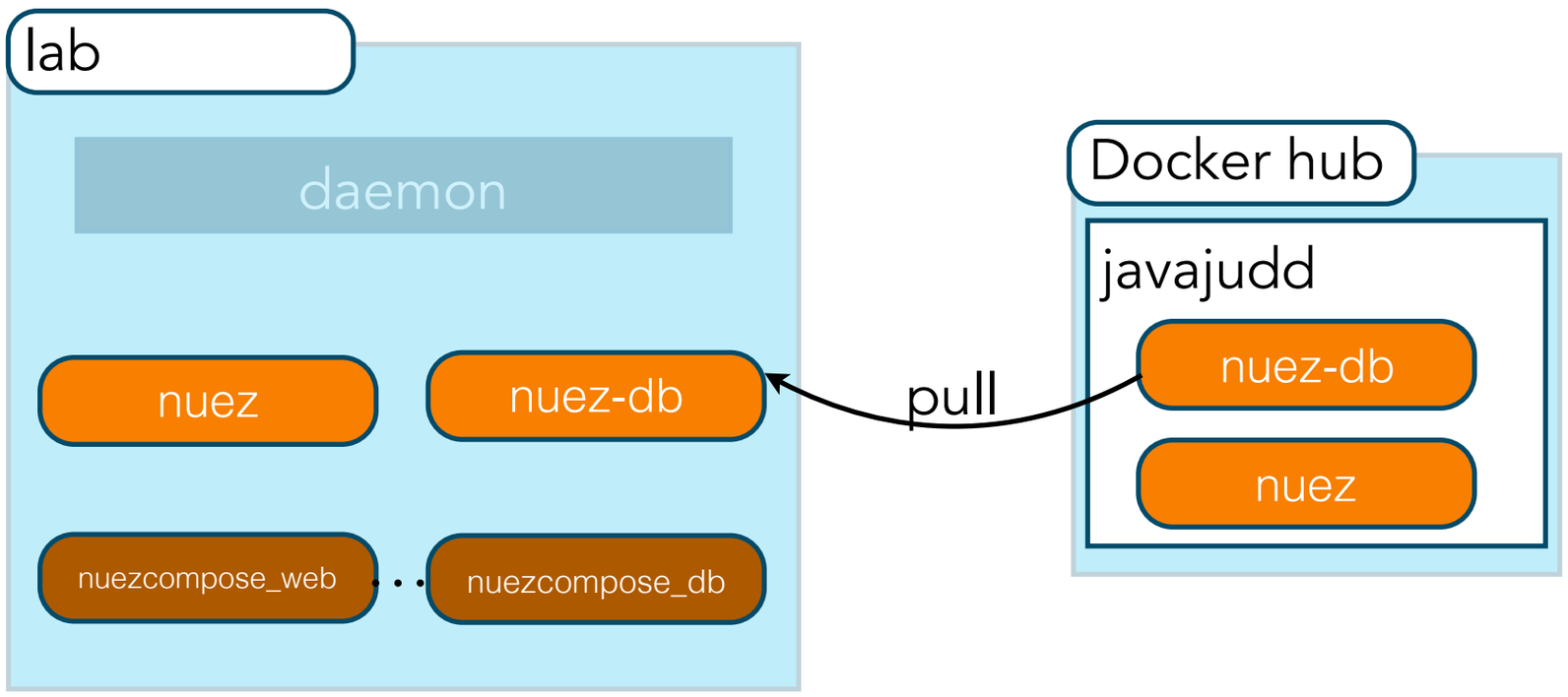
Lab 7

1. Push nuez and nuez-db docker containers to your repository

Composing


lab
daemon
Docker hub
javajudd
nuez-db
nuez


lab
daemon
nuez
nuez-db
pull
Docker hub
javajudd
nuez-db
nuez


lab
daemon
nuez
nuez-db
nuezcompose_web
nuezcompose_db
pull
Docker hub
javajudd
nuez-db
nuez

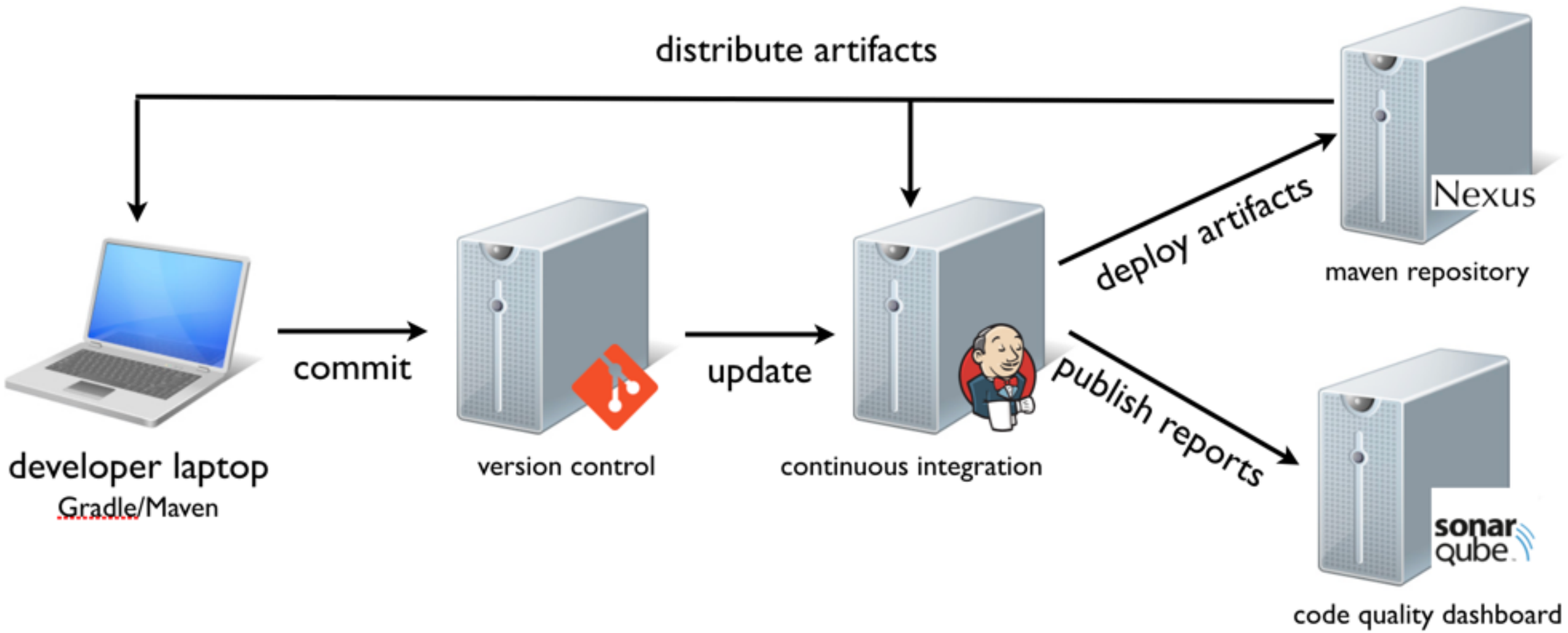
docker-compose.yml

```
web:
    image: javajudd/nuez
    ports:
        - "80:8080"
    links:
       - "db:mysql"
db:
    image: javajudd/nuez-db
    ports:
       - "3306:3306"
    environment:
       MYSQL_USER: nuez-app
       MYSQL_PASSWORD: nuez+1
       MYSQL_DATABASE: nuez
       MYSQL_ROOT_PASSWORD: root+1
```

```
docker-compose up -d
```

```
CONTAINER ID  IMAGE              COMMAND                  STATUS         PORTS                    NAMES
b61f6580e69e  javajudd/nuez      "catalina.sh run"        Up 39 seconds  0.0.0.0:80->8080/tcp     nuezcompose_web_1
13879ea2ae23  javajudd/nuez-db   "/entrypoint.sh mysql"   Up 40 seconds  0.0.0.0:3306->3306/tcp   nuezcompose_db_1
```

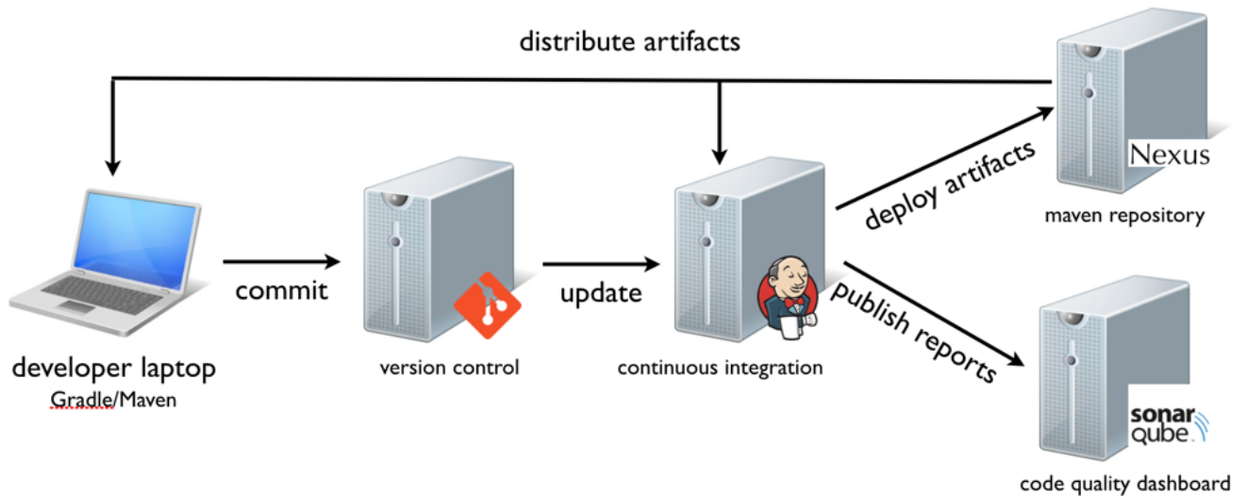
Ultimate Enterprise Java Build System



https://github.com/cjudd/ultimateenterprisejavabuildsystem/blob/master/docker-compose.yml

Ultimate Enterprise Java Build System

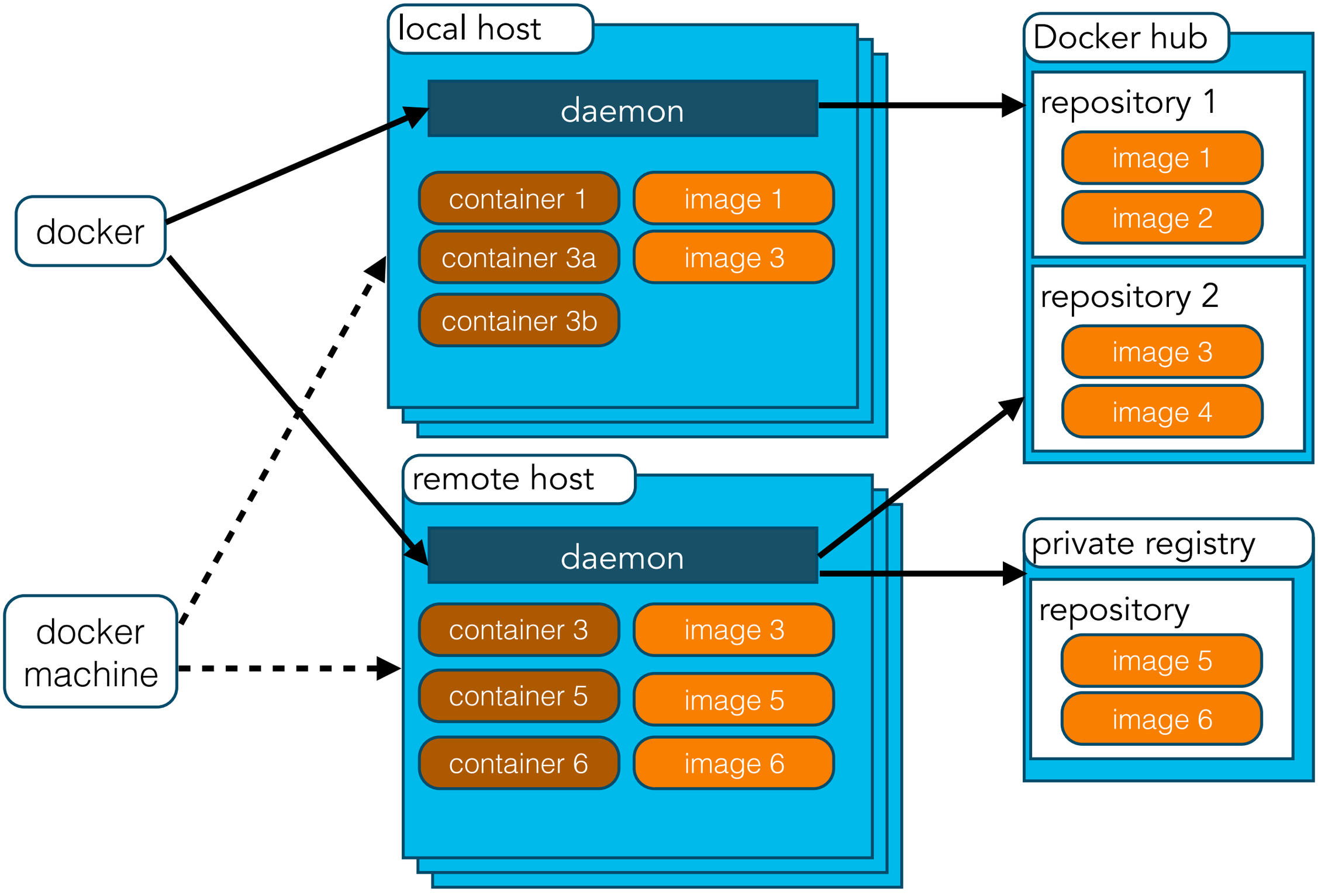
```
version: '2'
services:

  jenkins:
    image: jenkins
    ports:
     - "9001:8080"
     - "50000:50000"
    volumes:
     - /var/jenkins_home

  nexus:
    image: sonatype/nexus
    ports:
     - "8081:8081"
    volumes:
     - /sonatype-work

postgres:
  image: postgres
  volumes:
   - /var/lib/postgressql/data
  environment:
   - POSTGRES_USER=sonar
   - POSTGRES_PASSWORD=sonar
   - POSTGRES_DB=sonar

sonarqube:
  image: sonarqube
  links:
   - postgres
  ports:
   - "9000:9000"
   - "9092:9092"
  volumes:
   - /opt/sonarqube
  environment:
   - SONARQUBE_JDBC_USERNAME=sonar
   - SONARQUBE_JDBC_PASSWORD=sonar
   - SONARQUBE_JDBC_URL=jdbc:postgresql://postgres/sonar
```

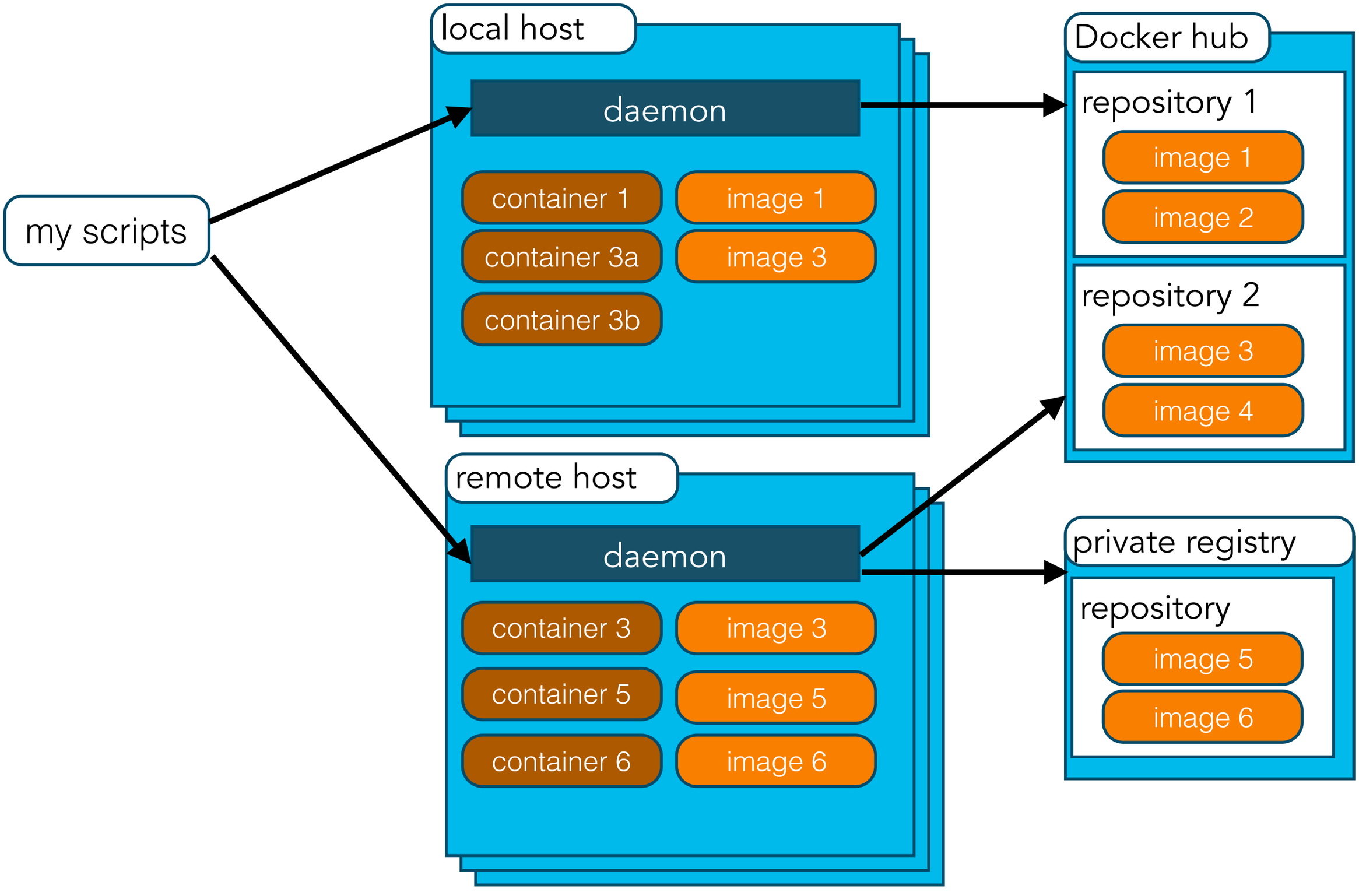


Lab 8

1. Compose nuez and nuez-db

Docker API


local host
daemon
container 1
image 1
container 3a
image 3
container 3b
docker
Docker hub
repository 1
image 1
image 2
repository 2
image 3
image 4
remote host
daemon
container 3
image 3
container 5
image 5
container 6
image 6
docker
machine
private registry
repository
image 5
image 6


local host
daemon
container 1
image 1
container 3a
image 3
container 3b
my scripts
Docker hub
repository 1
image 1
image 2
repository 2
image 3
image 4
remote host
daemon
container 3
image 3
container 5
image 5
container 6
image 6
private registry
repository
image 5
image 6

https://docs.docker.com/engine/reference/api/docker_remote_api/

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Command and API references
Docker run reference
Dockerfile reference
Remote API client libraries
Using the command line
docker.io accounts API

Docker Remote API

Docker's Remote API uses an open schema model. In this model, unknown properties in incoming messages are ignored. Client applications need to take this behavior into account to ensure they do not break when talking to newer Docker daemons.

The API tends to be REST, but for some complex commands, like attach or pull, the HTTP connection is hijacked to transport STDOUT, STDIN, and STDERR.

By default the Docker daemon listens on `unix:///var/run/docker.sock` and the client must have `root` access to interact with the daemon. If a group named `docker` exists on your system, `docker` applies ownership of the socket to the group.

The current version of the API is v1.21 which means calling `/info` is the same as calling `/v1.21/info`. To call an older version of the API use `/v1.20/info`.

Use the table below to find the API version for a Docker version:

```
docker-machine ip lab
```

```
NAME      ACTIVE   DRIVER       STATE     URL                         SWARM
default             virtualbox   Stopped
lab       *        virtualbox   Running   tcp://192.168.99.103:2376
```

```
curl -k --cert $DOCKER_CERT_PATH/cert.pem --key $DOCKER_CERT_PATH/key.pem https://$(docker-machine ip lab):2376/info
```


```
{
    "BridgeNfIp6tables": true,
    "BridgeNfIptables": true,
    "Containers": 4,
    "CpuCfsPeriod": true,
    "CpuCfsQuota": true,
    "Debug": true,
    "DockerRootDir": "/mnt/sda1/var/lib/docker",
    "Driver": "aufs",
    "DriverStatus": [
        [ "Root Dir", "/mnt/sda1/var/lib/docker/aufs" ],
        [ "Backing Filesystem", "extfs" ],
        [ "Dirs", "79" ],
        [ "Dirperm1 Supported", "true" ]
    ],
    "ExecutionDriver": "native-0.2",
    "ExperimentalBuild": false,
    "HttpProxy": "",
    "HttpsProxy": "",
    "ID": "LREF:UAEK:QUM6:ZZV4:5MYN:7EPO:Y5XO:UEHK:IMNU:J7H7:4ZON:FZ5G",
    "IPv4Forwarding": true,
    "Images": 71,
    "IndexServerAddress": "https://index.docker.io/v1/",
    "InitPath": "/usr/local/bin/docker",
    "InitSha1": "",
    "KernelVersion": "4.0.9-boot2docker",
    "Labels": [
        "provider=virtualbox"
    ],
    "LoggingDriver": "json-file",
    "MemTotal": 1044631552,
    "MemoryLimit": true,
    "NCPU": 1,
    "NEventsListener": 0,
    "NFd": 16,
    "NGoroutines": 42,
    "Name": "lab",
    "NoProxy": "",
    "OomKillDisable": true,
    "OperatingSystem": "Boot2Docker 1.8.1 (TCL 6.3); master : 7f12e95 - Thu Aug 13 03:24:56 UTC 2015",
    "RegistryConfig": {
        "IndexConfigs": {
            "docker.io": {
                "Mirrors": null,
                "Name": "docker.io",
                "Official": true,
                "Secure": true
            }
        },
        "InsecureRegistryCIDRs": [
            "127.0.0.0/8"
        ],
        "Mirrors": null
    },
    "SwapLimit": true,
    "SystemTime": "2015-11-12T22:00:05.188478131Z"
}
```

```
openssl pkcs12 -export -inkey $DOCKER_CERT_PATH/key.pem -in $DOCKER_CERT_PATH/cert.pem -name curl-cert
        -out $DOCKER_CERT_PATH/curl-cert.p12 -password pass:mysecret
```

```
curl -k --cert $DOCKER_CERT_PATH/curl-cert.p12:mysecret  https://$(docker-machine ip lab):2376/info
```

/containers/json


```
[
    {
        "Command": "/entrypoint.sh mysqld",
        "Created": 1447361102,
        "HostConfig": {
            "NetworkMode": "default"
        },
        "Id": "35c7e85a21af6548370623ee7c42662c1077b93e85b36ab166fea8ac1a83d6d7",
        "Image": "localhost:5000/nuez-db",
        "Labels": {},
        "Names": [
            "/nuez/mysql",
            "/nuez-db"
        ],
        "Ports": [
            {
                "IP": "0.0.0.0",
                "PrivatePort": 3306,
                "PublicPort": 3306,
                "Type": "tcp"
            }
        ],
        "Status": "Up 4 seconds"
    }
]
```

/containers/json?all=1


```
[
    {
        "Command": "catalina.sh run",
        "Created": 1447361114,
        "HostConfig": { "NetworkMode": “default” },
        "Id": "cb97f8f0f2e29d0cdb7517a0f9d6d87acbd802e27b8c5b937bec4e41b12dce26",
        "Image": "localhost:5000/nuez",
        "Labels": {},
        "Names": [ “/nuez” ],
        "Ports": [],
        "Status": "Exited (143) 26 hours ago"
    },
    {
        "Command": "/entrypoint.sh mysqld",
        "Created": 1447361102,
        "HostConfig": { "NetworkMode": “default” },
        "Id": "35c7e85a21af6548370623ee7c42662c1077b93e85b36ab166fea8ac1a83d6d7",
        "Image": "localhost:5000/nuez-db",
        "Labels": {},
        "Names": [ “/nuez/mysql”, “/nuez-db” ],
        "Ports": [
            {
                "IP": "0.0.0.0",
                "PrivatePort": 3306,
                "PublicPort": 3306,
                "Type": "tcp"
            }
        ],
        "Status": "Up About a minute"
    },
    {
        "Command": "/bin/registry /etc/docker/registry/config.yml",
        "Created": 1447360363,
        "HostConfig": { "NetworkMode": “default” },
        "Id": "063090161f4381b6e776feb0d654e2f4df3c10a3819e4ed1506d023b9729ca35",
        "Image": "registry:2.2.0",
        "Labels": {},
        "Names": [ “/registry” ],
        "Ports": [],
        "Status": "Exited (2) 26 hours ago"
    }
]
```

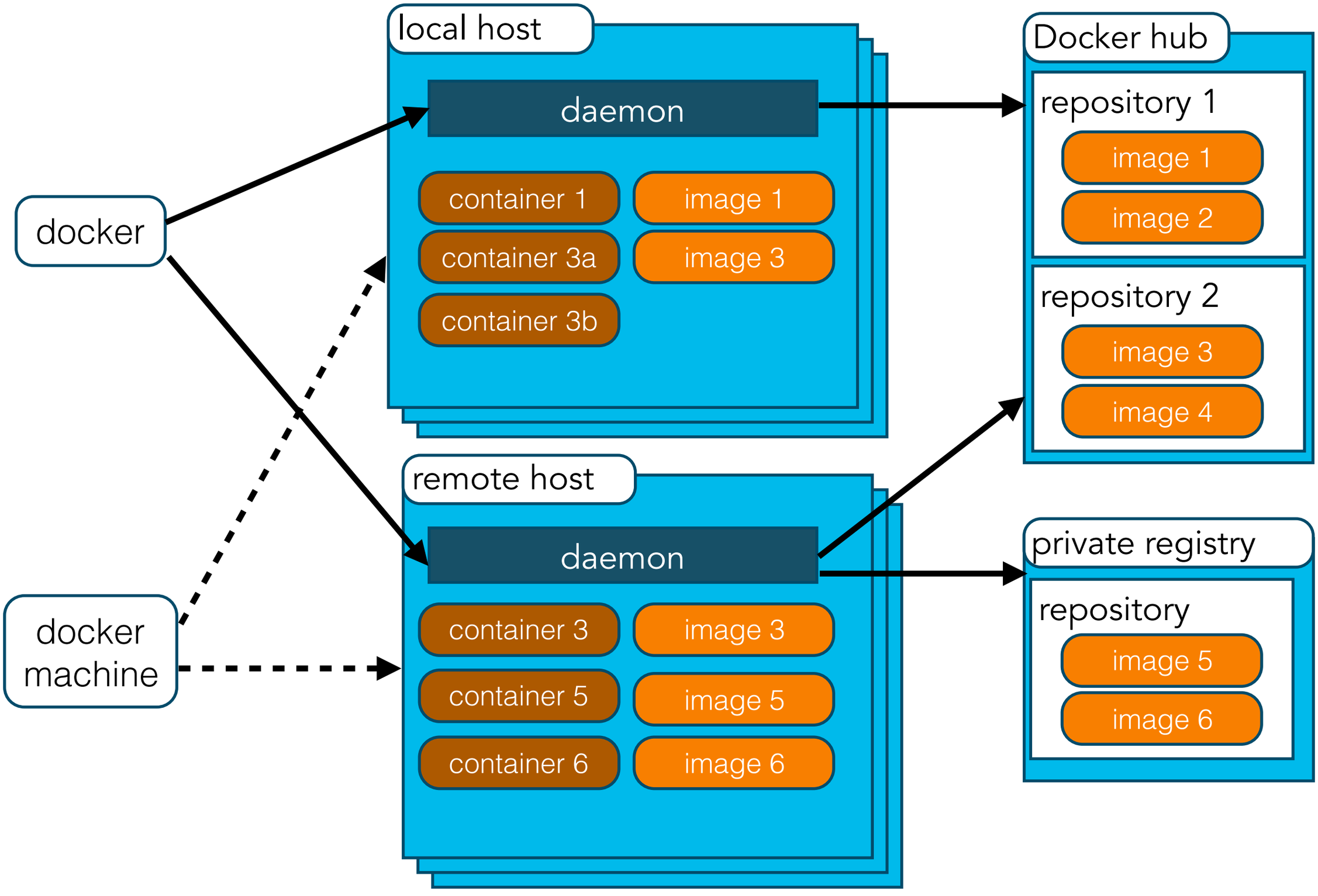
```
curl -k --cert $DOCKER_CERT_PATH/curl-cert.p12:mysecret -X POST
https://$(docker-machine ip lab):2376/containers/35c7e85a21af/stop
```

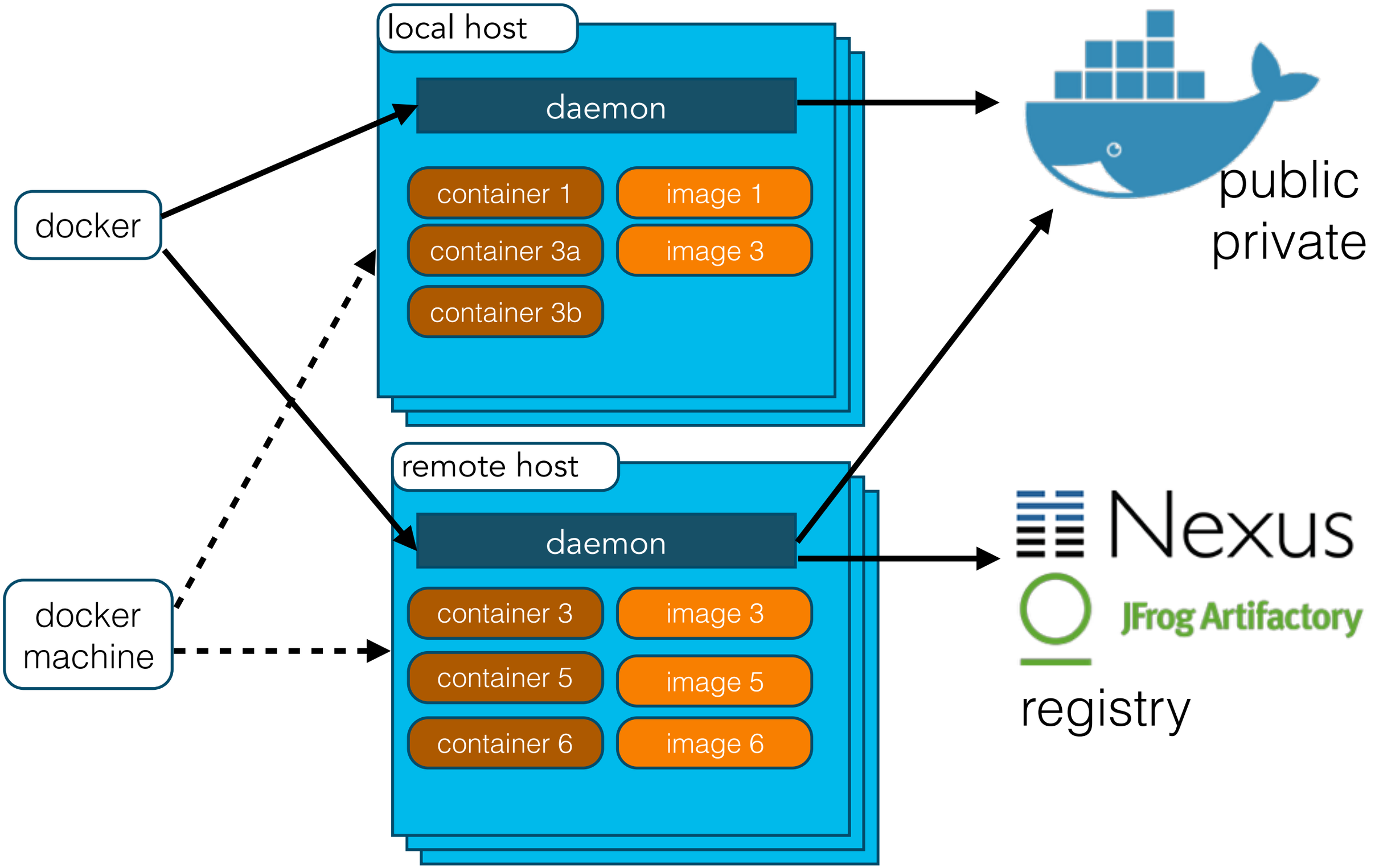
```
curl -k --cert $DOCKER_CERT_PATH/curl-cert.p12:mysecret -X POST
https://$(docker-machine ip lab):2376/containers/35c7e85a21af/start
```

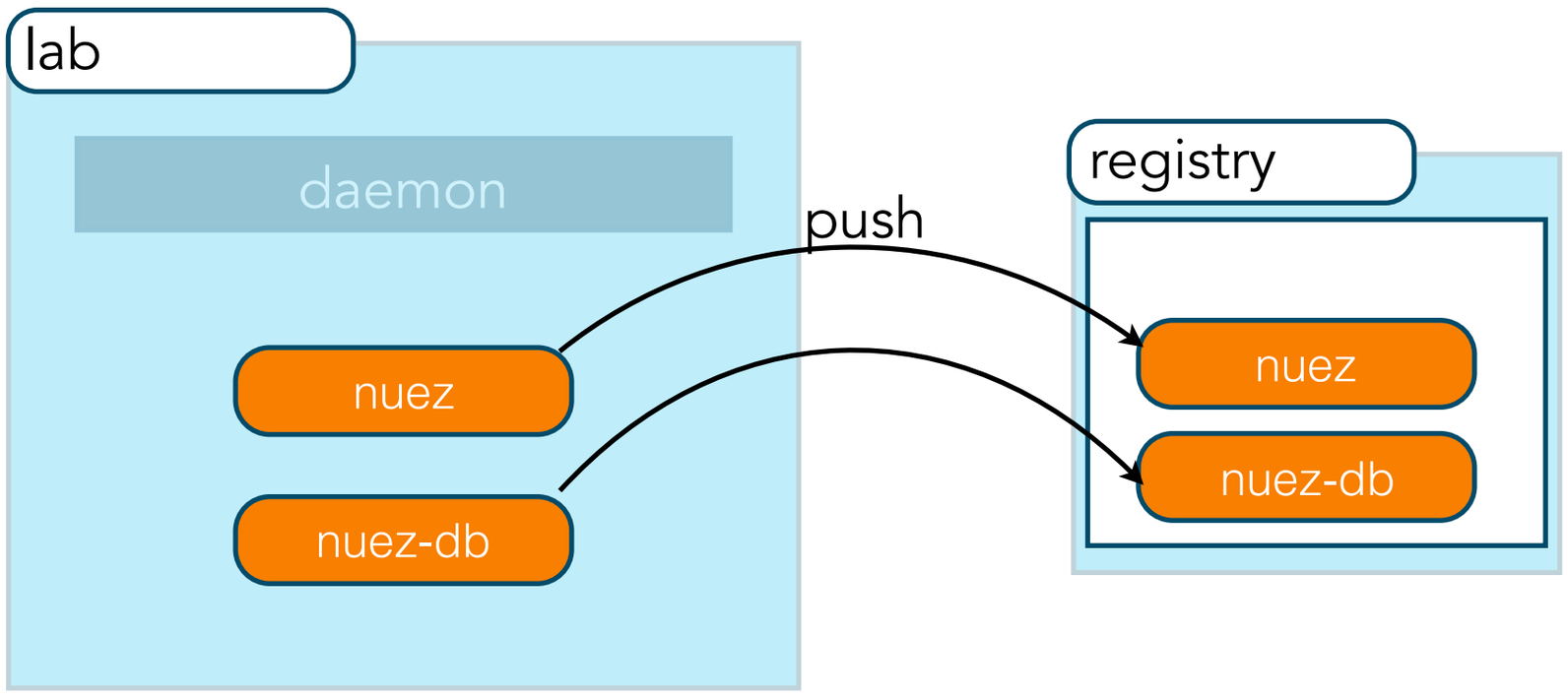
Lab 9

1. Start and stop the neuz container via the api

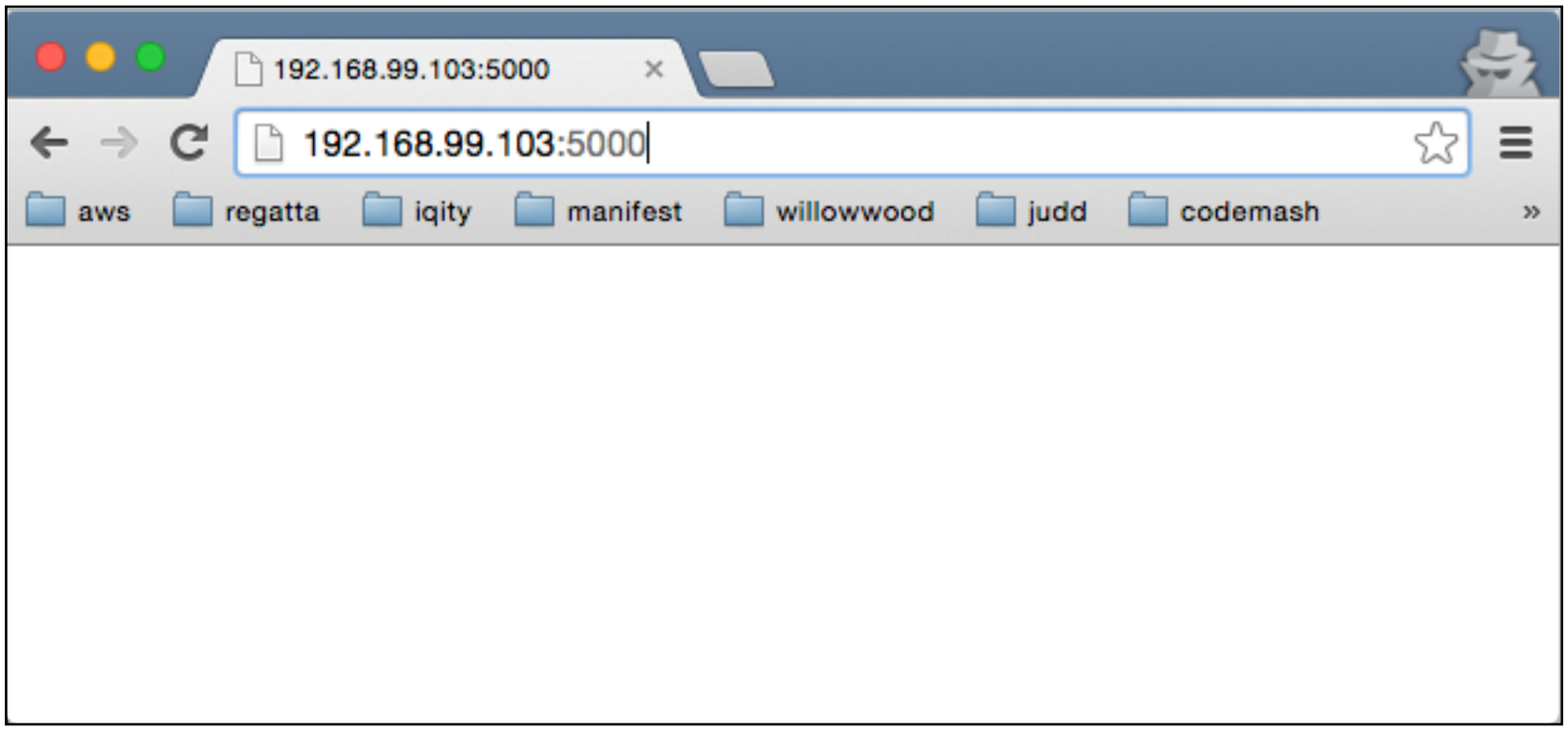
Private Registries


local host
daemon
container 1
image 1
container 3a
image 3
container 3b
docker
Docker hub
repository 1
image 1
image 2
repository 2
image 3
image 4
remote host
daemon
container 3
image 3
container 5
image 5
container 6
image 6
docker
machine
private registry
repository
image 5
image 6


local host
daemon
container 1
image 1
container 3a
image 3
container 3b
docker
public
private
remote host
daemon
container 3
image 3
container 5
image 5
container 6
image 6
docker
machine
Nexus
JFrog Artifactory
registry


lab
daemon
nuez
nuez-db
push
registry
nuez
nuez-db

```
docker run -d -p 5000:5000 --name registry registry:2.2.0
```



```
docker tag nuez-db localhost:5000/nuez-db
docker push localhost:5000/nuez-db
```

```
docker tag nuez localhost:5000/nuez
docker push localhost:5000/nuez
```

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Docker Registry HTTP API V2

Introduction

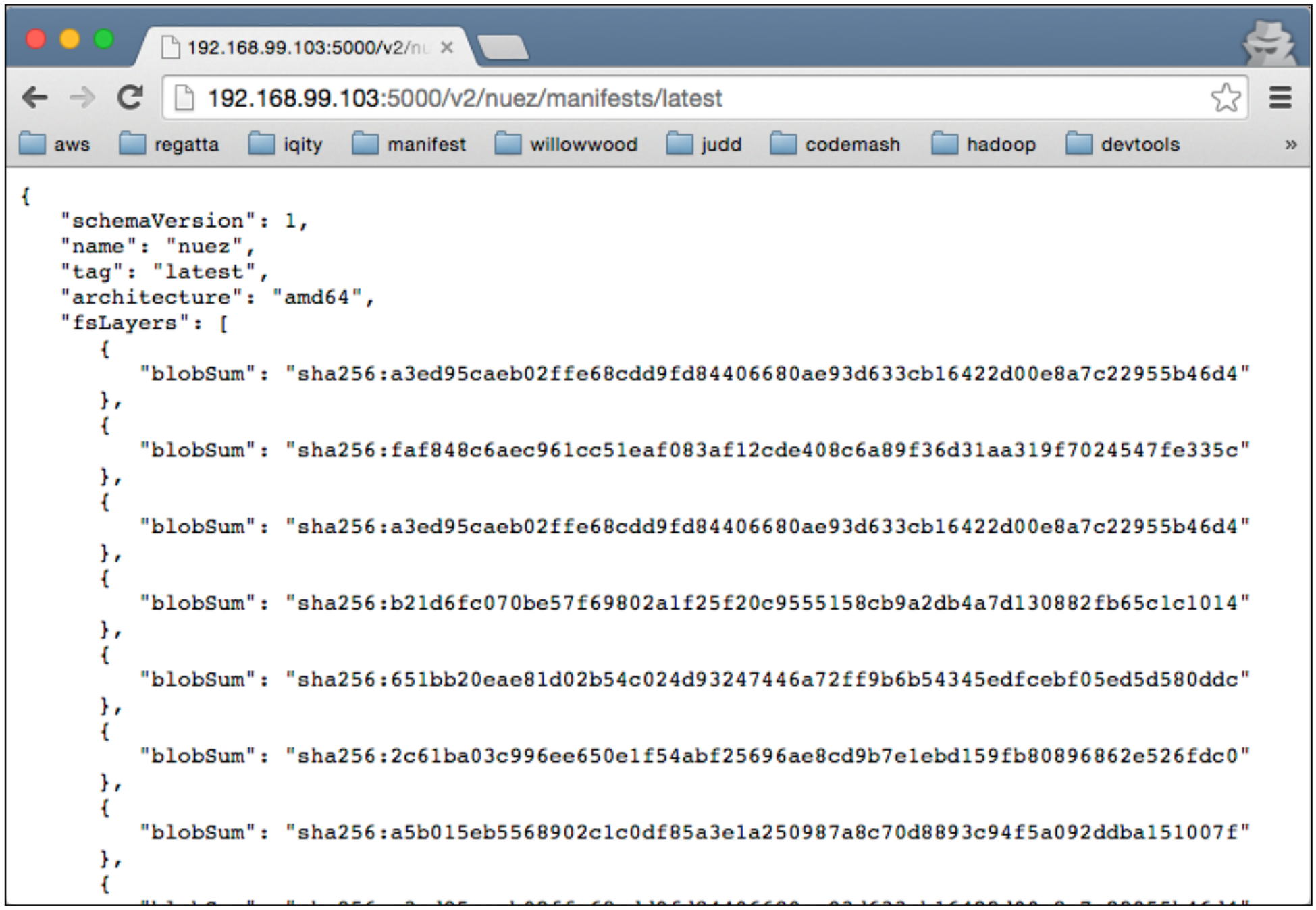
The *Docker Registry HTTP API* is the protocol to facilitate distribution of images to the docker engine. It interacts with instances of the docker registry, which is a service to manage information about docker images and enable their distribution. The specification covers the operation of version 2 of this API, known as *Docker Registry HTTP API V2*.

While the V1 registry protocol is usable, there are several problems with the architecture that have led to this new version. The main driver of this specification these changes to the docker the image format, covered in docker/docker#8093. The new, self-contained image manifest simplifies image definition and improves security. This specification will build on that work, leveraging new properties of the manifest format to improve performance, reduce bandwidth usage and decrease the likelihood of backend corruption.

For relevant details and history leading up to this specification, please see the following issues:

https://docs.docker.com/registry/spec/api/

http://192.168.99.103:5000/v2/nuez/manifests/latest



```
docker pull localhost:5000/nuez-db
docker pull localhost:5000/nuez
```

SWARM

dev

daemon

swarm

Docker hub

discovery service

docker

swarm

nginx

nginx

cluster

swarm-master

daemon

swarm-agent

swarm-agent-master

swarm-node-1

daemon

swarm-agent

nginx

swarm-node-2

daemon

swarm-agent

nginx

ubuntu

swarm-node-3

daemon

swarm-agent

nginx

ubuntu

```
docker pull swarm
sid=$(docker run swarm create)
echo $sid
```

```
b00ee410d9d156eac06cac4176047563
```

```
docker-machine create -d virtualbox --swarm --swarm-master --swarm-
discovery token://$sid swarm-master

docker-machine create -d virtualbox --swarm --swarm-discovery
token://$sid swarm-node-01

docker-machine create -d virtualbox --swarm --swarm-discovery
token://$sid swarm-node-02

docker-machine create -d virtualbox --engine-label itype=frontend
--swarm --swarm-discovery token://$sid swarm-node-03

eval "$(docker-machine env --swarm swarm-master)"
```

```
docker-machine ls
```

```
NAME           ACTIVE   DRIVER       STATE     URL                         SWARM
default        -        virtualbox   Stopped
dev            -        virtualbox   Stopped
lab            -        virtualbox   Running   tcp://192.168.99.102:2376
swarm-master   * (swarm)virtualbox   Running   tcp://192.168.99.103:2376   swarm-master (master)
swarm-node-01  -        virtualbox   Running   tcp://192.168.99.104:2376   swarm-master
swarm-node-02  -        virtualbox   Running   tcp://192.168.99.105:2376   swarm-master
swarm-node-03  -        virtualbox   Running   tcp://192.168.99.106:2376   swarm-master
```

docker info

```
Containers: 6
Images: 4
Role: primary
Strategy: spread
Filters: health, port, dependency, affinity, constraint
Nodes: 4
 swarm-master: 192.168.99.108:2376
  └ Containers: 2
  └ Reserved CPUs: 0 / 1
  └ Reserved Memory: 0 B / 1.022 GiB
  └ Labels: executiondriver=native-0.2, kernelversion=4.0.9-boot2docker, operatingsystem=Boot2Docker
1.8.1 (TCL 6.3); master : 7f12e95 - Thu Aug 13 03:24:56 UTC 2015, provider=virtualbox, storagedriver=aufs
 swarm-node-01: 192.168.99.109:2376
  └ Containers: 1
  └ Reserved CPUs: 0 / 1
  └ Reserved Memory: 0 B / 1.022 GiB
  └ Labels: executiondriver=native-0.2, kernelversion=4.0.9-boot2docker, operatingsystem=Boot2Docker
1.8.1 (TCL 6.3); master : 7f12e95 - Thu Aug 13 03:24:56 UTC 2015, provider=virtualbox, storagedriver=aufs
 swarm-node-02: 192.168.99.110:2376
  └ Containers: 1
  └ Reserved CPUs: 0 / 1
  └ Reserved Memory: 0 B / 1.022 GiB
  └ Labels: executiondriver=native-0.2, kernelversion=4.0.9-boot2docker, operatingsystem=Boot2Docker
1.8.1 (TCL 6.3); master : 7f12e95 - Thu Aug 13 03:24:56 UTC 2015, provider=virtualbox, storagedriver=aufs
 swarm-node-03: 192.168.99.111:2376
  └ Containers: 2
  └ Reserved CPUs: 0 / 1
  └ Reserved Memory: 0 B / 1.022 GiB
  └ Labels: executiondriver=native-0.2, itype=frontend, kernelversion=4.0.9-boot2docker,
operatingsystem=Boot2Docker
1.8.1 (TCL 6.3); master : 7f12e95 - Thu Aug 13 03:24:56 UTC 2015, provider=virtualbox, storagedriver=aufs
CPUs: 4
Total Memory: 4.086 GiB
Name: d0caecd5c477
```

```
docker run -d -p 80:80 --name nginx1 nginx
```

```
for i in `seq 1 6`; do docker run -itd -e constraint:itype!=frontend --name eng$i
ubuntu; done
```

kubernetes

View Documentation

Production-Grade Container Orchestration

Automated container deployment, scaling, and management

Try Our Hello World

Kubernetes is an open-source system for automating deployment, scaling, and management of containerized applications.

It groups containers that make up an application into logical units for easy management and discovery. Kubernetes builds upon 15 years of experience of running production workloads at Google, combined with best-of-breed ideas and practices from the community.

http://kubernetes.io/

Cloud

DigitalOcean

https://www.digitalocean.com/?refcode=3c8ba4775cf9

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- **1TB** Transfer

SIGN UP

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- **1 Core** Processor
- **30GB** SSD Disk
- **2TB** Transfer

SIGN UP

$20/mo

- **2GB** Memory
- **2 Core** Processor
- **40GB** SSD Disk
- **3TB** Transfer

SIGN UP

$40/mo

- **4GB** Memory
- **2 Core** Processor
- **60GB** SSD Disk
- **4TB** Transfer

SIGN UP

$80/mo

- **8GB** Memory
- **4 Core** Processor
- **80GB** SSD Disk
- **5TB** Transfer

SIGN UP

DigitalOcean

Log In

javajudd@gmail.com

•••••••

Log In

Forgot password?

Don't have an account? Sign Up

Thanks! Create your first Droplet now.

Looks like you don't have any Droplets.

Fortunately, it's very easy to create one.

Create Droplet

Droplets Images Networking API Support

Create Droplet

Applications & API

Your Tokens
Your Apps
Access

Personal Access Tokens

Generate new token

Tokens you have generated to access the DigitalOcean API

You have no tokens authorized to access your account.

Personal access tokens function like a combined name and password for API authentication.

Droplets Images Networking API Support

Create Droplet

New Personal Access Token

Back to Apps & API

Token Name

Enter Token Name
do-staging

Select Scopes

Read (Default) Write (Optional)

Generate Token

Scopes limit access for personal tokens. Personal access tokens function like ordinary OAuth access tokens. They can be used instead of a password for DigitalOcean over HTTPS, or can be used to authenticate to the API over Basic Authentication.

Droplets Images Networking API Support

Create Droplet

Applications & API

Your Tokens
Your Apps
Access

Personal Access Tokens

Generate new token

Tokens you have generated to access the DigitalOcean API

do-staging READ WRITE

77847e8e7d07c02135767096fdaaf8e9

Copy to Clipboard

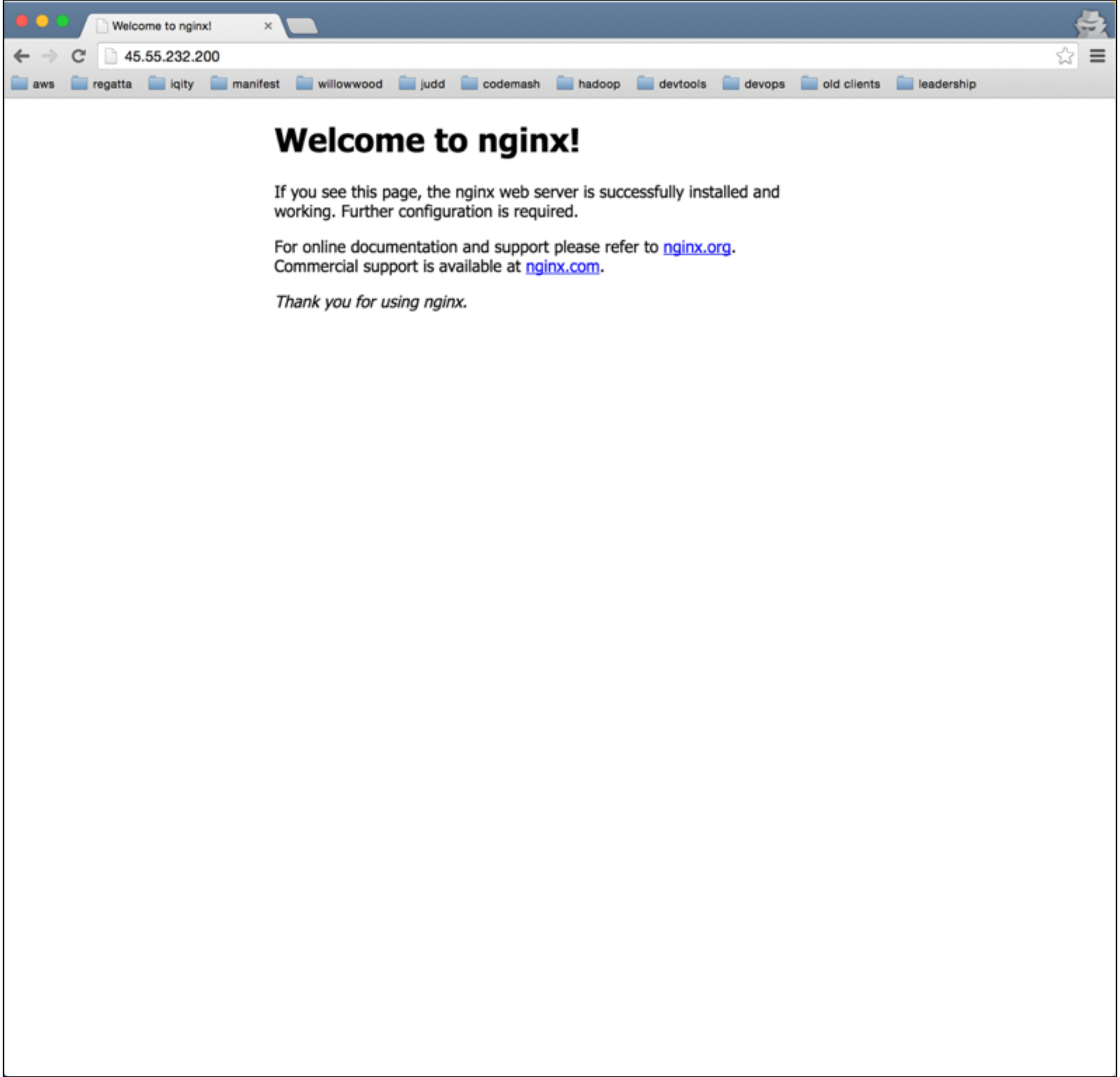
Personal access tokens function like a combined name and password for API authentication.

```
docker-machine create --driver digitalocean
   --digitalocean-access-token 77847e8e7d07c02135767096fdaaf8e do
```

```
Creating SSH key...
Creating Digital Ocean droplet...
To see how to connect Docker to this machine, run: docker-machine env do
```

```
docker-machine env do
eval "$(docker-machine env do)”
docker run -d -p 80:80 nginx
docker-machine ip do
```

```
45.55.232.200
```

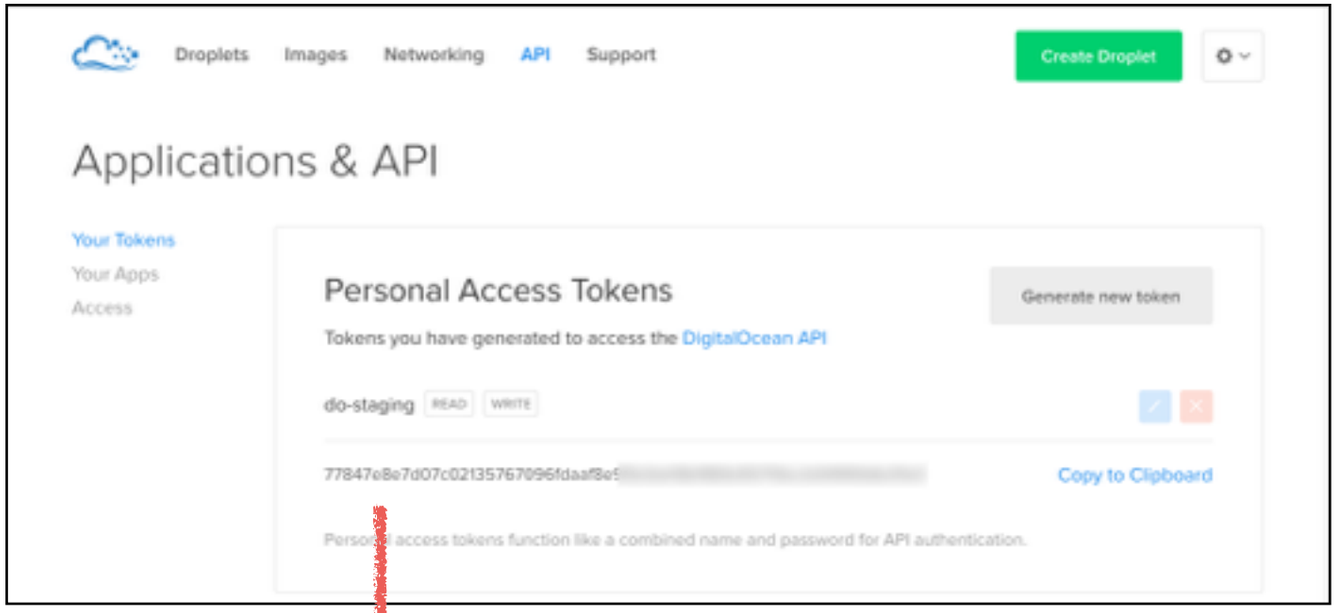

Welcome to nginx!
45.55.232.200
aws
regatta
iqity
manifest
willowwood
judd
codemash
hadoop
devtools
devops
old clients
leadership
Welcome to nginx!
If you see this page, the nginx web server is successfully installed and working. Further configuration is required.
For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.
Thank you for using nginx.

Droplets Images Networking API Support

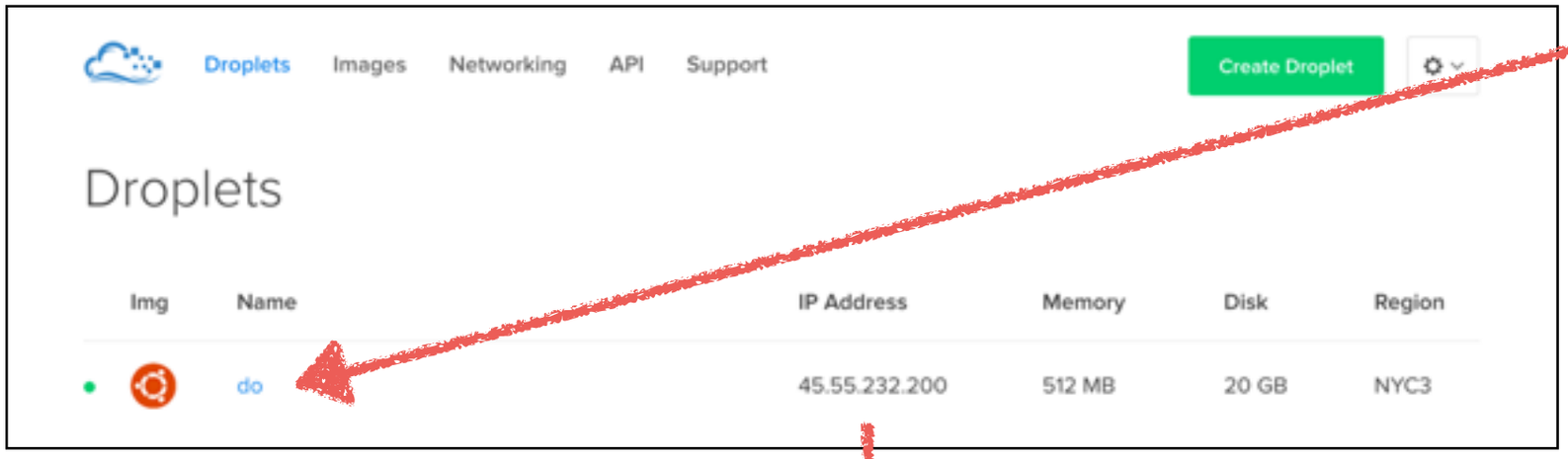
Create Droplet

Droplets

Img	Name	IP Address	Memory	Disk	Region
●	do	45.55.232.200	512 MB	20 GB	NYC3




```
docker-machine create --driver digitalocean
   --digitalocean-access-token 77847e8e7d07c02135767096fdaaf8e do
```



Lab DigitalOcean

1. Create a DigitalOcean account
2. Create a token
3. Create a DigitalOcean machine
4. Deploy a container
5. Remove the droplet


amazon
web services™

docker-machine

Dashboard

Details

Groups

Users

Roles

Policies

Identity Providers

Account Settings

Credential Report

Encryption Keys

Welcome to Identity and Access Management

IAM users sign-in link:

https://[redacted].signin.aws.amazon.com/console Customize | Copy Link

IAM Resources

Users: 1 | Roles: 5

Groups: 2 | Identity Providers: 0

Customer Managed Policies: 0

Security Status

3 out of 5 complete.

- ✓ Delete your root access keys
- ⚠ Activate MFA on your root account
- ✓ Create individual IAM users
- ✓ Use groups to assign permissions
- ⚠ Apply an IAM password policy

Feature Spotlight

Additional Information

IAM documentation

Web Identity Federation Playground

Policy Simulator

Videos, IAM release history and additional resources

Dashboard

Details

Groups

Users

Roles

Policies

Identity Providers

Account Settings

Credential Report

Encryption Keys

Create New Users | User Actions

Filter

Showing 1 results

	User Name	Groups	Password	Password Last Used	Access Keys	Creation Time
☐	[redacted]	1	✔	2015-10-23 08:59 EDT	None	2015-01-09 10..

Dashboard

Details

Groups

Users

Roles

Policies

Identity Providers

Account Settings

Credential Report

Encryption Keys

Summary

User ARN: arn:aws:iam::[redacted]

Has Password: Yes

Groups (for this user): 1

Path: /

Creation Time: 2015-01-09 10:57 EST

Groups | Permissions | Security Credentials

This view shows all groups the User belongs to: **1 Group**

Add User to Groups

Group	Actions
developers	Remove from Group

Dashboard

Details

Groups

Users

Roles

Policies

Identity Providers

Account Settings

Credential Report

Encryption Keys

Summary

User ARN:	arn:aws:iam::[redacted]
Has Password:	Yes
Groups (for this user):	1
Path:	/
Creation Time:	2015-01-09 10:57 EST

Groups | **Permissions** | **Security Credentials**

Access Keys

Use access keys to make secure REST or Query protocol requests to any AWS service API. For your protection, you should never share your secret keys with anyone. In addition, industry best practice recommends frequent key rotation. Learn more about Access Keys

This user does not currently have any access keys.

Create Access Key

Sign-In Credentials

User Name	[redacted]
Password	Yes
Last Used	2015-10-23 08:59 EDT

Manage Password

Dashboard

Details

Groups

Users

Roles

Policies

Identity Providers

Account Settings

Credential Report

Encryption Keys

Summary

User ARN:	arn:aws:iam::[redacted]
Has Password:	Yes
Groups (for this user):	1
Path:	/
Creation Time:	2015-01-09 10:57 EST

Create Access Key

Your access key has been created successfully.

This is the last time these User security credentials will be available for download.

You can manage and recreate these credentials any time.

▶ Show User Security Credentials

Close | Download Credentials

ce API. For your protection,
tice recommends frequent

Sign-In Credentials

Manage Password

User Name	[redacted]
Password	Yes
Last Used	2015-10-23 08:59 EDT

Dashboard

Details

Groups

Users

Roles

Policies

Identity Providers

Account Settings

Credential Report

Encryption Keys

Summary

User ARN:	arn:aws:iam::[redacted]
Has Password:	Yes
Groups (for this user):	1
Path:	/
Creation Time:	2015-01-09 10:57 EST

Create Access Key

Your access key has been created successfully.

This is the last time these User security credentials will be available for download.

You can manage and recreate these credentials any time.

Hide User Security Credentials

[redacted]

Access Key ID: AKIAI[redacted]

Secret Access Key: Dbig4+636[redacted]

Close | Download Credentials

ce API. For your protection,
tice recommends frequent

Last Used 2015-10-23 08:59 EDT

VPC Dashboard

Filter by VPC:

None

Virtual Private Cloud

- Your VPCs
- Subnets
- Route Tables
- Internet Gateways
- DHCP Options Sets
- Elastic IPs
- Endpoints
- Peering Connections

Security

- Network ACLs
- Security Groups

VPN Connections

- Customer Gateways
- Virtual Private Gateways
- VPN Connections

Create VPC | Actions

Search VPCs and their prope

1 to 1 of 1 VPC

Name	VPC ID	State	VPC CIDR	DHCP options set	Route table
vpc-public	vpc-c602eaa2	available	10.0.0.0/16	dopt-70829f12	rtb-646fbc00

vpc-c602eaa2 (10.0.0.0/16) | vpc-public

Summary | Flow Logs | Tags

VPC ID:	vpc-c602eaa2 | vpc-public	**Network ACL:**	acl-dadd29be
State:	available	**Tenancy:**	Default
VPC CIDR:	10.0.0.0/16	**DNS resolution:**	yes
DHCP options set:	dopt-70829f12	**DNS hostnames:**	yes

```
docker-machine -D create \
    --driver amazonec2 \
    --amazonec2-access-key AKIAIMN \
    --amazonec2-secret-key Dbig4+6364 \
    --amazonec2-region us-east-1
    --amazonec2-vpc-id vpc-c602eaa2 \
    --amazonec2-zone b \
    aws
```

```
docker-machine env aws
eval "$(docker-machine env aws)”
docker run -d -p 80:80 nginx
docker-machine ip aws
```

52.23.222.169

EC2 Dashboard
Events
Tags
Reports
Limits

INSTANCES
Instances
Spot Requests
Reserved Instances
Commands

IMAGES
AMIs
Bundle Tasks

ELASTIC BLOCK STORE
Volumes
Snapshots

NETWORK & SECURITY
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces

LOAD BALANCING
Load Balancers

AUTO SCALING
Launch Configurations

Launch Instance | Connect | Actions

Filter by tags and attributes or search by keyword

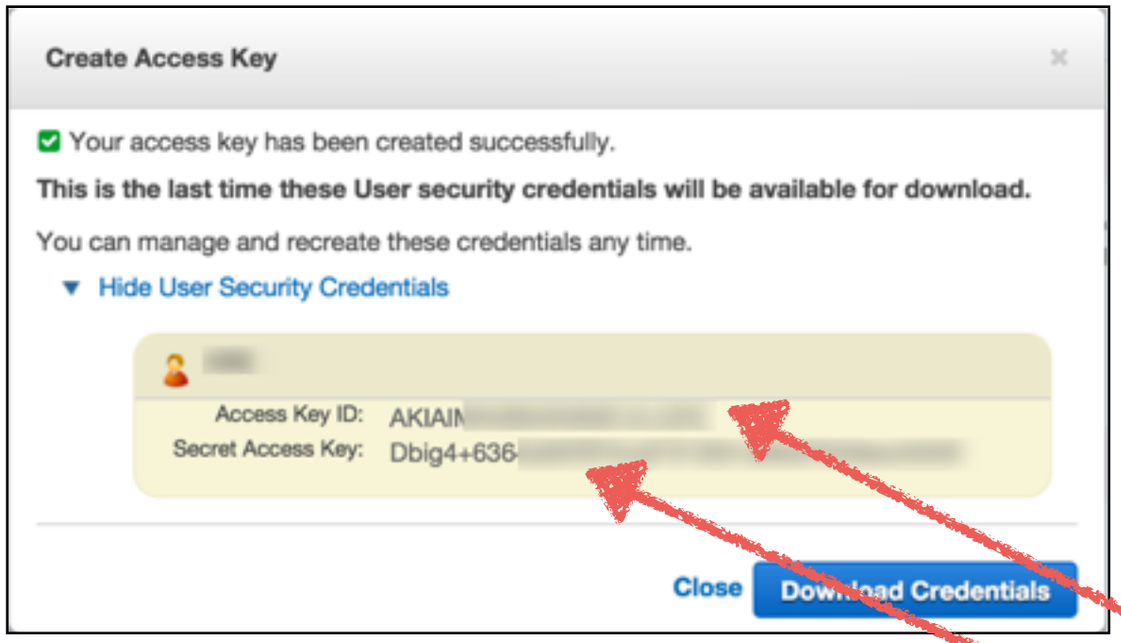
1 to 1 of 1

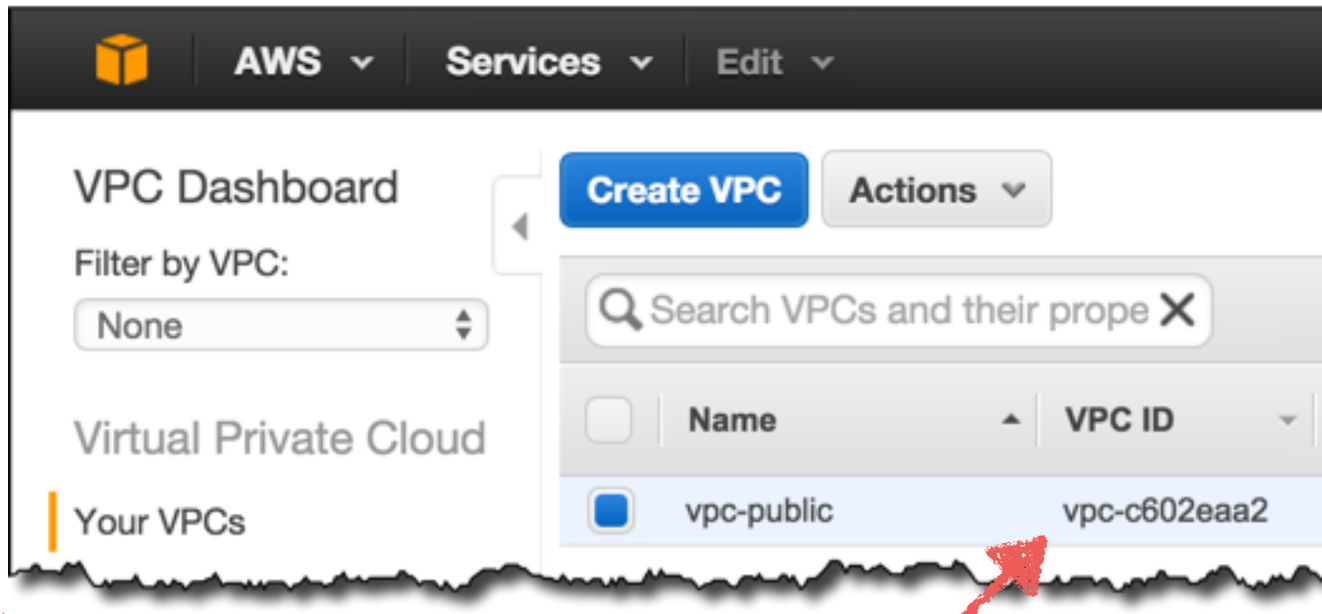
Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks
aws	i-0707a0b7	t2.micro	us-east-1b	running	2/2 checks ...

Instance: i-0707a0b7 (aws) **Public DNS:** ec2-52-23-222-169.compute-1.amazonaws.com

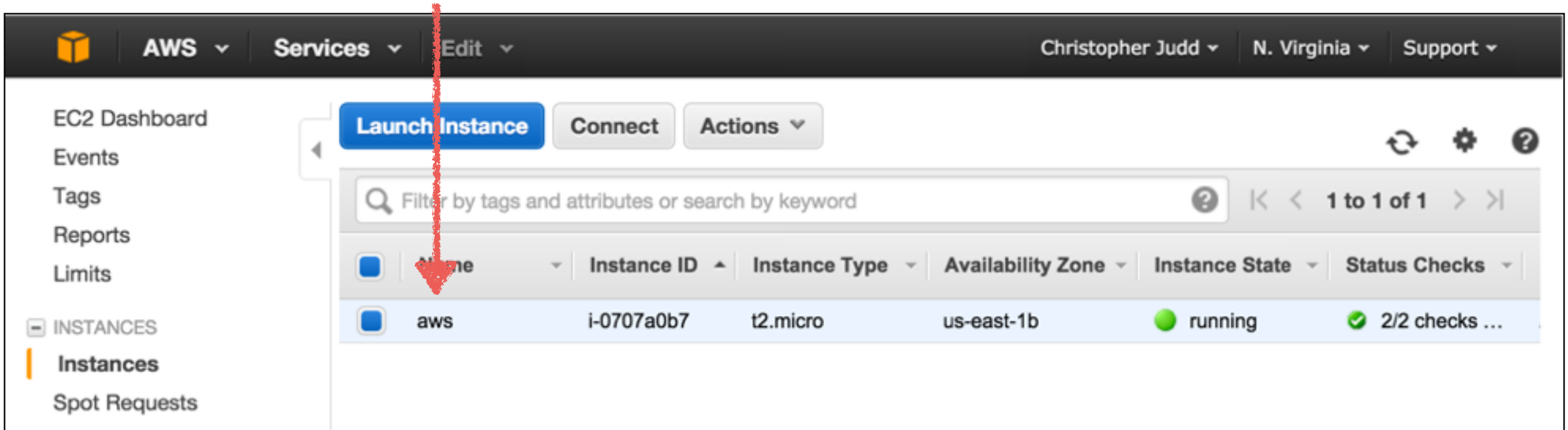
Description | Status Checks | Monitoring | Tags

Instance ID	i-0707a0b7	**Public DNS**	ec2-52-23-222-169.compute-1.amazonaws.com
Instance state	running	**Public IP**	52.23.222.169
Instance type	t2.micro	**Elastic IP**	-
Private DNS	ip-10-0-0-	**Availability zone**	us-east-1b






```
docker-machine -D create \
    --driver amazonec2 \
    --amazonec2-access-key AKIAIMN \
    --amazonec2-secret-key Dbig4+6364 \
    --amazonec2-region us-east-1
    --amazonec2-vpc-id vpc-c602eaa2 \
    --amazonec2-zone b \
    aws
```



EC2 Dashboard
Events
Tags
Reports
Limits

INSTANCES
Instances
Spot Requests
Reserved Instances
Commands

IMAGES
AMIs
Bundle Tasks

ELASTIC BLOCK STORE
Volumes
Snapshots

NETWORK & SECURITY
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces

LOAD BALANCING
Load Balancers

AUTO SCALING
Launch Configurations

Create Security Group | Actions

search : sg-d477e2b2 | Add filter | 1 to 1 of 1

Name	Group ID	Group Name	VPC ID	D
	sg-d477e2b2	docker-machine	vpc-c602eaa2	D

Security Group: sg-d477e2b2

Description | **Inbound** | Outbound | Tags

Edit

Type	Protocol	Port Range	Source
SSH	TCP	22	0.0.0.0/0
Custom TCP Rule	TCP	2376	0.0.0.0/0

EC2 Dashboard
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NETWORK &
Security G
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
LOAD BALANCING
Load Balancers
AUTO SCALING

Create Security Group | Actions

search : sg-d477e2b2 | Add filter | 1 to 1 of 1

Name	Group ID	Group Name	VPC ID	D
	sg-d477e2b2	docker-machine	vpc-c602eaa2	D

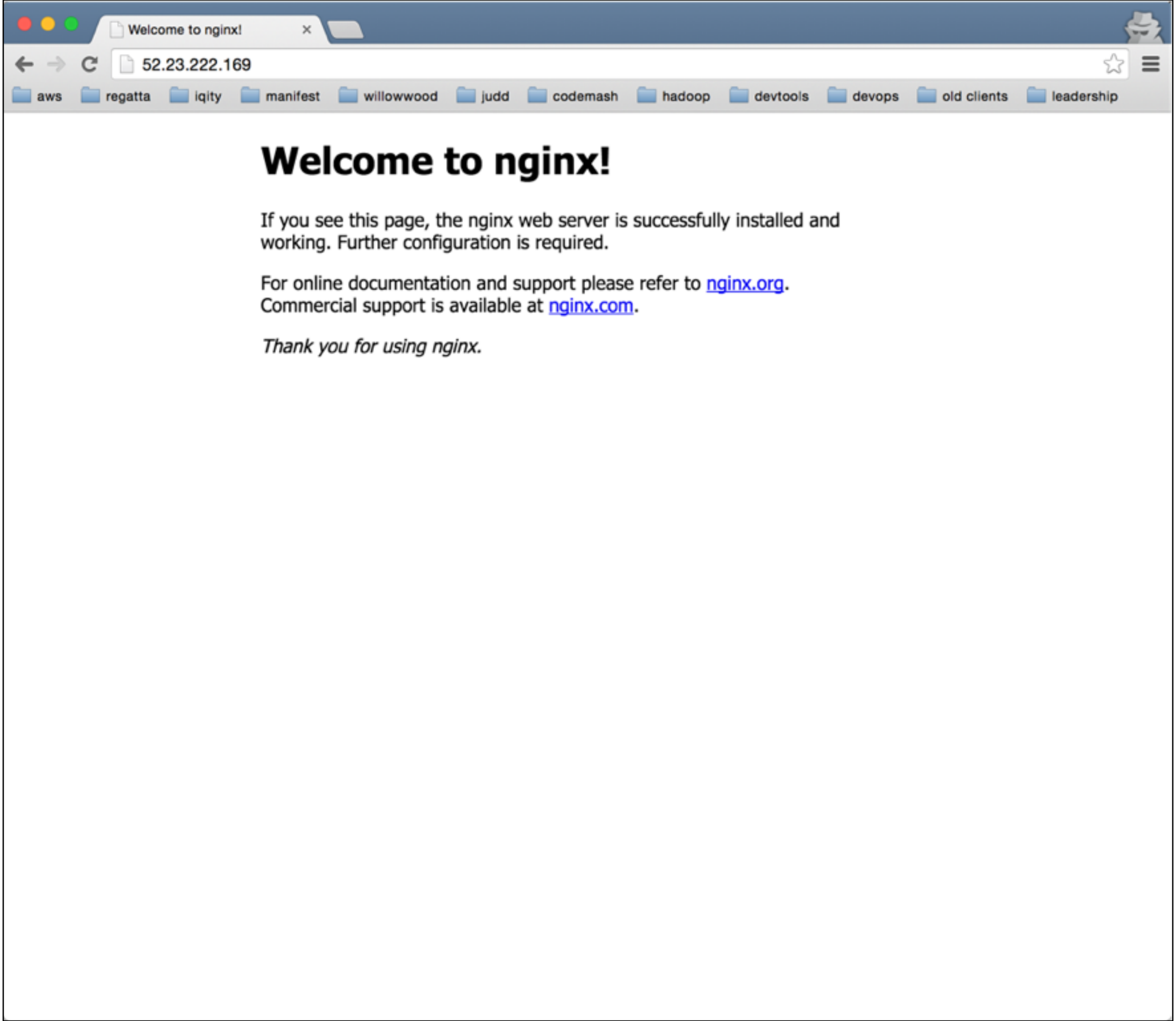
Edit inbound rules

Type	Protocol	Port Range	Source	
SSH	TCP	22	Anywhere	0.0.0.0/0
Custom TCP Rule	TCP	2376	Anywhere	0.0.0.0/0
HTTP	TCP	80	Anywhere	0.0.0.0/0

Add Rule

Cancel | Save

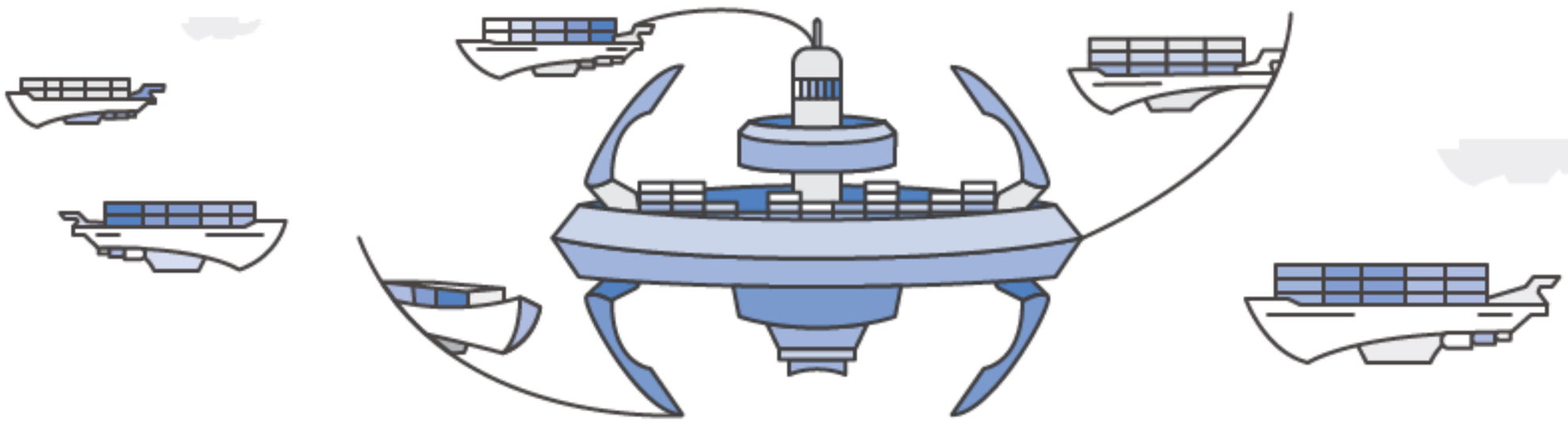
SSH	TCP	22	0.0.0.0/0
Custom TCP Rule	TCP	2376	0.0.0.0/0

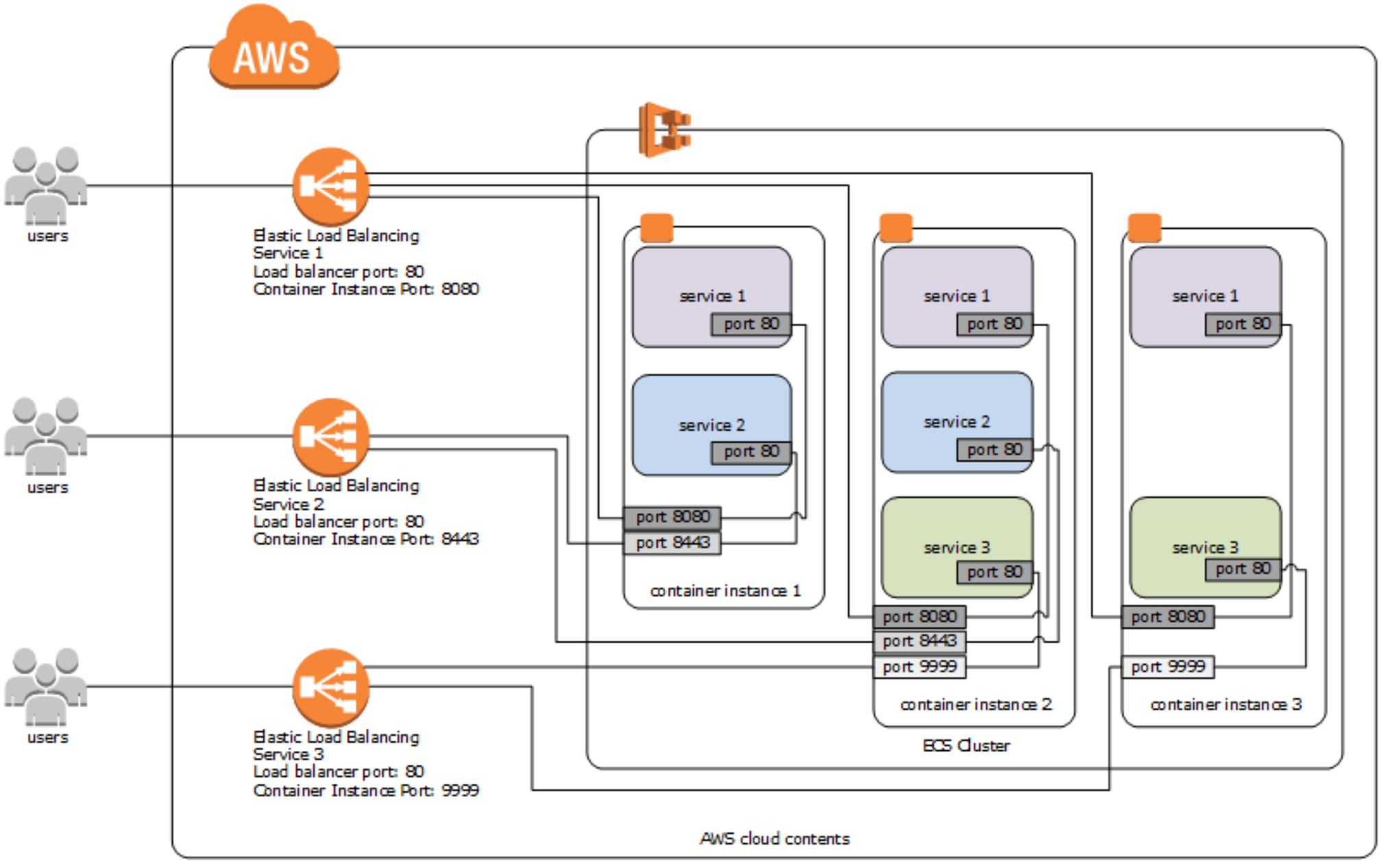

Welcome to nginx!
52.23.222.169
aws
regatta
iqity
manifest
willowwood
judd
codemash
hadoop
devtools
devops
old clients
leadership
Welcome to nginx!
If you see this page, the nginx web server is successfully installed and working. Further configuration is required.
For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.
Thank you for using nginx.

Lab AWS

1. Create an AWS account
2. Create an access key
3. Find VPC ID
4. Create AWS machine
5. Add port to Security Group
6. Terminate EC2 instance

EC2 Container Service




AWS
users
Elastic Load Balancing
Service 1
Load balancer port: 80
Container Instance Port: 8080
users
Elastic Load Balancing
Service 2
Load balancer port: 80
Container Instance Port: 8443
users
Elastic Load Balancing
Service 3
Load balancer port: 80
Container Instance Port: 9999
service 1
port 80
service 2
port 80
port 8080
port 8443
container instance 1
service 1
port 80
service 2
port 80
service 3
port 80
port 8080
port 8443
port 9999
container instance 2
ECS Cluster
service 1
port 80
service 3
port 80
port 8080
port 9999
container instance 3
AWS cloud contents

Amazon EC2 Container Service (ECS)

Amazon ECS makes it easy to deploy, manage, and scale Docker containers running applications, services, and batch processes. Amazon ECS places containers across your cluster based on your resource needs and is integrated with familiar features like Elastic Load Balancing, EC2 security group EBS volumes and IAM roles.

Get started

Learn more about Amazon ECS

Run containers at scale

Amazon ECS makes it easy to use containers a

Flexible container placement

Amazon ECS lets you schedule long-running

Integrated and extensible

Amazon ECS is integrated with familiar features lik

Getting Started with Amazon EC2 Container Service

Welcome to Amazon ECS

This wizard will guide you through the process to get started with Amazon ECS. You will:

- Create a **task definition**
  Describe the components of your application such as the Docker containers to run, the resources they will use, and how they link together.
- Schedule **tasks**
  Reference the number of task definitions to run as tasks or start a service that can use Elastic Load Balancing to route traffic to the containers.
- Configure the **cluster**
  Set options for the logical grouping of **container** instances used to run the tasks.

To get started, select a sample task definition or create a custom task definition:

- ○ Amazon ECS sample
  Create a task definition using amazon-ecs-sample image.
- ◉ Custom
  Register a custom task definition.

Cancel | Next Step

Getting Started with Amazon EC2 Container Service

Step 1: Welcome to Amazon ECS
Step 2: Create custom Task Definition
Step 3: Schedule Tasks
Step 4: Configure Cluster
Step 5: Review

Create custom Task Definition

You can modify the parameters in the task definition (for example, to provide more CPU resources or change the port mappings) to suit your particular application. For more information, see Task Definitions in the Amazon ECS Developer Guide.

Task Definition Name* nginx

Container Definitions

Container Name	Image	Memory (MB)	Essential	

Add Container Definition

Volumes

Name	Source Path	

Add volume

Configure via JSON

* Required

Cancel | Previous | Next Step

AWS | Services | Edit

Getting Started with Amaz

Step 1: Welcome to Amazon ECS
Step 2: Create custom Task Definition
Step 3: Schedule Tasks
Step 4: Configure Cluster
Step 5: Review

Feedback | English

Add container

STANDARD

Container name* nginx-cn

Image* nginx

Memory (MB)* 512

Port mappings

Host port	Container port	Protocol
80	80	tcp

Add port mapping

Advanced container configuration

* Required

Cancel | Add

Getting Started with Amazon EC2 Container Service

Step 1: Welcome to Amazon ECS
Step 2: Create custom Task Definition
Step 3: Schedule Tasks
Step 4: Configure Cluster
Step 5: Review

Create custom Task Definition

You can modify the parameters in the task definition (for example, to provide more CPU resources or change the port mappings) to suit your particular application. For more information, see Task Definitions in the Amazon ECS Developer Guide.

Task Definition Name* nginx

Container Definitions

Container Name	Image	Memory (MB)	Essential	
nginx-cn	nginx	512	true	

Add Container Definition

Volumes

Name	Source Path	

Add volume

Configure via JSON

* Required

Cancel | Previous | Next Step

Getting Started with Amazon EC2 Container Service

Step 1: Welcome to Amazon ECS
Step 2: Create custom Task Definition
Step 3: Schedule Tasks
Step 4: Configure Cluster
Step 5: Review

Schedule Tasks

A task is an instantiation of the task definition created in step 2 that runs on a container instance.

- Run Tasks Once
  You can run individual tasks for processes such as batch jobs that perform work and then stop.
- Create a service
  You can create a service for long running applications. A service auto recovers stopped tasks to maintain the desired number of tasks and can optionally register tasks with one or more ELBs. You can update the service to deploy a new image or change the running number of tasks

Desired number of Tasks* 1

Service Name* nginx-webapp

Elastic Load Balancing

Container: Port* nginx-cn:80

ELB protocol* HTTP

ELB port* 80

Ping port 80

Ping protocol* HTTP

Ping path* /

* Required

Cancel | Previous | Next Step

Getting Started with Amazon EC2 Container Service

Step 1: Welcome to Amazon ECS
Step 2: Create custom Task Definition
Step 3: Schedule Tasks
Step 4: Configure Cluster
Step 5: Review

Configure Cluster

Before you can run tasks in your Amazon ECS cluster, you must launch container instances into it. An Amazon ECS container instance is an Amazon EC2 instance with the Amazon ECS Container Agent running on it. The agent makes calls on your behalf by using an IAM role configured for Amazon ECS.

Cluster* default

Number of Instances* 1

AMI* Amazon ECS-Optimized Amazon Linux AMI (ami-d74357b6)

Instance Type* t2.micro

Key pair name* None

You will not be able to SSH into your instances without selecting a key pair.

Security Group

Your instances may be accessible from any IP address. We recommend that you update the below security group ingress rule to allow access from known IP addresses only.
ECS automatically opens up port 80 to facilitate access to the application or service you're running.
Additionally, we open port 80 for Elastic Load Balancer access.

Security Ingress CIDR* 0.0.0.0/0

IAM Role Information

The IAM role for EC2 refers to an IAM role that grants your EC2 instances permissions to access AWS resources it needs, including the ability to connect with the ECS service to manage your tasks.
The IAM role for ECS Service grants the necessary permissions for ECS to interact with resources such as Elastic Load Balancing.
Clicking on the button below will open a new tab to the IAM role creation one click wizard

ECS instance role* ecsInstanceRole

ECS service role* ecsServiceRole

or Create IAM Roles

* Required

Cancel | Previous | Review & Launch

Getting Started with Amazon EC2 Container Service

Step 1: Welcome to Amazon ECS
Step 2: Create custom Task Definition
Step 3: Schedule Tasks
Step 4: Configure Cluster
Step 5: Review

Review

Review your task definition, service and container instance details.

Task Definition

Edit

Task Definition Name nginx

Task Definition

```
{
    "family": "nginx",
    "volumes": [],
    "containerDefinitions": [
        {
            "name": "nginx-cn",
            "image": "nginx",
            "memory": "512",
            "essential": true,
            "portMappings": [
                {
                    "hostPort": "80",
                    "containerPort": "80",
                    "protocol": "tcp"
```

Task Configurations

Edit

Service Name nginx-webapp

Number of Tasks 1

Container: Host Port nginx-cn:80

Launch status

Your container instances are launching, and it may take a few minutes until they are in the running state, and ready to access. Usage hours on your new container instances will start immediately and continue to accrue until you stop or terminate.

ECS Instances status

Launching the requested resources using AWS CloudFormation. This may take a few minutes. Click here to view the AWS::CloudFormation::Stack... CloudFormation stack.

ECS Status

Waiting for ECS instance to launch...
This may take a few minutes

View Service

Create Stack | Actions | Design template

Filter: Active | By Name:

Showing 2 stacks

Stack Name	Created Time	Status	Description
EC2ContainerService-default-1	2015-11-10 18:57:12 UTC-0500	CREATE_IN_PROGRESS	AWS CloudFormation template to create a new VPC or use ar
awseb-e-zmgdavufct-stack	2015-10-28 13:49:24 UTC-0400	UPDATE_COMPLETE	AWS Elastic Beanstalk environment (Name: 'medone-env' Id:

Overview | Outputs | Resources | Events | Template | Parameters | Tags | Stack Policy

2015-11-10	Status	Type	Logical ID	Status Reason
18:58:25 UTC-0500	CREATE_IN_PROGRESS	AWS::AutoScaling::AutoScalingGroup	EcsInstanceAsg	
18:58:23 UTC-0500	CREATE_COMPLETE	AWS::AutoScaling::LaunchConfiguration	EcsInstanceLcWithoutKeyPair	
18:58:22 UTC-0500	CREATE_IN_PROGRESS	AWS::AutoScaling::LaunchConfiguration	EcsInstanceLcWithoutKeyPair	Resource creation Initiated
18:58:22 UTC-0500	CREATE_IN_PROGRESS	AWS::AutoScaling::LaunchConfiguration	EcsInstanceLcWithoutKeyPair	
18:58:21 UTC-0500	CREATE_COMPLETE	AWS::EC2::SubnetRouteTableAssociation	PubSubnet1RouteTableAssociation	
18:58:21 UTC-0500	CREATE_COMPLETE	AWS::EC2::SubnetRouteTableAssociation	PubSubnet2RouteTableAssociation	
18:58:20 UTC-0500	CREATE_COMPLETE	AWS::EC2::SecurityGroup	EcsSecurityGroup	
18:58:19 UTC-0500	CREATE_IN_PROGRESS	AWS::EC2::SecurityGroup	EcsSecurityGroup	Resource creation Initiated
18:58:06 UTC-0500	CREATE_COMPLETE	AWS::ElasticLoadBalancing::LoadBalancer	EcsElasticLoadBalancer	
18:58:06 UTC-0500	CREATE_IN_PROGRESS	AWS::ElasticLoadBalancing::LoadBalancer	EcsElasticLoadBalancer	Resource creation Initiated
18:58:06 UTC-0500	CREATE_IN_PROGRESS	AWS::EC2::SubnetRouteTableAssociation	PubSubnet1RouteTableAssociation	Resource creation Initiated

Launch status

Your container instances are launching, and it may take a few minutes until they are in the running state, and ready to access. Usage hours on your new container instances will start immediately and continue to accrue until you stop or terminate.

ECS Instances status

Your instances are up and running.

Launching the requested resources using AWS CloudFormation. This may take a few minutes. Click here to view the CloudFormation stack.

AWS::EC2::InternetGateway... 15 of 15 Resources Created

ECS Status

Waiting for ECS instance to launch...
This may take a few minutes

Created TaskDefinition
nginx:1

Created Service nginx-webapp successfully
The tasks will start up momentarily

Task Id	Status
No results	

View Service

Service : nginx-webapp

Update | Delete

Details

Cluster	default
Status	ACTIVE
Task Definition	nginx:1
Desired count	1
Pending count	0
Running count	0
Service Role	ecsServiceRole

Load Balancers

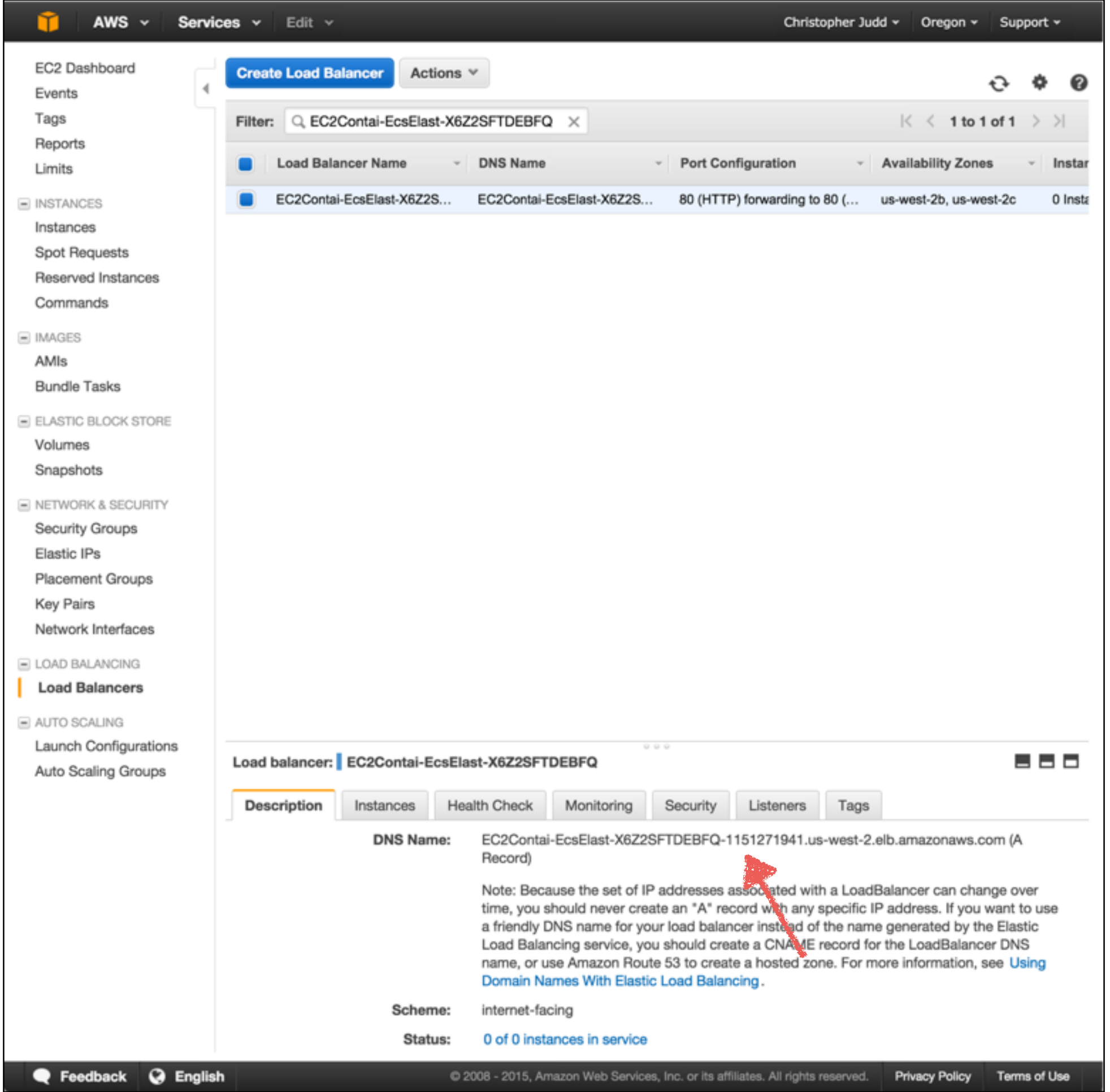
Load Balancer Name	Container Name	Container Port
EC2Contai-EcsElast-X6Z2SFTDEBFQ	nginx-cn	80

Tasks | Events | Deployments | Metrics

Last updated on November 10, 2015 7:00:08 PM (0m ago)

Filter in this page | Task status: Running Stopped | Viewing 0-0 Tasks

Task	Task Definition	Last status	Desired status
No results			


AWS
Services
Edit
Christopher Judd
Oregon
Support
EC2 Dashboard
Events
Tags
Reports
Limits
INSTANCES
Instances
Spot Requests
Reserved Instances
Commands
IMAGES
AMIs
Bundle Tasks
ELASTIC BLOCK STORE
Volumes
Snapshots
NETWORK & SECURITY
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
LOAD BALANCING
Load Balancers
AUTO SCALING
Launch Configurations
Auto Scaling Groups
Create Load Balancer
Actions
Filter:
EC2Contai-EcsElast-X6Z2SFTDEBFQ
1 to 1 of 1
Load Balancer Name
DNS Name
Port Configuration
Availability Zones
EC2Contai-EcsElast-X6Z2S...
EC2Contai-EcsElast-X6Z2S...
80 (HTTP) forwarding to 80 (...
us-west-2b, us-west-2c
0 Insta
Load balancer: EC2Contai-EcsElast-X6Z2SFTDEBFQ
Description
Instances
Health Check
Monitoring
Security
Listeners
Tags
DNS Name:
EC2Contai-EcsElast-X6Z2SFTDEBFQ-1151271941.us-west-2.elb.amazonaws.com (A Record)
Note: Because the set of IP addresses associated with a LoadBalancer can change over time, you should never create an "A" record with any specific IP address. If you want to use a friendly DNS name for your load balancer instead of the name generated by the Elastic Load Balancing service, you should create a CNAME record for the LoadBalancer DNS name, or use Amazon Route 53 to create a hosted zone. For more information, see Using Domain Names With Elastic Load Balancing.
Scheme:
internet-facing
Status:
0 of 0 instances in service
Feedback
English
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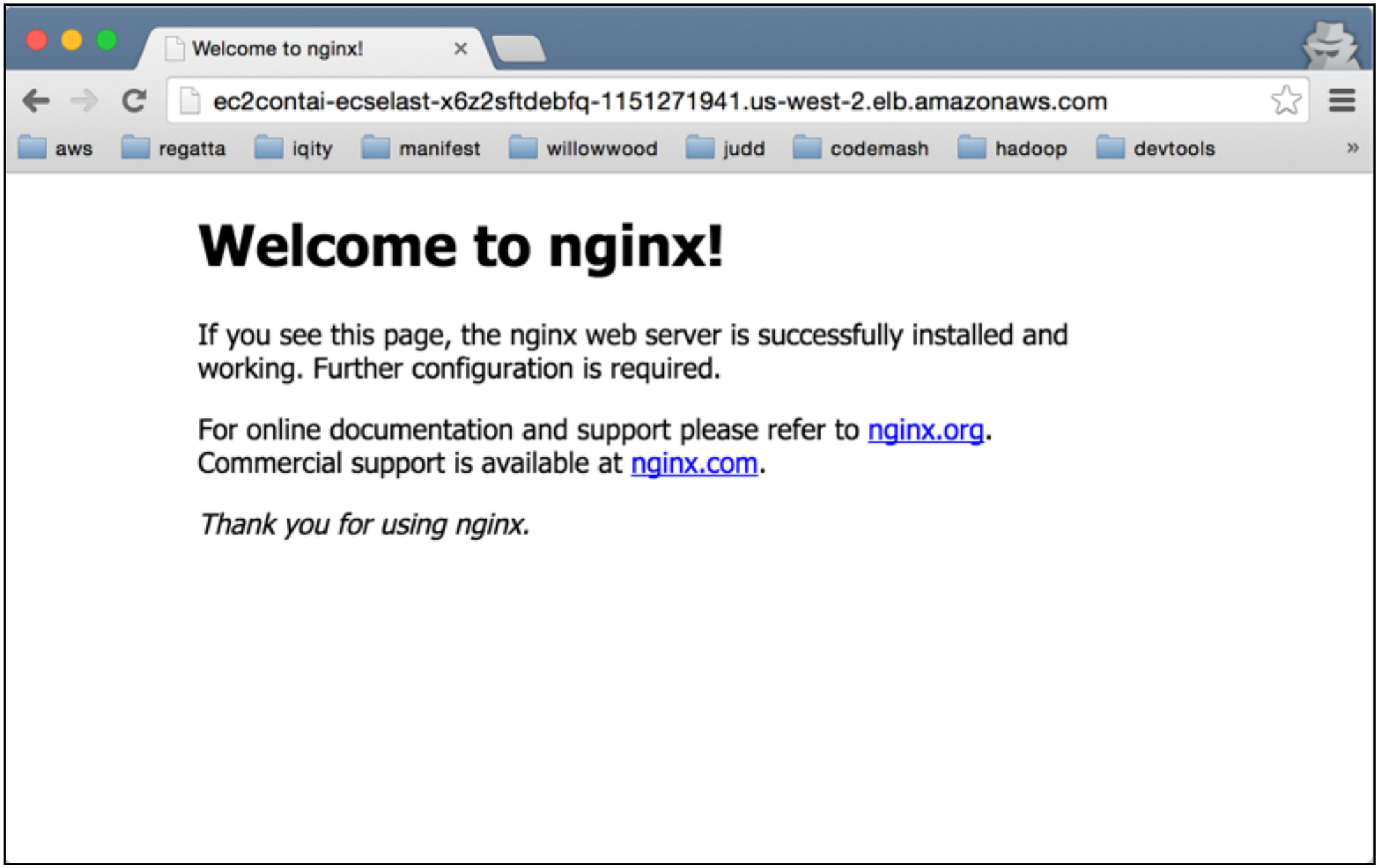
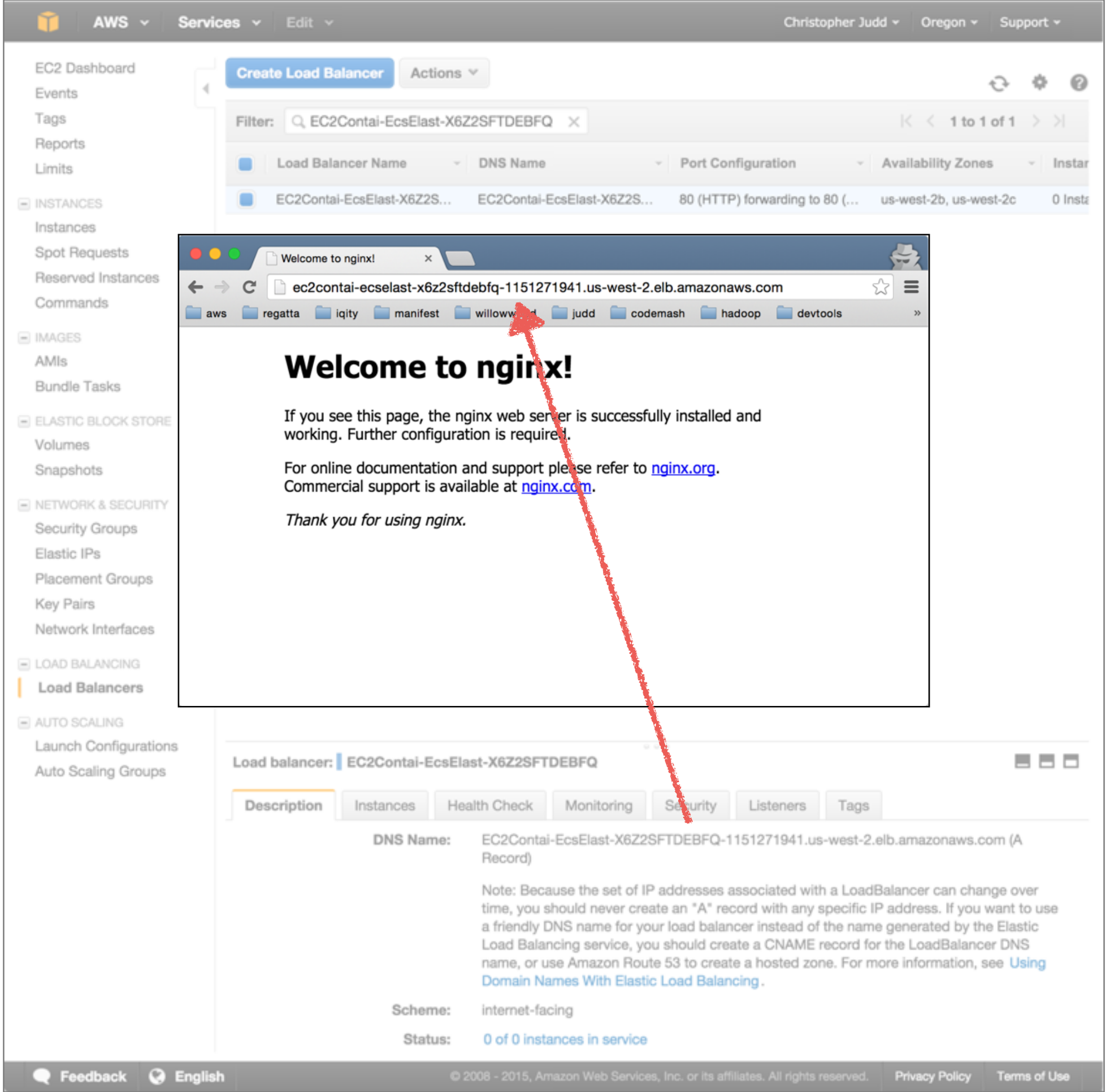

Welcome to nginx!
ec2contai-ecselast-x6z2sftdebfq-1151271941.us-west-2.elb.amazonaws.com
aws
regatta
iqity
manifest
willowwood
judd
codemash
hadoop
devtools
Welcome to nginx!
If you see this page, the nginx web server is successfully installed and working. Further configuration is required.
For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.
Thank you for using nginx.


AWS
Services
Edit
Christopher Judd
Oregon
Support
EC2 Dashboard
Events
Tags
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Limits
INSTANCES
Instances
Spot Requests
Reserved Instances
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Launch Configurations
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Create Load Balancer
Actions
Filter: EC2Contai-EcsElast-X6Z2SFTDEBFQ
1 to 1 of 1
Load Balancer Name
DNS Name
Port Configuration
Availability Zones
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EC2Contai-EcsElast-X6Z2S...
80 (HTTP) forwarding to 80 (...
us-west-2b, us-west-2c
Welcome to nginx!
ec2contai-ecselast-x6z2sftdebfq-1151271941.us-west-2.elb.amazonaws.com
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Thank you for using nginx.
Load balancer: EC2Contai-EcsElast-X6Z2SFTDEBFQ
Description
Instances
Health Check
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Security
Listeners
Tags
DNS Name:
EC2Contai-EcsElast-X6Z2SFTDEBFQ-1151271941.us-west-2.elb.amazonaws.com (A Record)
Note: Because the set of IP addresses associated with a LoadBalancer can change over time, you should never create an "A" record with any specific IP address. If you want to use a friendly DNS name for your load balancer instead of the name generated by the Elastic Load Balancing service, you should create a CNAME record for the LoadBalancer DNS name, or use Amazon Route 53 to create a hosted zone. For more information, see Using Domain Names With Elastic Load Balancing.
Scheme:
internet-facing
Status:
0 of 0 instances in service
Feedback
English
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Task : 14228d47-cb18-4d90-aedb-870ed40ac548

Run more like this | Stop

Details

Cluster	default
Container Instance	db69e17e-a9eb-4d4f-9e49-52b23b1d632e
EC2 Instance Id	i-73a94fa9
Task Definition	nginx:1
Last Status	RUNNING
Desired Status	RUNNING

Containers

Last updated on November 10, 2015 7:24:18 PM (0m ago)

Name	Container Id	Status	Image	CPU...	Me...	Ess...
nginx-cn	5a15c52c-8e4e-4089-8651-788de296ee4b	RUN...	nginx	0	512	true

Details

Exit Code 0

Network bindings

Host Port	Container Port	Protocol	External Link
80	80	tcp	52.11.106.96:80

Environment variables

Key	Value
No Environment Variables	

Docker labels

Key	Value
No docker labels	

Extra hosts

Hostname	IP address
No host entries	

Mount points

Container Path	Source Volume	Read only
No Mount Points		

Volumes from

Source Container	Read only
No volumes from	

Ulimits

Name	Soft limit	Hard limit
No ulimit		

Log Configuration

Log driver:

Key	Value
No log configuration	

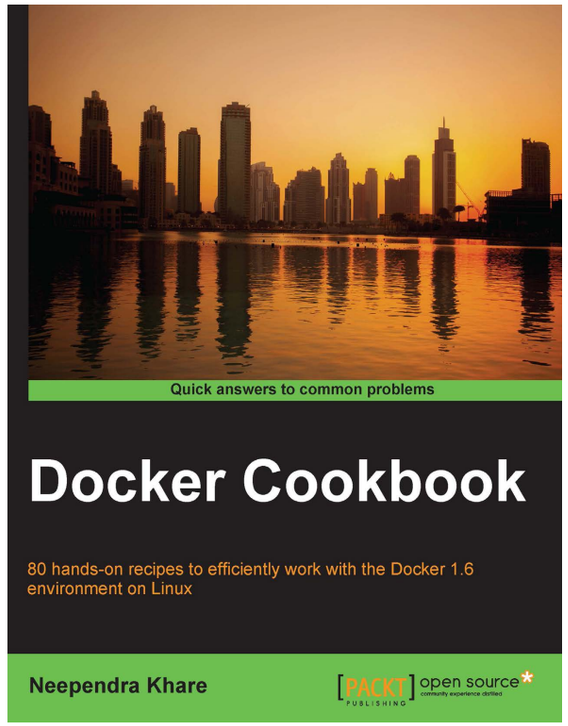
Summary

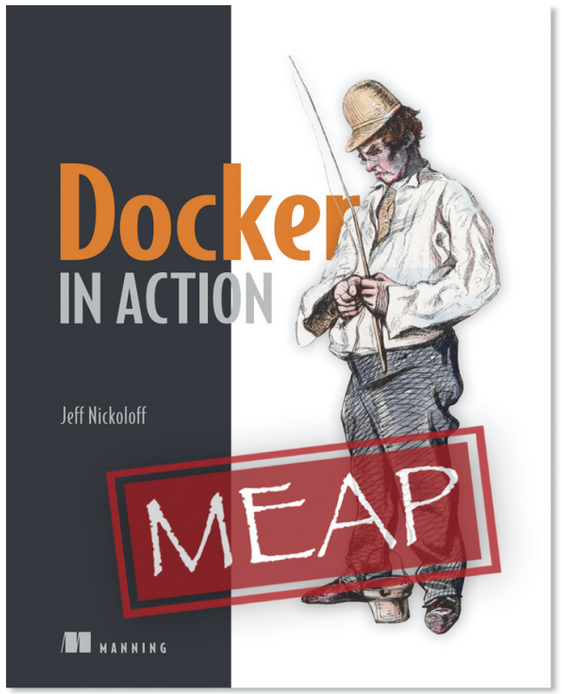
https://github.com/coreos/rkt

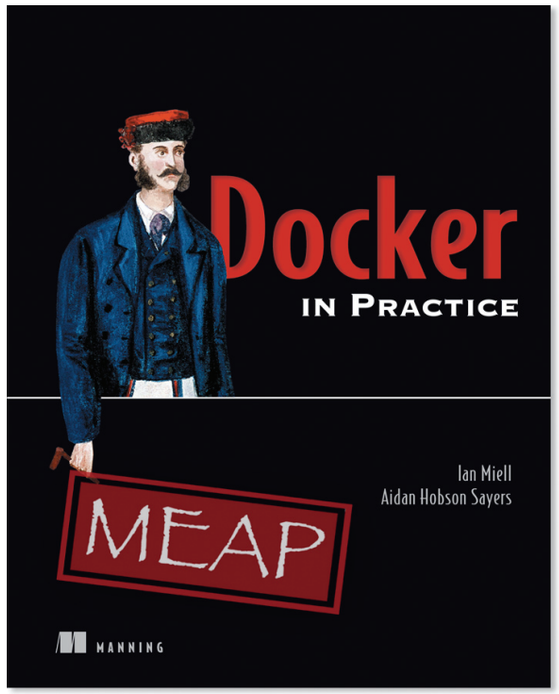
https://www.flickr.com/photos/glynlowe/10921732025/

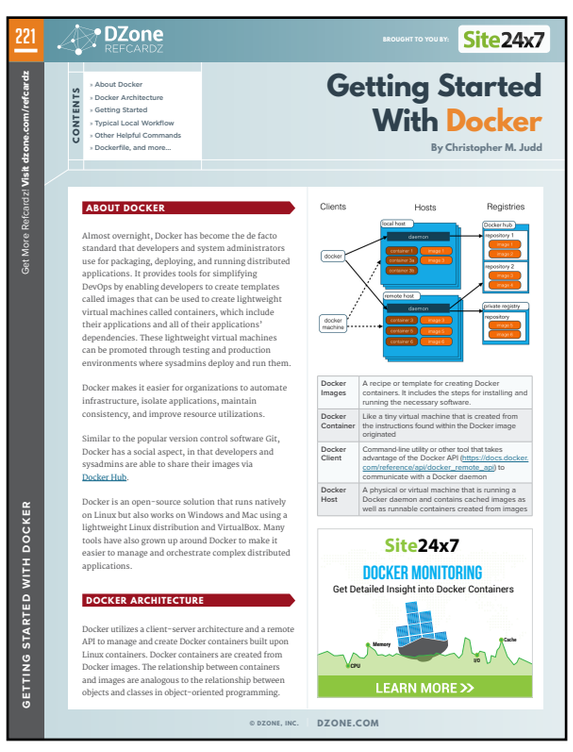

AVERY BREWING CO
Welcome
The Barrel
Please eat
yourself
AVERY BREWING CO
MEET THE BREWERY:
Odell Brewing Co.

Resources


Quick answers to common problems
Docker Cookbook
80 hands-on recipes to efficiently work with the Docker 1.6 environment on Linux
Neependra Khare
[PACKT] open source
PUBLISHING


Docker
IN ACTION
Jeff Nickoloff
MEAP
MANNING


Docker
IN PRACTICE
Ian Miell
Aidan Hobson Sayers
MEAP
MANNING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GETTING STARTED WITH DOCKER
CONTENTS
About Docker
Docker Architecture
Getting Started
Typical Local Workflow
Other Helpful Commands
Dockerfile, and more...
Getting Started With Docker
By Christopher M. Judd
ABOUT DOCKER
Almost overnight, Docker has become the de facto standard that developers and system administrators use for packaging, deploying, and running distributed applications. It provides tools for simplifying DevOps by enabling developers to create templates called images that can be used to create lightweight virtual machines called containers, which include their applications and all of their applications' dependencies. These lightweight virtual machines can be promoted through testing and production environments where sysadmins deploy and run them.
Docker makes it easier for organizations to automate infrastructure, isolate applications, maintain consistency, and improve resource utilizations.
Similar to the popular version control software Git, Docker has a social aspect, in that developers and sysadmins are able to share their images via Docker Hub.
Docker is an open-source solution that runs natively on Linux but also works on Windows and Mac using a lightweight Linux distribution and VirtualBox. Many tools have also grown up around Docker to make it easier to manage and orchestrate complex distributed applications.
DOCKER ARCHITECTURE
Docker utilizes a client-server architecture and a remote API to manage and create Docker containers built upon Linux containers. Docker containers are created from Docker images. The relationship between containers and images are analogous to the relationship between objects and classes in object-oriented programming.
Clients
Hosts
Registries
Docker Images
A recipe or template for creating Docker containers. It includes the steps for installing and running the necessary software.
Docker Container
Like a tiny virtual machine that is created from the instructions found within the Docker image originated
Docker Client
Command-line utility or other tool that takes advantage of the Docker API (https://docs.docker.com/reference/api/docker_remote_api) to communicate with a Docker daemon
Docker Host
A physical or virtual machine that is running a Docker daemon and contains cached images as well as runnable containers created from images
Site24x7
DOCKER MONITORING
Get Detailed Insight into Docker Containers
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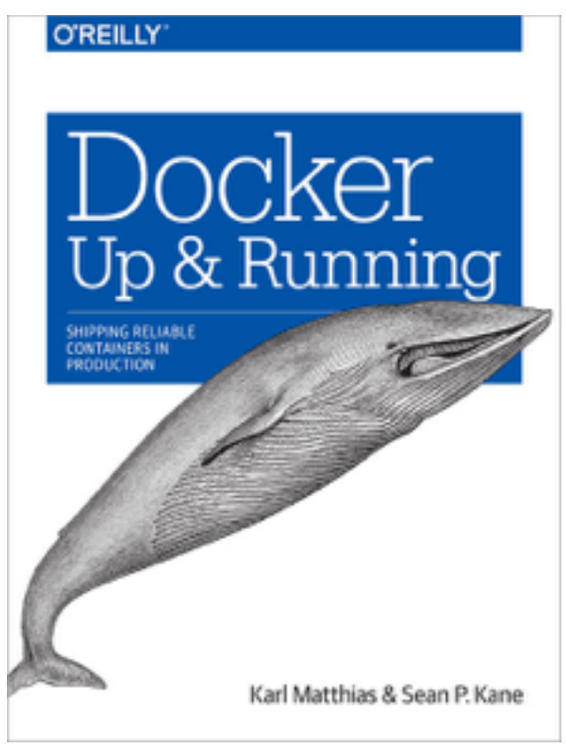
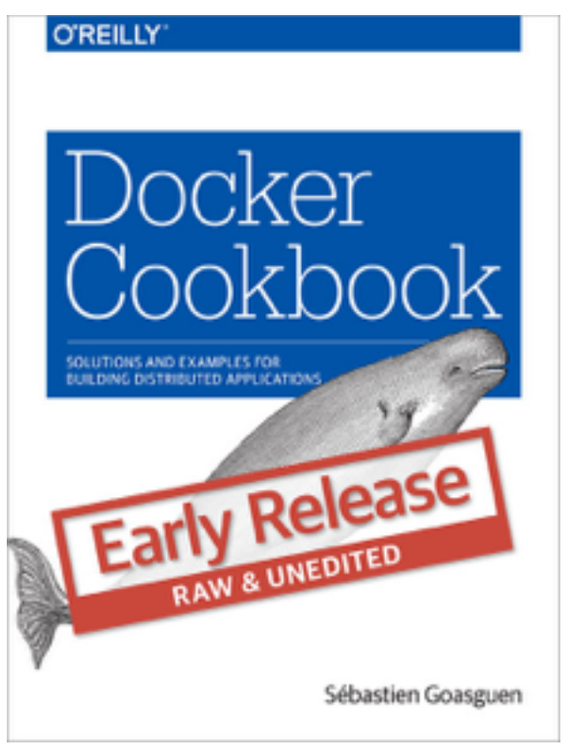

O'REILLY
Docker
Up & Running
SHIPPING RELIABLE CONTAINERS IN PRODUCTION
Karl Matthias & Sean P. Kane


O'REILLY
Docker
Cookbook
SOLUTIONS AND EXAMPLES FOR BUILDING DISTRIBUTED APPLICATIONS
Early Release
RAW & UNEDITED
Sébastien Goasguen

Christopher M. Judd

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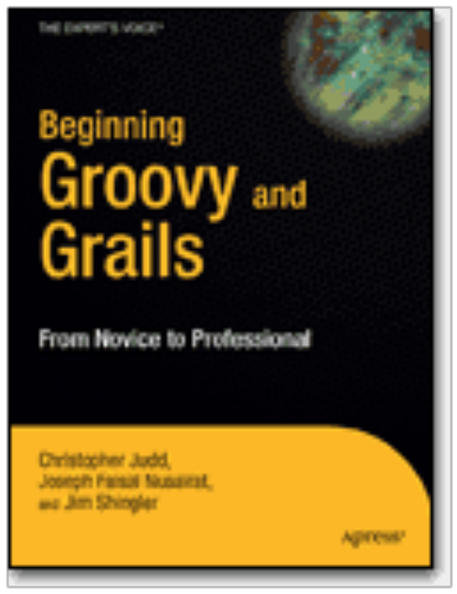
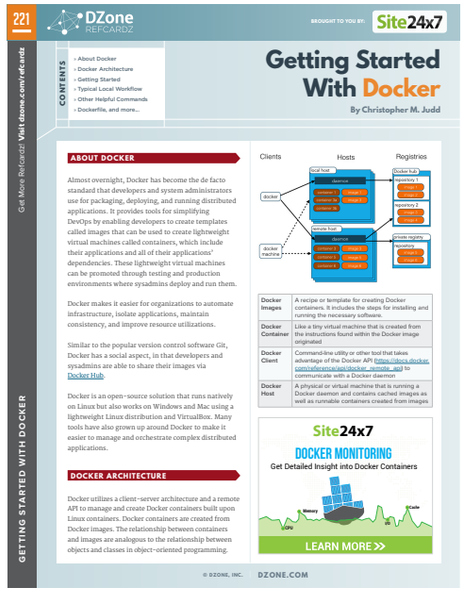
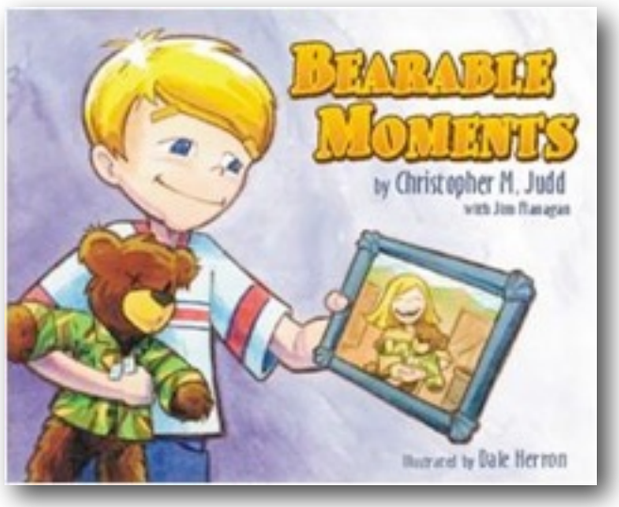
twitter: javajudd







Thanks to Brian Sherwin
for making the presentation
more Windows friendly

@bsherwin