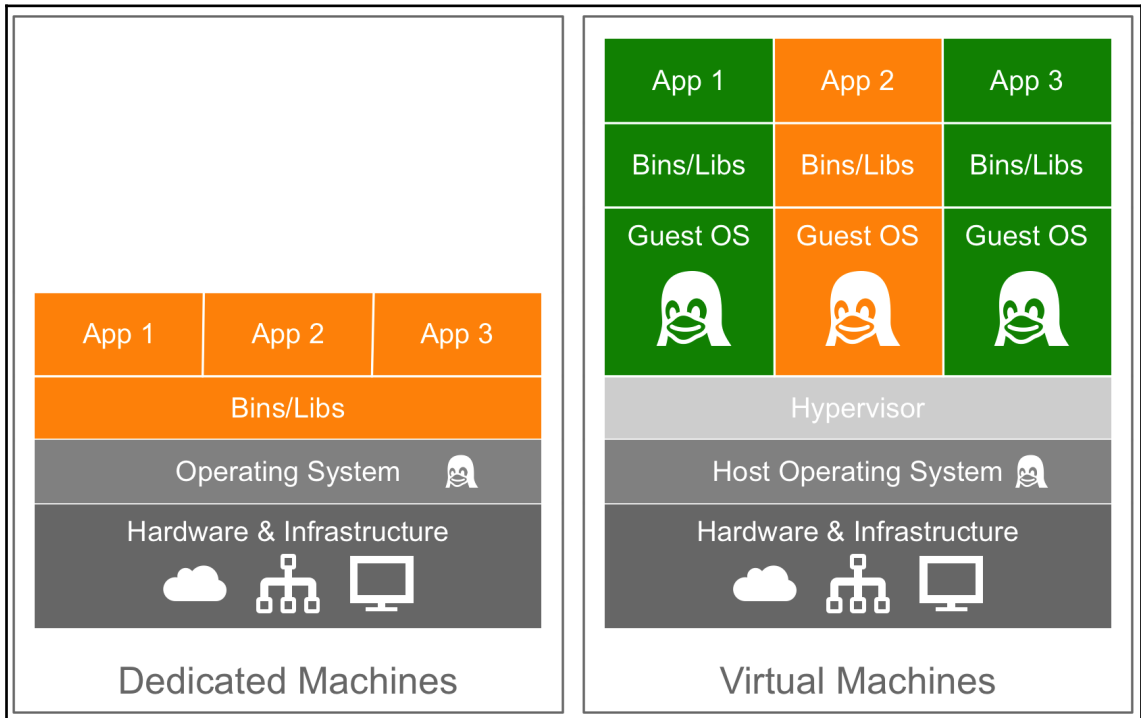
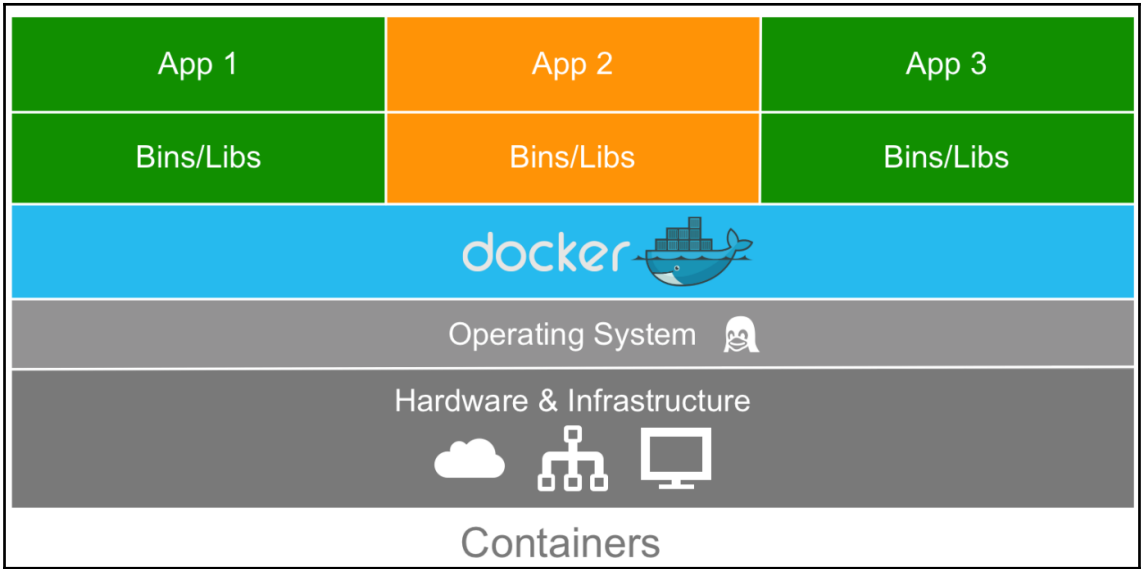
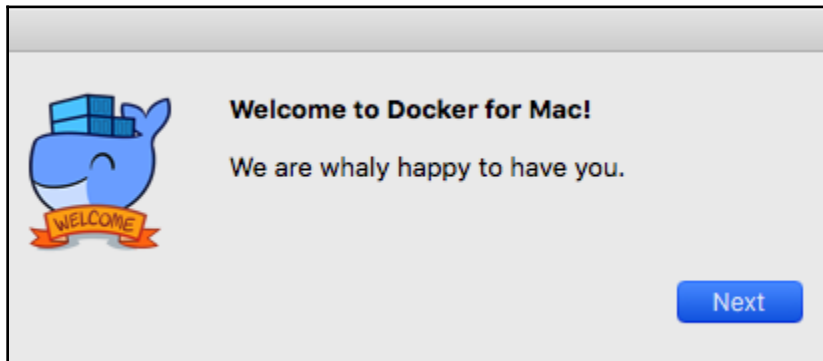
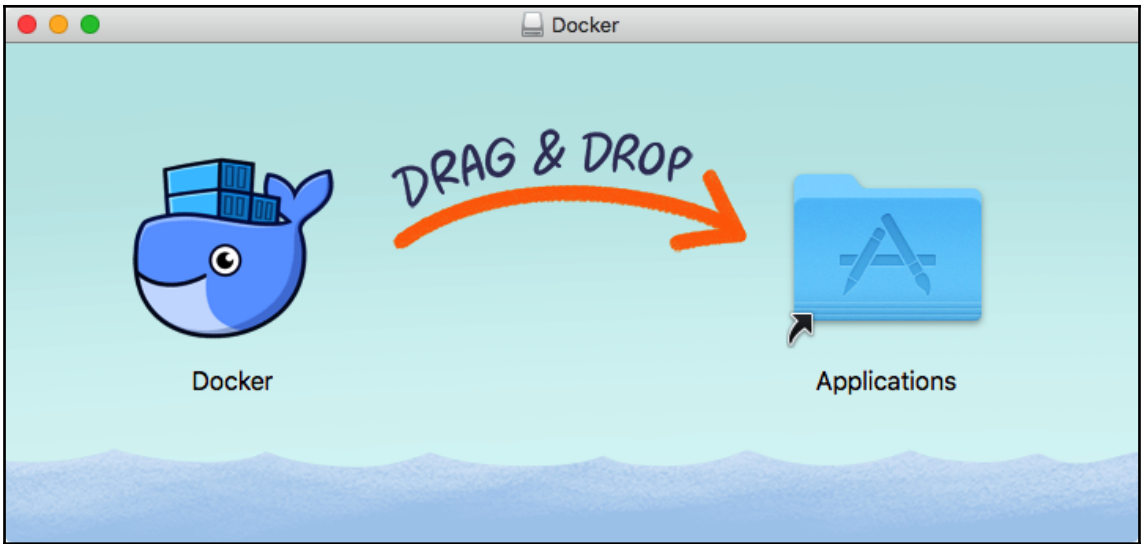


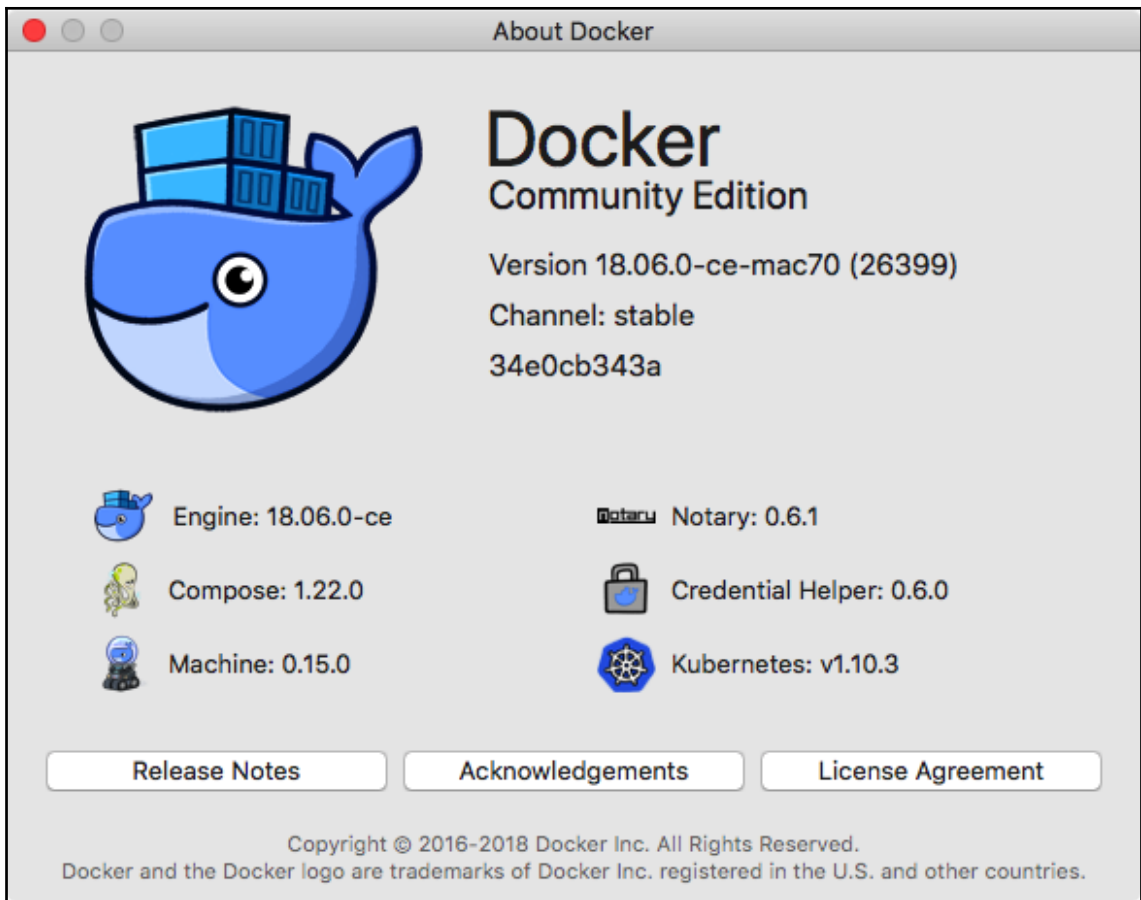
Chapter 1: Docker Overview





```
russ@ubuntu-1804: ~  
File Edit View Search Terminal Help  
russ@ubuntu-1804:~$ docker version  
Client:  
Version:          18.06.0-ce  
API version:      1.38  
Go version:       go1.10.3  
Git commit:       0ffa825  
Built:            Wed Jul 18 19:09:54 2018  
OS/Arch:          linux/amd64  
Experimental:    false  
  
Server:  
Engine:  
Version:          18.06.0-ce  
API version:      1.38 (minimum version 1.12)  
Go version:       go1.10.3  
Git commit:       0ffa825  
Built:            Wed Jul 18 19:07:56 2018  
OS/Arch:          linux/amd64  
Experimental:    false  
russ@ubuntu-1804:~$
```





```
1. russ (bash)
russ in ~
⚡ docker version
Client:
  Version:      18.06.0-ce
  API version:  1.38
  Go version:   go1.10.3
  Git commit:   0ffa825
  Built:        Wed Jul 18 19:05:26 2018
  OS/Arch:      darwin/amd64
  Experimental: false

Server:
  Engine:
    Version:      18.06.0-ce
    API version:  1.38 (minimum version 1.12)
    Go version:   go1.10.3
    Git commit:   0ffa825
    Built:        Wed Jul 18 19:13:46 2018
    OS/Arch:      linux/amd64
    Experimental: true
russ in ~
⚡
```





Docker

Community Edition

Version 18.06.0-ce-win72 (19098)

Channel: stable

5513f91



Engine: 18.06.0-ce



Notary: 0.6.1



Compose: 1.22.0



Credential Helpers: 0.6.0



Machine: 0.15.0



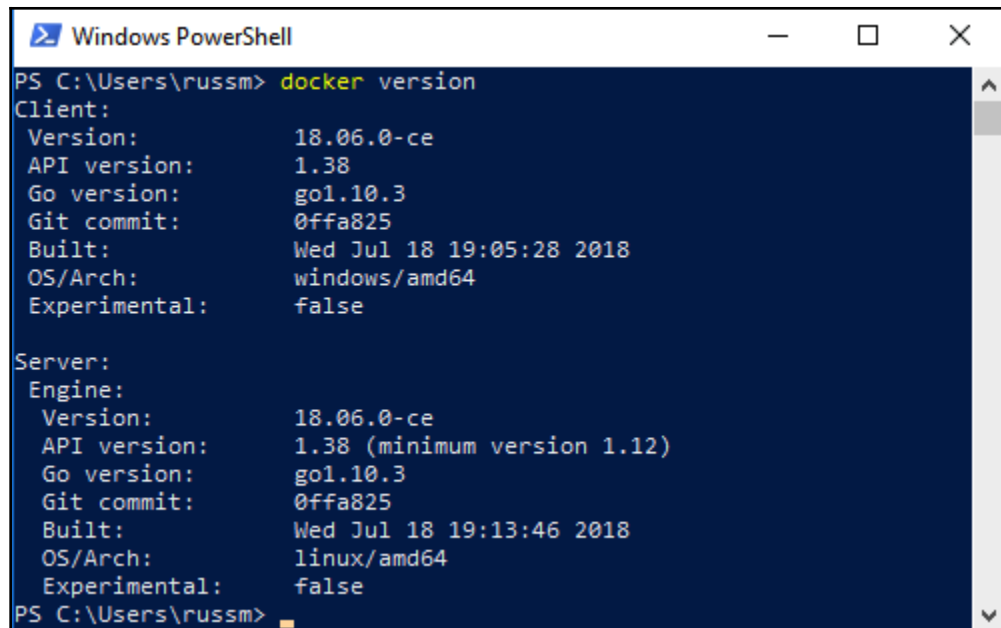
Kubernetes: v1.10.3

[Release Notes](#)

[Acknowledgments](#)

[License Agreement](#)

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```
Windows PowerShell
PS C:\Users\russsm> docker version
Client:
Version:      18.06.0-ce
API version:  1.38
Go version:   go1.10.3
Git commit:   0ffa825
Built:        Wed Jul 18 19:05:28 2018
OS/Arch:      windows/amd64
Experimental: false

Server:
Engine:
Version:      18.06.0-ce
API version:  1.38 (minimum version 1.12)
Go version:   go1.10.3
Git commit:   0ffa825
Built:        Wed Jul 18 19:13:46 2018
OS/Arch:      linux/amd64
Experimental: false
PS C:\Users\russsm>
```

```
1. russ (bash)
russ in ~
⚡ docker container run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
9db2ca6ccae0: Pull complete
Digest: sha256:4b8ff392a12ed9ea17784bd3c9a8b1fa3299cac44aca35a85c90c5e3c7afacdc
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

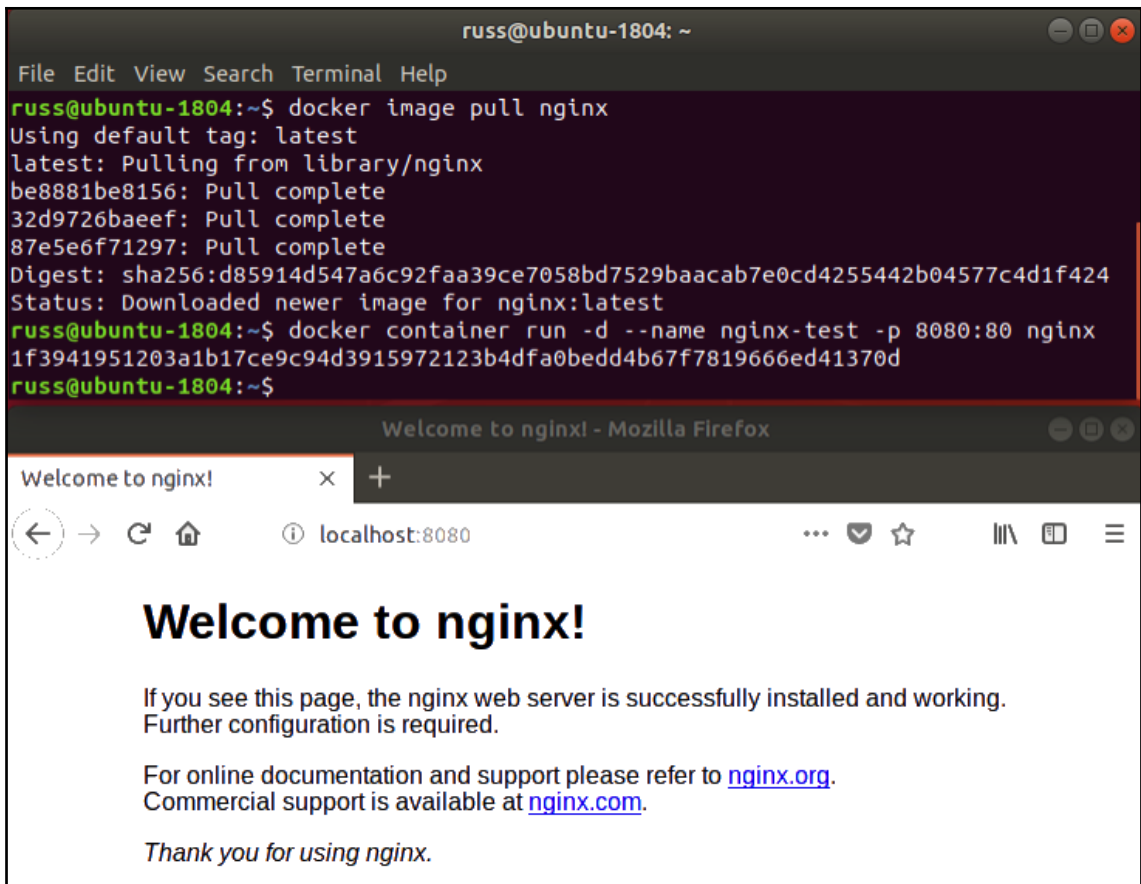
To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

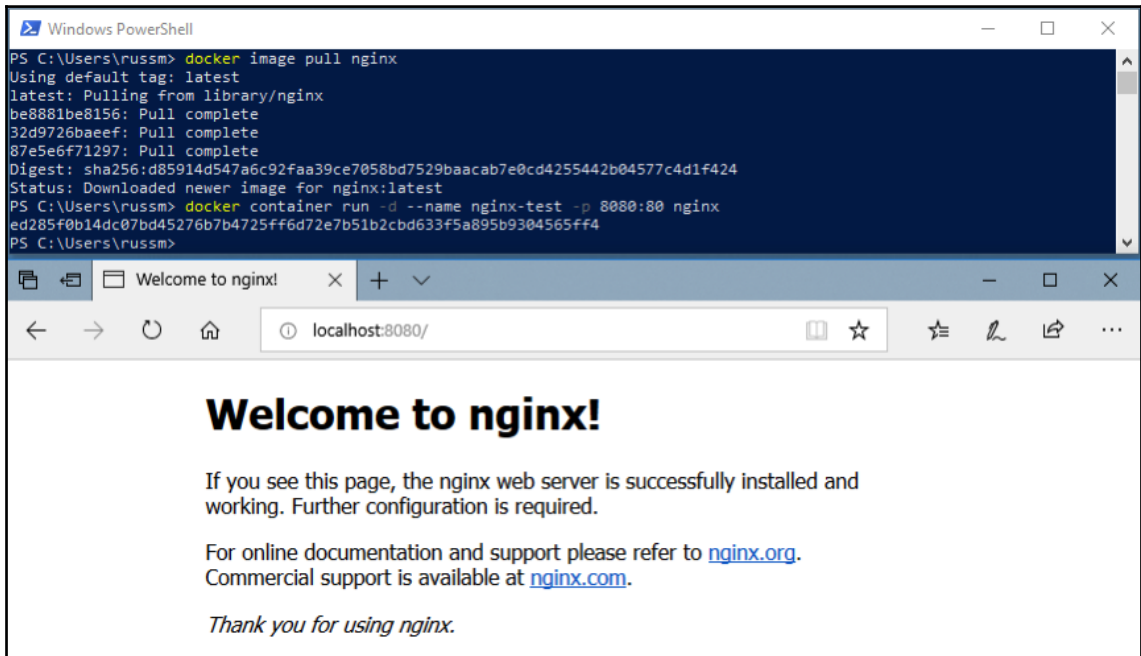
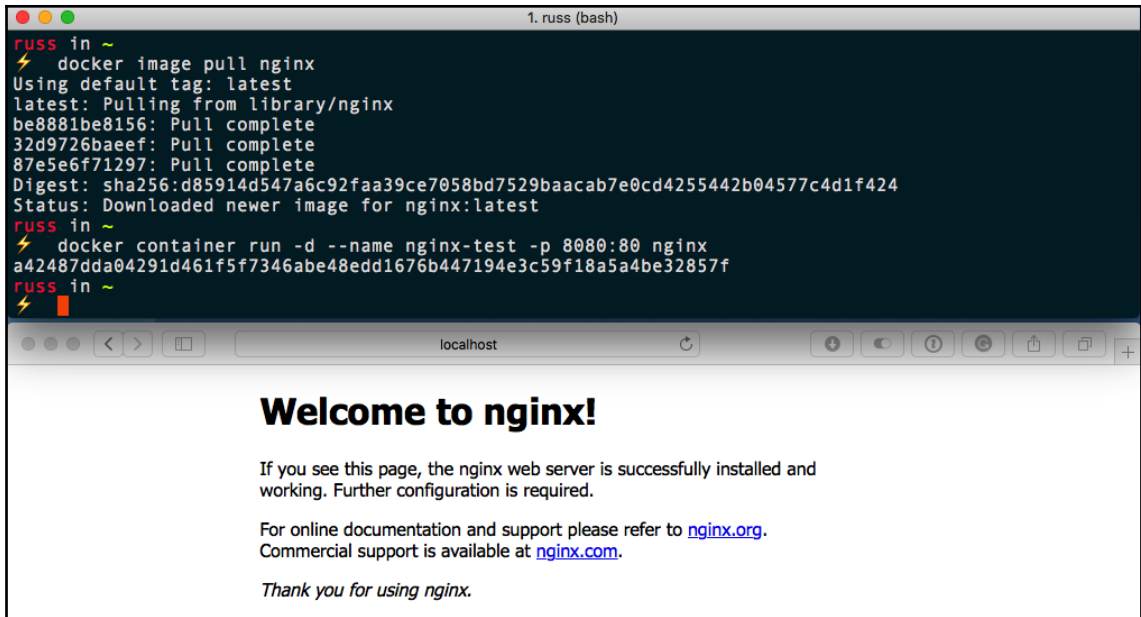
To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

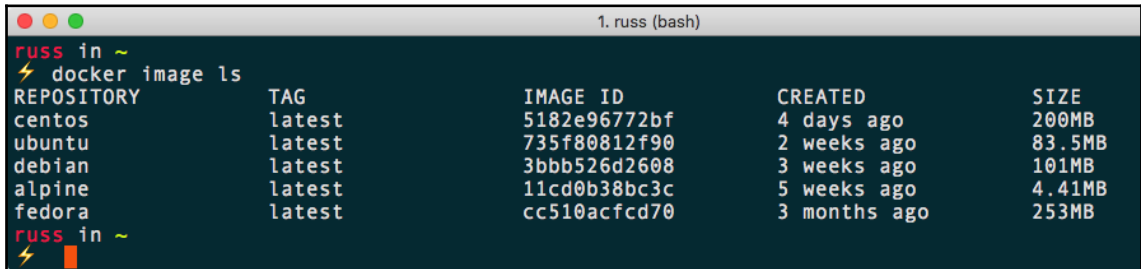
For more examples and ideas, visit:
https://docs.docker.com/engine/userguide/

russ in ~
⚡
```





Chapter 2: Building Container Images

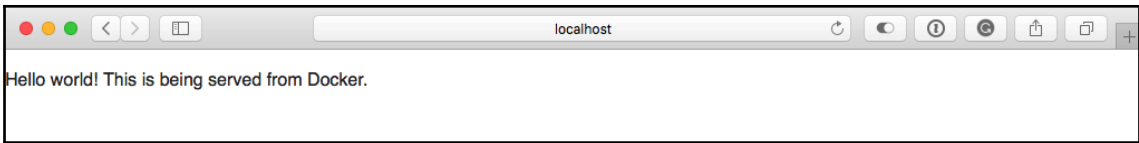


```
1. russ (bash)
russ in ~
⚡ docker image ls
REPOSITORY      TAG          IMAGE ID      CREATED      SIZE
centos          latest      5182e96772bf  4 days ago  200MB
ubuntu         latest      735f80812f90  2 weeks ago  83.5MB
debian         latest      3bbb526d2608  3 weeks ago  101MB
alpine         latest      11cd0b38bc3c  5 weeks ago  4.41MB
fedora         latest      cc510acfd70   3 months ago 253MB
russ in ~
⚡
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
centos	latest	5182e96772bf	4 days ago	200MB
ubuntu	latest	735f80812f90	2 weeks ago	83.5MB
debian	latest	3bbb526d2608	3 weeks ago	101MB
alpine	latest	11cd0b38bc3c	5 weeks ago	4.41MB
fedora	latest	cc510acfd70	3 months ago	253MB

```
1. dockerfile-example (bash)
russ in ~/dockerfile-example
⚡ docker image build --tag local:dockerfile-example .
Sending build context to Docker daemon 64.51kB
Step 1/10 : FROM alpine:latest
latest: Pulling from library/alpine
8e3ba11ec2a2: Pull complete
Digest: sha256:7043076348bf5040220df6ad703798fd8593a0918d06d3ce30c6c93be117e430
Status: Downloaded newer image for alpine:latest
--> 11cd0b38bc3c
Step 2/10 : LABEL maintainer="Russ McKendrick <russ@mkendrick.io>"
--> Running in 0fc28722a520
Removing intermediate container 0fc28722a520
--> 175e9ebf182b
Step 3/10 : LABEL description="This example Dockerfile installs NGINX."
--> Running in c9661895cc21
Removing intermediate container c9661895cc21
--> f873708c344e
Step 4/10 : RUN apk add --update nginx &&          rm -rf /var/cache/apk/* &&          mkdir -p /tmp/n
ginx/
--> Running in b51d3a72bcf4
fetch http://dl-cdn.alpinelinux.org/alpine/v3.8/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.8/community/x86_64/APKINDEX.tar.gz
(1/2) Installing pcre (8.42-r0)
(2/2) Installing nginx (1.14.0-r0)
Executing nginx-1.14.0-r0.pre-install
Executing busybox-1.28.4-r0.trigger
OK: 6 MiB in 15 packages
Removing intermediate container b51d3a72bcf4
--> cdde81ede21f
Step 5/10 : COPY files/nginx.conf /etc/nginx/nginx.conf
--> 7c3d18fc2d52
Step 6/10 : COPY files/default.conf /etc/nginx/conf.d/default.conf
--> b3f0a2c8ee9f
Step 7/10 : ADD files/html.tar.gz /usr/share/nginx/
--> f50c27251261
Step 8/10 : EXPOSE 80/tcp
--> Running in 7b8260da897f
Removing intermediate container 7b8260da897f
--> d733d1be33d8
Step 9/10 : ENTRYPOINT ["nginx"]
--> Running in 7de63240994f
Removing intermediate container 7de63240994f
--> 67ef02c8b597
Step 10/10 : CMD ["-g", "daemon off;"]
--> Running in c364b5ffeb38
Removing intermediate container c364b5ffeb38
--> 105391287800
Successfully built 105391287800
Successfully tagged local:dockerfile-example
russ in ~/dockerfile-example
⚡
```

```
1. dockerfile-example (bash)
russ in ~/dockerfile-example
⚡ docker image ls
REPOSITORY          TAG                IMAGE ID           CREATED           SIZE
local                dockerfile-example 105391287800      About a minute ago 5.98MB
alpine              latest            11cd0b38bc3c      5 weeks ago      4.41MB
russ in ~/dockerfile-example
⚡
```



```
2. russ (bash)
russ in ~
⚡ docker container run --name nginx-version local:dockerfile-example -v
nginx version: nginx/1.14.0
russ in ~
⚡
```

```
2. russ (bash)
⚡
russ in ~
⚡ docker image inspect -f {{.Config.Labels}} local:dockerfile-example
map[description:This example Dockerfile installs NGINX. maintainer:Russ McKendrick <russ@mckendrick.io>]
russ in ~
⚡
```

```
2. russ (bash)
russ in ~
⚡ docker container run -it --name alpine-test alpine /bin/sh
/ # apk update
fetch http://dl-cdn.alpinelinux.org/alpine/v3.8/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.8/community/x86_64/APKINDEX.tar.gz
v3.8.0-62-gbca38d14cb [http://dl-cdn.alpinelinux.org/alpine/v3.8/main]
v3.8.0-56-g8ad5ad9f75 [http://dl-cdn.alpinelinux.org/alpine/v3.8/community]
OK: 9539 distinct packages available
/ # apk upgrade
(1/2) Upgrading busybox (1.28.4-r0 -> 1.28.4-r1)
Executing busybox-1.28.4-r1.post-upgrade
(2/2) Upgrading ssl_client (1.28.4-r0 -> 1.28.4-r1)
Executing busybox-1.28.4-r1.trigger
OK: 4 MiB in 13 packages
/ # apk add --update nginx
(1/2) Installing pcre (8.42-r0)
(2/2) Installing nginx (1.14.0-r0)
Executing nginx-1.14.0-r0.pre-install
Executing busybox-1.28.4-r1.trigger
OK: 6 MiB in 15 packages
/ # rm -rf /var/cache/apk/*
/ # mkdir -p /tmp/nginx/
/ # exit
russ in ~
⚡
```

```
2. broken-container (bash)
russ in ~/broken-container
⚡ tree
.
├── 2ace326a7bc18d72aed87b1104f3395fbba27efe31df890554d5c6a69e193670
│   ├── VERSION
│   ├── json
│   └── layer.tar
├── 4448fc791fd19fab8e438072bb09d83e69c03c5cd5758ec868a261e93b0b3841.json
├── 8f52818719ad48a0af558ae2a44eed3cb3fe080f13c9fbdc67ef15667af59196
│   ├── VERSION
│   ├── json
│   └── layer.tar
├── manifest.json
└── repositories


2 directories, 9 files
russ in ~/broken-container
⚡
```

```
2. scratch-example (bash)
russ in ~/scratch-example
⚡ docker image ls
REPOSITORY          TAG                IMAGE ID           CREATED            SIZE
local               fromscratch       022548c2a394      7 seconds ago    4.41MB
local               broken-container  4448fc791fd1      19 minutes ago   6.64MB
local               dockerfile-example 105391287800     About an hour ago 5.98MB
alpine              latest            11cd0b38bc3c      5 weeks ago      4.41MB
russ in ~/scratch-example
⚡
```

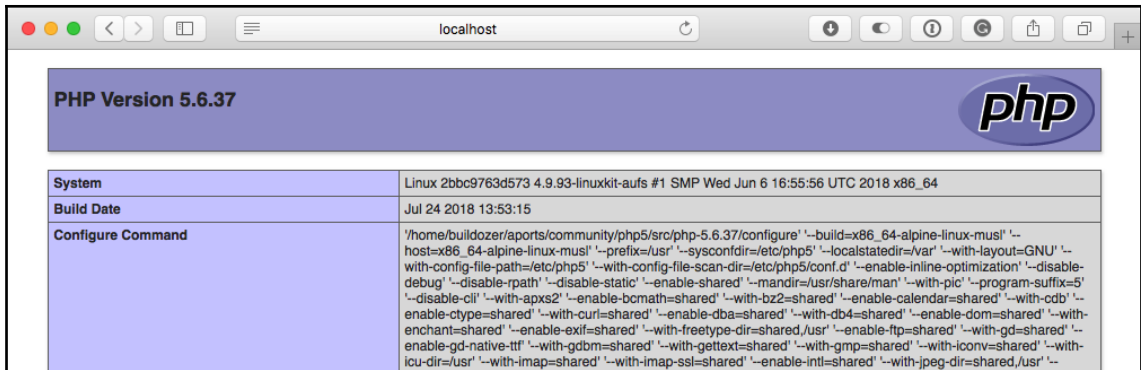


```
2. scratch-example (bash)
russ in ~/scratch-example
⚡ docker image build --tag local:fromscratch .
Sending build context to Docker daemon 2.162MB
Step 1/3 : FROM scratch
--->
Step 2/3 : ADD files/alpine-minirootfs-3.8.0-x86_64.tar.gz /
---> 912696cfa4b4
Step 3/3 : CMD ["/bin/sh"]
---> Running in 6803f18f6801
Removing intermediate container 6803f18f6801
---> ecbfa05074c0
Successfully built ecbfa05074c0
Successfully tagged local:fromscratch
russ in ~/scratch-example
⚡ docker container run -it --name alpine-test local:fromscratch /bin/sh
/ # cat /etc/*release
3.8.0
NAME="Alpine Linux"
ID=alpine
VERSION_ID=3.8.0
PRETTY_NAME="Alpine Linux v3.8"
HOME_URL="http://alpinelinux.org"
BUG_REPORT_URL="http://bugs.alpinelinux.org"
/ # exit
russ in ~/scratch-example
⚡
```

localhost

PHP Version 7.2.8 

System	Linux 8c2a7c7cea06 4.9.93-linuxkit-aufs #1 SMP Wed Jun 6 16:55:56 UTC 2018 x86_64
Build Date	Jul 28 2018 17:54:21
Configure Command	'./configure' '--build=x86_64-alpine-linux-musl' '--host=x86_64-alpine-linux-musl' '--prefix=/usr' '--program-suffix=' '--libdir=/usr/lib/php7' '--datadir=/usr/share/php7' '--sysconfdir=/etc/php7' '--localstatedir=/var' '--with-layout=GNU' '--with-pic' '--with-pear=/usr/share/php7' '--with-config-file-path=/etc/php7' '--with-config-file-scan-dir=/etc/php7/conf.d' '--disable-short-tags' '--enable-bcmath=shared' '--with-bz2=shared' '--enable-calendar=shared' '--enable-ctype=shared' '--with-curl=shared' '--enable-dba=shared' '--with-dbd4' '--with-dbmaker=shared' '--with-gdbm' '--enable-dom=shared' '--with-ldap=shared' '--enable-exif=shared' '--enable-fileinfo=shared' '--enable-ftp=shared' '--with-gd=shared' '--with-freetype-dir=/usr' '--disable-gd-jis-conv' '--with-jpeg-dir=/usr' '--with-png-dir=/usr' '--with-webp-dir=/usr' '--with-xpm-dir=/usr' '--with-gettext=shared' '--with-gmp=shared' '--with-iconv=shared' '--with-imagick=shared' '--with-ldap=shared' '--with-icu-dir=/usr' '--enable-intl=shared' '--enable-json=shared' '--with-kerberos'



```

1. env-example (bash)
russ in ~/env-example
⚡ docker image ls
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
local/apache-php    5            da34eaaff9541    3 minutes ago   32.8MB
local/apache-php    7            649b432e8d47     10 minutes ago  21.2MB
alpine              latest       11cd0b38bc3c     5 weeks ago     4.41MB
russ in ~/env-example
⚡

```

```

1. multi-stage (bash)
russ in ~/multi-stage
⚡ docker image ls
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
local               go-hello-world  67296001bdc0    45 seconds ago  6.56MB
<none>              <none>        247fcbfb7a4d     45 seconds ago  832MB
golang              latest       d0e7a411e3da     3 weeks ago     794MB
russ in ~/multi-stage
⚡

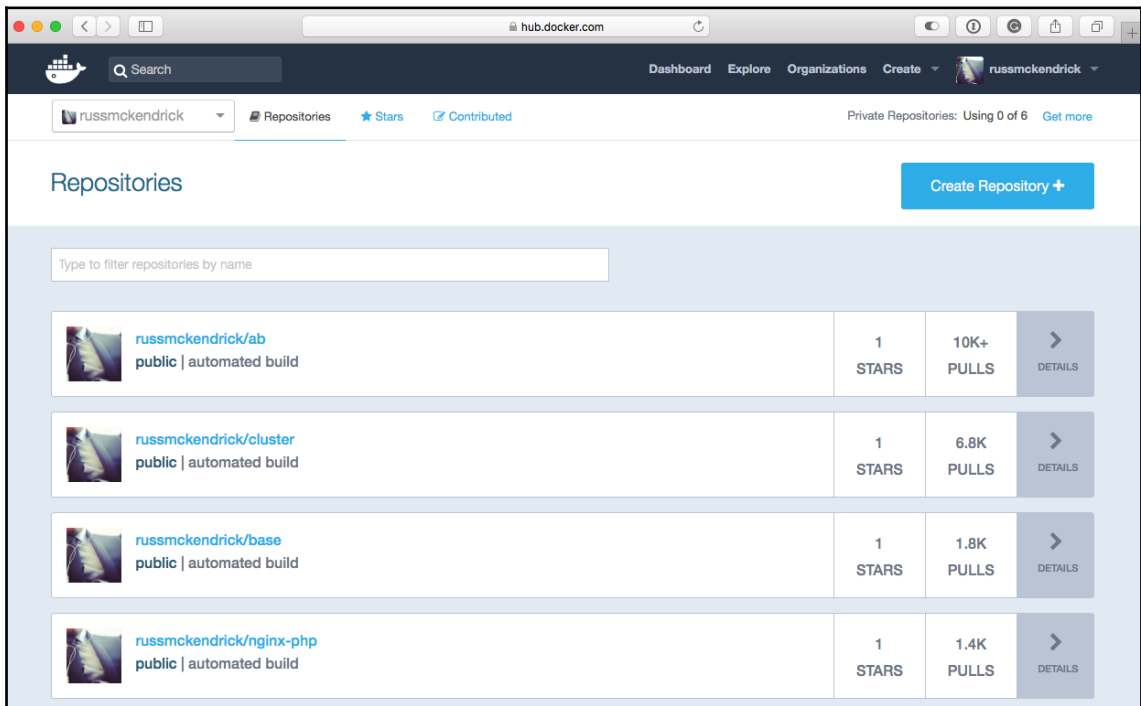
```

```

1. multi-stage (bash)
russ in ~/multi-stage
⚡ docker container run -d -p 8000:80 --name go-hello-world local:go-hello-world
85ba54ec9f35c857c717e97cf6ca14322a238b89212898008e6df9c1fd22f346
russ in ~/multi-stage
⚡ curl http://localhost:8000
Hello, world! You have called me 1 times.
russ in ~/multi-stage
⚡ curl http://localhost:8000
Hello, world! You have called me 2 times.
russ in ~/multi-stage
⚡ curl http://localhost:8000
Hello, world! You have called me 3 times.
russ in ~/multi-stage
⚡

```






Chapter 3: Storing and Distributing Images



hub.docker.com

Dashboard Explore Organizations Create russmckendrick

Explore Official Repositories


 nginx official	9.3K STARS	10M+ PULLS	DETAILS
 alpine official	4.1K STARS	10M+ PULLS	DETAILS
 busybox official	1.3K STARS	10M+ PULLS	DETAILS
 httpd official	1.9K STARS	10M+ PULLS	DETAILS
 redis official	5.6K STARS	10M+ PULLS	DETAILS

hub.docker.com

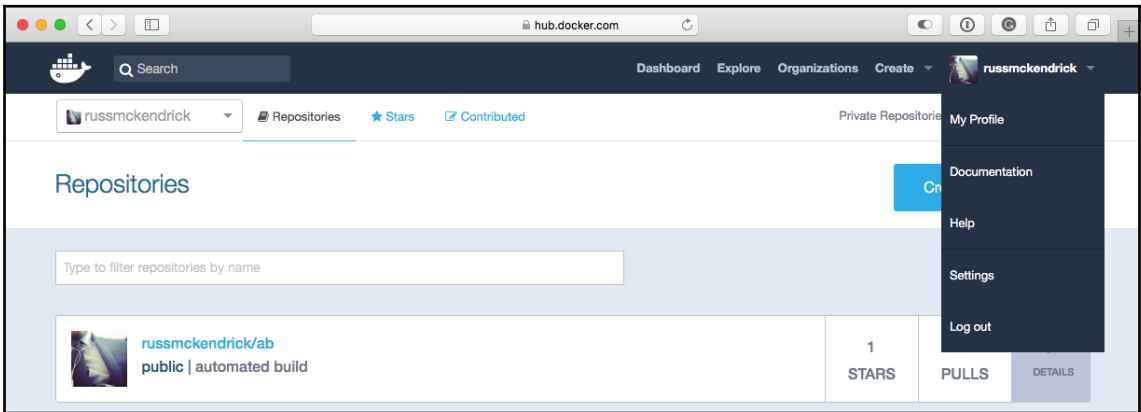
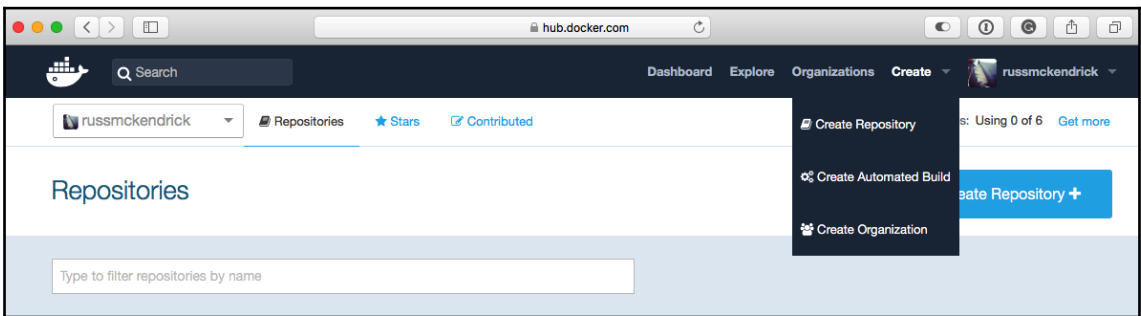
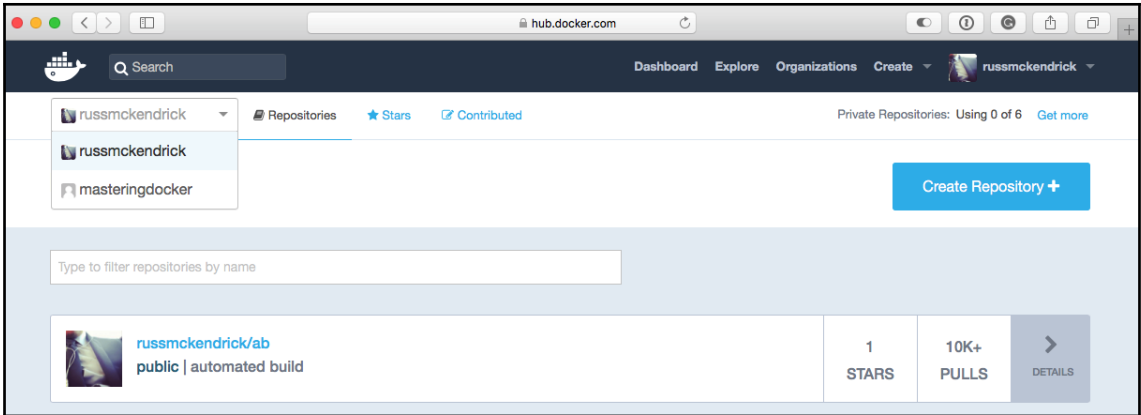
Dashboard Explore Organizations Create russmckendrick

Organizations & Teams

[Create Organization +](#)



masteringdocker



hub.docker.com

Account Settings

Default Repository Visibility

Update the default visibility for your repositories.

public private

Email Addresses

This email address will be used for all notifications and correspondence from Docker.

If you wish to designate a different email address as primary, first add a new address to your account and then click "make primary".




New Email [Add Email](#)

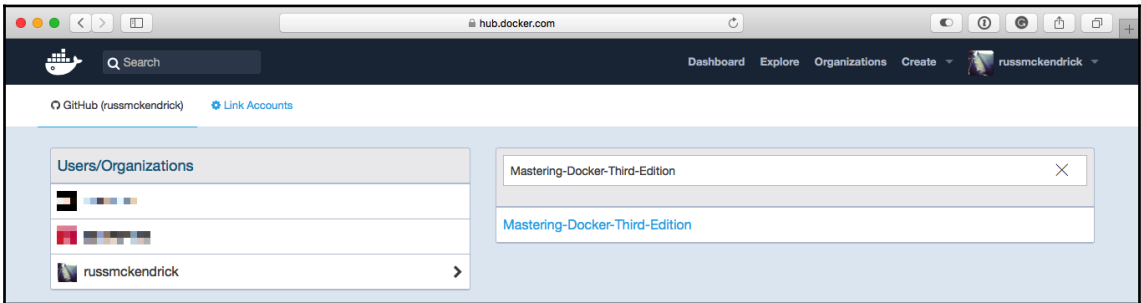
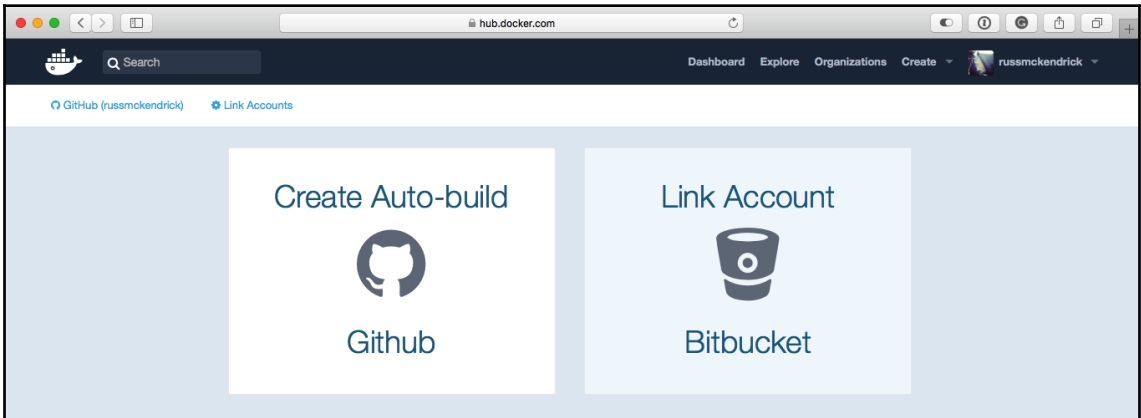
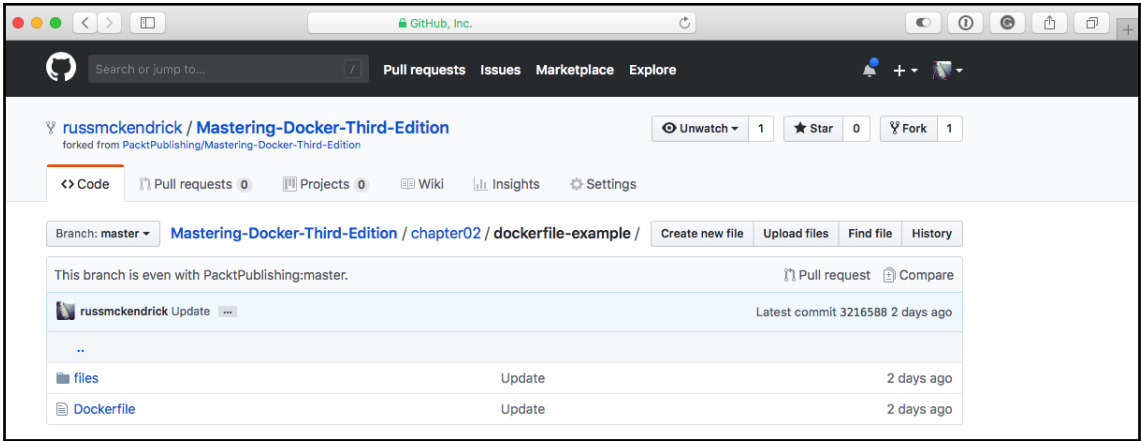
russ@mckendrick.io	verified	primary
--------------------	----------	---------

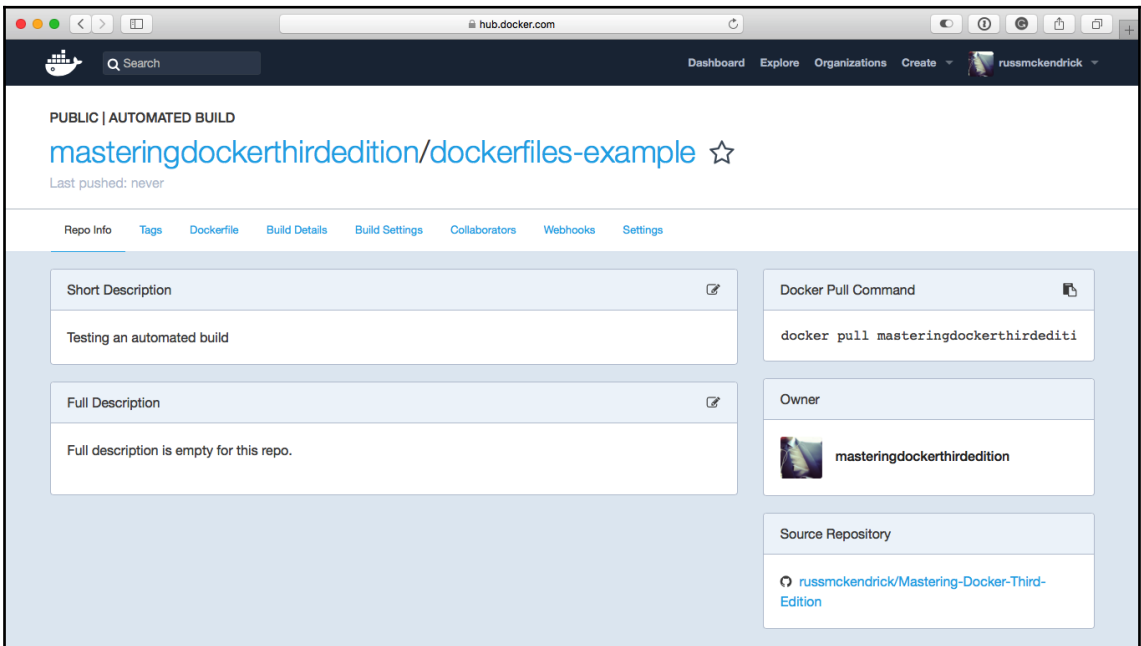
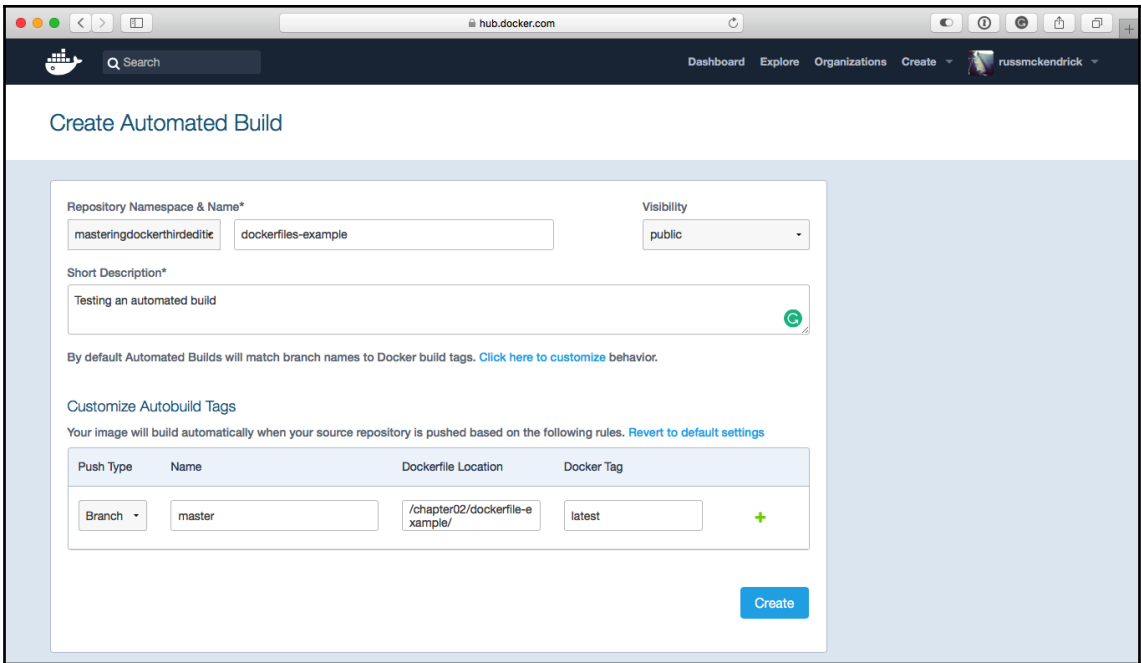
hub.docker.com

Repositories

Private Repositories: Using 0 of 6 [Get more](#)

 alpine official	4.1K STARS	10M+ PULLS	DETAILS
 jenkins official	3.7K STARS	10M+ PULLS	DETAILS
 nginx official	9.3K STARS	10M+ PULLS	DETAILS





hub.docker.com

Dashboard Explore Organizations Create russmckendrick

PUBLIC | AUTOMATED BUILD

masteringdockerthirdedition/dockerfiles-example ☆

Last pushed: never

Repo Info Tags Dockerfile Build Details **Build Settings** Collaborators Webhooks Settings

Build Settings

When active, builds will happen automatically on pushes.

The build rules below specify how to build your source into Docker images. The name can be a string or a regex. The Docker Tag name may contain variables. We currently support {sourcerefl}, which refers to the source branch/tag name. [Show more](#)

Source Repository
russmckendrick/Mastering-Docker-Third-Edition

Type	Name	Dockerfile Location	Docker Tag Name	
Branch	master	/chapter02/dockerfile-example/	latest	+ Trigger

Save Changes

Repository Links

Link your Automated Build to another Docker Hub repository, and when that repository is updated, it will automatically trigger a rebuild of this Automated Build.

Repository Name

Ex. ubuntu or username/reponame [Add Repository Link](#)

Linked Repositories

alpine ✕

hub.docker.com

Dashboard Explore Organizations Create russmckendrick

PUBLIC | AUTOMATED BUILD

masteringdockerthirdedition/dockerfiles-example ☆

Last pushed: 2 minutes ago

Repo Info Tags Dockerfile Build Details Build Settings Collaborators Webhooks Settings

SourceRef	Dockerfile Location	Docker Tag	Build Created	UTC
master	/chapter02/dockerfile-example/	latest	4 minutes ago	2018-08-18T13:02:40.441Z

Build Code

bw4bnptv5tuvfbyuet5ged

README

Mastering-Docker-Third-Edition

Mastering Docker Third Edition, published by Packt

Dockerfile

```

FROM alpine:latest
LABEL maintainer="Russ McKendrick <russ@mckendrick.io>"
LABEL description="This example Dockerfile installs NGINX."
RUN apk add --update nginx && \
    rm -rf /var/cache/apk/* && \
    mkdir -p /tmp/nginx/

COPY files/nginx.conf /etc/nginx/nginx.conf
COPY files/default.conf /etc/nginx/conf.d/default.conf
ADD files/html.tar.gz /usr/share/nginx/

EXPOSE 80/tcp

ENTRYPOINT ["nginx"]
CMD ["-g", "daemon off;"]

```

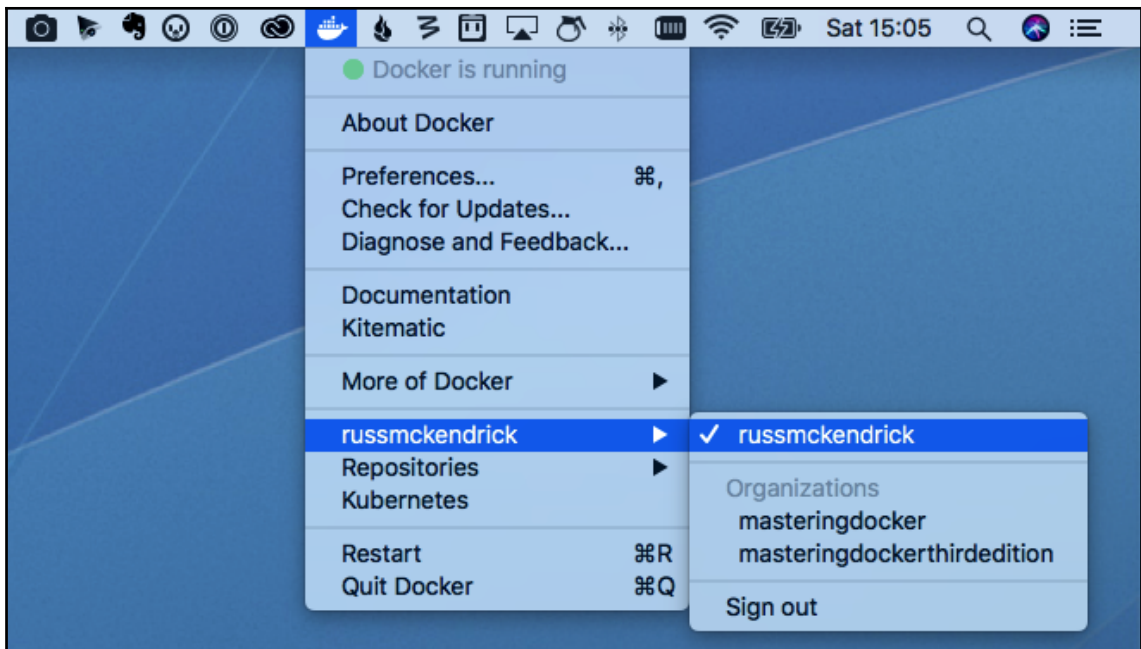
```

1. russ (bash)
russ in ~
⚡ docker image pull masteringdockerthirdedition/dockerfiles-example
Using default tag: latest
latest: Pulling from masteringdockerthirdedition/dockerfiles-example
8e3b11ec2a2: Pull complete
804d752b2ca8: Pull complete
4dc9a20ee370: Pull complete
076d066bc557: Pull complete
27e551acb8e3: Pull complete
Digest: sha256:cc8a08cea2ff7187bb26fe0a91db6287f74f12f1ce7876162394d18ce5218759
Status: Downloaded newer image for masteringdockerthirdedition/dockerfiles-example:latest
russ in ~
⚡ docker image ls
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
masteringdockerthirdedition/dockerfiles-example  latest      9f9d8001433b     6 minutes ago   5.98MB

```

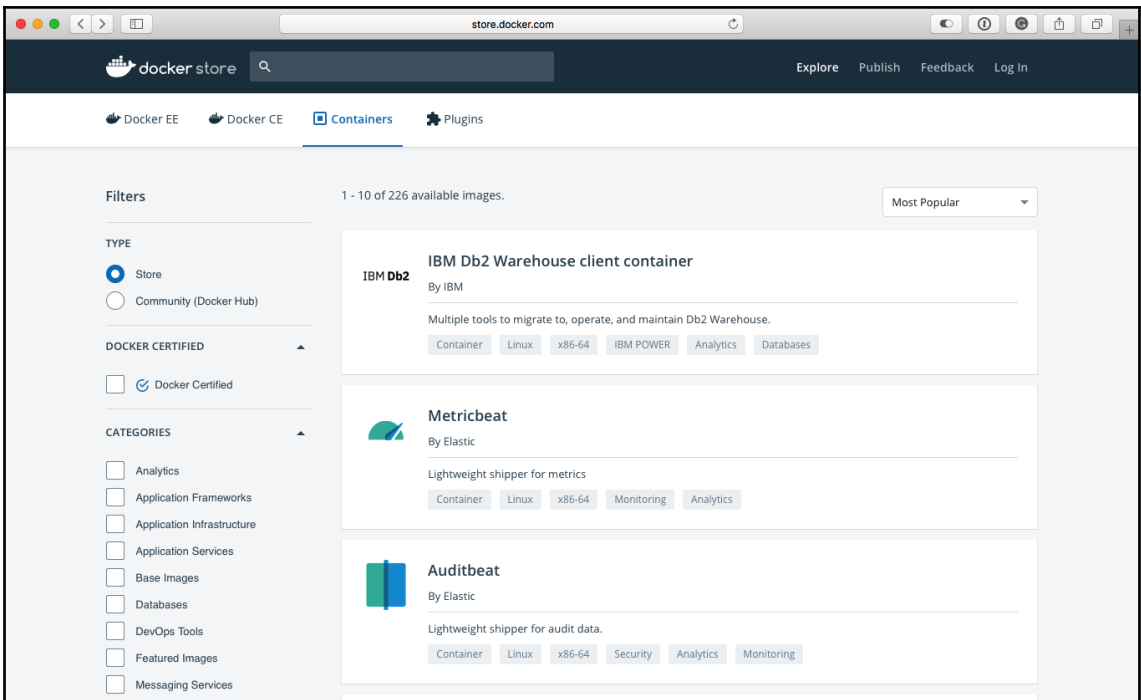
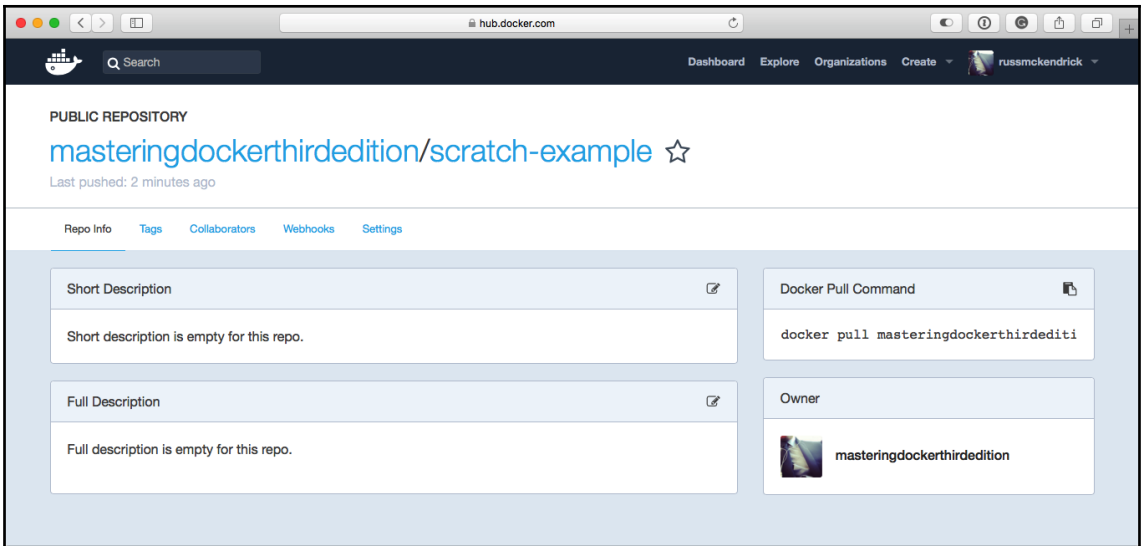
```
1. russ (bash)
russ in ~
⚡ docker image pull masteringdockerthirdedition/multi-stage
Using default tag: latest
latest: Pulling from masteringdockerthirdedition/multi-stage
343e93d2580b: Pull complete
Digest: sha256:f9a557aa3afab8dc4cedffdd3fa147dbccadde7f523bbd52afb8e4fbf5e60d1d
Status: Downloaded newer image for masteringdockerthirdedition/multi-stage:latest
russ in ~
⚡ docker image ls
REPOSITORY                                TAG      IMAGE ID      CREATED        SIZE
masteringdockerthirdedition/multi-stage   latest   bf3498b1f51e  7 minutes ago  6.56MB
masteringdockerthirdedition/dockerfiles-example latest   9f9d8001433b  25 minutes ago 5.98MB
russ in ~
⚡ docker container run -d -p 8000:80 --name go-hello-world masteringdockerthirdedition/multi-stage
a7470f791d945cc3c6f98ca0f774e56316c62baf282b4a50cd9f0d9d10d2decd
russ in ~
⚡ curl http://localhost:8000/
Hello, world! You have called me 1 times.
russ in ~
⚡ curl http://localhost:8000/
Hello, world! You have called me 2 times.
russ in ~
⚡ curl http://localhost:8000/
Hello, world! You have called me 3 times.
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: russmckendrick
Password:
Login Succeeded
russ in ~
⚡
```



```
1. scratch-example (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter02/scratch-example on master*
⚡ docker build --tag masteringdockerthirdedition/scratch-example:latest .
Sending build context to Docker daemon 2.164MB
Step 1/3 : FROM scratch
---->
Step 2/3 : ADD files/alpine-minirootfs-3.8.0-x86_64.tar.gz /
----> ec5b979e9e1b
Step 3/3 : CMD ["/bin/sh"]
----> Running in 4883b3f7db8e
Removing intermediate container 4883b3f7db8e
----> 68ed06a96dc8
Successfully built 68ed06a96dc8
Successfully tagged masteringdockerthirdedition/scratch-example:latest
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter02/scratch-example on master*
⚡
```

```
1. scratch-example (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter02/scratch-example on master*
⚡ docker image push masteringdockerthirdedition/scratch-example:latest
The push refers to repository [docker.io/masteringdockerthirdedition/scratch-example]
44c9e724ca91: Pushed
latest: digest: sha256:aa4376968e47dfc2c4b95dcb057f7a16bf1f421552b80f165408f4cabad84a2b size: 528
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter02/scratch-example on master*
⚡
```



NetScaler CPX Express Rel 12.0
By Citrix Systems
Free, Full-featured, microservice aware, load balancer in a Docker container

Express - Experimental
\$0.00

Limited to 20Mbps, 250 SSL connections, experimental build. Supports Kubernetes use cases.
[Terms of Service](#)

[Setup Instructions](#)

DESCRIPTION REVIEWS RESOURCES

Release 12.0 is an experimental build of CPX Express.

This build supports multicore capabilities when licensed and Kubernetes ingress and East-West use cases.

CPX is NetScaler in a container form factor. It is built from the same code base as the NetScaler ADC and is packaged as a Docker container. CPX joins NetScaler VPX, MPX, and SDX in providing a cloud-ready ADC with a consistent set of ADC services to application developers and network operations teams unified through a single API, management console and policies that can run on premise and in the cloud. It is a designed to be inserted early in the application development process to ease deployment of applications into production.

New enhancements include:

Average Rating: ★★★★★ 3 Ratings

Add Product Review

Select a product tier

[Start Your Review](#)

```

1. russ (bash)
⚡ docker image pull alpine
Using default tag: latest
latest: Pulling from library/alpine
8e3ba11ec2a2: Pull complete
Digest: sha256:7043076348bf5040220df6ad703798fd8593a0918d06d3ce30c6c93be117e430
Status: Downloaded newer image for alpine:latest
russ in ~
⚡ docker image tag alpine localhost:5000/localalpine
russ in ~
⚡ docker image push localhost:5000/localalpine
The push refers to repository [localhost:5000/localalpine]
73046094a9b8: Pushed
latest: digest: sha256:0873c923e00e0fd2ba78041bfb64a105e1ecb7678916d1f7776311e45bf5634b size: 528
russ in ~
⚡

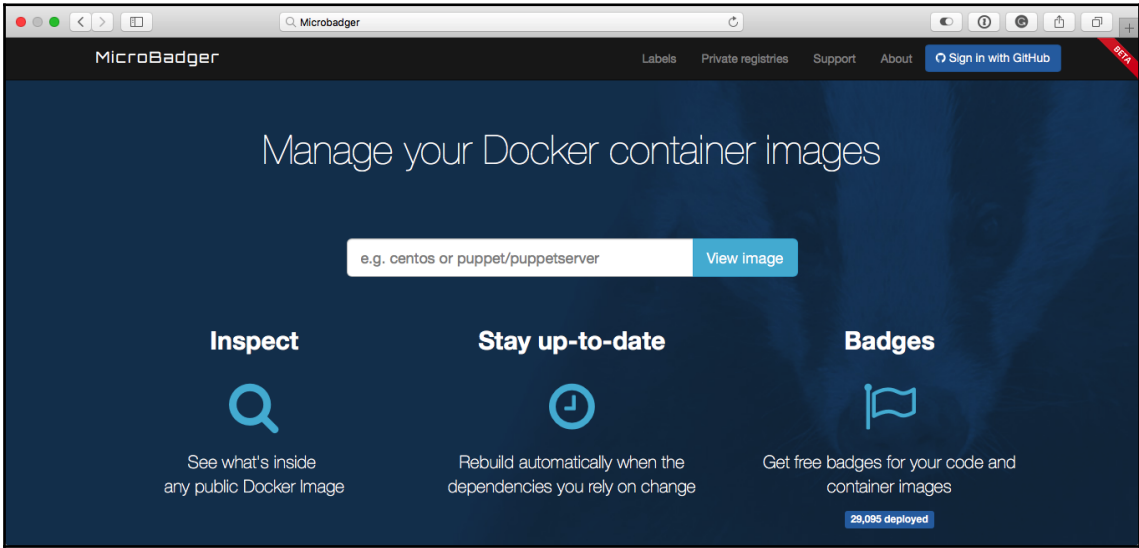
```

```

1. russ (bash)
russ in ~
⚡ docker image ls
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
registry            2           b2b03e9146e1     6 weeks ago     33.3MB
alpine              latest      11cd0b38bc3c     6 weeks ago     4.41MB
localhost:5000/localalpine latest      11cd0b38bc3c     6 weeks ago     4.41MB
russ in ~
⚡

```

```
1. russ (bash)
⚡ docker image pull localhost:5000/localalpine
Using default tag: latest
latest: Pulling from localalpine
8e3ba11ec2a2: Pull complete
Digest: sha256:0873c923e00efd2ba78041bfb64a105e1ecb7678916d1f7776311e45bf5634b
Status: Downloaded newer image for localhost:5000/localalpine:latest
russ in ~
⚡ docker image ls
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
registry            2           b2b03e9146e1     6 weeks ago     33.3MB
localhost:5000/localalpine  latest      11cd0b38bc3c     6 weeks ago     4.41MB
russ in ~
```



Tags	latest	
Created	August 18, 2018 at 02:04 PM	
ID	0a4550291e2c	
Download Size	2.7 MB	
Labels	description	This example Dockerfile installs NGINX.
	maintainer	Russ McKendrick
Layers	11	
2.1 MB	alpine latest 3.8 What's this? ⊖	
	2.1 MB	ADD file:25f61d70254b9807a40cd3e8d820f6a5ec0e1e596de... ⊕ CMD ["/bin/sh"]
		LABEL maintainer=Russ McKendrick <russ@[hidden]> LABEL description=This example Dockerfile installs NGINX.
593.9 kB		RUN apk add --update nginx && rm -rf /var/cache/apk/* && ... ⊕
469 bytes		COPY file:8ff7c7beb9deecfa31f0c6195259b5243a1272f15ac19a764f9f42a90e... ⊕
227 bytes		COPY file:64bccf9179ad1e5406ffdb640165365156d9087827c07b6ecd12a1f8cc... ⊕
58.6 kB		ADD file:699e394e86a275ff92881a77ebf1c95b1eec06eebb68f369ce3a89ae46e... ⊕
		EXPOSE 80/tcp
		ENTRYPOINT ["nginx"]
32 bytes		CMD ["-g" "daemon off;"]

hub.docker.com


Dashboard Explore Organizations Create russmckendrick

PUBLIC | AUTOMATED BUILD


russmckendrick/ab ☆

Last pushed: 5 months ago


Repo Info Tags Dockerfile Build Details Build Settings Collaborators Webhooks Settings

Short Description 

Runs Apache Bench

Docker Pull Command 

```
docker pull russmckendrick/ab
```

Full Description 

Apache Bench


5.9MB 7 layers

A Docker build that installs Apache Bench.


Useage

First of all launch a web server;

Owner

 russmckendrick

Source Repository

 russmckendrick/docker

Chapter 4: Managing Containers

```
1. russ (bash)
russ in ~
⚡ docker container run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
9db2ca6ccae0: Pull complete
Digest: sha256:4b8ff392a12ed9ea17784bd3c9a8b1fa3299cac44aca35a85c90c5e3c7afacdc
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/engine/userguide/

russ in ~
⚡ █
```

```
1. russ (bash)
russ in ~
⚡ docker container ls
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
russ in ~
⚡ docker container ls -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
fe3b75d70958       hello-world        "/hello"           6 minutes ago      Exited (0) 6 minutes ago           pensive_hermann
russ in ~
⚡ █
```

```
1. russ (bash)
russ in ~
⚡ docker container run -d --name nginx-test -p 8080:80 nginx
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
be8881be8156: Pull complete
32d9726baeef: Pull complete
87e5e6f71297: Pull complete
Digest: sha256:d85914d547a6c92faa39ce7058bd7529baacab7e0cd4255442b04577c4d1f424
Status: Downloaded newer image for nginx:latest
3f2ce315a006373c075ba7feb35c1368362356cb5fe6837acf80b77da9ed053b
russ in ~
⚡ docker image ls
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
nginx                latest       c82521676580     4 weeks ago     109MB
hello-world         latest       2cb0d9787c4d     6 weeks ago     1.85kB
```

```
1. russ (bash)
russ in ~
⚡ docker container ls
CONTAINER ID        IMAGE          NAMES             COMMAND          CREATED          STATUS
PORTS              NAMES
3f2ce315a006       nginx         nginx-test        "nginx -g 'daemon of..." 5 minutes ago    Up 5 minutes
0.0.0.0:8080->80/tcp
```

```
1. russ (bash)
russ in ~
⚡ docker container run --name nginx-foreground -p 9090:80 nginx
172.17.0.1 - - [25/Aug/2018:13:52:40 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:13:52:41 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:13:52:41 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:13:52:42 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:13:52:42 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:13:52:43 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
^Cruss in ~
```

```
1. russ (bash)
russ in ~
⚡ docker container ls -a
CONTAINER ID        IMAGE          COMMAND          CREATED          STATUS
PORTS              NAMES
c129694dcca9       nginx         "nginx -g 'daemon of..." About a minute ago    Exited (0) Abo
ut a minute ago
3f2ce315a006       nginx         "nginx -g 'daemon of..." 16 minutes ago      Up 16 minutes
0.0.0.0:8080->80/tcp nginx-test
```

```
1. russ (bash)
russ in ~
⚡ docker container attach nginx-test
172.17.0.1 - - [25/Aug/2018:17:12:36 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:12:43 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:12:44 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:12:44 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
^Cruss in ~
⚡
```

```
1. russ (bash)
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:24:23 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
^C
russ in ~
⚡ docker container ls
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS
PORTS
3f2ce315a006       nginx              "nginx -g 'daemon of..." 4 hours ago        Up 32 seconds
0.0.0.0:8080->80/tcp nginx-test
```

```
1. russ (bash)
russ in ~
⚡ docker container exec nginx-test cat /etc/debian_version
9.5
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ docker container exec -i -t nginx-test /bin/bash
root@3f2ce315a006:/# whoami
root
root@3f2ce315a006:/# ls -lhat /usr/share/nginx/html/
total 16K
drwxr-xr-x 2 root root 4.0K Jul 24 17:21 .
drwxr-xr-x 3 root root 4.0K Jul 24 17:21 ..
-rw-r--r-- 1 root root 537 Jul 24 13:02 50x.html
-rw-r--r-- 1 root root 612 Jul 24 13:02 index.html
root@3f2ce315a006:/# exit
exit
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ docker container logs --tail 5 nginx-test
172.17.0.1 - - [25/Aug/2018:17:12:44 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:12:44 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:24:21 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:24:22 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:24:23 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ docker container logs --since 2018-08-25T18:00 nginx-test
172.17.0.1 - - [25/Aug/2018:17:12:36 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:12:43 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:12:44 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:24:21 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:12:44 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:24:22 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
172.17.0.1 - - [25/Aug/2018:17:24:23 +0000] "GET / HTTP/1.1" 200 612 "-" "Mozilla/5.0 (Macintosh; In
tel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/11.1.2 Safari/605.1.15" "-"
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ date
Sat 25 Aug 2018 18:51:14 BST
russ in ~
⚡ docker container exec nginx-test date
Sat Aug 25 17:51:20 UTC 2018
russ in ~
```

```
1. russ (bash)
russ in ~
⚡ docker container logs --since 2018-08-25T18:00 -t nginx-test
2018-08-25T17:12:36.745959700Z 172.17.0.1 - - [25/Aug/2018:17:12:36 +0000] "GET / HTTP/1.1" 200 612
"- " "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Versio
n/11.1.2 Safari/605.1.15" "-"
2018-08-25T17:12:43.384358700Z 172.17.0.1 - - [25/Aug/2018:17:12:43 +0000] "GET / HTTP/1.1" 200 612
"- " "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Versio
n/11.1.2 Safari/605.1.15" "-"
2018-08-25T17:12:44.002575600Z 172.17.0.1 - - [25/Aug/2018:17:12:44 +0000] "GET / HTTP/1.1" 200 612
"- " "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Versio
n/11.1.2 Safari/605.1.15" "-"
2018-08-25T17:12:44.658342600Z 172.17.0.1 - - [25/Aug/2018:17:12:44 +0000] "GET / HTTP/1.1" 200 612
"- " "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Versio
n/11.1.2 Safari/605.1.15" "-"
2018-08-25T17:24:21.322233500Z 172.17.0.1 - - [25/Aug/2018:17:24:21 +0000] "GET / HTTP/1.1" 200 612
"- " "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Versio
n/11.1.2 Safari/605.1.15" "-"
2018-08-25T17:24:22.272263400Z 172.17.0.1 - - [25/Aug/2018:17:24:22 +0000] "GET / HTTP/1.1" 200 612
"- " "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Versio
n/11.1.2 Safari/605.1.15" "-"
2018-08-25T17:24:23.127981500Z 172.17.0.1 - - [25/Aug/2018:17:24:23 +0000] "GET / HTTP/1.1" 200 612
"- " "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Versio
n/11.1.2 Safari/605.1.15" "-"
russ in ~
```

```
1. russ (bash)
russ in ~
⚡ docker container top nginx-test
PID          USER      TIME      COMMAND
3641         root      0:00      nginx: master process nginx -g daemon of
f;
3681         101      0:00      nginx: worker process
russ in ~
```

```
1. russ (docker)
CONTAINER ID   NAME      CPU %     MEM USAGE / LIMIT   MEM %     NET I/O     BLOCK I/O   PIDS
3f2ce315a006  nginx-test  0.00%    1.973MiB / 1.952GiB  0.10%    3.38kB / 3.28kB  0B / 0B     2
```

```

1. russ (docker)
CONTAINER ID   NAME                CPU %     MEM USAGE / LIMIT   MEM %     NET I/O       BLOCK I/O    PIDS
4bcd5f42d127  nginx-foreground   0.00%    0B / 0B              0.00%     0B / 0B       0B / 0B      0
3f2ce315a006  nginx-test         0.00%    1.973MiB / 1.952GiB  0.10%     3.45kB / 3.28kB 0B / 0B      2

```

```

1. russ (docker)
CONTAINER ID   NAME                CPU %     MEM USAGE / LIMIT   MEM %     NET I/O       BLOCK I/O    PIDS
3f2ce315a006  nginx-test         0.00%    1.973MiB / 128MiB   1.54%     3.45kB / 3.28kB 0B / 0B      2

```

```

2. russ (bash)
russ in ~
⚡ docker containerls -a
CONTAINER ID   PORTS                IMAGE                COMMAND                CREATED          STATUS
82a17e3498cf  80/tcp              nginx               "nginx -g 'daemon of..." 29 seconds ago  Exited (0) 23 s
econds ago
dacbe86b1fc2  0.0.0.0:8080->80/tcp nginx-test          "nginx -g 'daemon of..." 36 seconds ago  Up 34 seconds
russ in ~

```

```

2. russ (bash)
russ in ~
⚡ docker container ls -a
CONTAINER ID   PORTS                IMAGE                COMMAND                CREATED          STATUS
8bbb030d9f55  80/tcp              nginx               "nginx -g 'daemon of..." 10 seconds ago  Up 8 seconds
a7eac49adcea  80/tcp              nginx               "nginx -g 'daemon of..." 10 seconds ago  Up 9 seconds
f0672f36429c  80/tcp              nginx               "nginx -g 'daemon of..." 11 seconds ago  Up 10 seconds
857124804f47  80/tcp              nginx               "nginx -g 'daemon of..." 12 seconds ago  Up 10 seconds
4797bc9ee18b  80/tcp              nginx               "nginx -g 'daemon of..." 12 seconds ago  Up 11 seconds
82a17e3498cf  80/tcp              nginx               "nginx -g 'daemon of..." 2 minutes ago   Exited (0) 2 mi
nutes ago
dacbe86b1fc2  0.0.0.0:8080->80/tcp nginx-test          "nginx -g 'daemon of..." 2 minutes ago   Up 2 minutes
russ in ~

```

```

1. russ (bash)
russ in ~
⚡ docker container ls
CONTAINER ID   PORTS                IMAGE                COMMAND                CREATED          STATUS
8bbb030d9f55  80/tcp              nginx               "nginx -g 'daemon of..." 14 minutes ago  Up 14 minutes
a7eac49adcea  80/tcp              nginx               "nginx -g 'daemon of..." 14 minutes ago  Up 14 minutes
f0672f36429c  80/tcp              nginx               "nginx -g 'daemon of..." 14 minutes ago  Up 14 minutes
857124804f47  80/tcp              nginx               "nginx -g 'daemon of..." 14 minutes ago  Up 14 minutes
4797bc9ee18b  80/tcp              nginx               "nginx -g 'daemon of..." 14 minutes ago  Up 14 minutes (
Paused)
dacbe86b1fc2  0.0.0.0:8080->80/tcp nginx-test          "nginx -g 'daemon of..." 16 minutes ago  Up 16 minutes
russ in ~

```

```

1. russ (bash)
CONTAINER ID        IMAGE               COMMAND              CREATED            STATUS
8bbb030d9f55      nginx              "nginx -g 'daemon of..." 23 minutes ago    Exited (137) 29
seconds ago
a7eac49adcea      nginx              "nginx -g 'daemon of..." 23 minutes ago    Up 23 minutes
80/tcp
f0672f36429c      nginx              "nginx -g 'daemon of..." 23 minutes ago    Up 23 minutes
80/tcp
857124804f47      nginx              "nginx -g 'daemon of..." 23 minutes ago    Up 44 seconds
80/tcp
4797bc9ee18b      nginx              "nginx -g 'daemon of..." 23 minutes ago    Up 23 minutes (
Paused)
80/tcp
82a17e3498cf      nginx              "nginx -g 'daemon of..." 25 minutes ago    Exited (0) 25 m
inutes ago
dacbe86b1fc2      nginx              "nginx -g 'daemon of..." 25 minutes ago    Up 25 minutes
0.0.0.0:8080->80/tcp
nginx-test
russ in ~

```

```

1. russ (bash)
russ in ~
⚡ docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
8bbb030d9f55af92c6739af0a85c078df101f2764e592310ff18894014aa92e5
82a17e3498cf1c7c8f77a163735588d2fa63624997e985fb6134a5913de75191

Total reclaimed space: 2B
russ in ~

```

```

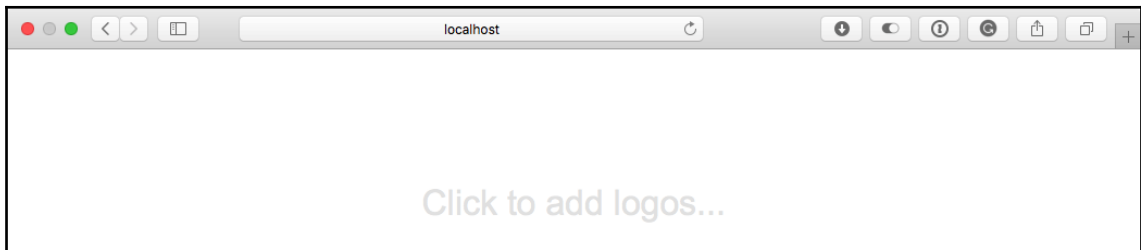
1. russ (bash)
russ in ~
⚡ docker container create --name nginx-test -p 8080:80 nginx
a9107554edde9ddfea2ef0c7a2bef56e7a3a9998740c8f726102cf472c8b7332
russ in ~
⚡ docker container ls -a
CONTAINER ID        IMAGE               COMMAND              CREATED            STATUS
PORTS              NAMES
a9107554edde      nginx              "nginx -g 'daemon of..." 4 seconds ago      Created
nginx-test
russ in ~
⚡ docker container start nginx-test
nginx-test
russ in ~
⚡ docker container ls -a
CONTAINER ID        IMAGE               COMMAND              CREATED            STATUS
PORTS              NAMES
a9107554edde      nginx              "nginx -g 'daemon of..." 57 seconds ago     Up 2 seconds
0.0.0.0:8080->80/tcp
nginx-test
russ in ~

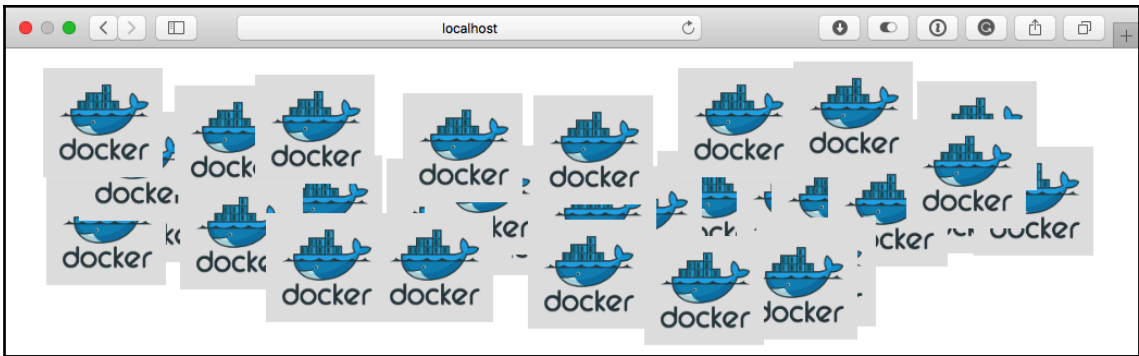
```



```
1. russ (bash)
russ in ~
⚡ docker image pull redis:alpine
alpine: Pulling from library/redis
8e3ba11ec2a2: Pull complete
1f20bd2a5c23: Pull complete
782ff7702b5c: Pull complete
82d1d664c6a7: Pull complete
69f8979cc310: Pull complete
3ff30b3bc148: Pull complete
Digest: sha256:43e4d14fcffa05a5967c353dd7061564f130d6021725dd219f0c6fcbcc6b5076
Status: Downloaded newer image for redis:alpine
russ in ~
⚡ docker image pull russmckendrick/moby-counter
Using default tag: latest
latest: Pulling from russmckendrick/moby-counter
ff3a5c916c92: Pull complete
0384617ecf25: Pull complete
3e2743173da8: Pull complete
40c2a5cd7772: Pull complete
087eb30d6480: Pull complete
a052e85605b2: Pull complete
Digest: sha256:157cbbab5607b45c02c5f6a609f40bf95561b7fbdf21a63ca85cb8813a2ef700
Status: Downloaded newer image for russmckendrick/moby-counter:latest
russ in ~
⚡ docker network create moby-counter
c8b38a10efbefd701c83203489459d9d5a1c78a79fa055c1c81c18dea3f1883c
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ docker container ls
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS
4e7931312ed2      russmckendrick/moby-counter  "node index.js"    About a minute ago  Up 5
8 seconds          0.0.0.0:8080->80/tcp  moby-counter
d760bc59c3ac      redis:alpine       "docker-entrypoint.s..." About a minute ago  Up A
bout a minute      6379/tcp           redis
```





```
1. russ (bash) 🛎️
russ in ~
⚡ docker container exec moby-counter ping -c 3 redis
PING redis (172.18.0.2): 56 data bytes
64 bytes from 172.18.0.2: seq=0 ttl=64 time=0.070 ms
64 bytes from 172.18.0.2: seq=1 ttl=64 time=0.110 ms
64 bytes from 172.18.0.2: seq=2 ttl=64 time=0.197 ms

--- redis ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 0.070/0.125/0.197 ms
russ in ~
⚡ █
```

```
1. russ (bash)
russ in ~
⚡ docker container exec moby-counter2 ping -c 3 redis
ping: bad address 'redis'
russ in ~
⚡ █
```

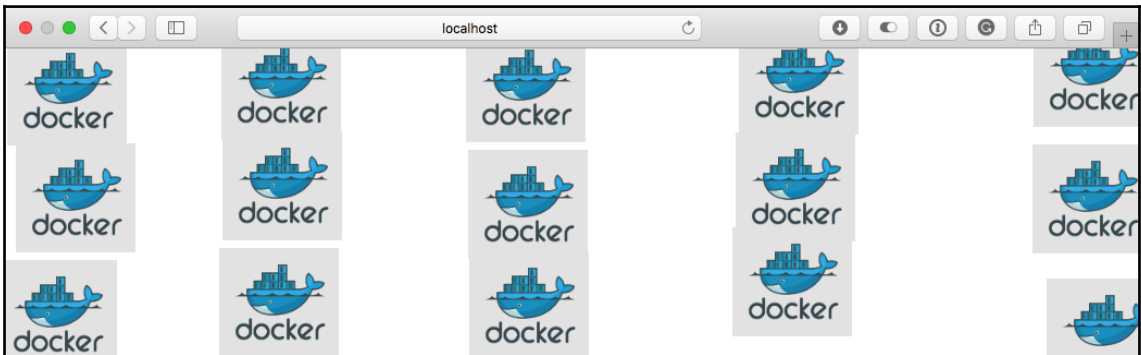
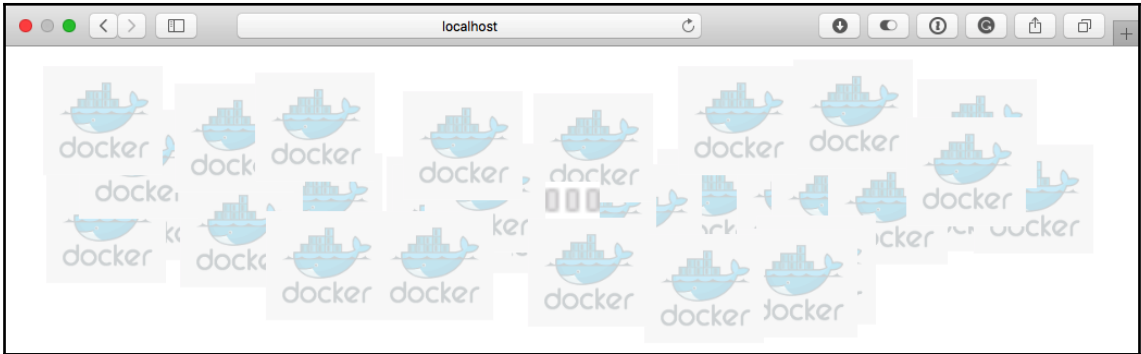
```
1. russ (bash)
russ in ~
⚡ docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
68c5c37bcb27       bridge             bridge             local
d9e75267ab7d       host               host               local
c8b38a10efbe       moby-counter       bridge             local
a7301116f04e       moby-counter2     bridge             local
0aad69754220       none              null               local
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ docker container stop moby-counter2 redis2
moby-counter2
redis2
russ in ~
⚡ docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
40689fc6e47b9750ce9c63d8d58d9da3c193455ed1c5d88cdce486c734f9b8f0
0248e14db1364f7c6d57c345bc6ff5d0411211095188c2e79c6eb4f7ac74233b

Total reclaimed space: 0B
russ in ~
⚡ docker network prune
WARNING! This will remove all networks not used by at least one container.
Are you sure you want to continue? [y/N] y
Deleted Networks:
moby-counter2

russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ docker container ls
CONTAINER ID   IMAGE                                COMMAND              CREATED        STATUS
5              ports                               moby-counter        About an hour ago Up Ab
4e7931312ed2  russmckendrick/moby-counter        "node index.js"     About an hour ago Up Ab
out an hour   0.0.0.0:8080->80/tcp                moby-counter
d760bc59c3ac  redis:alpine                        "docker-entrypoint.s..." About an hour ago Up Ab
out an hour   6379/tcp                             redis
russ in ~
⚡
```



```
1. russ (bash)
russ in ~
⚡ docker volume ls
DRIVER          VOLUME NAME
local          867c26bb1a82624c7b4a934e7117b6f961133ef07cc3e58421e48a35fc3d1bee
local          c2e417eab8fa20944582e2de525ab87b749099043b8c487194b7b6415b537e6a
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ docker volume create redis_data
redis_data
russ in ~
⚡ docker container run -d --name redis -v redis_data:/data --network moby-counter redis:alpine
7e0a60a95c639b2a0175066aa70b937264ff615cea6cc3b8dd2efb24b5b2f976
russ in ~
⚡ docker container restart moby-counter
moby-counter
russ in ~
⚡ docker container rm -f redis
redis
russ in ~
⚡ docker container run -d --name redis -v redis_data:/data --network moby-counter redis:alpine
5cca2727907be99149c58f2c0e8c2524e90e0fab6a372cc35ad6c3b632325a68
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ docker container stop redis moby-counter
redis
moby-counter
russ in ~
⚡ docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
5cca2727907be99149c58f2c0e8c2524e90e0fab6a372cc35ad6c3b632325a68
4e7931312ed299ed9132f3553e0518db79b4c36c43d36e88306aed7f6f9749d8

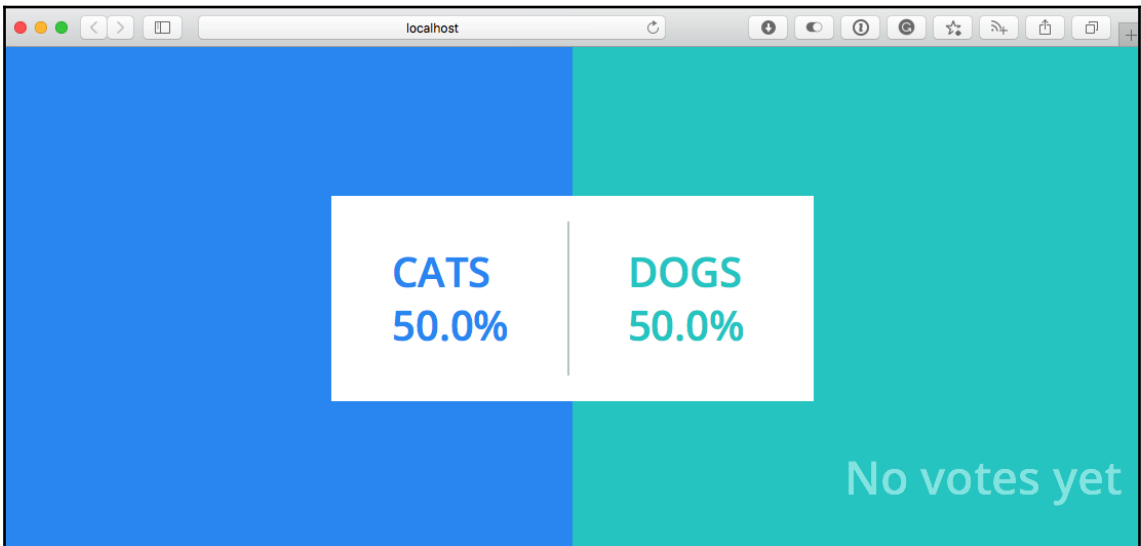
Total reclaimed space: 0B
russ in ~
⚡ docker network prune
WARNING! This will remove all networks not used by at least one container.
Are you sure you want to continue? [y/N] y
Deleted Networks:
moby-counter

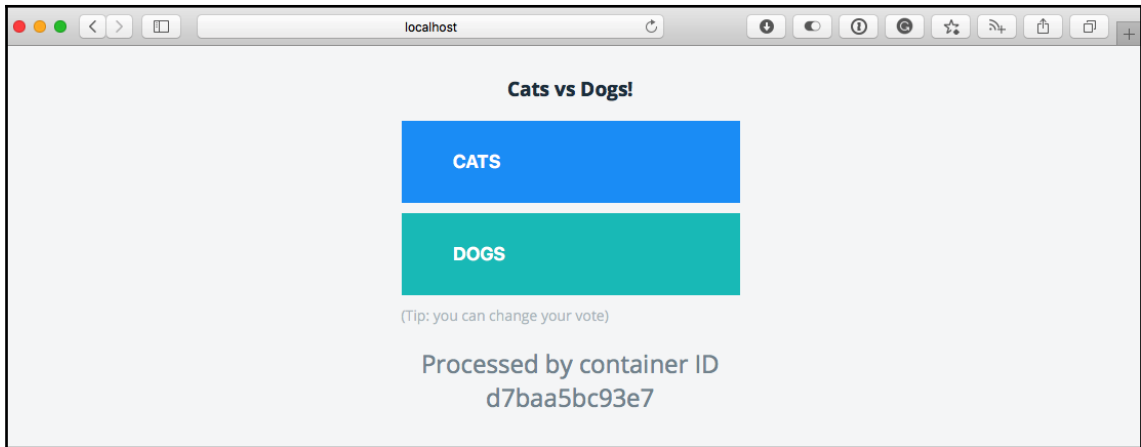
russ in ~
⚡ docker volume prune
WARNING! This will remove all local volumes not used by at least one container.
Are you sure you want to continue? [y/N] y
Deleted Volumes:
867c26bb1a82624c7b4a934e7117b6f961133ef07cc3e58421e48a35fc3d1bee
c2e417eab8fa20944582e2de525ab87b749099043b8c487194b7b6415b537e6a
redis_data

Total reclaimed space: 731B
russ in ~
⚡ █
```

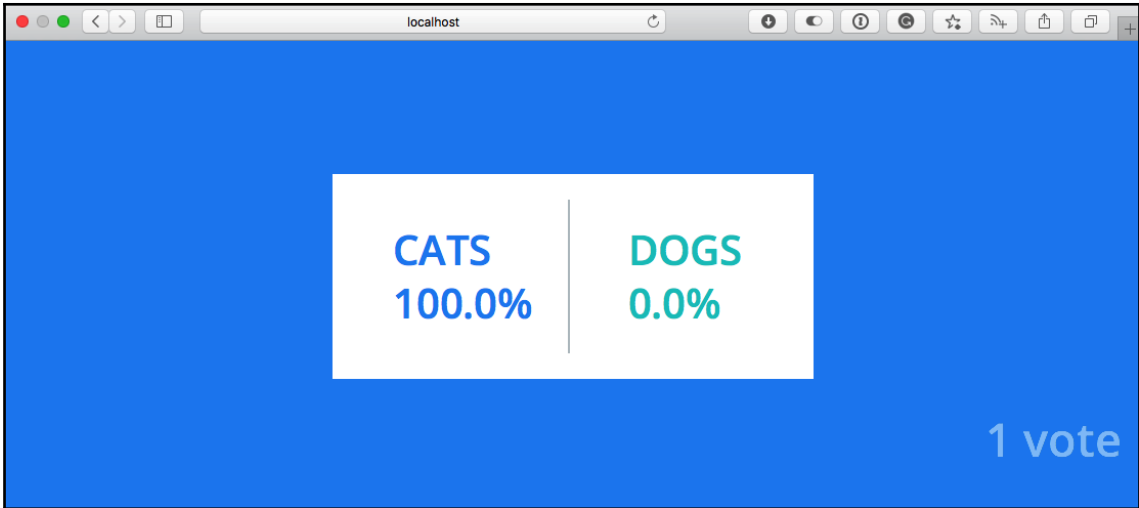
Chapter 5: Docker Compose

```
1. mobycounter (docker-compose)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter on master*
└─$ docker-compose up
Creating volume "mobycounter_redis_data" with default driver
Creating mobycounter_redis_1 ... done
Creating mobycounter_mobycounter_1 ... done
Attaching to mobycounter_redis_1, mobycounter_mobycounter_1
redis_1      | 1:C 01 Sep 11:36:03.324 # o000o000o000o Redis is starting o000o000o000o
redis_1      | 1:C 01 Sep 11:36:03.324 # Redis version=4.0.11, bits=64, commit=00000000, modified=
0, pid=1, just started
redis_1      | 1:C 01 Sep 11:36:03.324 # Warning: no config file specified, using the default conf
ig. In order to specify a config file use redis-server /path/to/redis.conf
redis_1      | 1:M 01 Sep 11:36:03.325 * Running mode=standalone, port=6379.
redis_1      | 1:M 01 Sep 11:36:03.325 # WARNING: The TCP backlog setting of 511 cannot be enforce
d because /proc/sys/net/core/somaxconn is set to the lower value of 128.
redis_1      | 1:M 01 Sep 11:36:03.325 # Server initialized
redis_1      | 1:M 01 Sep 11:36:03.325 # WARNING you have Transparent Huge Pages (THP) support ena
bled in your kernel. This will create latency and memory usage issues with Redis. To fix this issue
run the command 'echo never > /sys/kernel/mm/transparent_hugepage/enabled' as root, and add it to yo
ur /etc/rc.local in order to retain the setting after a reboot. Redis must be restarted after THP is
disabled.
redis_1      | 1:M 01 Sep 11:36:03.325 * Ready to accept connections
mobycounter_1 | using redis server
mobycounter_1 | -----
mobycounter_1 | have host: redis
mobycounter_1 | have port: 6379
mobycounter_1 | server listening on port: 80
mobycounter_1 | Connection made to the Redis server
```





```
1. example-voting-app (docker-compose)
db          | LOG:  autovacuum launcher shutting down
db          | LOG:  shutting down
db          | LOG:  database system is shut down
result_1   | Waiting for db
worker_1   | Waiting for db
db          | done
db          | server stopped
db          |
db          | PostgreSQL init process complete; ready for start up.
db          |
db          | LOG:  database system was shut down at 2018-09-01 15:03:17 UTC
db          | LOG:  MultiXact member wraparound protections are now enabled
db          | LOG:  database system is ready to accept connections
db          | LOG:  autovacuum launcher started
result_1   | Connected to db
db          | ERROR:  relation "votes" does not exist at character 38
db          | STATEMENT:  SELECT vote, COUNT(id) AS count FROM votes GROUP BY vote
result_1   | Error performing query: error: relation "votes" does not exist
worker_1   | Connected to db
worker_1   | Connecting to redis
worker_1   | Found redis at 172.24.0.2
vote_1     | 172.24.0.1 - - [01/Sep/2018 15:04:53] "GET / HTTP/1.1" 200 -
vote_1     | 172.24.0.1 - - [01/Sep/2018 15:04:54] "POST / HTTP/1.1" 200 -
worker_1   | Processing vote for 'a' by '9d5c713ec56dd8e8'
```



```
1. mobycounter (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter on master*
⚡ docker container ls -a
CONTAINER ID        IMAGE               PORTS              COMMAND                CREATED            STATUS
5                  russmckendrick/moby-counter  "node index.js"    51 seconds ago       Exited
d (137) 34 seconds ago  mobycounter_mobycounter_1
b4d2373a5f42       redis:alpine       "docker-entrypoint.s..." 52 seconds ago       Exited
d (0) 33 seconds ago  mobycounter_redis_1
382d6f6ae58f       example-voting-app_worker  "/bin/sh -C 'dotnet ...'" 5 minutes ago        Exited
d (137) About a minute ago  example-voting-app_worker_1
da24571ab1da       postgres:9.4       "docker-entrypoint.s..." 5 minutes ago        Exited
d (137) About a minute ago  db
42790bd9f238       example-voting-app_vote  "python app.py"     5 minutes ago        Exited
d (137) About a minute ago  example-voting-app_vote_1
bca0706592a5       redis:alpine       "docker-entrypoint.s..." 5 minutes ago        Exited
d (137) About a minute ago  redis
085b7f8206e7       example-voting-app_result  "nodemon server.js" 5 minutes ago        Exited
d (137) About a minute ago  example-voting-app_result_1
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter on master*
⚡
```

```
1. example-voting-app (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡ docker-compose up -d
Starting db ... done
Starting example-voting-app_vote_1 ... done
Starting example-voting-app_result_1 ... done
Starting redis ... done
Starting example-voting-app_worker_1 ... done
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡
```



```

1. example-voting-app (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡ docker-compose ps

```

Name	Command	State	Ports
db	docker-entrypoint.sh postgres	Up	5432/tcp
example-voting-app_result_1	nodemon server.js	Up	0.0.0.0:5858->5858/tcp, 0.0.0.0:5001->80/tcp
example-voting-app_vote_1	python app.py	Up	0.0.0.0:5000->80/tcp
example-voting-app_worker_1	/bin/sh -c dotnet src/Work ...	Up	
redis	docker-entrypoint.sh redis ...	Up	0.0.0.0:32770->6379/tcp

```

russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡

```

```

1. example-voting-app (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡ docker-compose top

```

PID	USER	TIME	COMMAND
13987	999	0:00	postgres
14730	999	0:00	postgres: checkpointer process
14731	999	0:00	postgres: writer process
14732	999	0:00	postgres: wal writer process
14733	999	0:00	postgres: autovacuum launcher process
14735	999	0:00	postgres: stats collector process
14945	999	0:02	postgres: postgres postgres 172.24.0.6(41944) idle
14956	999	0:00	postgres: postgres postgres 172.24.0.5(59382) idle

PID	USER	TIME	COMMAND
14407	root	0:00	node /usr/local/bin/nodemon server.js
14932	root	0:01	/usr/local/bin/node server.js

PID	USER	TIME	COMMAND
14406	root	0:00	python app.py
14888	root	0:04	/usr/local/bin/python app.py

PID	USER	TIME	COMMAND
14722	root	0:00	/bin/sh -c dotnet src/Worker/Worker.dll
14904	root	0:16	dotnet src/Worker/Worker.dll

PID	USER	TIME	COMMAND
13807	rpc	0:02	redis-server

```

russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡

```

```

1. example-voting-app (docker-compose)
db | LOG: autovacuum launcher shutting down
db | LOG: database system was interrupted; last known up at 2018-09-01 15:22:31 UTC
db | LOG: database system was not properly shut down; automatic recovery in progress
db | LOG: record with zero length at 0/16C1298
db | LOG: redo is not required
db | LOG: MultiXact member wraparound protections are now enabled
db | LOG: autovacuum launcher started
db | LOG: database system is ready to accept connections

```

```
1. example-voting-app (docker-compose)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡ docker-compose events
2018-09-01 17:04:41.250424 container pause 42790bd9f2382b8c150092463b1d1dcaba91f014bf35c58050c982f01
8cafad (image=example-voting-app_vote, name=example-voting-app_vote_1)
2018-09-01 17:04:41.251552 container pause 382d6f6ae58f959a5ddcc9001b992aa811f4bab1cdfedaa9b318d9652
60f8778 (image=example-voting-app_worker, name=example-voting-app_worker_1)
2018-09-01 17:04:41.260365 container pause 085b7f8206e76ee39929ba9a29c970860ef24b2efe2f0464cdd171751
a0e007c (image=example-voting-app_result, name=example-voting-app_result_1)
2018-09-01 17:04:41.264596 container pause da24571ab1da003defc95f4fc12a46547f108628f15fe082c7f29a1f7
a1f38fe (image=postgres:9.4, name=db)
2018-09-01 17:04:41.275336 container pause bca0706592a5e1a0b0776aaa8ea80e3d1e43be2d0a6ac8e0d764fcb81
e7eca82 (image=redis:alpine, name=redis)
```

```
1. example-voting-app (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡ docker-compose exec worker ping -c 3 db
PING db (172.24.0.3): 56 data bytes
64 bytes from 172.24.0.3: icmp_seq=0 ttl=64 time=0.076 ms
64 bytes from 172.24.0.3: icmp_seq=1 ttl=64 time=0.078 ms
64 bytes from 172.24.0.3: icmp_seq=2 ttl=64 time=0.125 ms
--- db ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max/stddev = 0.076/0.093/0.125/0.023 ms
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
```

```
1. example-voting-app (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡ docker-compose up -d --scale vote=3
example-voting-app_result_1 is up-to-date
db is up-to-date
WARNING: The "vote" service specifies a port on the host. If multiple containers for this service ar
e created on a single host, the port will clash.
Starting example-voting-app_vote_2 ...
redis is up-to-date
Starting example-voting-app_vote_2 ... error
Starting example-voting-app_vote_3 ... error

ERROR: for example-voting-app_vote_2 Cannot start service vote: driver failed programming external
connectivity on endpoint example-voting-app_vote_2 (342aa4ae4327af01a94bb86771af7e78202ff5b14963627b
992138c471790394): Bind for 0.0.0.0:5000 failed: port is already allocated

ERROR: for example-voting-app_vote_3 Cannot start service vote: driver failed programming external
connectivity on endpoint example-voting-app_vote_3 (0d829fa17c778d4391e52a87bd3f08f0c20346f5962551
4cc02459c71161e0): Bind for 0.0.0.0:5000 failed: port is already allocated

ERROR: for vote Cannot start service vote: driver failed programming external connectivity on endpo
int example-voting-app_vote_2 (342aa4ae4327af01a94bb86771af7e78202ff5b14963627b992138c471790394): Bi
nd for 0.0.0.0:5000 failed: port is already allocated
ERROR: Encountered errors while bringing up the project.
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡
```

```

1. example-voting-app (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡ docker-compose down --rm1 all --volumes
Stopping example-voting-app_worker_1 ... done
Stopping db ... done
Stopping example-voting-app_vote_1 ... done
Stopping redis ... done
Stopping example-voting-app_result_1 ... done
Removing example-voting-app_vote_3 ... done
Removing example-voting-app_vote_2 ... done
Removing example-voting-app_worker_1 ... done
Removing db ... done
Removing example-voting-app_vote_1 ... done
Removing redis ... done
Removing example-voting-app_result_1 ... done
Removing network example-voting-app_front-tier
Removing network example-voting-app_back-tier
Removing volume example-voting-app_db-data
Removing image example-voting-app_vote
Removing image example-voting-app_result
Removing image redis:alpine
ERROR: Failed to remove image for service redis: 409 Client Error: Conflict ("conflict: unable to re
move repository reference "redis:alpine" (must force) - container b4d2373a5f42 is using its referenc
ed image 08bef618c30a")
Removing image example-voting-app_worker
Removing image postgres:9.4
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/example-voting-app on master*
⚡ █

```

```

1. russ (bash)
russ in ~
⚡ VERSION=v0.4.1
russ in ~
⚡ curl -SL https://github.com/docker/app/releases/download/$VERSION/docker-app-darwin.tar.gz | tar
xJ -C /usr/local/bin/
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
100  615      0  615    0     0   1420      0  --:--:--  --:--:--  --:--:--  1423
100 9412k  100 9412k    0     0  1858k      0  0:00:05  0:00:05  --:--:-- 2304k
russ in ~
⚡ mv /usr/local/bin/docker-app-darwin /usr/local/bin/docker-app
russ in ~
⚡ chmod +x /usr/local/bin/docker-app
russ in ~
⚡ docker-app version
Version:      v0.4.1
Git commit:  48c0769c
Built:       Wed Aug 22 12:01:46 2018
OS/Arch:    darwin/amd64
Experimental: off
Renderers:  none
russ in ~
⚡ █

```

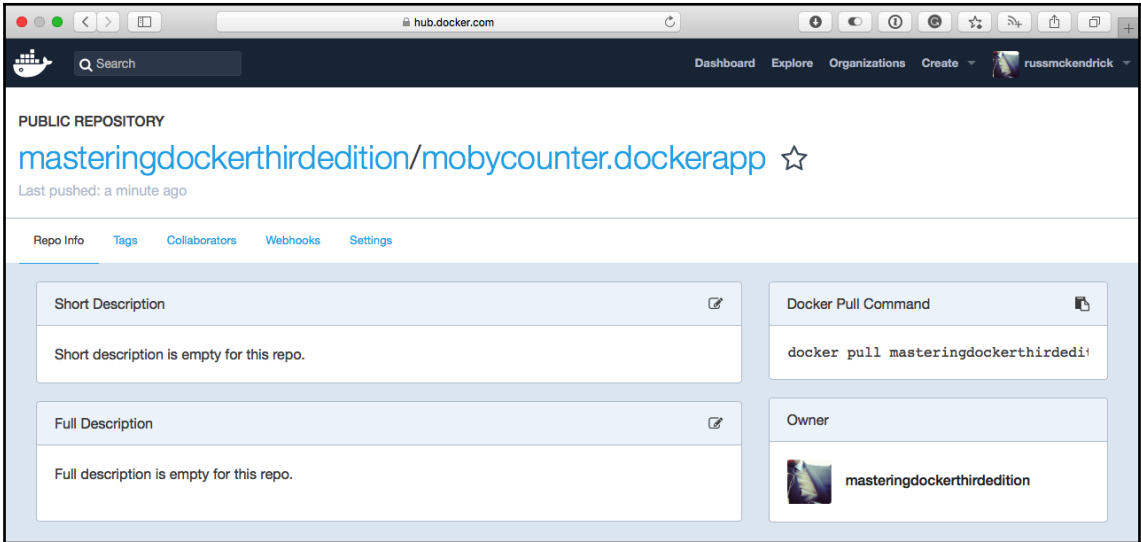
```
1. mobycounter-app (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter-app on master*
⚡ docker-app save
Saved application as image: masteringdockerthirddedition/mobycounter.dockerapp:latest
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter-app on master*
⚡ docker-app ls
REPOSITORY                                TAG                IMAGE ID           CREATED
masteringdockerthirddedition/mobycounter  latest            ed55e60998f6      5 second
s ago 539B
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter-app on master*
⚡ docker image ls
REPOSITORY                                TAG                IMAGE ID           CREATED
masteringdockerthirddedition/mobycounter  latest            ed55e60998f6      14 secon
ds ago 539B
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter-app on master*
⚡
```

```
1. mobycounter-app (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter-app on master*
⚡ docker-app inspect masteringdockerthirddedition/mobycounter.dockerapp:latest
mobycounter latest
Maintained by: Russ McKendrick <russ@mckendrick.io>

An example Docker App file which packages up the Moby Counter application

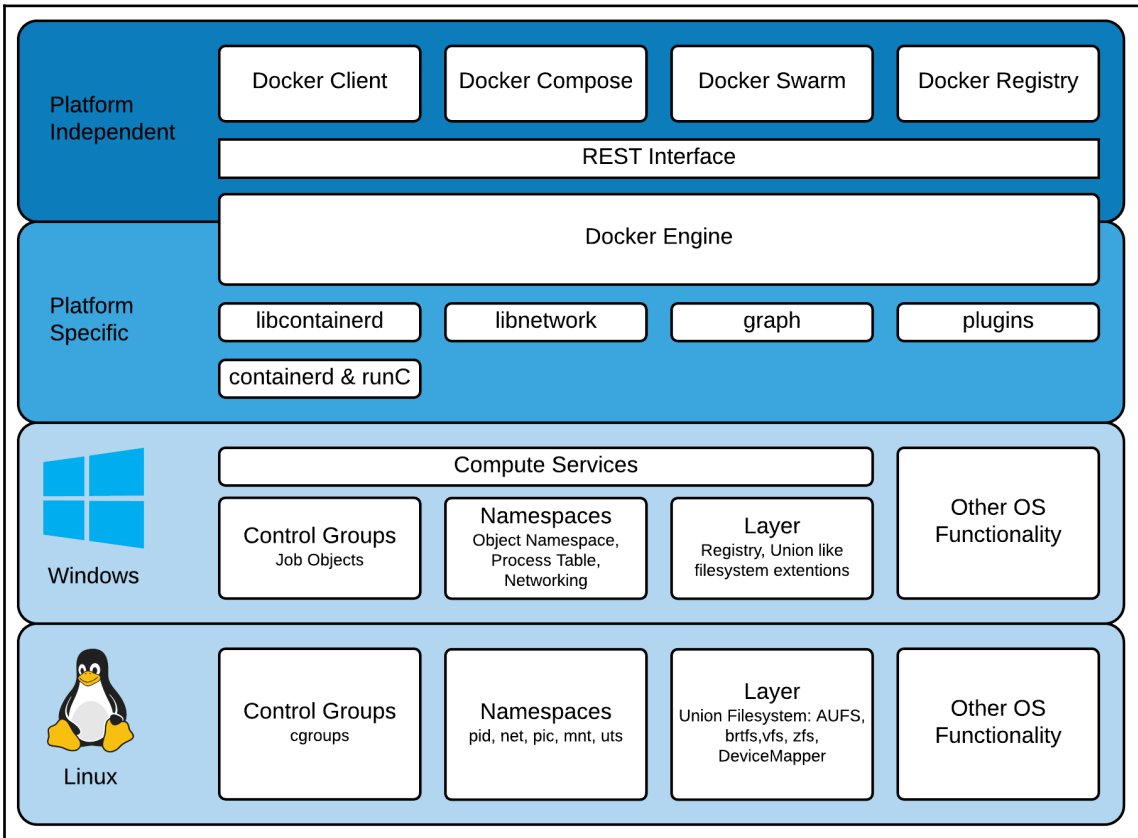
Setting Default
-----
port      8080
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter-app on master*
⚡
```

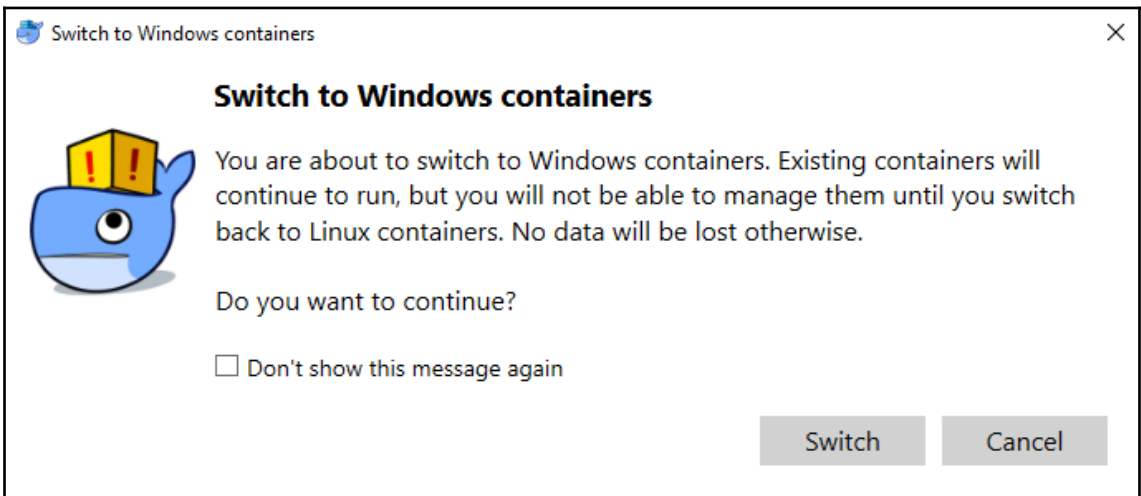
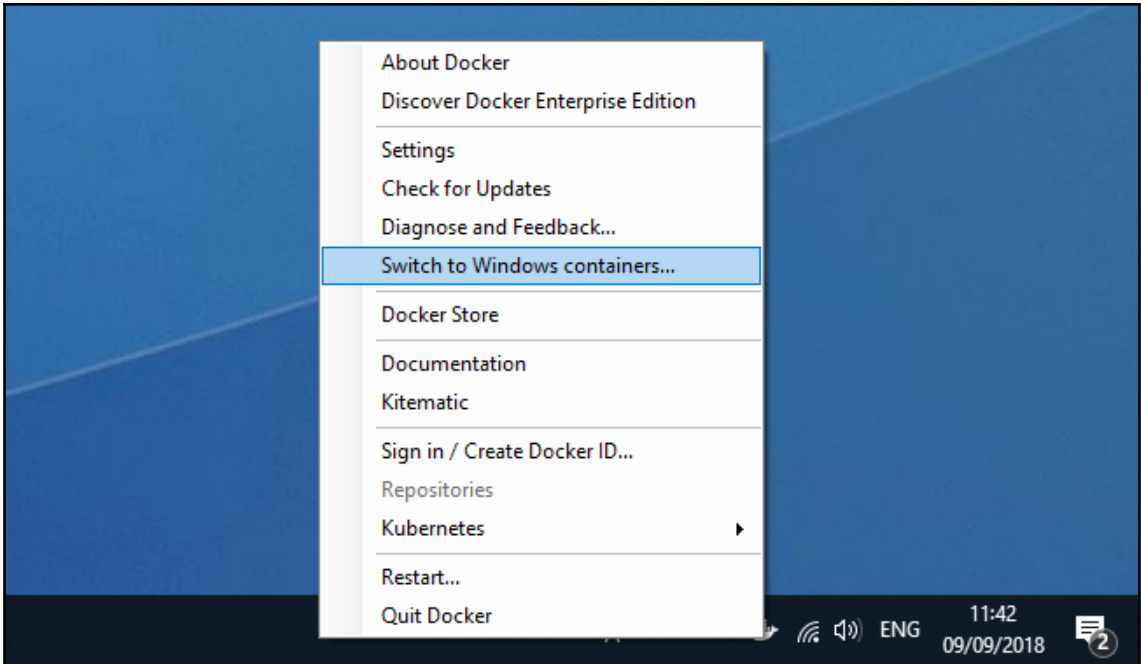
```
1. mobycounter-app (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter-app on master*
⚡ docker-app push
The push refers to repository [docker.io/masteringdockerthirddedition/mobycounter.dockerapp]
ee0989546b24: Pushed
latest: digest: sha256:3bb3cdcba659baa42bcc2951001c330e0a107b2f9a7b368bf8b10d0d55aee493 size: 524
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter05/mobycounter-app on master*
⚡
```



```
1. russ (docker-compose)
russ in ~
⚡ docker-app render masteringdockerthirdedition/mobycounter:latest --set port="9090" | docker-comp
se -f - up
Creating volume "russ_redis_data" with default driver
Pulling redis (redis:alpine)...
alpine: Pulling from library/redis
8e3ba11ec2a2: Pull complete
1f20bd2a5c23: Pull complete
782ff7702b5c: Pull complete
82d1d664c6a7: Pull complete
69f8979cc310: Pull complete
3ff30b3bc148: Pull complete
Digest: sha256:43e4d14fcffa05a5967c353dd7061564f130d6021725dd219f0c6fcbcc6b5076
Status: Downloaded newer image for redis:alpine
Pulling mobycounter (russmckendrick/moby-counter)...
latest: Pulling from russmckendrick/moby-counter
ff3a5c916c92: Pull complete
0384617ecf25: Pull complete
3e2743173da8: Pull complete
40c2a5cd7772: Pull complete
087eb30d6480: Pull complete
a052e85605b2: Pull complete
Digest: sha256:157cbbab5607b45c02c5f6a609f40bf95561b7fbdf21a63ca85cb8813a2ef700
Status: Downloaded newer image for russmckendrick/moby-counter:latest
Creating russ_redis_1 ... done
Creating russ_mobycounter_1 ... done
Attaching to russ_redis_1, russ_mobycounter_1
redis_1      | 1:C 01 Sep 19:32:41.632 # o000o000o000o Redis is starting o000o000o000o
redis_1      | 1:C 01 Sep 19:32:41.632 # Redis version=4.0.11, bits=64, commit=00000000, modified=
0, pid=1, just started
redis_1      | 1:C 01 Sep 19:32:41.632 # Warning: no config file specified, using the default conf
ig. In order to specify a config file use redis-server /path/to/redis.conf
redis_1      | 1:M 01 Sep 19:32:41.633 * Running mode=standalone, port=6379.
redis_1      | 1:M 01 Sep 19:32:41.633 # WARNING: The TCP backlog setting of 511 cannot be enforce
d because /proc/sys/net/core/somaxconn is set to the lower value of 128.
redis_1      | 1:M 01 Sep 19:32:41.633 # Server initialized
redis_1      | 1:M 01 Sep 19:32:41.633 # WARNING you have Transparent Huge Pages (THP) support ena
bled in your kernel. This will create latency and memory usage issues with Redis. To fix this issue
run the command 'echo never > /sys/kernel/mm/transparent_hugepage/enabled' as root, and add it to yo
ur /etc/rc.local in order to retain the setting after a reboot. Redis must be restarted after THP is
disabled.
redis_1      | 1:M 01 Sep 19:32:41.633 * Ready to accept connections
mobycounter_1 | using redis server
mobycounter_1 | -----
mobycounter_1 | have host: redis
mobycounter_1 | have port: 6379
mobycounter_1 | server listening on port: 80
mobycounter_1 | Connection made to the Redis server
```

Chapter 6: Windows Containers






```
Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
Script
PS C:\Users\russm> docker version
Client:
Version:      18.06.0-ce
API version:  1.38
Go version:   go1.10.3
Git commit:   Offfa825
Built:        Wed Jul 18 19:05:28 2018
OS/Arch:      windows/amd64
Experimental: false

Server:
Engine:
Version:      18.06.0-ce
API version:  1.38 (minimum version 1.24)
Go version:   go1.10.3
Git commit:   Offfa825
Built:        Wed Jul 18 19:23:19 2018
OS/Arch:      windows/amd64
Experimental: false

PS C:\Users\russm> |
Completed | Ln 21 Col 20 | 160%
```

```
1. windows-docker-machine (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter06/windows-docker-machine on master*
⚡ docker version
Client:
Version:      18.06.1-ce
API version:  1.37 (downgraded from 1.38)
Go version:   go1.10.3
Git commit:   e68fc7a
Built:        Tue Aug 21 17:21:31 2018
OS/Arch:      darwin/amd64
Experimental: false

Server:
Engine:
Version:      18.03.1-ee-2
API version:  1.37 (minimum version 1.15)
Go version:   go1.10.2
Git commit:   ebbcd7e
Built:        Tue Jul 10 21:49:06 2018
OS/Arch:      windows/amd64
Experimental: false
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter06/windows-docker-machine on master*
⚡
```

```
1. windows-docker-machine (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter06/windows-docker-machine on master*
⚡ docker container run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
bce2fbc256ea: Already exists
4a14bdf6da80: Already exists
842bcbb9bd6e: Pull complete
3c15d2487d42: Pull complete
Digest: sha256:0add3ace90ecb4adbf7777e9aacf18357296e799f81cab9fde470971e499788
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (windows-amd64, nanoserver-sac2016)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run a Windows Server container with:
PS C:\> docker run -it microsoft/windowsservercore powershell

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/

russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter06/windows-docker-machine on master*
⚡
```

```
1. windows-docker-machine (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter06/windows-docker-machine on master*
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\> Get-CimInstance -ClassName Win32_Desktop -Computer .

SettingID Name                               ScreenSaverActive ScreenSaverSecure ScreenSaverTimeou
-----
-----
NT AUTHORITY\SYSTEM                          False
NT AUTHORITY\LOCAL SERVICE                   False
NT AUTHORITY\NETWORK SERVICE                 False
45C948CEA41A\Administrator                   False
User Manager\ContainerAdministrator          False
User Manager\ContainerUser                   False
.DEFAULT                                     False

PS C:\> exit
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter06/windows-docker-machine on master*
⚡
```

```

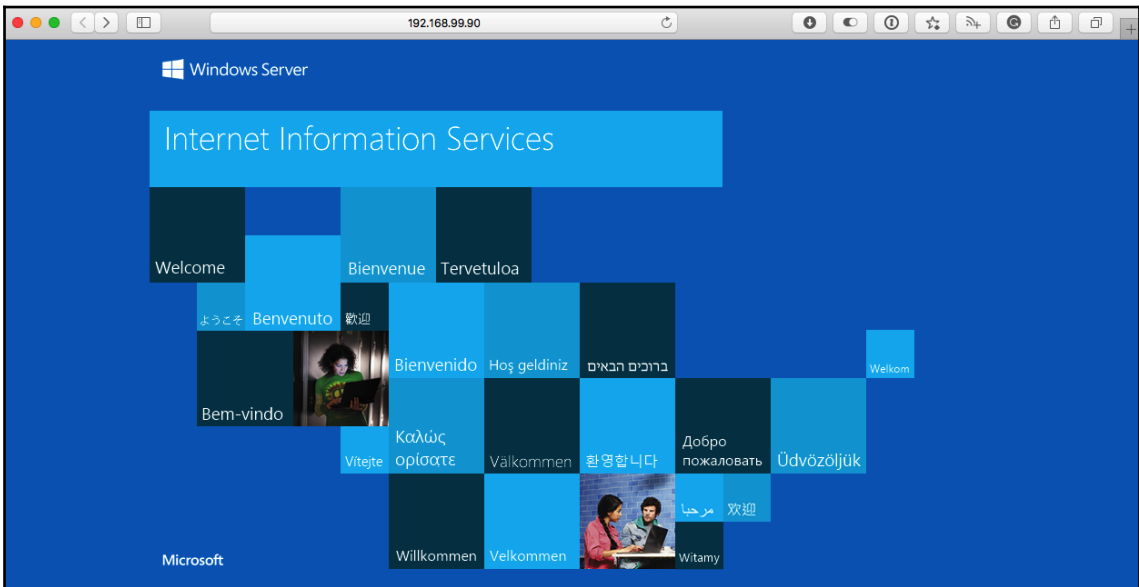
1. windows-docker-machine (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter06/windows-docker-machine on master*
⚡ docker container ls -a
CONTAINER ID        IMAGE                                     COMMAND                  CREATED            STA
TUS
45c948cea41a       microsoft/windowsservercore           "powershell"           About a minute ago Exi
ted (0) About a minute ago
16d86d0bfff03     hello-world                            "cmd /C 'type C:\\hel..." 7 minutes ago      Exi
ted (0) 7 minutes ago
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter06/windows-docker-machine on master*
⚡

```

```

1. chapter06 (bash)
---> 959f87c26913
Step 3/4 : EXPOSE 80
---> Running in 68584e4f5d57
Removing intermediate container 68584e4f5d57
---> 869e11aed750
Step 4/4 : ENTRYPOINT ["C:\\ServiceMonitor.exe", "w3svc"]
---> Running in 81cc939b63f1
Removing intermediate container 81cc939b63f1
---> df6cd7368fc2
Successfully built df6cd7368fc2
Successfully tagged local:dockerfile-iis
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter06 on master*
⚡ docker image ls
REPOSITORY          TAG          IMAGE ID          CREATED           SIZE
local                dockerfile-iis  df6cd7368fc2     About a minute ago 1.25GB
hello-world         latest       476f8d625669     26 hours ago     1.14GB
microsoft/windowsservercore latest       824f26e4c566     3 weeks ago     10.7GB
microsoft/nanoserver latest       9fd35fc2a361     3 weeks ago     1.14GB
microsoft/nanoserver sac2016     9fd35fc2a361     3 weeks ago     1.14GB
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter06 on master*
⚡

```




192.168.99.90


West Wind
AlbumViewer

Search... Albums Artists Options


Albums 93 + Add Album




Ace of Spades (sql)
by *Motörhead (Sql)* in 1978
Motörhead are the founding fathers of speed and thrash metal. Without this band, there would be no Slayer or Sepultura, so you've at least got to give




Act III
by *Death Angel* in 1990
Act III is the third studio album by the thrash metal band Death Angel, released in 1990 on Geffen Records. Regarded by many critics and fans as the




Aenema
by *Tool* in 1996
With its heavy-duty distortion, weighty rhythms, and cynical lyrics, Tool is a heavy metal band for the '90s. Rather like Metallica circa ...And Justice for All, the



Alchemy Index, Vols. 3-4
by *Thrice* in 2008
Post-hardcore foursome Thrice seems to revel in pushing boundaries and overturning expectations. The second two-disc installment of THE

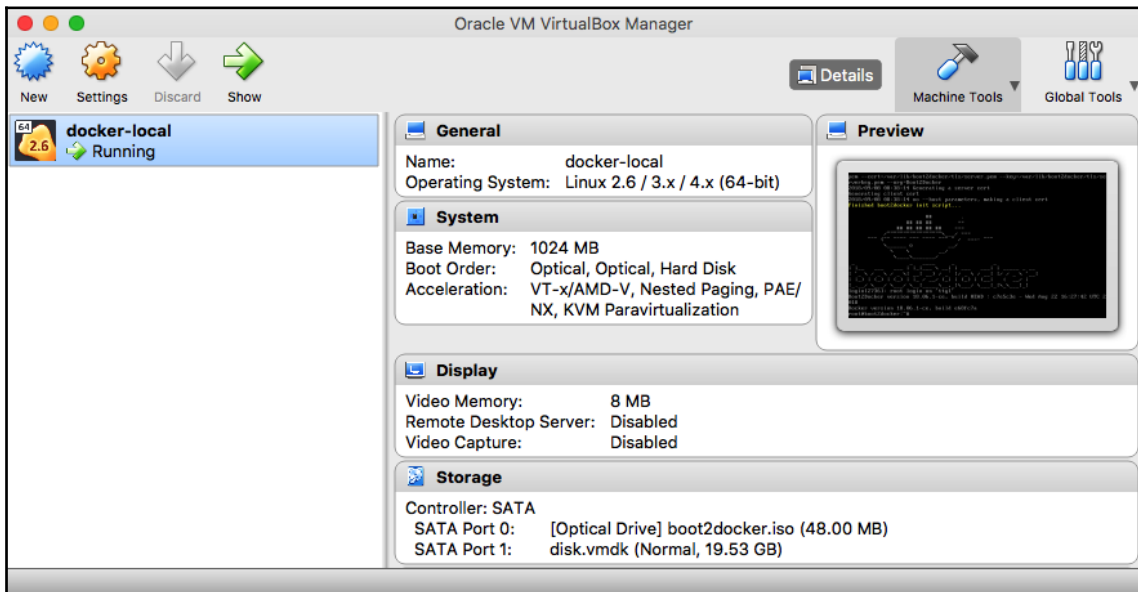


American Paranoia
by *Attitude Adjustment* in 1986
Screaming '86-era political hardcore/metal crossover from Attitude Adjustment of the East Bay of Northern California, quite possibly the best of its genre.



Among the Living
by *Anthrax* in 1988
Most speed metal fans were initiated by way of either Metallica or Megadeth. Anthrax was my introduction. Albums like this speak to the fifteen year-old

Chapter 7: Docker Machine



```
1. russ (bash)
russ in ~
⚡ docker version
Client:
  Version:      18.06.1-ce
  API version:  1.38
  Go version:   go1.10.3
  Git commit:   e68fc7a
  Built:        Tue Aug 21 17:21:31 2018
  OS/Arch:      darwin/amd64
  Experimental: false

Server:
Engine:
  Version:      18.06.1-ce
  API version:  1.38 (minimum version 1.12)
  Go version:   go1.10.3
  Git commit:   e68fc7a
  Built:        Tue Aug 21 17:29:02 2018
  OS/Arch:      linux/amd64
  Experimental: true
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ eval $(docker-machine env docker-local)
russ in ~
⚡ docker version)
Client:
Version:          18.06.1-ce
API version:      1.38
Go version:       go1.10.3
Git commit:       e68fc7a
Built:            Tue Aug 21 17:21:31 2018
OS/Arch:          darwin/amd64
Experimental:     false

Server:
Engine:
Version:          18.06.1-ce
API version:      1.38 (minimum version 1.12)
Go version:       go1.10.3
Git commit:       e68fc7a
Built:            Tue Aug 21 17:28:38 2018
OS/Arch:          linux/amd64
Experimental:     false
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ docker-machine ls
NAME      ACTIVE   DRIVER        STATE     URL                  SWARM   DOCKER   ERR
ORS
docker-local *        virtualbox    Running   tcp://192.168.99.100:2376   v18.06.1-ce
```

```
1. russ (docker-machine)
russ in ~
⚡ docker-machine ssh docker-local
##
## ## ##
## ## ## ## ##
=====
{ ~~~~~ }
o
}
=====


BooT2Docker
BooT2Docker version 18.06.1-ce, build HEAD : c7e5c3e - Wed Aug 22 16:27:42 UTC 2018
Docker version 18.06.1-ce, build e68fc7a
docker@docker-local:~$
```

Search by Droplet name or IP (Cmd+B) Create USAGE \$0.00

Droplets

Search by Droplet name

Droplets Volumes

Name	IP Address	Created	Tags
 docker-digitalocean 1 GB / 25 GB Disk / NYC3 - Ubuntu 16.04.4 x64	165.227.118.118	3 minutes ago	More


```
1. root@docker-digitalocean: ~ (docker-machine)
russ in ~
⚡ docker-machine ssh docker-digitalocean
Welcome to Ubuntu 16.04.5 LTS (GNU/Linux 4.4.0-131-generic x86_64)

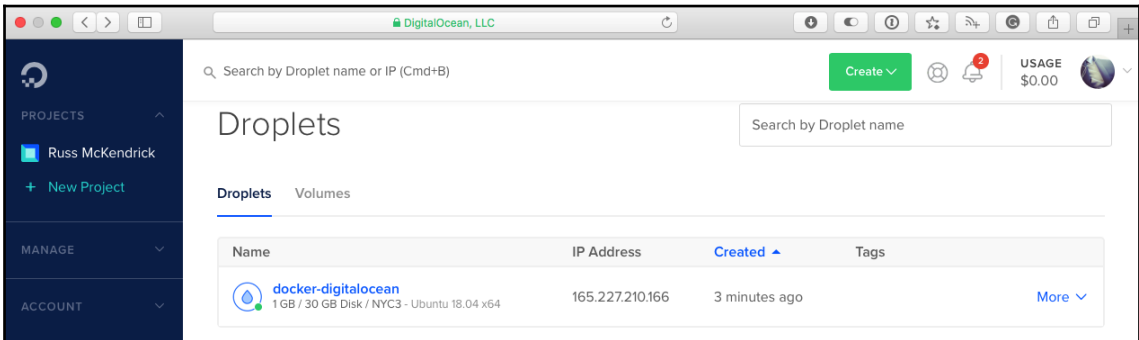
 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

Get cloud support with Ubuntu Advantage Cloud Guest:
http://www.ubuntu.com/business/services/cloud

17 packages can be updated.
12 updates are security updates.

New release '18.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

root@docker-digitalocean:~#
```



```
1. russ (bash)
⚡ docker $(docker-machine config docker-coreos) version
Client:
Version:          18.06.1-ce
API version:      1.37 (downgraded from 1.38)
Go version:       go1.10.3
Git commit:       e68fc7a
Built:            Tue Aug 21 17:21:31 2018
OS/Arch:          darwin/amd64
Experimental:     false

Server:
Engine:
Version:          18.03.1-ce
API version:      1.37 (minimum version 1.12)
Go version:       go1.9.6
Git commit:       9ee9f40
Built:            Thu Apr 26 04:27:49 2018
OS/Arch:          linux/amd64
Experimental:     false
russ in ~
⚡
```

Chapter 8: Docker Swarm

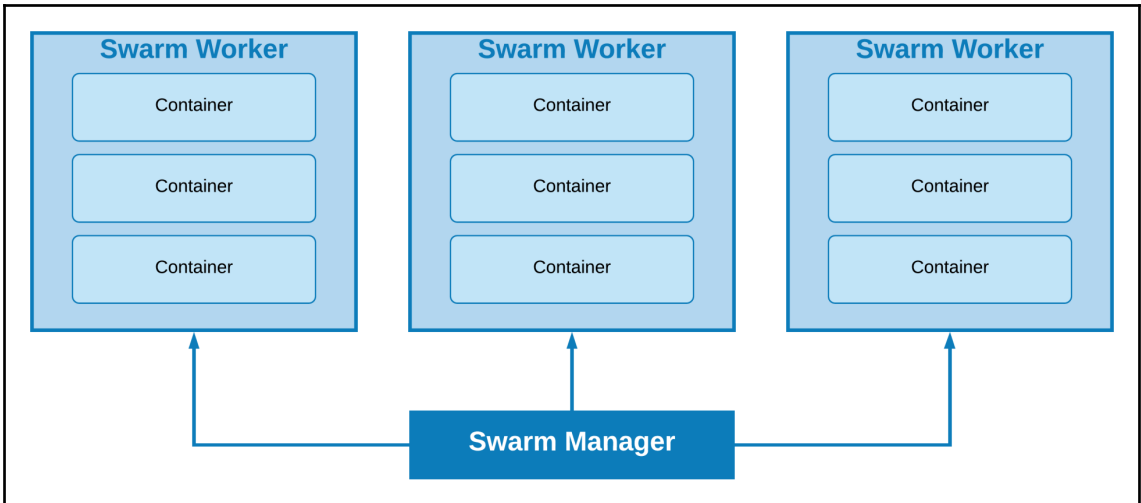
```
1. russ (bash)
russ in ~
⚡ docker swarm --help

Usage:  docker swarm COMMAND

Manage Swarm

Commands:
  ca           Display and rotate the root CA
  init        Initialize a swarm
  join        Join a swarm as a node and/or manager
  join-token   Manage join tokens
  leave       Leave the swarm
  unlock      Unlock swarm
  unlock-key  Manage the unlock key
  update     Update the swarm

Run 'docker swarm COMMAND --help' for more information on a command.
russ in ~
⚡
```



```

1. russ (bash)
russ in ~
⚡ docker-machine ls
NAME          ACTIVE DRIVER      STATE URL          SWARM DOCKER  ER
RORS
swarm-manager *      virtualbox Running tcp://192.168.99.100:2376 v18.06.1-ce
russ in ~
⚡

```

```

1. russ (bash)
russ in ~
⚡ docker-machine ls
NAME          ACTIVE DRIVER      STATE URL          SWARM DOCKER  ER
RORS
swarm-manager *      virtualbox Running tcp://192.168.99.100:2376 v18.06.1-ce
russ in ~
⚡

```

```

1. russ (bash)
russ in ~
⚡ docker-machine ls
NAME          ACTIVE DRIVER      STATE URL          SWARM DOCKER  ER
RORS
swarm-manager *      virtualbox Running tcp://192.168.99.100:2376 v18.06.1-ce
swarm-worker01 -    virtualbox Running tcp://192.168.99.101:2376 v18.06.1-ce
swarm-worker02 -    virtualbox Running tcp://192.168.99.102:2376 v18.06.1-ce
russ in ~
⚡

```

```

1. russ (bash)
russ in ~
⚡ docker-machine ls
NAME          ACTIVE DRIVER      STATE URL          SWARM DOCKER  ER
RORS
swarm-manager *      virtualbox Running tcp://192.168.99.100:2376 v18.06.1-ce
swarm-worker01 -    virtualbox Running tcp://192.168.99.101:2376 v18.06.1-ce
swarm-worker02 -    virtualbox Running tcp://192.168.99.102:2376 v18.06.1-ce
russ in ~
⚡ docker node ls
ID            STATUS      AVAILABILITY  MANAGER ST
ATUS ENGINE VERSION
uxgvqhw6npr9glhp0zpabn4ha * swarm-manager Ready Active Leader
18.06.1-ce
yhqj03rkfzurb4aqzk7duidf4 swarm-worker01 Ready Active
18.06.1-ce
gh1mkbrtnp4vir7jvbsprsyw swarm-worker02 Ready Active
18.06.1-ce
russ in ~
⚡

```

```

1. russ (bash)
russ in ~
⚡ docker node ls
ID            STATUS      AVAILABILITY  MANAGER ST
ATUS ENGINE VERSION
uxgvqhw6npr9glhp0zpabn4ha * swarm-manager Ready Active Leader
18.06.1-ce
yhqj03rkfzurb4aqzk7duidf4 swarm-worker01 Ready Active Reachable
18.06.1-ce
gh1mkbrtnp4vir7jvbsprsyw swarm-worker02 Ready Active
18.06.1-ce
russ in ~
⚡

```



```

1. russ (bash)
russ in ~
⚡ docker node ls
ID                STATUS      AVAILABILITY  MANAGER ST
ATUS             ENGINE VERSION
uxgvqhw6npr9g1hp0zpabn4ha  swarm-manager  Ready         Drain
18.06.1-ce
yhqj03rkfzurb4aqzk7duidf4 *  swarm-worker01  Ready         Active
18.06.1-ce
gh1mkbrtnp4vir7jvb1sprsyw  swarm-worker02  Ready         Active
18.06.1-ce

russ in ~
⚡ docker node update --availability active swarm-manager
swarm-manager
russ in ~
⚡ docker node ls
ID                STATUS      AVAILABILITY  MANAGER ST
ATUS             ENGINE VERSION
uxgvqhw6npr9g1hp0zpabn4ha  swarm-manager  Ready         Active
18.06.1-ce
yhqj03rkfzurb4aqzk7duidf4 *  swarm-worker01  Ready         Active
18.06.1-ce
gh1mkbrtnp4vir7jvb1sprsyw  swarm-worker02  Ready         Active
18.06.1-ce

russ in ~
⚡

```

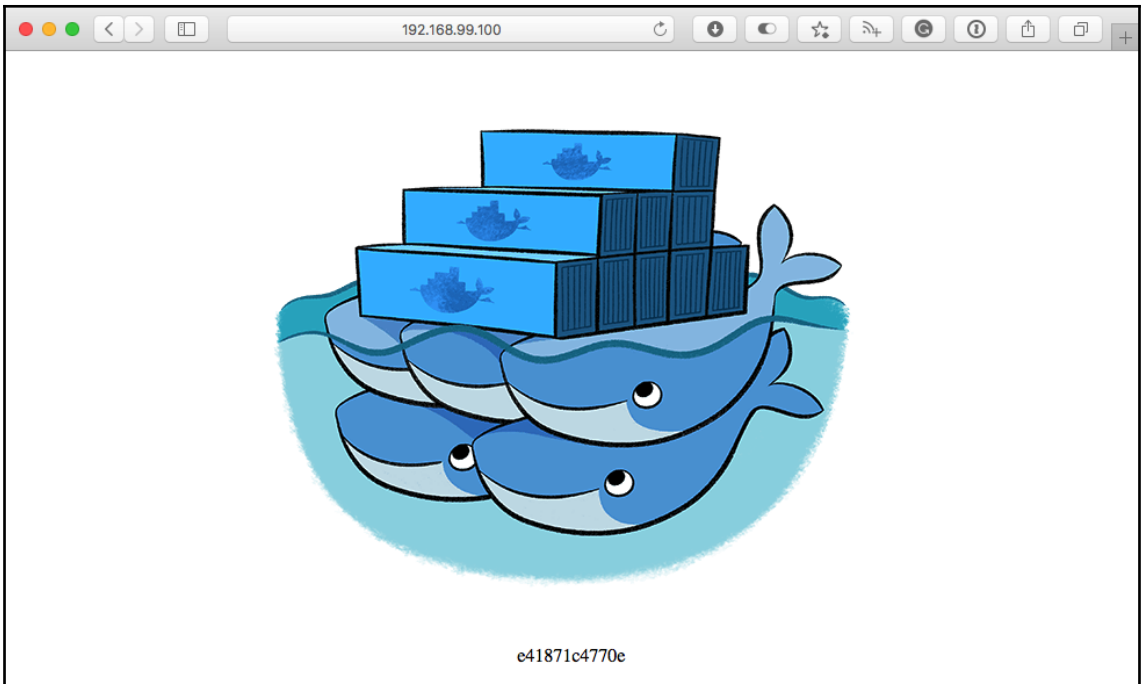
```

1. russ (bash)
russ in ~
⚡ docker node ls
ID                STATUS      AVAILABILITY  MANAGER ST
ATUS             ENGINE VERSION
uxgvqhw6npr9g1hp0zpabn4ha  swarm-manager  Ready         Active
18.06.1-ce
yhqj03rkfzurb4aqzk7duidf4 *  swarm-worker01  Ready         Active
18.06.1-ce
gh1mkbrtnp4vir7jvb1sprsyw  swarm-worker02  Ready         Active
18.06.1-ce

russ in ~
⚡ docker-machine ls
NAME      ACTIVE  DRIVER      STATE      URL          SWARM      DOCKER      E
RRORS
swarm-manager  -      virtualbox  Running    tcp://192.168.99.100:2376  v18.06.1-ce
swarm-worker01 *      virtualbox  Running    tcp://192.168.99.101:2376  v18.06.1-ce
swarm-worker02 -      virtualbox  Running    tcp://192.168.99.102:2376  v18.06.1-ce

russ in ~
⚡

```



```
1. russ (bash)
russ in ~
⚡ docker service ls
ID                PORTS      NAME          MODE          REPLICAS      IMAGE
87vgaa7br2yt     *:80->80/tcp cluster       replicated     1/1            russmckendrick/clust
er:latest
russ in ~
⚡
```

```

1. russ (bash)
russ in ~
⚡ docker service inspect cluster --pretty

ID:                87vgaa7br2ytz1km95ewfk12w
Name:              cluster
Service Mode:     Replicated
Replicas:         1
Placement:
  Constraints:     [node.role == worker]
UpdateConfig:
  Parallelism:    1
  On failure:     pause
  Monitoring Period: 5s
  Max failure ratio: 0
  Update order:   stop-first
RollbackConfig:
  Parallelism:    1
  On failure:     pause
  Monitoring Period: 5s
  Max failure ratio: 0
  Rollback order: stop-first
ContainerSpec:
  Image:          russmckendrick/cluster:latest@sha256:b3489fc2e2fee72d131f56d7939129314ff86fb359765475451bfe1499fc44d1
  Init:          false
Resources:
Endpoint Mode: vip
Ports:
  PublishedPort = 80
  Protocol = tcp
  TargetPort = 80
  PublishMode = ingress
russ in ~
⚡ █

```

```

1. russ (bash)
russ in ~
⚡ docker node ps
ID                NAME                IMAGE                NODE                DESIRED STATE
CURRENT STATE    ERROR              PORTS
russ in ~
⚡ docker node ps swarm-manager
ID                NAME                IMAGE                NODE                DESIRED
STATE            CURRENT STATE      ERROR              PORTS
u87coza5ofoe    cluster.1          russmckendrick/cluster:latest    swarm-manager    Running
Running 9 minutes ago
russ in ~
⚡ docker node ps swarm-worker02
ID                NAME                IMAGE                NODE                DESIRED STATE
CURRENT STATE    ERROR              PORTS
russ in ~
⚡ █

```



```

1. russ (bash)
russ in ~
⚡ docker service scale cluster=6
cluster scaled to 6
overall progress: 6 out of 6 tasks
1/6: running
2/6: running
3/6: running
4/6: running
5/6: running
6/6: running
verify: Service converged
russ in ~
⚡ docker service ls

```

ID	PORTS	NAME	MODE	REPLICAS	IMAGE
87vga7br2yt		cluster	replicated	6/6	russmckendrick/clust

```

er:latest *:80->80/tcp
russ in ~
⚡ docker node ps swarm-manager

```

ID	STATE	CURRENT STATE	NAME	IMAGE	ERROR	PORTS	NODE	DESIRED
u87coza5ofoe	Running	Running 14 minutes ago	cluster.1	russmckendrick/cluster:latest			swarm-manager	Running
rrw34qekavwp	Running	Running 26 seconds ago	cluster.3	russmckendrick/cluster:latest			swarm-manager	Running
y0izt2ojn7de	Running	Running 26 seconds ago	cluster.6	russmckendrick/cluster:latest			swarm-manager	Running

```

russ in ~
⚡ docker node ps swarm-worker02

```

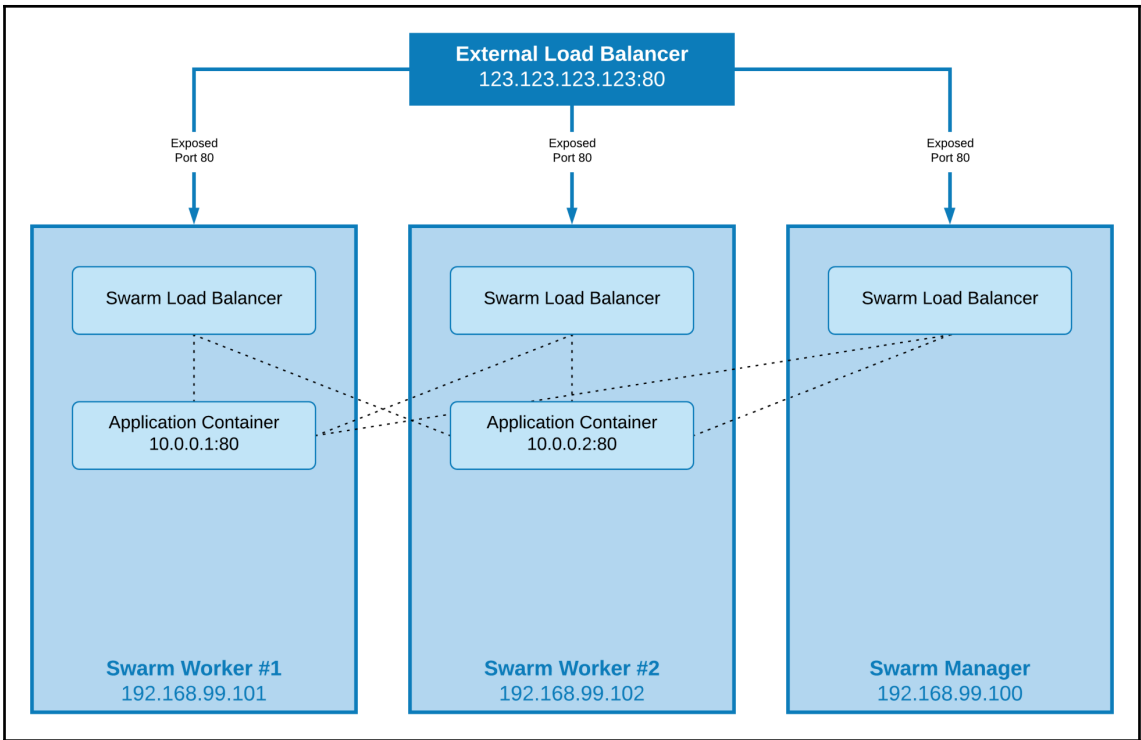
ID	STATE	CURRENT STATE	NAME	IMAGE	ERROR	PORTS	NODE	DESIRED
o1jn7bvngjyy	Running	Running 21 seconds ago	cluster.2	russmckendrick/cluster:latest			swarm-worker02	Running
2ik85yu5qy98	Running	Running 21 seconds ago	cluster.4	russmckendrick/cluster:latest			swarm-worker02	Running
nqppvuv6i3oz	Running	Running 21 seconds ago	cluster.5	russmckendrick/cluster:latest			swarm-worker02	Running

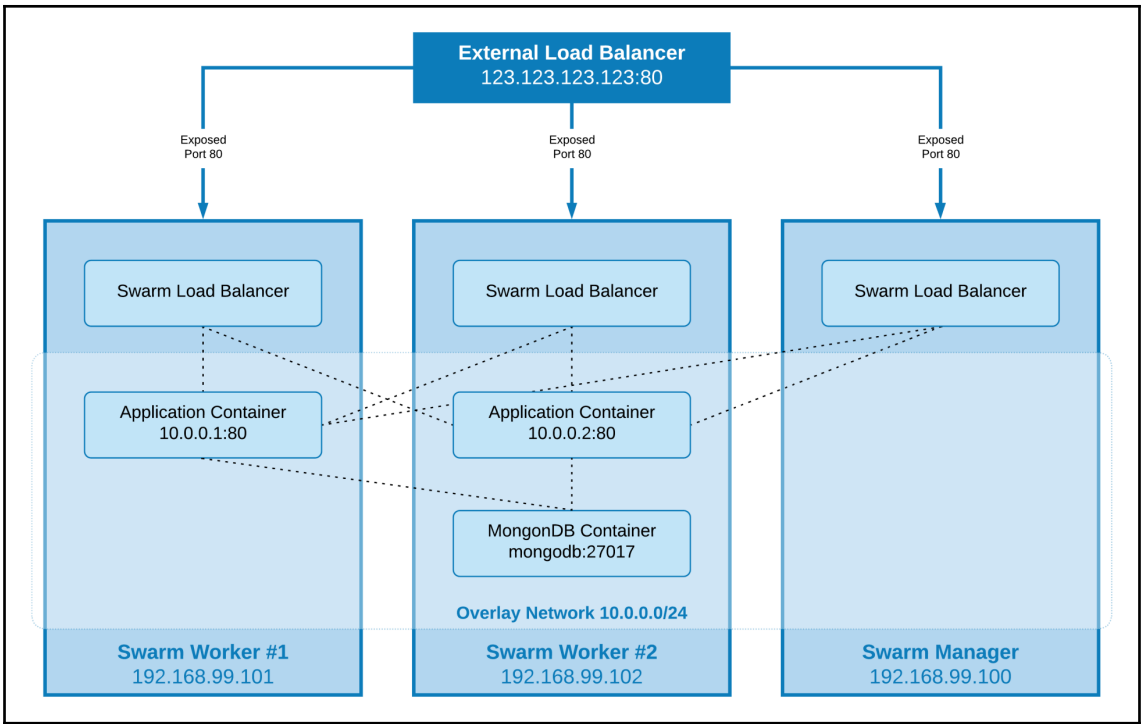
```

russ in ~
⚡ █

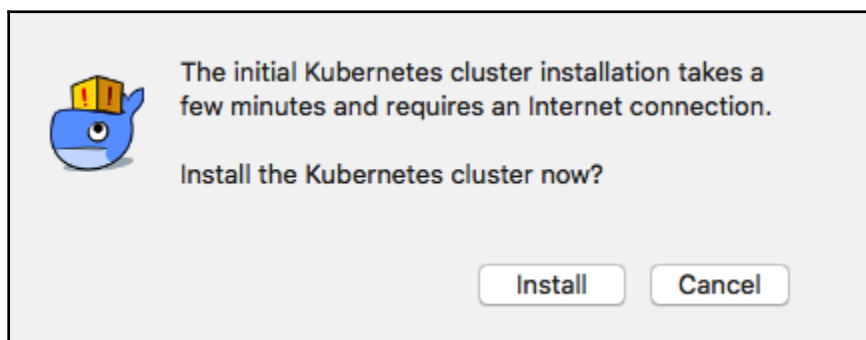
```


```
1. stack (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter07/stack on master*
⚡ docker stack deploy --compose-file=docker-compose.yml cluster
Creating network cluster_default
Creating service cluster_cluster
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter07/stack on master*
⚡ docker stack ls
NAME          SERVICES          ORCHESTRATOR
cluster       1                  Swarm
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter07/stack on master*
⚡ docker stack services cluster
ID            PORTS              NAME                MODE                REPLICAS            IMAGE
rapeiahdqvt2  *:80->80/tcp       cluster_cluster     replicated           6/6                  russmckendrick/clust
er:latest
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter07/stack on master*
⚡ docker stack ps cluster
ID            STATE              CURRENT STATE          ERROR                PORTS              NODE                DESIRED
2eq4ieltrmc8 Running 10 seconds ago
xgkcxii41jvx Running 10 seconds ago
7jqk32zcyab  Running 10 seconds ago
wq4wa0wo7m3f Running 10 seconds ago
tawpnj68cd8m Running 10 seconds ago
tdepnvszip1  Running 10 seconds ago
```





Chapter 9: Docker and Kubernetes





Cluster installation in progress

Waiting for Kubernetes to be up and running

Run in background

Kubernetes

General File Sharing Disk Advanced Proxies Daemon **Kubernetes** Reset

Enable Kubernetes

Start a Kubernetes single-node cluster when starting Docker.

Default orchestrator for "docker stack" commands
(changes "~/.docker/config.json"):

Kubernetes Swarm

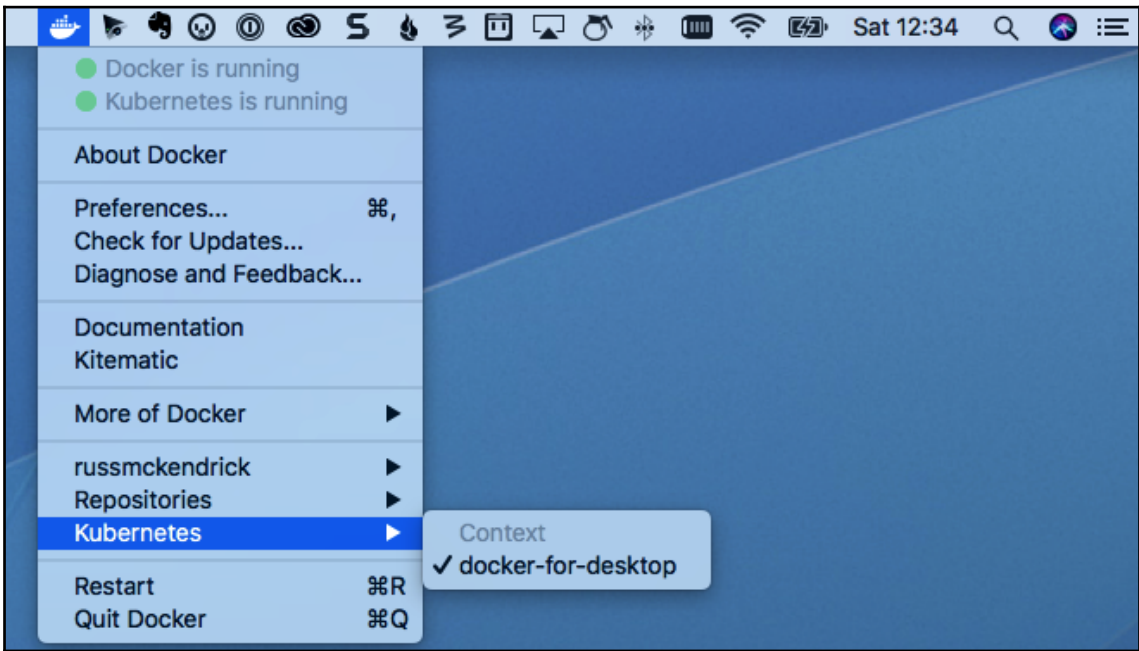
Show system containers (advanced)

Show Kubernetes internal containers when using Docker commands.

Apply

● Docker is running ● Kubernetes is running

```
1. russ (bash)
russ in ~
⚡ docker container ls --format {{.Names}}
k8s_compose_compose-api-6fbc44c575-1gbsp_docker_db5f4adb-be57-11e8-b8b0-025000000001_1
k8s_sidecar_kube-dns-86f4d74b45-2kxc4_kube-system_db5f3f39-be57-11e8-b8b0-025000000001_0
k8s_dnsmasq_kube-dns-86f4d74b45-2kxc4_kube-system_db5f3f39-be57-11e8-b8b0-025000000001_0
k8s_kube-proxy_kube-proxy-9g4ms_kube-system_db9aad95-be57-11e8-b8b0-025000000001_0
k8s_kubedns_kube-dns-86f4d74b45-2kxc4_kube-system_db5f3f39-be57-11e8-b8b0-025000000001_0
k8s_compose_compose-7447646cf5-sn4qf_docker_db5f3ed8-be57-11e8-b8b0-025000000001_0
k8s_POD_kube-proxy-9g4ms_kube-system_db9aad95-be57-11e8-b8b0-025000000001_0
k8s_POD_compose-api-6fbc44c575-1gbsp_docker_db5f4adb-be57-11e8-b8b0-025000000001_0
k8s_POD_kube-dns-86f4d74b45-2kxc4_kube-system_db5f3f39-be57-11e8-b8b0-025000000001_0
k8s_POD_compose-7447646cf5-sn4qf_docker_db5f3ed8-be57-11e8-b8b0-025000000001_0
k8s_kube-scheduler_kube-scheduler-docker-for-desktop_kube-system_6d5c9cb98205e46b85b941c8a44fc236_0
k8s_kube-apiserver_kube-apiserver-docker-for-desktop_kube-system_8d9e7c762f5054448857054bed823088_0
k8s_etcd_etcd-docker-for-desktop_kube-system_41100e62ee00db4e14cddb0ef9372a48_0
k8s_kube-controller-manager_kube-controller-manager-docker-for-desktop_kube-system_5406798500860df71be520b5eb63ea84_0
k8s_POD_kube-scheduler-docker-for-desktop_kube-system_6d5c9cb98205e46b85b941c8a44fc236_0
k8s_POD_kube-apiserver-docker-for-desktop_kube-system_8d9e7c762f5054448857054bed823088_0
k8s_POD_kube-controller-manager-docker-for-desktop_kube-system_5406798500860df71be520b5eb63ea84_0
k8s_POD_etcd-docker-for-desktop_kube-system_41100e62ee00db4e14cddb0ef9372a48_0
russ in ~
⚡
```



```
1. russ (bash)
russ in ~
⚡ kubectl version
Client Version: version.Info{Major:"1", Minor:"10", GitVersion:"v1.10.3", GitCommit:"2bba0127d85d5a4
6ab4b778548be28623b32d0b0", GitTreeState:"clean", BuildDate:"2018-05-21T09:17:39Z", GoVersion:"go1.9
.3", Compiler:"gc", Platform:"darwin/amd64"}
Server Version: version.Info{Major:"1", Minor:"10", GitVersion:"v1.10.3", GitCommit:"2bba0127d85d5a4
6ab4b778548be28623b32d0b0", GitTreeState:"clean", BuildDate:"2018-05-21T09:05:37Z", GoVersion:"go1.9
.3", Compiler:"gc", Platform:"linux/amd64"}
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ kubectl get nodes
NAME                                STATUS    ROLES    AGE    VERSION
docker-for-desktop                 Ready    master   2h    v1.10.3
russ in ~
⚡
```

```
1. russ (bash)
russ in ~
⚡ kubectl get namespaces
NAME      STATUS    AGE
default   Active    3h
docker    Active    3h
kube-public Active    3h
kube-system Active    3h
russ in ~
⚡ kubectl get --namespace kube-system pods
NAME                                READY    STATUS    RESTARTS    AGE
etcd-docker-for-desktop             1/1     Running   0            3h
kube-apiserver-docker-for-desktop    1/1     Running   0            3h
kube-controller-manager-docker-for-desktop 1/1     Running   0            3h
kube-dns-86f4d74b45-2kxc4           3/3     Running   0            3h
kube-proxy-9g4ms                     1/1     Running   0            3h
kube-scheduler-docker-for-desktop    1/1     Running   0            3h
russ in ~
⚡
```



```
1. russ (bash)
russ in ~
⚡ kubectl logs --namespace kube-system kube-scheduler-docker-for-desktop -c kube-scheduler
W0922 13:10:16.463650    1 server.go:163] WARNING: all flags other than --config are deprecated.
Please begin using a config file ASAP.
I0922 13:10:16.481872    1 server.go:555] Version: v1.10.3
I0922 13:10:16.482891    1 server.go:574] starting healthz server on 127.0.0.1:10251
E0922 13:10:16.488083    1 reflector.go:205] k8s.io/kubernetes/vendor/k8s.io/client-go/informers/
factory.go:87: Failed to list *v1.PersistentVolume: Get https://192.168.65.3:6443/api/v1/persistentv
olumes?limit=500&resourceVersion=0: dial tcp 192.168.65.3:6443: getsockopt: connection refused
E0922 13:10:16.488342    1 reflector.go:205] k8s.io/kubernetes/vendor/k8s.io/client-go/informers/
factory.go:87: Failed to list *v1.Service: Get https://192.168.65.3:6443/api/v1/services?limit=500&r
esourceVersion=0: dial tcp 192.168.65.3:6443: getsockopt: connection refused
E0922 13:10:16.488345    1 reflector.go:205] k8s.io/kubernetes/cmd/kube-scheduler/app/server.go:5
94: Failed to list *v1.Pod: Get https://192.168.65.3:6443/api/v1/pods?fieldSelector=spec.schedulerName%3Ddefault-scheduler%2Cstatus.phase%21%3DFailed%2Cstatus.phase%21%3DSucceeded&limit=500&resourceVe
rsion=0: dial tcp 192.168.65.3:6443: getsockopt: connection refused
E0922 13:10:16.490129    1 reflector.go:205] k8s.io/kubernetes/vendor/k8s.io/client-go/informers/
factory.go:87: Failed to list *v1.ReplicationController: Get https://192.168.65.3:6443/api/v1/replic
```

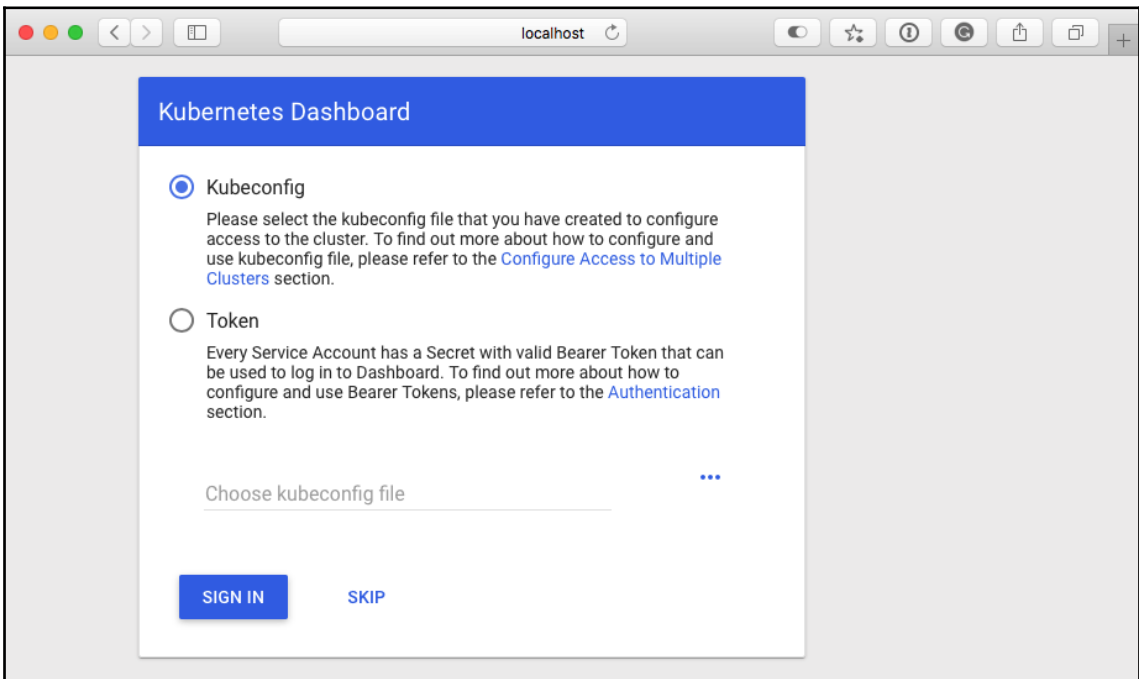
```
1. russ (bash)
russ in ~
⚡ kubectl exec --namespace kube-system kube-scheduler-docker-for-desktop -c kube-scheduler -- unam
-a
Linux linuxkit-025000000001 4.9.93-linuxkit-aufs #1 SMP Wed Jun 6 16:55:56 UTC 2018 x86_64 GNU/Linux
russ in ~
```

```
1. russ (bash)
russ in ~
⚡ kubectl create -f https://raw.githubusercontent.com/kubernetes/dashboard/master/src/deplo/recom
ended/kubernetes-dashboard.yaml
secret "kubernetes-dashboard-certs" created
serviceaccount "kubernetes-dashboard" created
role.rbac.authorization.k8s.io "kubernetes-dashboard-minimal" created
rolebinding.rbac.authorization.k8s.io "kubernetes-dashboard-minimal" created
deployment.apps "kubernetes-dashboard" created
service "kubernetes-dashboard" created
russ in ~
```

```
1. russ (bash)
russ in ~
⚡ kubectl get deployments --namespace kube-system
NAME                DESIRED   CURRENT   UP-TO-DATE   AVAILABLE   AGE
kube-dns            1         1         1             1           3h
kubernetes-dashboard 1         1         1             1           3m
russ in ~
⚡ kubectl get services --namespace kube-system
NAME                TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
kube-dns            ClusterIP   10.96.0.10   <none>        53/UDP,53/TCP    3h
kubernetes-dashboard ClusterIP   10.99.112.127 <none>        443/TCP          3m
russ in ~
```

```
1. russ (kubectl)
russ in ~
⚡ kubectl proxy
Starting to serve on 127.0.0.1:8001
```

```
{
  "major": "1",
  "minor": "10",
  "gitVersion": "v1.10.3",
  "gitCommit": "2bba0127d85d5a46ab4b778548be28623b32d0b0",
  "gitTreeState": "clean",
  "buildDate": "2018-05-21T09:05:37Z",
  "goVersion": "go1.9.3",
  "compiler": "gc",
  "platform": "linux/amd64"
}
```



The screenshot shows the Kubernetes dashboard interface. The top navigation bar includes the Kubernetes logo, a search bar, and a '+ CREATE' button. The left sidebar contains a menu with 'Overview' selected, and categories for Cluster, Namespace, Workloads, and Replication Controllers. The main content area is titled 'Workloads' and features a 'Workloads Statuses' section with four green circular progress indicators, each showing 100.00% for Daemon Sets, Deployments, Pods, and Replica Sets. Below this, there are two tables: 'Daemon Sets' and 'Deployments'. Both tables show a single entry with a green checkmark, indicating they are running successfully.

Name	Namespace	Labels	Pods	Age	Images
✓ kube-proxy	kube-system	k8s-app: kub...	1 / 1	3 hours	k8s.gcr.io/kube

Name	Namespace	Labels	Pods	Age	Images
✓ kubernet-es-das	kube-system	k8s-app: kub...	1 / 1	11 minutes	k8s.gcr.io/kube

```

2. stack (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ docker stack deploy --compose-file=docker-compose.yml cluster
Waiting for the stack to be stable and running...
cluster: Ready [pod status: 1/6 ready, 5/6 pending, 0/6 failed]

Stack cluster is stable and running

russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡

```

```

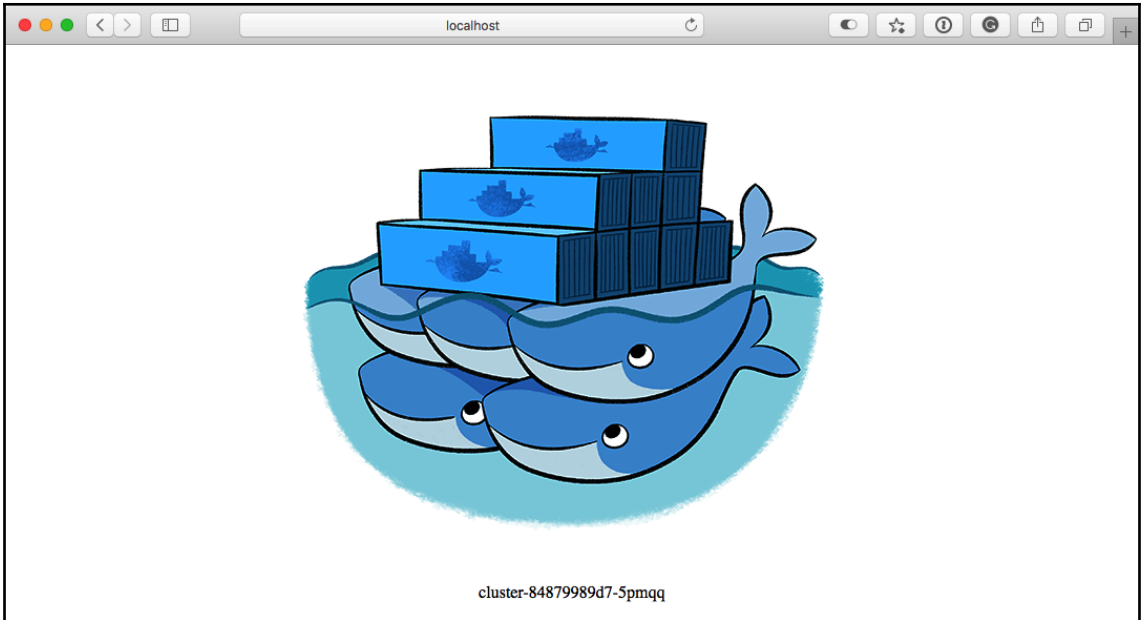
2. stack (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ docker stack ls
NAME          SERVICES          ORCHESTRATOR          NAMESPACE
cluster      1                 Kubernetes            default
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ docker stack services cluster
ID           PORTS          NAME          MODE          REPLICAS          IMAGE
f6fd4def-be7  *:80->80/tcp  cluster_cluster  replicated    6/6              russmckendrick/cluster
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ docker stack ps cluster
ID           NAME          DESIRED STATE  CURRENT STATE  ERROR          IMAGE          PORTS          NODE
f7001225-be7  cluster_cluster-84879989d7-5pmqq  Running  Running 3 minutes ago  cluster_cluster-84879989d7-5pmqq  russmckendrick/cluster  *:0->80/tcp  docker-for-desktop
f7001ae6-be7  cluster_cluster-84879989d7-5rhpw  Running  Running 3 minutes ago  cluster_cluster-84879989d7-5rhpw  russmckendrick/cluster  *:0->80/tcp  docker-for-desktop
f70136cb-be7  cluster_cluster-84879989d7-67gxx  Running  Running 3 minutes ago  cluster_cluster-84879989d7-67gxx  russmckendrick/cluster  *:0->80/tcp  docker-for-desktop
f7013452-be7  cluster_cluster-84879989d7-k7xzf  Running  Running 3 minutes ago  cluster_cluster-84879989d7-k7xzf  russmckendrick/cluster  *:0->80/tcp  docker-for-desktop
f6ff5297-be7  cluster_cluster-84879989d7-lj4f5  Running  Running 3 minutes ago  cluster_cluster-84879989d7-lj4f5  russmckendrick/cluster  *:0->80/tcp  docker-for-desktop
f701195c-be7  cluster_cluster-84879989d7-x867j  Running  Running 3 minutes ago  cluster_cluster-84879989d7-x867j  russmckendrick/cluster  *:0->80/tcp  docker-for-desktop
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡

```

```

2. stack (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ kubectl get deployments
NAME          DESIRED  CURRENT  UP-TO-DATE  AVAILABLE  AGE
cluster      6        6        6           6          5m
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ kubectl get services
NAME          TYPE          CLUSTER-IP          EXTERNAL-IP          PORT(S)          AGE
cluster      ClusterIP     None                <none>               55555/TCP       5m
cluster-published  LoadBalancer  10.108.101.164     localhost            80:31188/TCP    5m
kubernetes    ClusterIP     10.96.0.1          <none>               443/TCP         4h
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡

```



bash-4.4# cat /etc/*release
3.7.0
NAME="Alpine Linux"
ID=alpine
VERSION_ID=3.7.0
PRETTY_NAME="Alpine Linux v3.7"
HOME_URL="http://alpinelinux.org"
BUG_REPORT_URL="http://bugs.alpinelinux.org"
bash-4.4# ps aux

PID	USER	TIME	COMMAND
1	root	0:00	{supervisord} /usr/bin/python2 /usr/bin/supervisord -c /etc/super
11	root	0:00	nginx: master process /usr/sbin/nginx
15	nginx	0:00	nginx: worker process
16	root	0:00	bash
24	root	0:00	bash
32	root	0:00	ps aux

bash-4.4#

```
1. stack (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ kompose up
INFO We are going to create Kubernetes Deployments, Services and PersistentVolumeClaims for your Dockerized application. If you need different kind of resources, use the 'kompose convert' and 'kubectl create -f' commands instead.

INFO Deploying application in "default" namespace
INFO Successfully created Service: cluster
INFO Successfully created Pod: cluster

Your application has been deployed to Kubernetes. You can run 'kubectl get deployment,svc,pods,pvc' for details.
```

```
1. stack (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ kubectl get deployment,svc,pods,pvc
NAME                TYPE          CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
service/cluster     ClusterIP    10.105.16.60    <none>           80/TCP           16s
service/kubernetes  ClusterIP    10.96.0.1       <none>           443/TCP          6h

NAME          READY   STATUS    RESTARTS   AGE
pod/cluster   1/1     Running   0          16s
```

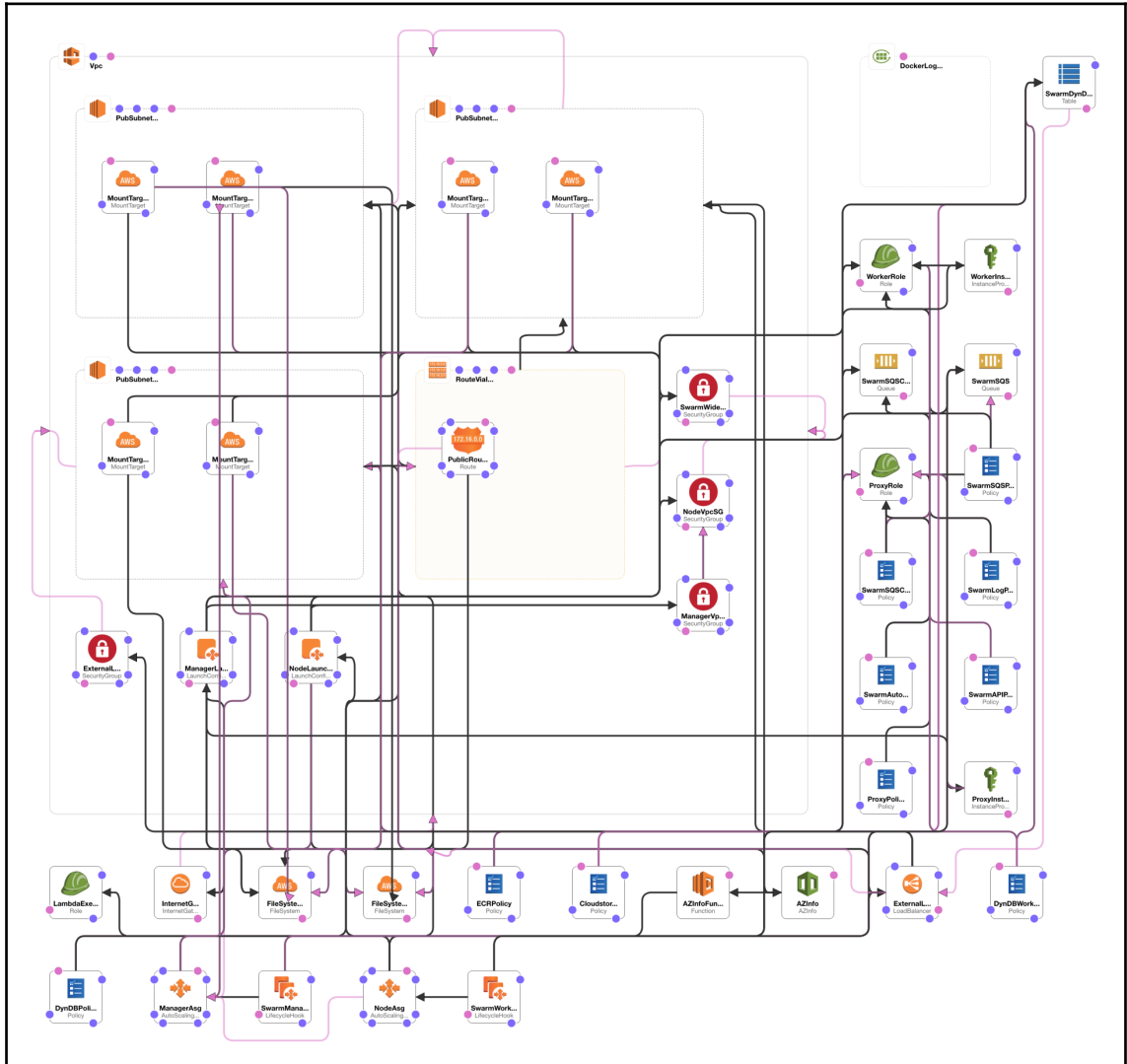
```
1. stack (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ kompose down
INFO Deleting application in "default" namespace
INFO Successfully deleted Service: cluster
INFO Successfully deleted Pod: cluster
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡
```

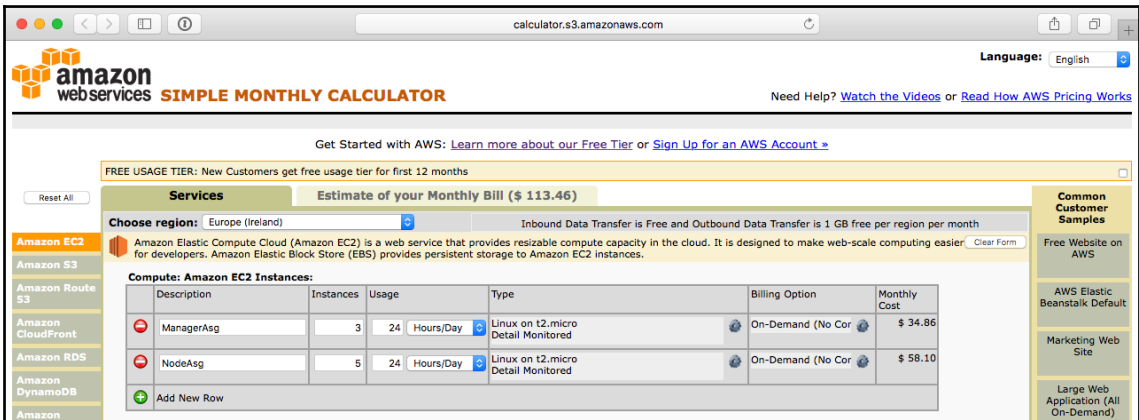
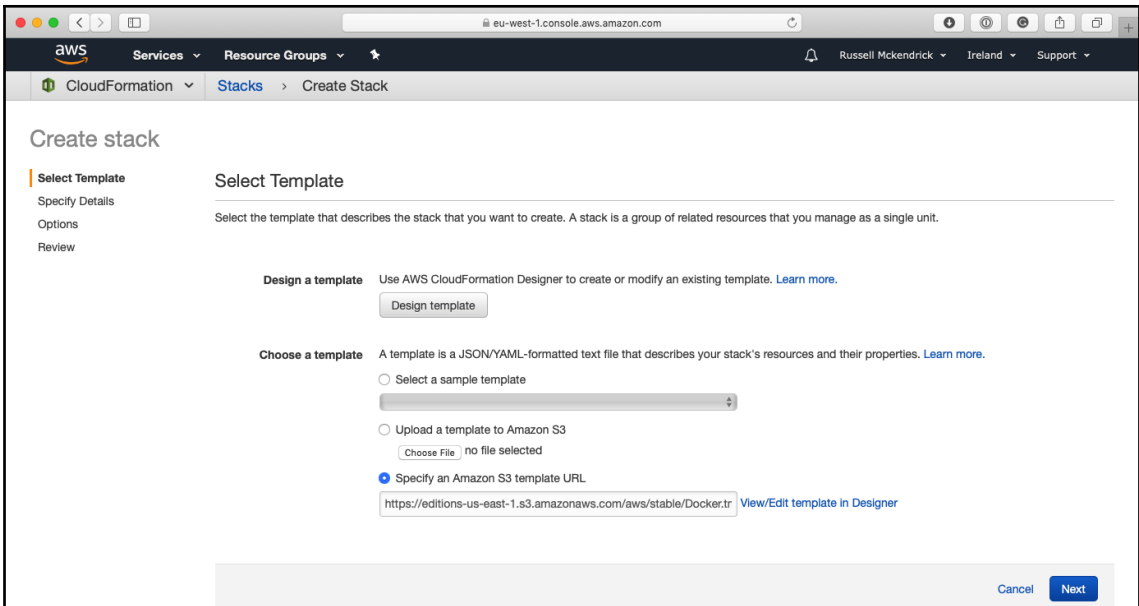
```
1. stack (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ kompose convert
INFO Kubernetes file "cluster-service.yaml" created
INFO Kubernetes file "cluster-pod.yaml" created
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡
```

```
1. stack (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ kubectl create -f cluster-pod.yaml
pod "cluster" created
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ kubectl create -f cluster-service.yaml
service "cluster" created
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡ kubectl get deployment,svc,pods,pvc
NAME                TYPE          CLUSTER-IP      EXTERNAL-IP  PORT(S)    AGE
service/cluster     ClusterIP    10.109.181.119  <none>       80/TCP     39s
service/kubernetes  ClusterIP    10.96.0.1       <none>       443/TCP    7h

NAME                READY    STATUS    RESTARTS  AGE
pod/cluster         1/1     Running   0          43s
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter09/stack on master*
⚡
```

Chapter 10: Running Docker in Public Clouds





eu-west-1.console.aws.amazon.com

Services Resource Groups

CloudFormation Stacks

Create Stack Actions Design template

Filter: Active By Stack Name Showing 1 stack

Stack Name	Created Time	Status	Description
<input checked="" type="checkbox"/> Docker	2018-10-13 12:55:38 UTC+0100	CREATE_IN_PROGRESS	Docker CE for AWS 18.06.1-ce (18.06.1-ce-aws1)

Overview Outputs Resources Events Template Parameters Tags Stack Policy Change Sets Rollback Triggers

Filter by: Status Search events

2018-10-13	Status	Type	Logical ID	Status Reason
12:55:44 UTC+0100	CREATE_COMPLETE	AWS::SQS::Queue	SwarmSQSCleanup	
12:55:44 UTC+0100	CREATE_COMPLETE	AWS::SQS::Queue	SwarmSQS	
12:55:44 UTC+0100	CREATE_COMPLETE	AWS::Logs::LogGroup	DockerLogGroup	
12:55:44 UTC+0100	CREATE_IN_PROGRESS	AWS::IAM::Role	ProxyRole	Resource creation Initiated
12:55:44 UTC+0100	CREATE_IN_PROGRESS	AWS::SQS::Queue	SwarmSQSCleanup	Resource creation Initiated
12:55:43 UTC+0100	CREATE_IN_PROGRESS	AWS::SQS::Queue	SwarmSQS	Resource creation Initiated

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eu-west-1.console.aws.amazon.com

Services Resource Groups

CloudFormation Stacks

Create Stack Actions Design template

Filter: Active By Stack Name Showing 1 stack

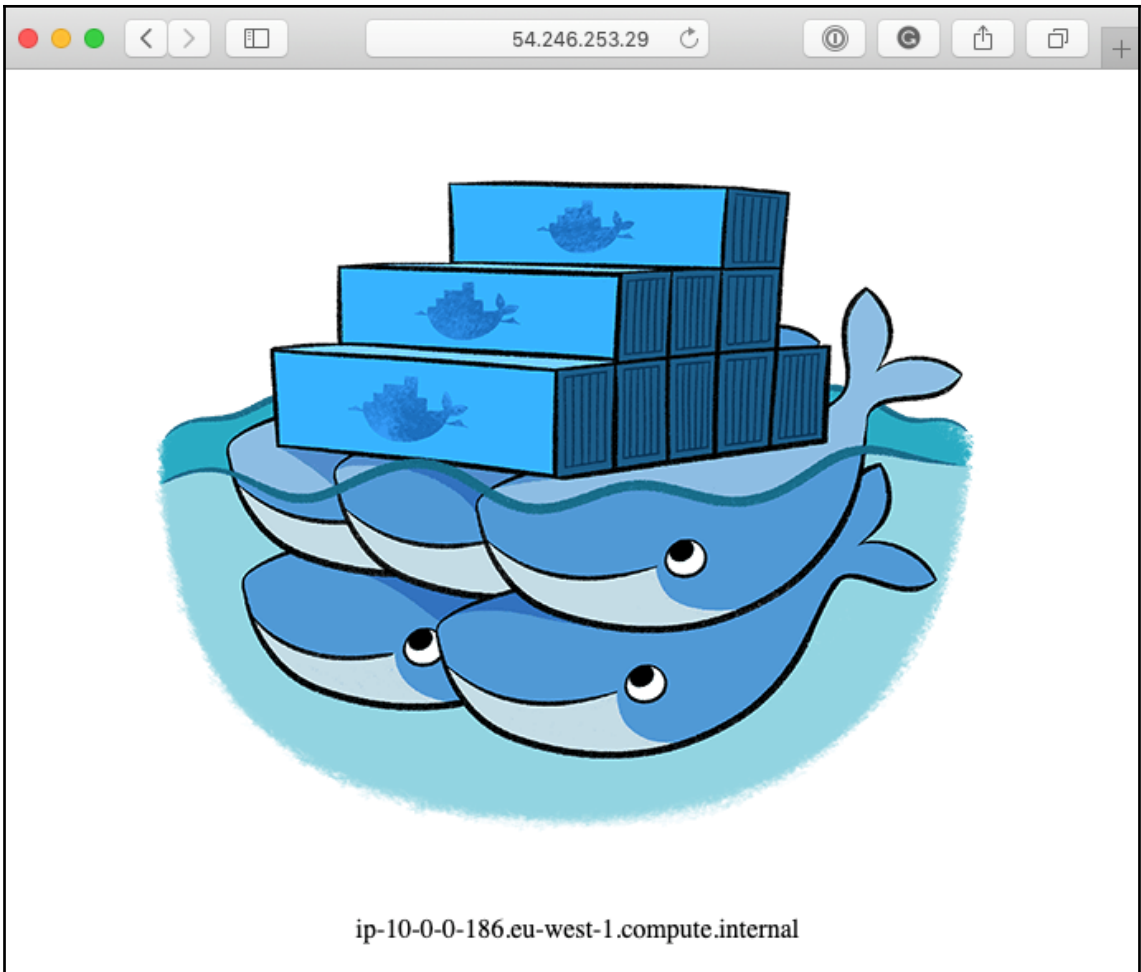
Stack Name	Created Time	Status	Description
<input checked="" type="checkbox"/> Docker	2018-10-13 12:55:38 UTC+0100	CREATE_COMPLETE	Docker CE for AWS 18.06.1-ce (18.06.1-ce-aws1)

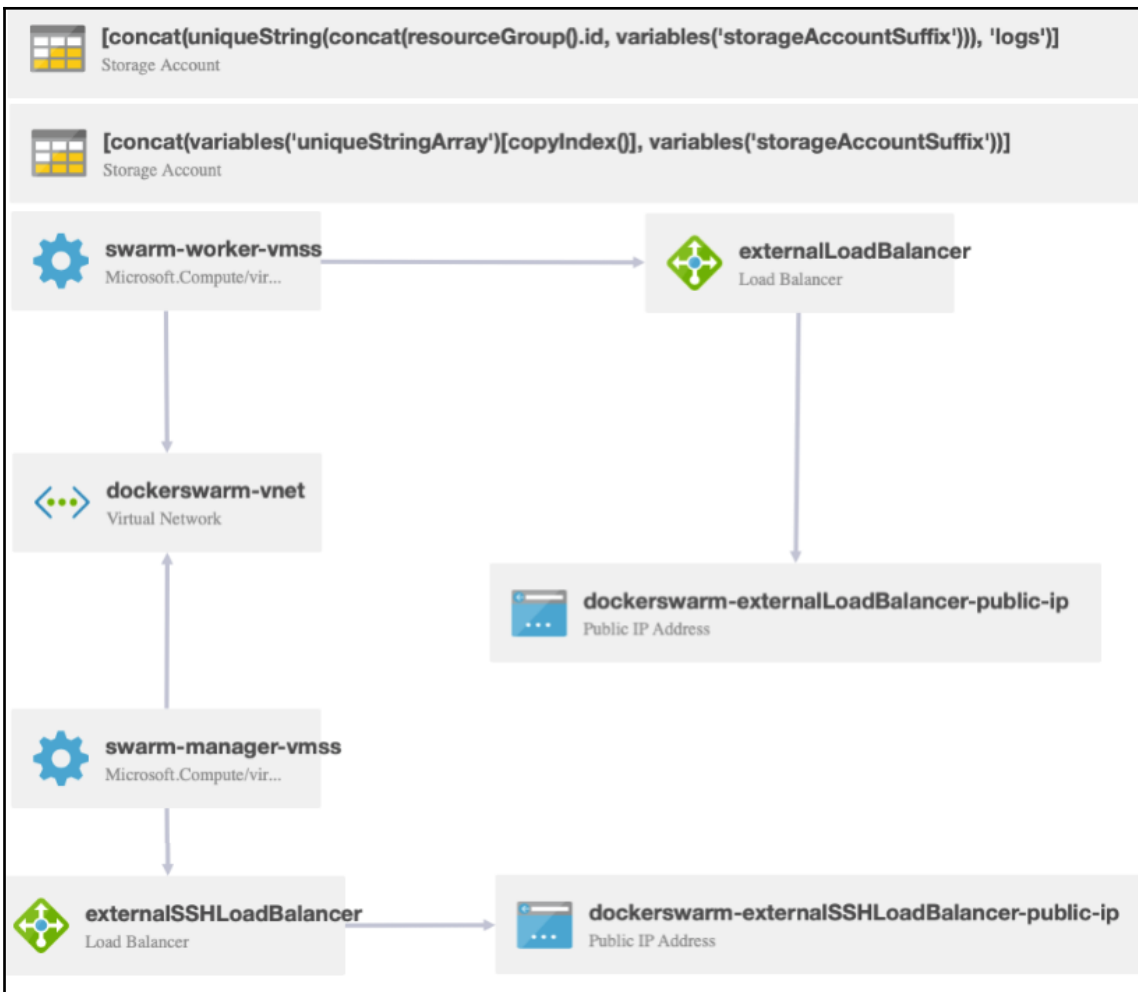
Overview Outputs Resources Events Template Parameters Tags Stack Policy Change Sets Rollback Triggers

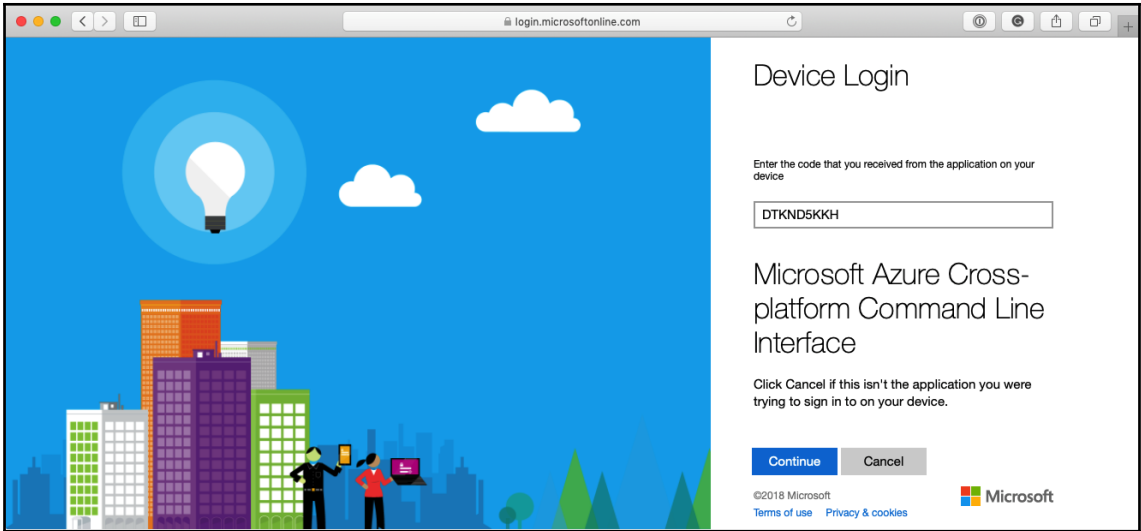
Key	Value	Description	Export Name
DefaultDNSTarget	Docker-ExternalLoa-PCIA1UI53AS-1796222965 .eu-west-1.elb.amazonaws.com	Use this name to update your DNS records	
ZoneAvailabilityComment	This region has at least 3 Availability Zones (AZ). This is ideal to ensure a fully functional Swarm in case you lose an AZ.	Availability Zones Comment	
Managers	https://eu-west-1.console.aws.amazon.com/ec2/v2/home?region=eu-west-1#instances:tag:aws:autoscaling:groupName=Docker-ManagerAsg-D0B3Z8FVMDVW;sort=desc:dnsName	You can see the manager nodes associated wit...	
VPCID	vpc-03605e7ef4344eb8	Use this as the VPC for configuring Private Ho...	

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```
1.russ (ssh)
russ in ~
⚡ ssh docker@ec2-34-245-167-38.eu-west-1.compute.amazonaws.com
The authenticity of host 'ec2-34-245-167-38.eu-west-1.compute.amazonaws.com (34.245.167.38)' can't be established.
ECDSA key fingerprint is SHA256:stRR0lo41K/TwgBWLmQLqyyXE5oGkQmV6Z2r0v9APdI.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-34-245-167-38.eu-west-1.compute.amazonaws.com,34.245.167.38' (ECDSA) to the list of known hosts.
Welcome to Docker!
~ $ docker node ls
ID                                     HOSTNAME                                STATUS    AVAILABILITY    MANAGER STATUS
wz9nfm9q9rfsufikmwoimwn8             ip-172-31-11-90.eu-west-1.compute.internal    Ready    Active          ve
p2qng5d9j63syj6kg0rsifqk *         ip-172-31-14-158.eu-west-1.compute.internal    Ready    Active          ve
s5cbbxqop54xlcgbbpmocz9pj           ip-172-31-15-226.eu-west-1.compute.internal    Ready    Active          ve
kh8a7vnd2bofbyqlfk86g12kb          ip-172-31-18-246.eu-west-1.compute.internal    Ready    Active          ve
f4tntntz0fr0rzy4foxfzfwfb          ip-172-31-25-218.eu-west-1.compute.internal    Ready    Active          ve
ifuuw0q8xulcvr3pujba5yagy           ip-172-31-26-22.eu-west-1.compute.internal     Ready    Active          ve
ptenlou0y7zy7q42u8idzsm5i          ip-172-31-36-118.eu-west-1.compute.internal    Ready    Active          ve
z2fx7aaqnw4ccvnglg1xpk3a           ip-172-31-40-161.eu-west-1.compute.internal    Ready    Active          ve
```







```
1. russ (bash)
russ in ~
⚡ docker run -ti docker4x/create-sp-azure docker-sp
info: Executing command login
\info: To sign in, use a web browser to open the page https://microsoft.com/devicelogin and enter
the code DTKND5KKH to authenticate.
/info: Added subscription Pay-As-You-Go
/info: Setting subscription "Pay-As-You-Go" as default
+
info: login command OK
The following subscriptions were retrieved from your Azure account
1) ██████████ ██████████ ██████████ ██████████ :Pay-As-You-Go
Please select the subscription option number to use for Docker swarm resources: 1
Using subscription ██████████ ██████████ ██████████ ██████████
info: Executing command account set
info: Setting subscription to "Pay-As-You-Go" with id "██████████ ██████████ ██████████ ██████████".
info: Changes saved
info: account set command OK
Creating AD application docker-sp
Created AD application, APP_ID=██████████ ██████████ ██████████ ██████████ ██████████
Creating AD App ServicePrincipal
Created ServicePrincipal ID=██████████ ██████████ ██████████ ██████████ ██████████
Waiting for account updates to complete before proceeding ...
Creating role assignment for ██████████ ██████████ ██████████ ██████████ for subscription ██████████ ██████████ ██████████ ██████████
info: Executing command role assignment create
+ Finding role with specified name
\data: RoleAssignmentId : /subscriptions/██████████ ██████████ ██████████ ██████████ /providers/Micro
soft.Authorization/roleAssignments/██████████ ██████████ ██████████ ██████████ ██████████
\data: RoleDefinitionName : Contributor
\data: RoleDefinitionId : ██████████ ██████████ ██████████ ██████████ ██████████
\data: Scope : /subscriptions/██████████ ██████████ ██████████ ██████████ ██████████
\data: Display Name : docker-sp
\data: SignInName : undefined
\data: ObjectID : ██████████ ██████████ ██████████ ██████████ ██████████
\data: ObjectType : ServicePrincipal
+
info: role assignment create command OK
Successfully created role assignment for ██████████ ██████████ ██████████ ██████████ ██████████
Test login...
Waiting for roles to take effect ...
info: Executing command login
\info: Added subscription Pay-As-You-Go
+
info: login command OK

Your access credentials =====
AD ServicePrincipal App ID: ██████████ ██████████ ██████████ ██████████ ██████████
AD ServicePrincipal App Secret: ██████████ ██████████ ██████████ ██████████ ██████████
AD ServicePrincipal Tenant ID: ██████████ ██████████ ██████████ ██████████ ██████████
russ in ~
⚡
```

Microsoft Azure portal.azure.com

Home > Microsoft.Template - Overview

Microsoft.Template - Overview

Deployment

Delete Cancel Redeploy Refresh

... Your deployment is underway

Check the status of your deployment, manage resources, or troubleshoot deployment issues. Pin this page to your dashboard to easily find it next time.

Deployment name: Microsoft.Template
 Subscription: Pay-As-You-Go
 Resource group: Docker

DEPLOYMENT DETAILS (Download)

Start time: 13/10/2018, 16:02:27
 Duration: 34 seconds
 Correlation ID: 60dfd779-32b0-4495-a067-d7df094562b7

RESOURCE	TYPE	STATUS	OPERATION DETAILS
swarm-manager-vmss	Microsoft.Compute/virtualMachin...	Created	Operation details
swarm-worker-vmss	Microsoft.Compute/virtualMachin...	Created	Operation details
externalLoadBalancer	Microsoft.Network/loadBalancers	OK	Operation details
externalSSHLoadBalancer	Microsoft.Network/loadBalancers	OK	Operation details

Additional Resources

- Windows Server 2016 VM [Quickstart tutorial](#)
- Cosmos DB [Quickstart tutorial](#)
- Web App [Quickstart tutorial](#)
- SQL Database [Quickstart tutorial](#)
- Storage Account [Quickstart tutorial](#)

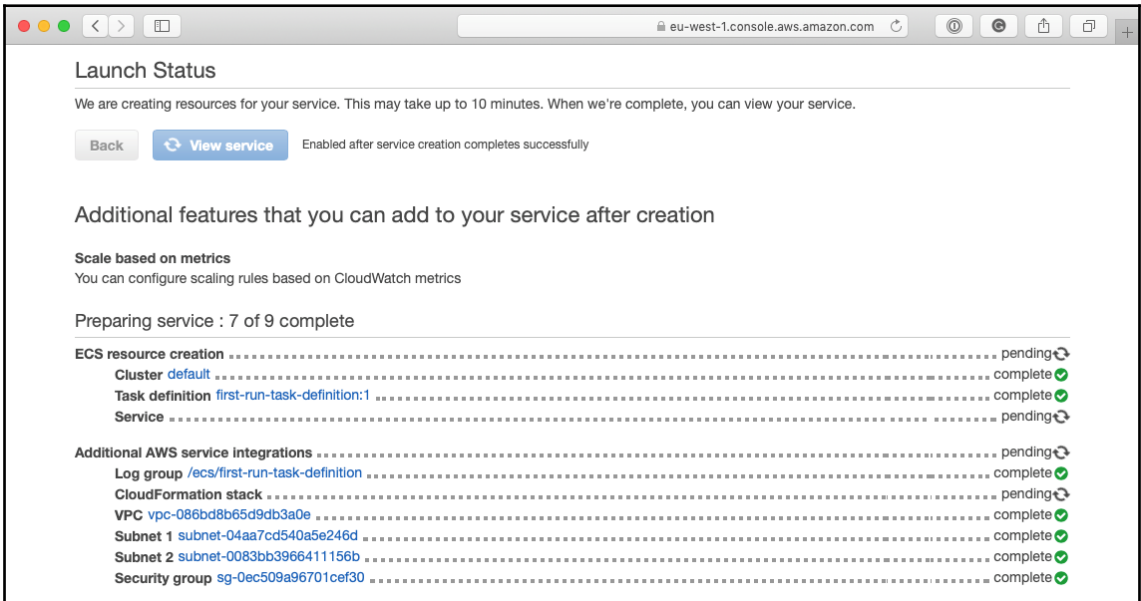
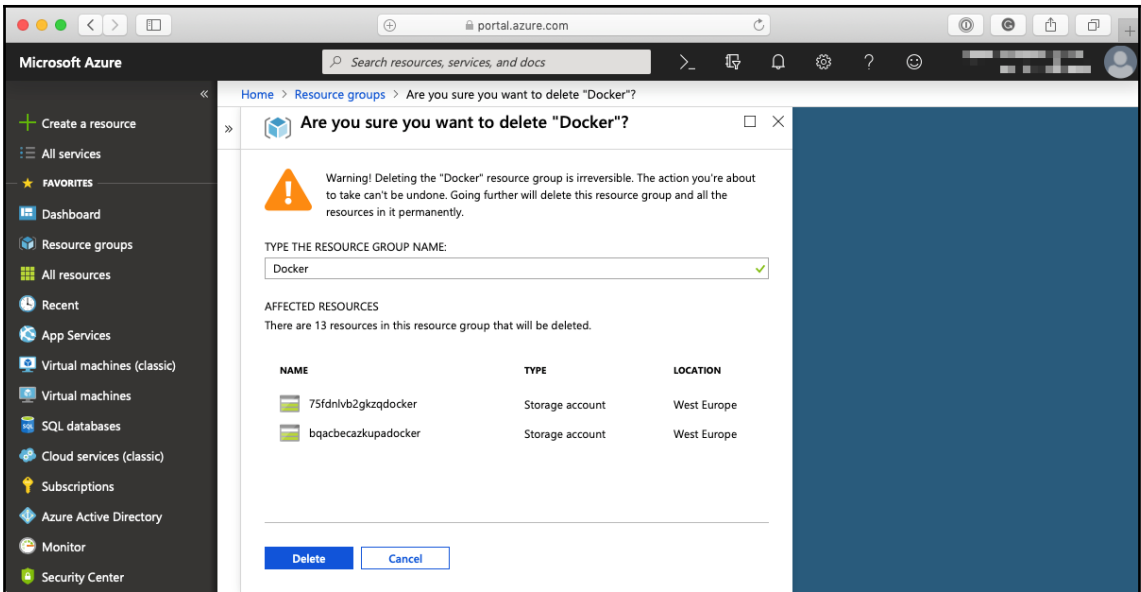
Helpful Links

[Get started with Azure](#)

```

1. russ (ssh)
russ in ~
ssh docker@52.232.99.223 -p 50000
The authenticity of host '[52.232.99.223]:50000 ([52.232.99.223]:50000)' can't be established.
RSA key fingerprint is SHA256:nByaeQDDrDbJWsGS4vyQsLmv+0VTkhD1KnKWwqNuEKg.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '[52.232.99.223]:50000' (RSA) to the list of known hosts.
Welcome to Docker!
swarm-manager000000:~$ docker node ls
ID                STATUS      ENGINE VERSION   HOSTNAME                AVAILABILITY   MANAGER
w31sjueqmu6qada3je59k7mfn *  Ready      18.03.0-ce      swarm-manager000000    Active          Leader
mktku8ez9t4um880rr9usk0eo  Ready      18.03.0-ce      swarm-worker000000     Active
nsgxk52e3j8x9nkw0h7f3c6e4  Ready      18.03.0-ce      swarm-worker000001     Active
swarm-manager000000:~$

```

The screenshot displays the AWS Management Console interface for an ECS Service. The breadcrumb navigation shows 'Clusters > default > Service: cluster-container-service'. The service name 'Service : cluster-container-service' is prominently displayed at the top, with 'Update' and 'Delete' buttons to its right. Below this, a list of service attributes is shown:

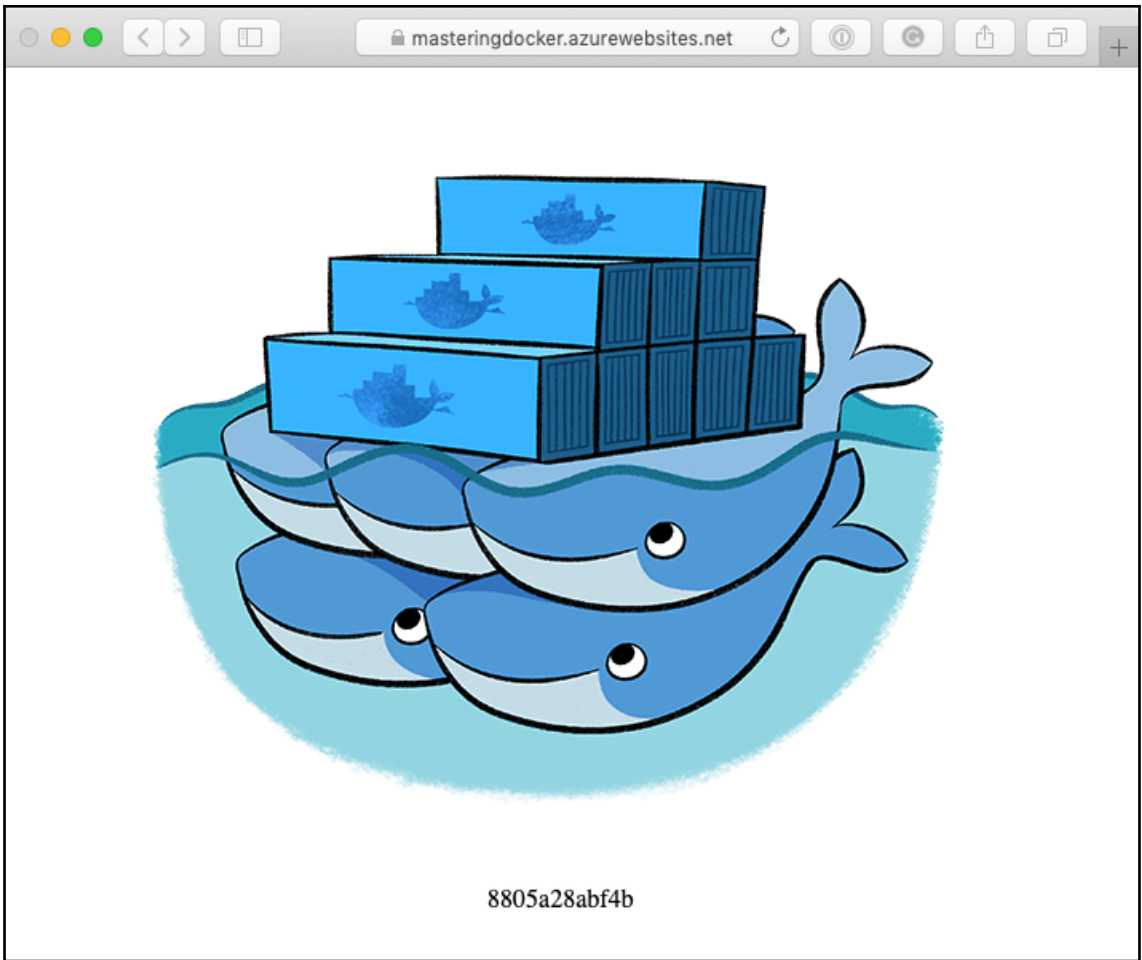
- Cluster: [default](#)
- Status: **ACTIVE**
- Task definition: [first-run-task-definition:1](#)
- Service type: REPLICA
- Launch type: FARGATE
- Platform version: LATEST(1.2.0)
- Service role: [aws-service-role/ecs.amazonaws.com/AWSServiceRoleForECS](#)

On the right side of the attribute list, the following counts are displayed:

- Desired count: 1
- Pending count: 0
- Running count: 1

Below the attributes, a horizontal menu contains tabs for 'Details', 'Tasks', 'Events', 'Auto Scaling', 'Deployments', 'Metrics', and 'Logs'. The 'Details' tab is currently selected. Underneath, there are three sections:

- Load Balancing**: A table with columns 'Load Balancer Name', 'Container Name', and 'Container Port'. The content below the table reads 'No load balancers'.
- Network Access**: A list of network-related settings:
 - Allowed VPC: [vpc-086bd8b65d9db3a0e](#)
 - Allowed subnets: [subnet-0083bb3966411156b](#), [subnet-04aa7cd540a5e246d](#)
 - Security groups*: [sg-0ec509a96701cef30](#)
 - Auto-assign public IP: ENABLED



eu-west-1.console.aws.amazon.com

Services Resource Groups

Russell Mckendrick Ireland Support

Amazon ECS

Clusters Task Definitions Amazon ECR Repositories

Clusters > default > Task: 8cd9ccc3-a8f6-47a4-9baf-1d146144d6be

Task : 8cd9ccc3-a8f6-47a4-9baf-1d146144d6be

Run more like this Stop

Details Logs

Last updated on October 13, 2018 6:47:15 PM (3m ago)

Filter logs

All 30s 5m 1h 6h 1d 1w < 1-9 >

Timestamp (UTC+00:00)	Message
2018-10-13 18:38:19	2018-10-13 17:38:19,806 INFO success: nginx entered RUNNING state, process has stayed up for > than 1 seconds (startsecs)
2018-10-13 18:38:18	2018-10-13 17:38:18,804 INFO gave up: start entered FATAL state, too many start retries too quickly
2018-10-13 18:38:18	2018-10-13 17:38:18,727 INFO exited: start (exit status 0; not expected)
2018-10-13 18:38:18	2018-10-13 17:38:18,703 INFO spawned: 'start' with pid 7
2018-10-13 18:38:18	2018-10-13 17:38:18,630 INFO spawned: 'nginx' with pid 6
2018-10-13 18:38:17	2018-10-13 17:38:17,628 CRIT Server 'unix_http_server' running without any HTTP authentication checking
2018-10-13 18:38:17	2018-10-13 17:38:17,628 INFO supervisord started with pid 1
2018-10-13 18:38:17	2018-10-13 17:38:17,627 INFO RPC interface 'supervisor' initialized
2018-10-13 18:38:17	2018-10-13 17:38:17,613 INFO Set uid to user 0 succeeded

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portal.azure.com

Search resources, services, and docs

Microsoft Azure

Home > App Services > Web

App Services Default Directory

Web

Filter

Filter by name...

NAME







No app services to display

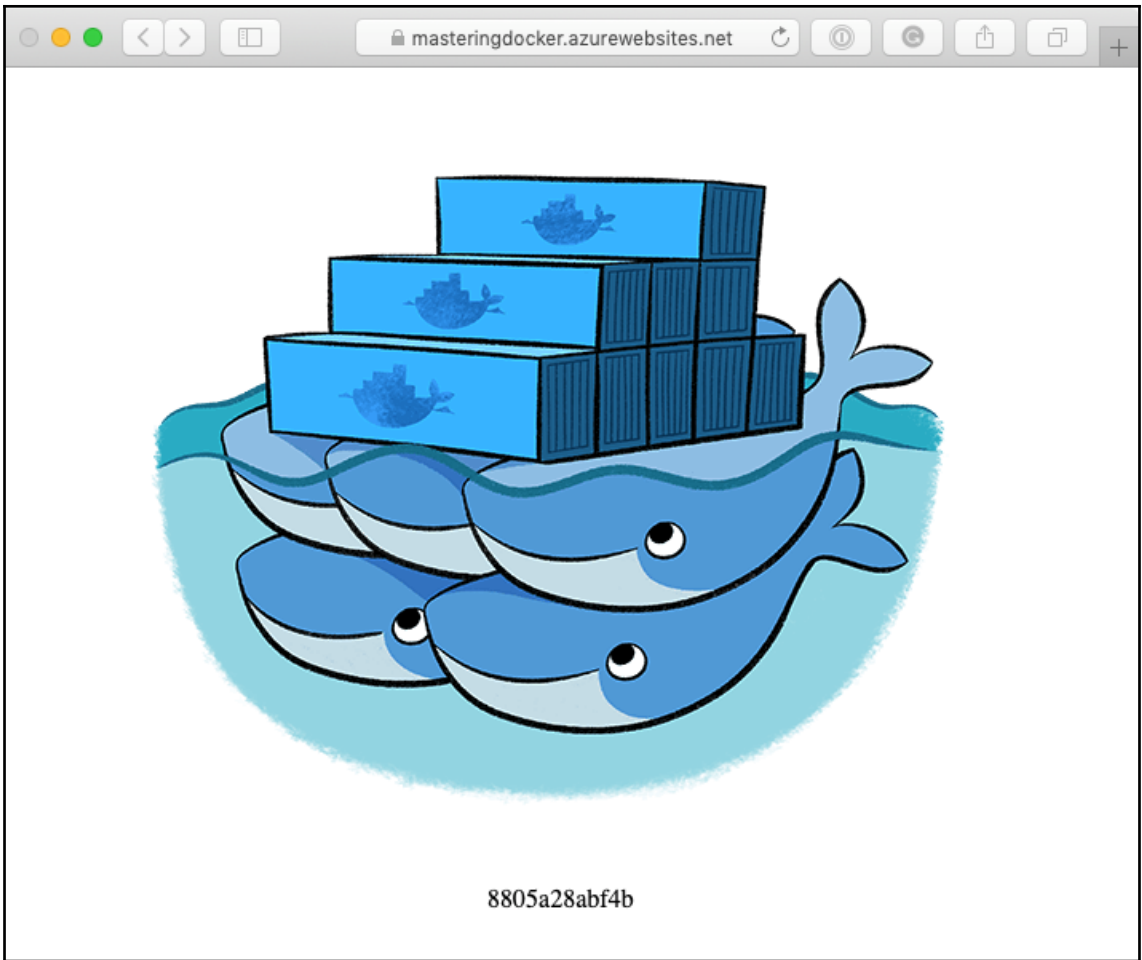
Create, build, deploy, and manage powerful web, mobile, and API apps for employees or customers using a single back-end. Build standards-based web

Search Web

Web Apps

More

					
Web App Microsoft	Web App + SQL Microsoft	App Service Environment Microsoft	WordPress on Linux WordPress	Sitecore® Experience Cloud Sitecore	Function App Microsoft





```
1. russ (bash)
russ in ~
⚡ kubectl version
Client Version: version.Info{Major:"1", Minor:"10", GitVersion:"v1.10.3", GitCommit:"2bba0127d85d5a46ab4b778548be28623b32d0b0", GitTreeState:"clean", BuildDate:"2018-05-21T09:17:39Z", GoVersion:"go1.9.3", Compiler:"gc", Platform:"darwin/amd64"}
Server Version: version.Info{Major:"1", Minor:"9", GitVersion:"v1.9.9", GitCommit:"57729ea3d9a1b75f3fc7bbbadc597ba707d47c8a", GitTreeState:"clean", BuildDate:"2018-06-29T01:07:01Z", GoVersion:"go1.9.3", Compiler:"gc", Platform:"linux/amd64"}
russ in ~
⚡ kubectl get nodes
NAME                                STATUS    ROLES    AGE    VERSION
aks-nodepool1-29124980-0            Ready    agent    7m    v1.9.9
aks-nodepool1-29124980-1            Ready    agent    7m    v1.9.9
russ in ~
⚡
```

```

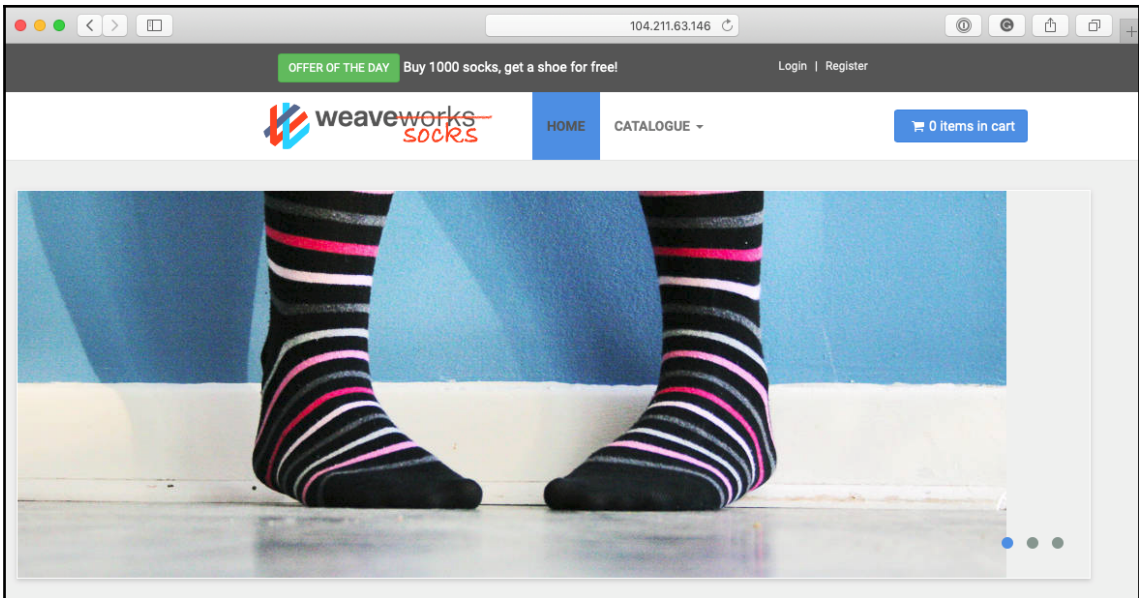
1. russ (bash)
russ in ~
⚡ kubectl -n sock-shop get pods
NAME                                READY    STATUS    RESTARTS   AGE
carts-74f4558cb8-29c5c              1/1     Running  0           4m
carts-db-7fcdddfbc79-k6drk          1/1     Running  0           4m
catalogue-676d4b9f7c-vqjmp          1/1     Running  0           4m
catalogue-db-5c67cdc8cd-d65tr       1/1     Running  1           4m
front-end-977bfd86-w8nzn            1/1     Running  0           4m
orders-787bf5b89f-x5jn4            1/1     Running  0           4m
orders-db-775655b675-dlmnr         1/1     Running  0           4m
payment-75f75b467f-v87w4           1/1     Running  0           4m
queue-master-5c86964795-j5x2f      1/1     Running  0           4m
rabbitmq-96d887875-n9xgm           1/1     Running  0           4m
shipping-5bd69fb4cc-bxx6z          1/1     Running  0           4m
user-5bd9b9c468-gsnrc              1/1     Running  0           4m
user-db-5f9d89bbbb-zpsdn           1/1     Running  0           4m
russ in ~
⚡ █

```

```

1. russ (bash)
russ in ~
⚡ kubectl -n sock-shop get services front-end-lb
NAME            TYPE           CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
front-end-lb    LoadBalancer  10.0.76.211   104.211.63.146 8079:32720/TCP  5m
russ in ~
⚡ kubectl -n sock-shop describe services front-end-lb
Name:          front-end-lb
Namespace:    sock-shop
Labels:       name=front-end
Annotations:   <none>
Selector:     name=front-end
Type:         LoadBalancer
IP:           10.0.76.211
LoadBalancer Ingress: 104.211.63.146
Port:         <unset> 8079/TCP
TargetPort:   8079/TCP
NodePort:     <unset> 32720/TCP
Endpoints:    10.244.1.8:8079
Session Affinity: None
External Traffic Policy: Cluster
Events:
  Type    Reason              Age   From                    Message
  ----    -
  Normal  EnsuringLoadBalancer  5m   service-controller     Ensuring load balancer
  Normal  EnsuredLoadBalancer  4m   service-controller     Ensured load balancer
russ in ~
⚡ █

```



```

1. russ (bash)
russ in ~
⚡ kubectl version
Client Version: version.Info{Major:"1", Minor:"10", GitVersion:"v1.10.3", GitCommit:"2bba0127d85d5a4
6ab4b778548be28623b32d0b0", GitTreeState:"clean", BuildDate:"2018-05-21T09:17:39Z", GoVersion:"go1.9
.3", Compiler:"gc", Platform:"darwin/amd64"}
Server Version: version.Info{Major:"1", Minor:"9+", GitVersion:"v1.9.7-gke.6", GitCommit:"9b635efce8
1582e1da13b35a7aa539c0ccb32987", GitTreeState:"clean", BuildDate:"2018-08-16T21:33:47Z", GoVersion:"
go1.9.3b4", Compiler:"gc", Platform:"linux/amd64"}
russ in ~
⚡ kubectl get nodes

```

NAME	STATUS	ROLES	AGE	VERSION
gke-masteringdockergke-default-pool-83e84e84-0hsx	Ready	<none>	5m	v1.9.7-gke.6
gke-masteringdockergke-default-pool-83e84e84-2nsm	Ready	<none>	5m	v1.9.7-gke.6
gke-masteringdockergke-default-pool-c568e28d-5mt4	Ready	<none>	5m	v1.9.7-gke.6
gke-masteringdockergke-default-pool-c568e28d-rjls	Ready	<none>	5m	v1.9.7-gke.6
gke-masteringdockergke-default-pool-f9fa53f9-7l3l	Ready	<none>	5m	v1.9.7-gke.6
gke-masteringdockergke-default-pool-f9fa53f9-g9md	Ready	<none>	5m	v1.9.7-gke.6

```

1. russ (bash)
russ in ~
⚡ kubectl -n sock-shop get services front-end-lb

```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
front-end-lb	LoadBalancer	10.51.243.67	35.197.219.221	8079:32647/TCP	1m



```
1. russ (bash)
russ in ~
⚡ eksctl create cluster
2018-10-14T11:13:11+01:00 [i] using region us-west-2
2018-10-14T11:13:13+01:00 [i] setting availability zones to [us-west-2a us-west-2b us-west-2c]
2018-10-14T11:13:13+01:00 [i] using "ami-0a54c984b9f908c81" for nodes
2018-10-14T11:13:13+01:00 [i] creating EKS cluster "beautiful-hideout-1539511992" in "us-west-2" region
2018-10-14T11:13:13+01:00 [i] will create 2 separate CloudFormation stacks for cluster itself and the initial nodegroup
2018-10-14T11:13:13+01:00 [i] if you encounter any issues, check CloudFormation console or try 'eksctl utils describe-stacks --region=us-west-2 --name=beautiful-hideout-1539511992'
2018-10-14T11:13:13+01:00 [i] creating cluster stack "eksctl-beautiful-hideout-1539511992-cluster"
2018-10-14T11:24:04+01:00 [i] creating nodegroup stack "eksctl-beautiful-hideout-1539511992-nodegroup-0"
2018-10-14T11:27:46+01:00 [✓] all EKS cluster resource for "beautiful-hideout-1539511992" had been created
2018-10-14T11:27:46+01:00 [✓] saved kubeconfig as "/Users/russ/.kube/config"
2018-10-14T11:27:47+01:00 [i] the cluster has 0 nodes
2018-10-14T11:27:47+01:00 [i] waiting for at least 2 nodes to become ready
2018-10-14T11:28:20+01:00 [i] the cluster has 2 nodes
2018-10-14T11:28:20+01:00 [i] node "ip-192-168-156-232.us-west-2.compute.internal" is ready
2018-10-14T11:28:20+01:00 [i] node "ip-192-168-248-80.us-west-2.compute.internal" is ready
2018-10-14T11:28:23+01:00 [i] kubectl command should work with "/Users/russ/.kube/config", try 'kubectl get nodes'
2018-10-14T11:28:23+01:00 [✓] EKS cluster "beautiful-hideout-1539511992" in "us-west-2" region is ready
russ in ~
⚡
```

```

1. russ (bash)
russ in ~
⚡ kubectl version
Client Version: version.Info{Major:"1", Minor:"10", GitVersion:"v1.10.3", GitCommit:"2bba0127d85d5a4
6ab4b778548be28623b32d0b0", GitTreeState:"clean", BuildDate:"2018-05-21T09:17:39Z", GoVersion:"go1.9
.3", Compiler:"gc", Platform:"darwin/amd64"}
Server Version: version.Info{Major:"1", Minor:"10+", GitVersion:"v1.10.3-eks", GitCommit:"58c199a590
46dbf0a13a387d3491a39213be53df", GitTreeState:"clean", BuildDate:"2018-09-21T21:00:04Z", GoVersion:"
go1.9.3", Compiler:"gc", Platform:"linux/amd64"}
russ in ~
⚡ kubectl get nodes
NAME                                STATUS    ROLES    AGE    VERSION
ip-192-168-156-232.us-west-2.compute.internal Ready    <none>   2m    v1.10.3
ip-192-168-248-80.us-west-2.compute.internal Ready    <none>   2m    v1.10.3
russ in ~
⚡ █

```

```

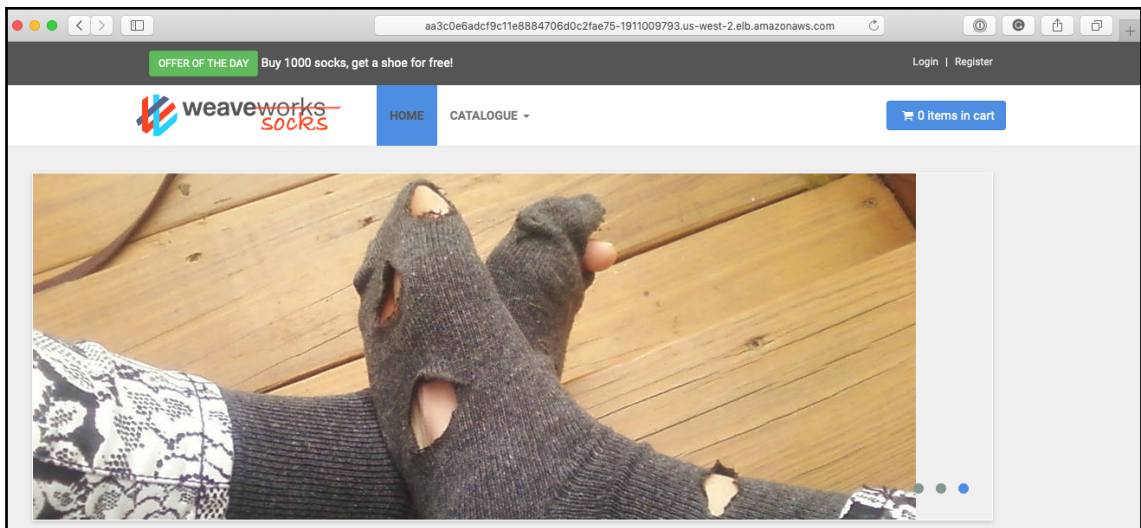
1. russ (bash)
russ in ~
⚡ kubectl -n sock-shop get services front-end-lb
NAME          TYPE          CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
front-end-lb  LoadBalancer 10.100.208.17 aa3c0e6adcf9c... 8079:32438/TCP   8s
russ in ~
⚡ █

```

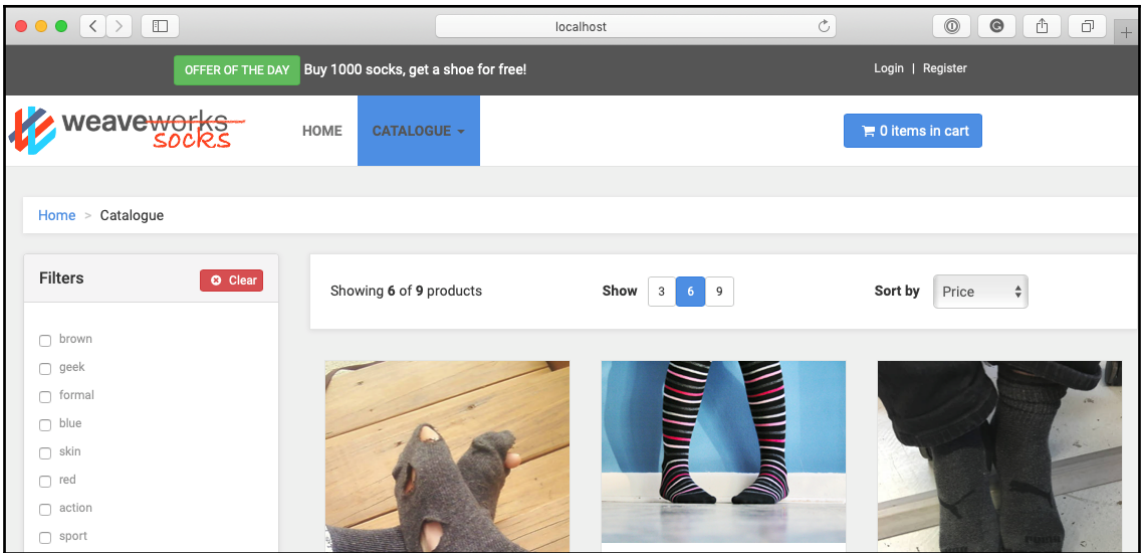
```

1. russ (bash)
russ in ~
⚡ kubectl -n sock-shop describe services front-end-lb
Name:          front-end-lb
Namespace:    sock-shop
Labels:        name=front-end
Annotations:   <none>
Selector:      name=front-end
Type:          LoadBalancer
IP:            10.100.208.17
LoadBalancer Ingress: aa3c0e6adcf9c11e8884706d0c2fae75-1911009793.us-west-2.elb.amazonaws.com
Port:          <unset> 8079/TCP
TargetPort:    8079/TCP
NodePort:      <unset> 32438/TCP
Endpoints:     192.168.134.3:8079
Session Affinity: None
External Traffic Policy: Cluster
Events:
  Type     Reason              Age   From                Message
  ----     -
  Normal   EnsuringLoadBalancer 1m    service-controller   Ensuring load balancer
  Normal   EnsuredLoadBalancer 1m    service-controller   Ensured load balancer
russ in ~
⚡ █

```

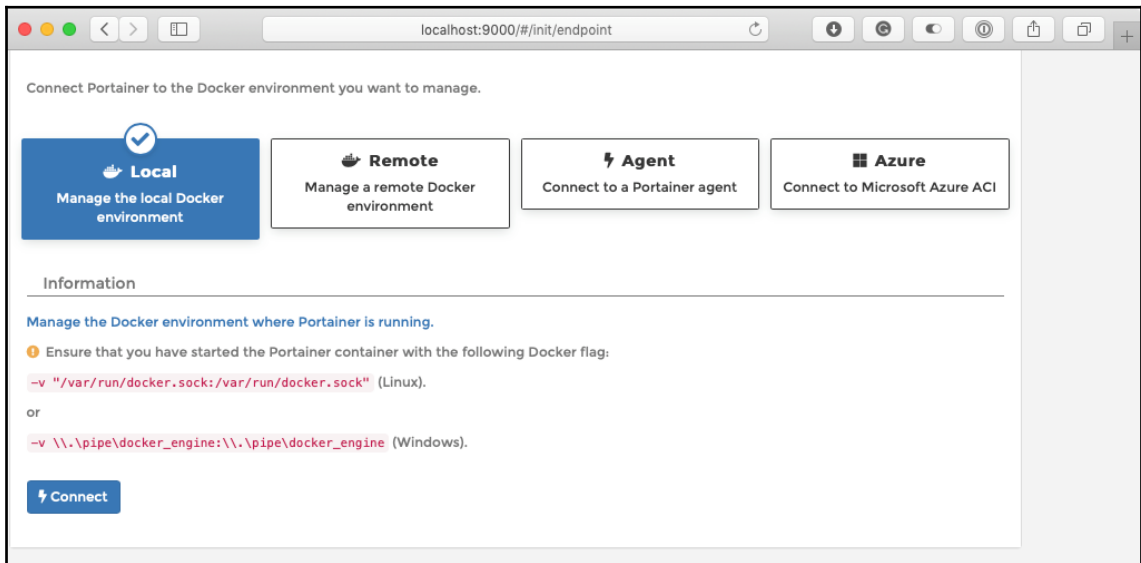


```
1. russ (bash)
russ in ~
⚡ eksctl get cluster
2018-10-14T11:39:36+01:00 [i] using region us-west-2
NAME
beautiful-hideout-1539511992
russ in ~
⚡ eksctl delete cluster --name=beautiful-hideout-1539511992
2018-10-14T11:39:58+01:00 [i] using region us-west-2
2018-10-14T11:40:00+01:00 [i] deleting EKS cluster "beautiful-hideout-1539511992"
2018-10-14T11:40:00+01:00 [i] will delete stack "eksctl-beautiful-hideout-1539511992-nodegroup-0"
2018-10-14T11:40:00+01:00 [i] waiting for stack "eksctl-beautiful-hideout-1539511992-nodegroup-0" t
o get deleted
2018-10-14T11:41:53+01:00 [i] will delete stack "eksctl-beautiful-hideout-1539511992-cluster"
2018-10-14T11:41:56+01:00 [✓] kubeconfig has been updated
2018-10-14T11:41:56+01:00 [✓] the following EKS cluster resource(s) for "beautiful-hideout-15395119
92" will be deleted: node group, cluster. If in doubt, check CloudFormation console
russ in ~
⚡
```



Chapter 11: Portainer - A GUI for Docker

```
1. russ (bash)
russ in ~
⚡ docker image pull portainer/portainer
Using default tag: latest
latest: Pulling from portainer/portainer
d1e017099d17: Pull complete
d4e5419541f5: Pull complete
Digest: sha256:07c0e19e28e18414dd02c313c36b293758acf197d5af45077e3dd69c630e25cc
Status: Downloaded newer image for portainer/portainer:latest
russ in ~
⚡ docker image ls
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
portainer/portainer latest       00ead811e8ae     13 days ago     58.7MB
russ in ~
⚡ docker container run -d \
  -p 9000:9000 \
  -v /var/run/docker.sock:/var/run/docker.sock \
  portainer/portainer
bd943a2316c11a4054173b2c4d5c841890339b9b528c7cd28253ca732adb7c7a
russ in ~
⚡
```



localhost:9000/#/dashboard

portainer.io

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portainer.io 1.19.2

Dashboard

Endpoint summary

Portainer support admin
[my account](#) [log out](#)

Endpoint info

Endpoint	local 4 2.1 GB - Standalone 18.06.1-ce
URL	/var/run/docker.sock
Tags	-

0 Stacks

1 Containers 1 running 0 stopped

1 Images 58.7 MB

1 Volumes

3 Networks

localhost:9000/#/templates

portainer.io

Portainer support admin
my account log out

Application templates list







Templates

+ Add template

Select a category

Show container templates

Search...

	Registry <small>container</small> Docker image registry docker	Update Delete
	Nginx <small>container</small> High performance web server webserver	Update Delete
	Httpd <small>container</small> Open-source HTTP server webserver	Update Delete
	Caddy <small>container</small> HTTP/2 web server with automatic HTTPS webserver	Update Delete
	MySQL <small>container</small> The most popular open-source database database	Update Delete
	MariaDB <small>container</small> Performance beyond MySQL database	Update Delete

portainer.io 1.19.2

localhost:9000/#/templates

portainer.io

Application templates list

Templates

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mariadb:latest

Configuration

Name

Network

Root password

Access control

Enable access control

Administrators

I want to restrict the management of this resource to administrators only

Restricted

I want to restrict the management of this resource to a set of users and/or teams

+ Show advanced options

Actions

Deploy the container Hide

localhost:9000/#/containers

portainer.io

Container list

Containers

Portainer support admin

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portainer.io 1.19.2

Containers Columns Settings

Start Stop Kill Restart Pause Resume Remove Add container

Search...

Name	State ¹ Filter	Quick actions	Stack	Image	Created	IP Address	Publish Ports
<input type="checkbox"/>	vigorous_bhaskara	running		portainer/portainer	2018-09-28 10:44:49	172.17.0.2	9000

Items per page 10

localhost:9000/#/containers/new

portainer.io

Home LOCAL Dashboard App Templates Stacks Containers Images Networks Volumes Events Engine SETTINGS Users Endpoints Registries Settings

Create container

Containers > Add container

Portainer support admin my account log out

Name cluster

Image configuration

Image russmckendrick/cluster **Registry** DockerHub

Always pull the image

Ports configuration

Publish all exposed ports

Port mapping [map additional port](#)

host	8080	→	container	80	TCP	UDP	
------	------	---	-----------	----	-----	-----	--

Access control

Enable access control

Administrators

I want to restrict the management of this resource to administrators only

Restricted

I want to restrict the management of this resource to a set of users and/or teams

Actions

[Deploy the container](#)

portainer.io 1.19.2

localhost:9000/#/containers

portainer.io

Home LOCAL Dashboard App Templates Stacks Containers Images Networks Volumes Events Engine

Container list

Containers

Portainer support admin my account log out

Containers Columns Settings

Start Stop Kill Restart Pause Resume Remove + Add container

Search...

<input type="checkbox"/>	Name	State Filter	Quick actions	Stack	Image	Created	IP Address
<input type="checkbox"/>	cluster	running		-	russmckendrick/cluster:latest	2018-09-28 13:02:58	172.17.0.3
<input type="checkbox"/>	vigorous_bhaskara	running		-	portainer/portainer	2018-09-28 10:44:49	172.17.0.2

localhost:9000/#/containers/df2f6003055d0db70cf8e91b61af348316

portainer.io LOCAL

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Container details
Containers > cluster

Portainer support admin
my account log out

Actions

Start Stop Kill Restart Pause Resume Remove Recreate Duplicate/Edit

Container status

ID	df2f6003055d0db70cf8e91b61af348316ba3f772dc90322ed63efd2760ed45
Name	cluster
IP address	172.17.0.3
Status	Running for 2 minutes
Created	2018-09-28 13:02:58
Start time	2018-09-28 13:02:58

Stats Logs Console Inspect

localhost:9000/#/containers/df2f6003055d0db70cf8e91b61af348316

portainer.io LOCAL

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Memory usage

CPU usage

Network usage

The screenshot shows the Portainer.io web interface. On the left is a navigation sidebar with options like Home, LOCAL, Dashboard, App Templates, Stacks, Containers, Images, Networks, Volumes, Events, Engine, and SETTINGS. The main area displays the logs for a specific container. At the top, there is a search bar and a 'Lines' input set to 2000. Below are 'Actions' buttons: Copy, Copy selected lines, and Unselect. The log output shows a sequence of events from 2018-09-28 12:02:59,082 to 12:03:01,121, including messages about setting uid, initializing supervisor, starting http_server, and spawning nginx and start processes.

```

2018-09-28 12:02:59,082 CRIT Set uid to user 0
2018-09-28 12:02:59,094 INFO RPC interface 'supervisor' initialized
2018-09-28 12:02:59,094 CRIT Server 'unix_http_server' running without any HTTP authentication checking
2018-09-28 12:02:59,095 INFO supervisord started with pid 1
2018-09-28 12:03:00,102 INFO spawned: 'nginx' with pid 10
2018-09-28 12:03:00,107 INFO spawned: 'start' with pid 11
2018-09-28 12:03:00,118 INFO exited: start (exit status 0; not expected)
2018-09-28 12:03:00,119 INFO gave up: start entered FATAL state, too many start retries too quickly
2018-09-28 12:03:01,121 INFO success: nginx entered RUNNING state, process has stayed up for > than 1 seconds (star
tsecs)

```

The screenshot shows a terminal session within a container. The terminal prompt is 'bash-4.4#'. The user has executed several commands: 'cat /etc/*release' showing Alpine Linux version 3.7.0, 'whoami' showing 'root', 'ps aux' showing running processes (supervisord, nginx, bash), and 'ls -lhat /var/www/html/' showing the contents of the web directory.

```

bash-4.4# cat /etc/*release
3.7.0
NAME="Alpine Linux"
ID=alpine
VERSION ID=3.7.0
PRETTY_NAME="Alpine Linux v3.7"
HOME_URL="http://alpinelinux.org"
BUG_REPORT_URL="http://bugs.alpinelinux.org"
bash-4.4# whoami
root
bash-4.4# ps aux
PID USER      TIME  COMMAND
   1 root        0:00 {supervisord} /usr/bin/python2 /usr/bin/supervisord -c /etc/supervisord.co
  10 root        0:00 nginx: master process /usr/sbin/nginx
  14 nginx      0:00 nginx: worker process
  15 root        0:00 bash
  25 root        0:00 ps aux
bash-4.4# ls -lhat /var/www/html/
total 56
drwxr-xr-x  1 nginx  nginx   4.0K Sep 28 12:03 .
-rwxr-xr-x  1 nginx  nginx   300 Sep 28 12:03 index.html
drwxr-xr-x  1 root    root    4.0K Mar 29 2018 ..
-rw-r--r--  1 nginx  nginx  42.7K Mar 29 2018 swarm.png
bash-4.4#

```

localhost:9000/#/images

portainer.io LOCAL

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Portainer support admin

my account log out

Image list

Images

Pull image

Image Registry

Note: if you don't specify the tag in the image name, `latest` will be used.

Images

Search...

<input type="checkbox"/> Id	Tags	Size	Created
<input type="checkbox"/> sha256:00ead811e8ae868201e7fd256dee6b...	<input type="button" value="portainer/portainer:latest"/>	58.7 MB	2018-09-15 10:04:22
<input type="checkbox"/> sha256:861edc40c5db3c9a93dc230caed634...	<input type="button" value="russmckendrick/cluster:latest"/>	54.4 MB	2018-03-29 07:51:49

Items per page

portainer.io 1.19.2

localhost:9000/#/images/sha256:861edc40c5db3c9a93dc230caed634b0ce8911d8bd6a1a74ca5db8d4a44bd669
Portainer support admin

portainer.io

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Image details

Images > sha256:861edc40c5db3c9a93dc230caed634b0ce8911d8bd6a1a74ca5db8d4a44bd669

Image tags

russmckendrick/cluster:latest 📁 📥 🗑️

Note: you can click on the upload icon 📁 to push an image or on the download icon 📥 to pull an image or on the trash icon 🗑️ to delete a tag.

Tag the image

Image Registry

⚠️ Image name is required.

Note: if you don't specify the tag in the image name, **latest** will be used.

Tag

Image details

ID	sha256:861edc40c5db3c9a93dc230caed634b0ce8911d8bd6a1a74ca5db8d4a44bd669	Delete this image
	Export this image	
Size	54.4 MB	
Created	2018-03-29 07:51:49	
Build	Docker 17.06.1-ce on linux, amd64	
Author	Russ McKendrick <russ@mckendrick.io>	

Dockerfile details

CMD	<code>-c /etc/supervisord.conf</code>
ENTRYPOINT	<code>supervisord</code>
EXPOSE	80/tcp
ENV	PATH <input type="text" value="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"/>

The screenshot shows the Portainer.io interface with the 'Events' page selected. The left sidebar contains navigation options: Home, LOCAL (Dashboard, App Templates, Stacks, Containers, Images, Networks, Volumes), Events (selected), Engine, SETTINGS (Users, Endpoints, Registries, Settings). The main content area displays a table of events.

Date ↑	Category	Details
2018-09-28 13:36:21	image	Image amazonlinux:latest pulled
2018-09-28 13:26:22	container	Exec instance started
2018-09-28 13:26:22	container	Exec instance created
2018-09-28 13:23:35	container	Showed running processes for container cluster
2018-09-28 13:23:30	container	Showed running processes for container cluster
2018-09-28 13:23:25	container	Showed running processes for container cluster
2018-09-28 13:23:20	container	Showed running processes for container cluster
2018-09-28 13:23:15	container	Showed running processes for container cluster
2018-09-28 13:23:10	container	Showed running processes for container cluster
2018-09-28 13:23:05	container	Showed running processes for container cluster

The screenshot shows the Portainer.io interface with the 'Engine version' page selected. The left sidebar is identical to the previous screenshot. The main content area displays system information in a table.

Engine version	
Version	18.06.1-ce
API version	1.38
Go version	go1.10.3
OS type	linux
OS	Docker for Mac
Architecture	amd64
Kernel version	4.9.93-linuxkit-aufs

```
1. russ (bash)
russ in ~
⚡ docker service inspect portainer --pretty

ID:          3ti32m0hj32obbiqwtonzsub
Name:        portainer
Service Mode: Replicated
Replicas:    1
Placement:
  Constraints: [node.role == manager]
UpdateConfig:
  Parallelism: 1
  On failure:  pause
  Monitoring Period: 5s
  Max failure ratio: 0
  Update order: stop-first
RollbackConfig:
  Parallelism: 1
  On failure:  pause
  Monitoring Period: 5s
  Max failure ratio: 0
  Rollback order: stop-first
ContainerSpec:
  Image:       portainer/portainer:latest@sha256:07c0e19e28e18414dd02c313c36b293758acf197d5af45077e3dd69c630e25cc
  Args:        -H unix:///var/run/docker.sock
  Init:        false
Mounts:
  Target:      /var/run/docker.sock
  Source:      /var/run/docker.sock
  ReadOnly:    false
  Type:        bind
Resources:
  Endpoint Mode: vip
Ports:
  PublishedPort = 9000
  Protocol = tcp
  TargetPort = 9000
  PublishMode = ingress
russ in ~
⚡
```



192.168.99.100:9000/#/dashboard

portainer.io

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Endpoint summary

Portainer support admin
[my account](#) [log out](#)

Endpoint info

Endpoint	primary 3 3.1 GB - Swarm 18.06.1-ce
URL	/var/run/docker.sock
Tags	-

[Go to cluster visualizer](#)

192.168.99.100:9000/#/swarm/visualizer

portainer.io

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Swarm visualizer

Swarm > Cluster visualizer

Portainer support admin
[my account](#) [log out](#)

Cluster information [Show](#)

Cluster visualizer

swarm-worker01 ⚠️
worker
CPU: 1
Memory: 1.04 GB
ready

swarm-manager ⚠️
manager
CPU: 1
Memory: 1.04 GB
ready

portainer
Image: portainer/portainer:latest
Status: running
Update: 2018-09-28 14:39:10

swarm-worker02 ⚠️
worker
CPU: 1
Memory: 1.04 GB
ready

The screenshot shows the Portainer.io interface for a stack named 'MobyCounter'. The left sidebar contains navigation options like Home, Dashboard, App Templates, Stacks, Services, Containers, Images, Networks, Volumes, Configs, Secrets, Swarm, and various settings. The main content area shows 'Stack details' for 'MobyCounter' with a 'Delete this stack' button. Below this, there are 'Update' and 'Remove' buttons for the stack. A search bar is present above a table of services.

<input type="checkbox"/>	Name	Image	Scheduling Mode	Published Ports	Last Update
<input type="checkbox"/>	MobyCounter_mobycounter	russmckendrick/moby-counter:latest	replicated 1 / 1 Scale	8080:80	2018-09-28 1
<input type="checkbox"/>	MobyCounter_redis	redis:alpine	replicated 1 / 1 Scale	-	2018-09-28 1

Items per page: 10

The screenshot shows the 'Services' configuration page in Portainer.io. The left sidebar is the same as in the previous screenshot. The main content area is titled 'services/new' and shows the configuration for a service named 'cluster'. The configuration includes:

- Name:** cluster
- Image configuration:** Image is 'russmckendrick/cluster' and Registry is 'DockerHub'.
- Scheduling:** Scheduling mode is set to 'Replicated' (selected over 'Global').
- Replicas:** Set to 1.
- Ports configuration:** Port mapping is set to host 8000 to container 80, with options for TCP, UDP, Ingress, Host, and a delete button.
- Webhooks:** 'Create a service webhook' is disabled.
- Access control:** 'Enable access control' is disabled.
- Actions:** A 'Create the service' button is at the bottom.

192.168.99.100:9000/#/services/3cpas0bdwmykn0vbxm6ejdd2j

portainer.io PRIMARY

Service details [Portainer support](#) [admin](#)
[my account](#) [log out](#)

Service details

Name	cluster
ID	3cpas0bdwmykn0vbxm6ejdd2j
Created at	2018-09-28 16:32:29
Last updated at	2018-09-28 16:37:13
Version	56
Scheduling mode	replicated
Replicas	6
Image	russmckendrick/cluster:latest@sha256:b3489fc2e2fee72d

Service webhook

[Service logs](#) [Update the service](#) [Delete the service](#)

Do you need help? View the Docker Service documentation [here](#).

[Apply changes](#)

Quick navigation

- Environment variables
- Container labels
- Mounts
- Network & published ports
- Resource limits & reservations
- Placement constraints
- Placement preferences
- Restart policy
- Update configuration
- Logging
- Service labels

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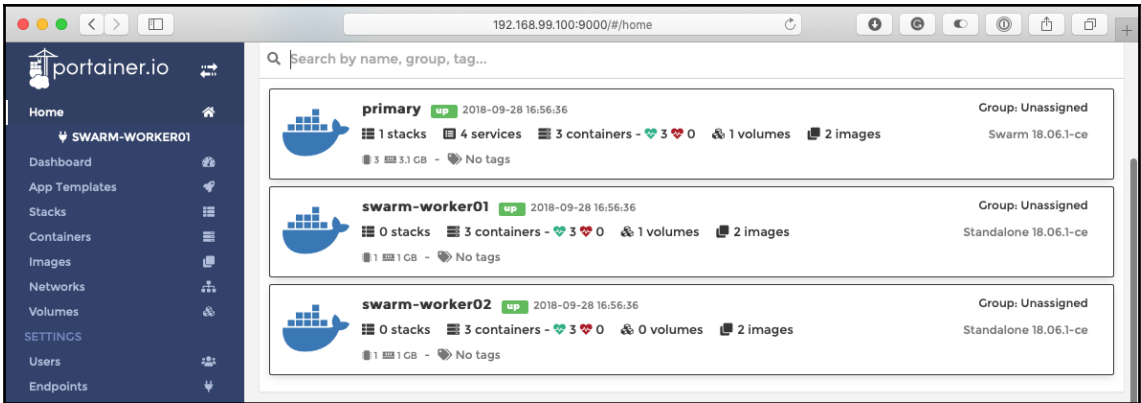
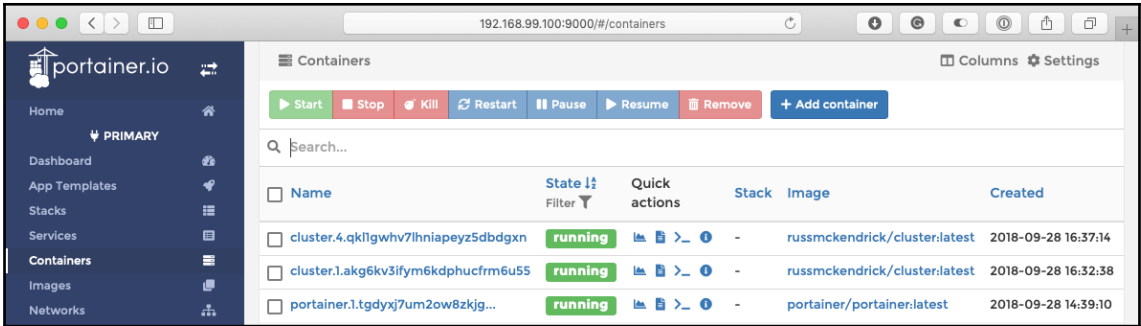
192.168.99.100:9000/#/services/3cpas0bdwmykn0vbxm6ejdd2j

portainer.io PRIMARY

Tasks

Search...

id	Status	Slot	Node	Last Update ↑↓	Actions
cluster.2.vlm4p9dsanytgr2czqwsekbgu	running	2	swarm-worker01	2018-09-28 16:37:23	View logs
cluster.3.ugu4gjb426m1kwx3p0qgrupr	running	3	swarm-worker01	2018-09-28 16:37:23	View logs
cluster.6.3ldpt5kzrf18wu47io5ztqkvi	running	6	swarm-worker02	2018-09-28 16:37:22	View logs
cluster.5.ie44gjzmat2xlp7d3z0zxgtzo	running	5	swarm-worker02	2018-09-28 16:37:22	View logs
cluster.4.qk1lgwhv7lhniapeyz5dbdgxn	running	4	swarm-manager	2018-09-28 16:37:14	View logs
cluster.1.akg6kv3ifym6kdphucfrm6u55	running	1	swarm-manager	2018-09-28 16:32:38	View logs



Chapter 12: Docker Security

```
1. russ (bash)
russ in ~
⚡ docker run -it --net host --pid host --cap-add audit_control \
-- -e DOCKER_CONTENT_TRUST=$DOCKER_CONTENT_TRUST \
-- -v /var/lib:/var/lib \
-- -v /var/run/docker.sock:/var/run/docker.sock \
-- -v /etc:/etc --label docker_bench_security \
-- docker/docker-bench-security
Unable to find image 'docker/docker-bench-security:latest' locally
latest: Pulling from docker/docker-bench-security
c67f3896b22c: Pull complete
be48115b3f54: Pull complete
c1bf2ae4afbe: Pull complete
1282444f9ecd: Pull complete
Digest: sha256:d3520cabce5ce71389478d224cd805eba8fb5b62c72287632a3a388bbc093a32
Status: Downloaded newer image for docker/docker-bench-security:latest
# -----
# Docker Bench for Security v1.3.4
#
# Docker, Inc. (c) 2015-
#
# Checks for dozens of common best-practices around deploying Docker containers in production.
# Inspired by the CIS Docker Community Edition Benchmark v1.1.0.
# -----
Initializing Sat Sep 29 09:30:11 UTC 2018

[INFO] 1 - Host Configuration
[WARN] 1.1 - Ensure a separate partition for containers has been created
[NOTE] 1.2 - Ensure the container host has been Hardened
[INFO] 1.3 - Ensure Docker is up to date
[INFO] * Using 18.06.1, verify is it up to date as deemed necessary
[INFO] * Your operating system vendor may provide support and security maintenance for Docker
[INFO] 1.4 - Ensure only trusted users are allowed to control Docker daemon
[WARN] 1.5 - Ensure auditing is configured for the Docker daemon
[WARN] 1.6 - Ensure auditing is configured for Docker files and directories - /var/lib/docker
[WARN] 1.7 - Ensure auditing is configured for Docker files and directories - /etc/docker
[INFO] 1.8 - Ensure auditing is configured for Docker files and directories - docker.service
[INFO] * File not found
[INFO] 1.9 - Ensure auditing is configured for Docker files and directories - docker.socket
[INFO] * File not found
[INFO] 1.10 - Ensure auditing is configured for Docker files and directories - /etc/default/docker
[INFO] * File not found
[INFO] 1.11 - Ensure auditing is configured for Docker files and directories - /etc/docker/daemon.js
on
[INFO] * File not found
[INFO] 1.12 - Ensure auditing is configured for Docker files and directories - /usr/bin/docker-conta
inerd
[INFO] * File not found
[INFO] 1.13 - Ensure auditing is configured for Docker files and directories - /usr/bin/docker-runc
[INFO] * File not found
```

quay.io/repository/russmckendrick/cluster?tab=tags

QUAY Explore Applications Repositories Tutorial search + - rusmckendrick

← Repositories russmckendrick / cluster ☆

Repository Tags

Compact Expanded

1 - 2 of 2 Filter Tags...

TAG	LAST MODIFIED ↓	SECURITY SCAN	SIZE	EXPIRES	IMAGE
<input type="checkbox"/> latest	20 hours ago	Passed	17.3 MB	Never	SHA256: 45099546823d
<input type="checkbox"/> master	20 hours ago	Passed	17.3 MB	Never	SHA256: 876b30197a8c

quay.io/repository/russmckendrick/cluster/manifest/sha256:45099546823d5f...

QUAY Explore Applications Repositories Tutorial search + - rusmckendrick

← rusmckendrick/cluster 45099546823d

Quay Security Scanner has recognized **29** packages.

29 packages with no vulnerabilities.

100%

Packages

Filter Packages...

PACKAGE NAME	PACKAGE VERSION	VULNERABILITIES	REMAINING AFTER UPGRADE	UPGRADE IMPACT ↓	INTRODUCED IN LAYER
pkgconf	1.3.10-r0	None Detected	(N/A)	(N/A)	RUN apk update && apk upgrade && apk add ca-
ca-certificates	20171114-r0	None Detected	(N/A)	(N/A)	RUN apk update && apk upgrade && apk add ca-
sqlite-libs	3.21.0-r1	None Detected	(N/A)	(N/A)	RUN apk add --update supervisor nginx && rm ..
nginx	1.12.2-r3	None Detected	(N/A)	(N/A)	RUN apk add --update supervisor nginx && rm ..
bash	4.4.19-r1	None Detected	(N/A)	(N/A)	RUN apk update && apk upgrade && apk add ca-

```
1. anchore (bash)
russ in ~/anchore
⚡ anchore-cli --u admin --p foobar system status
Service kubernetes_webhook (dockerhostid-anchore-engine, http://anchore-engine:8338): up
Service analyzer (dockerhostid-anchore-engine, http://anchore-engine:8084): up
Service policy_engine (dockerhostid-anchore-engine, http://anchore-engine:8087): up
Service catalog (dockerhostid-anchore-engine, http://anchore-engine:8082): up
Service simplequeue (dockerhostid-anchore-engine, http://anchore-engine:8083): up
Service apiext (dockerhostid-anchore-engine, http://anchore-engine:8228): up

Engine DB Version: 0.0.7
Engine Code Version: 0.2.4

russ in ~/anchore
⚡
```

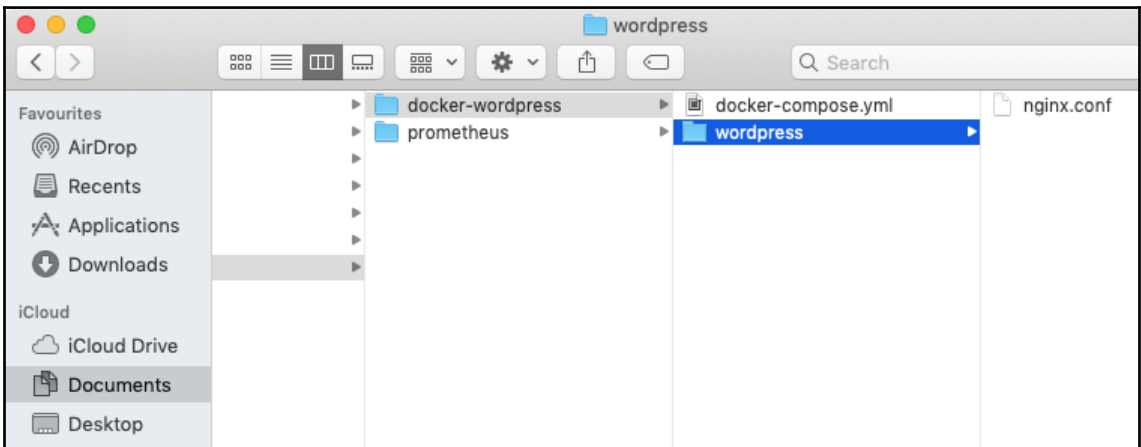
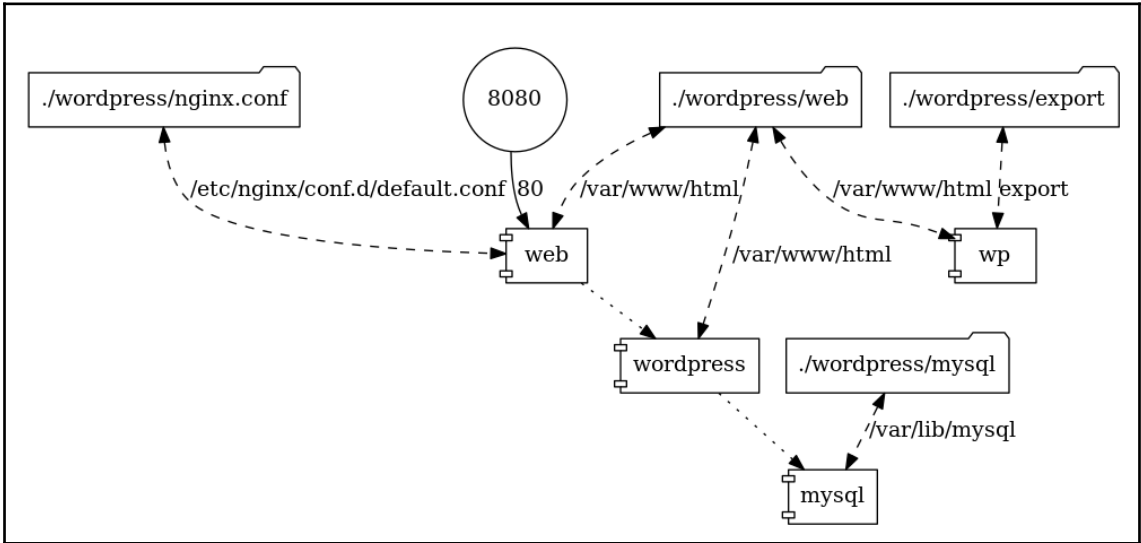
```
1. anchore (bash)
russ in ~/anchore
⚡ anchore-cli --u admin --p foobar system feeds list
Feed Group LastSync RecordCount
vulnerabilities alpine:3.3 2018-09-30T10:34:14.783091Z 457
vulnerabilities alpine:3.4 2018-09-30T10:34:26.497788Z 594
vulnerabilities alpine:3.5 2018-09-30T10:34:43.623900Z 841
vulnerabilities alpine:3.6 2018-09-30T10:35:01.451630Z 852
vulnerabilities alpine:3.7 2018-09-30T10:35:21.345254Z 860
vulnerabilities alpine:3.8 2018-09-30T10:35:42.890952Z 926
vulnerabilities centos:5 2018-09-30T10:36:57.336956Z 1273
vulnerabilities centos:6 None 0
vulnerabilities centos:7 None 0
vulnerabilities debian:10 None 0
vulnerabilities debian:7 None 0
vulnerabilities debian:8 None 0
vulnerabilities debian:9 None 0
vulnerabilities debian:unstable None 0
```

```
1. anchore (bash)
russ in ~/anchore
⚡ anchore-cli --u admin --p foobar image get docker.io/russmckendrick/moby-counter:old
Image Digest: sha256:157cbbab5607b45c02c5f6a609f40bf95561b7fbd121a63ca85cb8813a2ef700
Analysis Status: analyzed
Image Type: docker
Image ID: de9ae734622dc82cdc9b40654d536694bd6a04e058d17a6ea39c8ec867ecec18
Dockerfile Mode: Guessed
Distro: alpine
Distro Version: 3.7.0
Size: 28067464
Architecture: amd64
Layer Count: 6

Full Tag: docker.io/russmckendrick/moby-counter:old
```

```
1.anchore (bash)
⚡ anchore-cli --u admin --p foobar image vuln docker.io/russmckendrick/moby-counter:old os
Vulnerability ID      Package              Severity    Fix
Vulnerability URL
CVE-2018-0495         libressl2.6-libcrypto-2.6.3-r0      Low        2.6.5-r0
http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-0495
CVE-2018-0495         libressl2.6-libssl-2.6.3-r0          Low        2.6.5-r0
http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-0495
CVE-2017-3738         libcrypto1.0-1.0.2n-r0               Medium     1.0.2n-r0
http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2017-3738
CVE-2017-3738         libssl1.0-1.0.2n-r0                  Medium     1.0.2n-r0
http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2017-3738
CVE-2018-0732         libcrypto1.0-1.0.2n-r0               Medium     1.0.2o-r1
http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-0732
CVE-2018-0732         libressl2.6-libcrypto-2.6.3-r0      Medium     2.6.5-r0
http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-0732
CVE-2018-0732         libressl2.6-libssl-2.6.3-r0          Medium     2.6.5-r0
http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-0732
CVE-2018-0732         libssl1.0-1.0.2n-r0                  Medium     1.0.2o-r1
```

Chapter 13: Docker Workflows

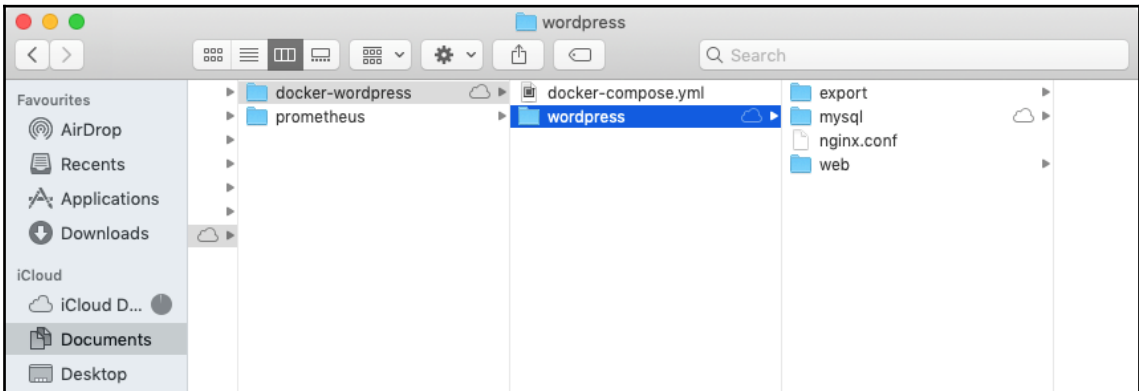


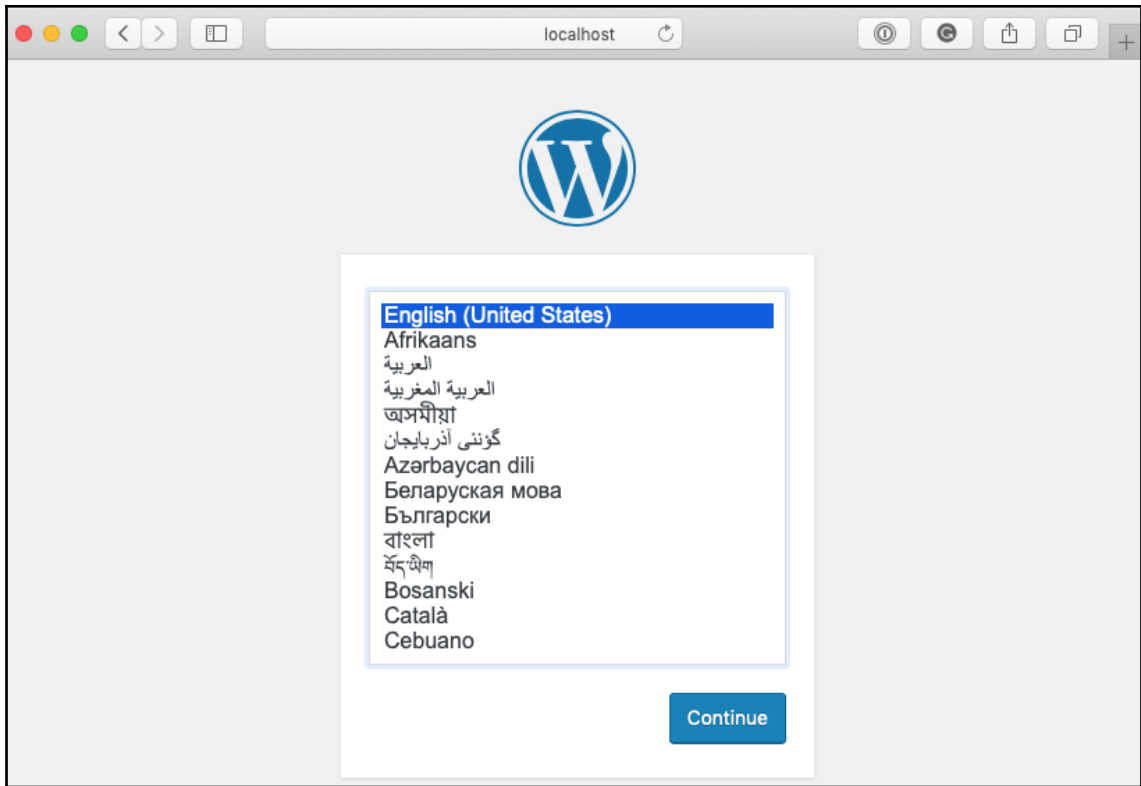

```
1. docker-wordpress (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ docker-compose up -d
Creating network "docker-wordpress_default" with the default driver
Creating docker-wordpress_mysql_1 ... done
Creating docker-wordpress_wp_1 ... done
Creating docker-wordpress_wordpress_1 ... done
Creating docker-wordpress_web_1 ... done
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ docker-compose ps

```

Name	Command	State	Ports
docker-wordpress_mysql_1	docker-entrypoint.sh mysql	Up	3306/tcp, 33060/tcp
docker-wordpress_web_1	nginx -g daemon off;	Up	0.0.0.0:8080->80/tcp
docker-wordpress_wordpress_1	docker-entrypoint.sh php-fpm	Up	9000/tcp
docker-wordpress_wp_1	docker-entrypoint.sh wp shell	Exit 1	

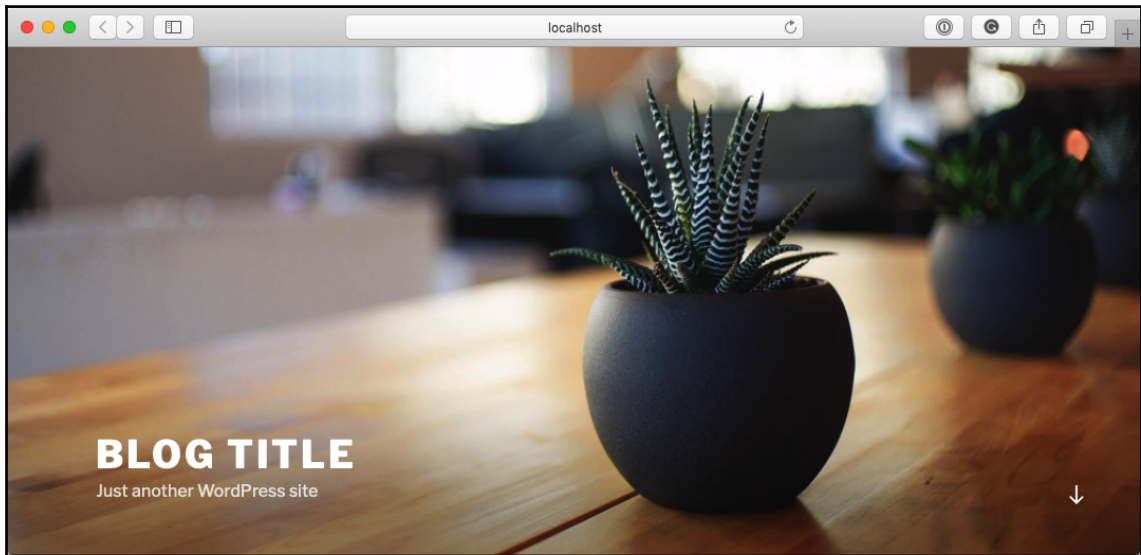
```
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡
```





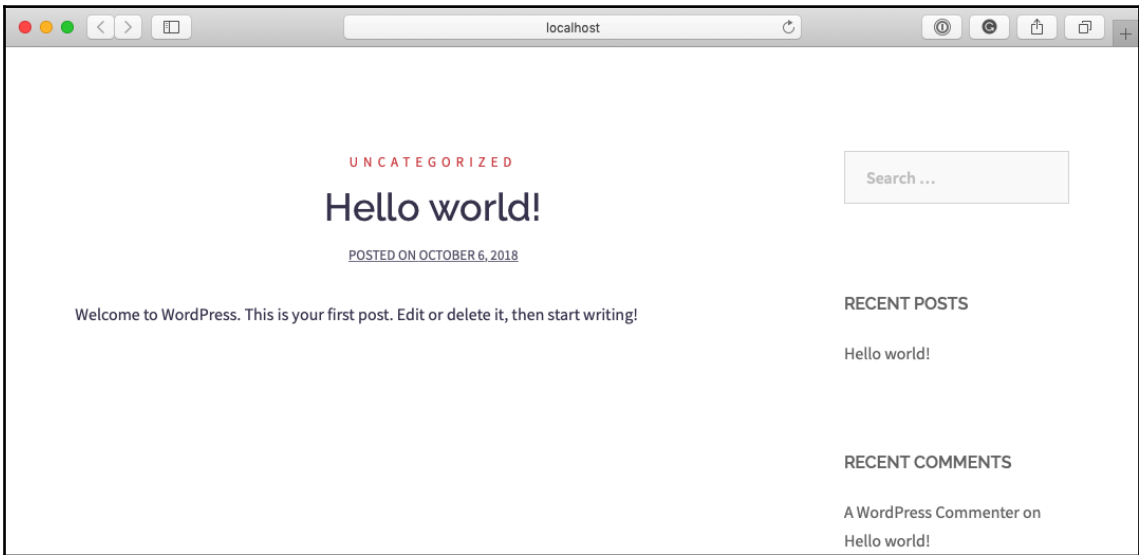
```
1. docker-wordpress (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ ls -lhat wordpress/web/ | grep wp-config
-rw-r--r--@ 1 russ staff 2.8K 16 Dec 2015 wp-config-sample.php
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ docker-compose run wp core config --dbname=wordpress --dbuser=wordpress --dbpass=wordpress --dbhs
st=mysql --dbprefix=wp_
Success: Generated 'wp-config.php' file.
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ ls -lhat wordpress/web/ | grep wp-config
-rw-r--r-- 1 russ staff 2.6K 6 Oct 14:51 wp-config.php
-rw-r--r--@ 1 russ staff 2.8K 16 Dec 2015 wp-config-sample.php
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡
```

```
1. docker-wordpress (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ docker-compose run wp core install \
  → --title="Blog Title" \
  → --url="http://localhost:8080" \
  → --admin_user="admin" \
  → --admin_password="password" \
  → --admin_email="email@domain.com"
sendmail: can't connect to remote host (127.0.0.1): Connection refused
Success: WordPress installed successfully.
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡
```



```
1. docker-wordpress (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ docker-compose run wp plugin install jetpack --activate
Installing Jetpack by WordPress.com (6.5)
Downloading installation package from https://downloads.wordpress.org/plugin/jetpack.6.5.zip..
Unpacking the package...
Installing the plugin...
Plugin installed successfully.
Activating 'jetpack'...
Plugin 'jetpack' activated.
Success: Installed 1 of 1 plugins.
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡
```

```
1. docker-wordpress (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ docker-compose run wp theme install sydney --activate
Installing Sydney (1.52)
Downloading installation package from http://downloads.wordpress.org/theme/sydney.1.52.zip...
Unpacking the package...
Installing the theme...
Theme installed successfully.
Activating 'sydney'...
Success: Switched to 'Sydney' theme.
Success: Installed 1 of 1 themes.
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡
```

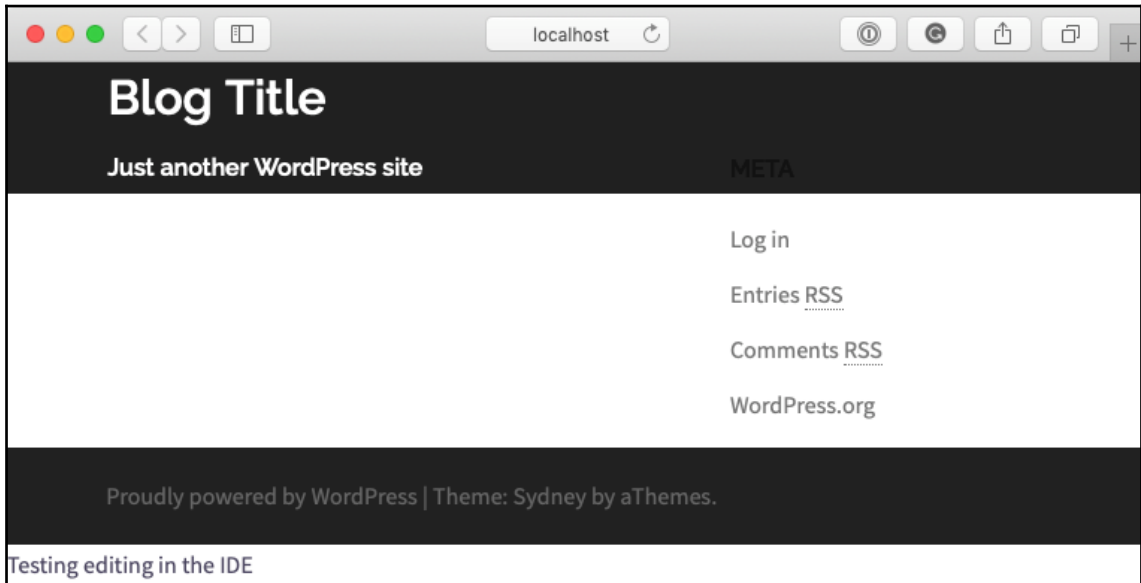


```
1. docker-wordpress (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ docker-compose down
Stopping docker-wordpress_web_1 ... done
Stopping docker-wordpress_wordpress_1 ... done
Stopping docker-wordpress_mysql_1 ... done
Removing docker-wordpress_wp_run_6 ... done
Removing docker-wordpress_wp_run_5 ... done
Removing docker-wordpress_wp_run_4 ... done
Removing docker-wordpress_wp_run_3 ... done
Removing docker-wordpress_wp_run_2 ... done
Removing docker-wordpress_wp_run_1 ... done
Removing docker-wordpress_web_1 ... done
Removing docker-wordpress_wordpress_1 ... done
Removing docker-wordpress_wp_1 ... done
Removing docker-wordpress_mysql_1 ... done
Removing network docker-wordpress_default
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡
```

The screenshot shows a code editor window titled "wp-blog-header.php — docker-wordpress". On the left, a file explorer shows the directory structure: "docker-wordpress" containing ".cache", "wordpress", "export", "mysql", and "web". The "web" directory contains "wp-admin", "wp-content", "wp-includes", ".htaccess", "index.php", "license.txt", "readme.html", "wp-activate.php", "wp-blog-header.php", "wp-comments-post.php", "wp-config-sample.php", "wp-config.php", and "wp-cron.php". The main editor area shows the following PHP code:

```
1 <?php
2
3 /*
4  * Loads the WordPress environment and template.
5  *
6  * @package WordPress
7  */
8 if ( !isset($wp_did_header) ) {
9
10     $wp_did_header = true;
11
12     // Load the WordPress library.
13     require_once( dirname(__FILE__) . '/wp-load.php' );
14
15     // Set up the WordPress query.
16     wp();
17
18     // Load the theme template.
19     require_once( ABSPATH . WPINC . '/template-loader.php' );
20
21 }
22
23 echo "Testing editing in the IDE";
```

The status bar at the bottom indicates "Line 15, Column 35", "Tab Size: 4", and "PHP".



```

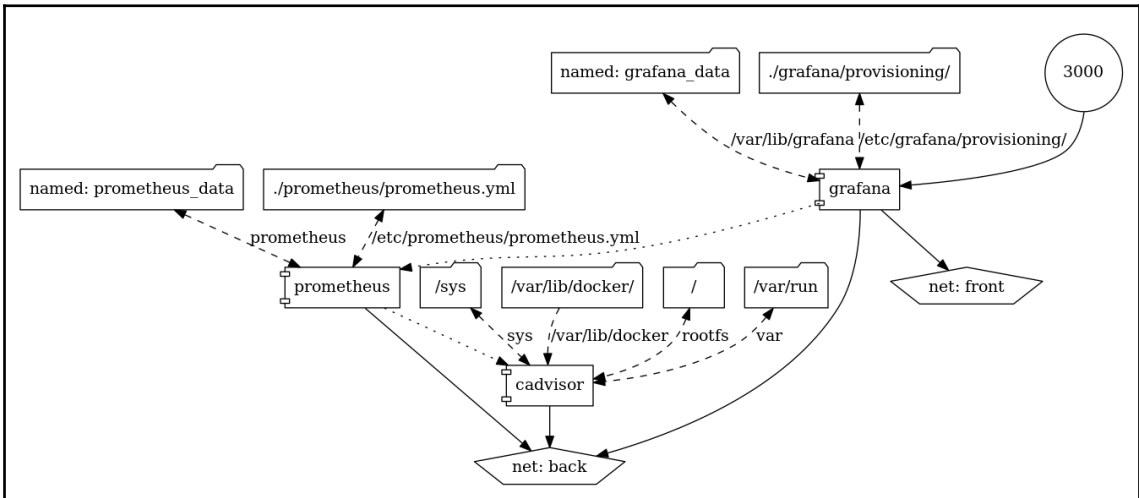
1. docker-wordpress (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ ls -lha wordpress/export/
total 0
drwxr-xr-x  2 russ  staff   64B  6 Oct 14:50
drwxr-xr-x  8 russ  staff  256B  8 Jul 2017
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ docker-compose run wp db export --add-drop-table /export/wordpress.sql
Success: Exported to '/export/wordpress.sql'.
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ ls -lha wordpress/export/1
total 152
drwxr-xr-x  3 russ  staff   96B  6 Oct 14:50
drwxr-xr-x  8 russ  staff  256B  8 Jul 2017
-rw-r--r--  1 russ  staff   74K  6 Oct 15:18 wordpress.sql
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ head -5 wordpress/export/wordpress.sql
-- MySQL dump 10.16 Distrib 10.2.15-MariaDB, for Linux (x86_64)
--
-- Host: mysql      Database: wordpress
-----
-- Server version      5.7.23
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡

```

```

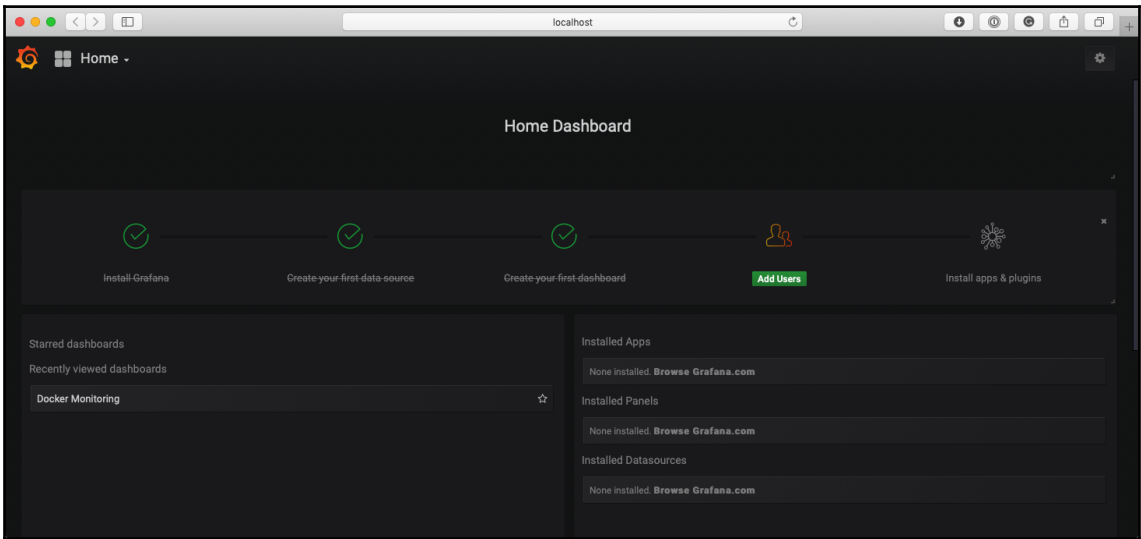
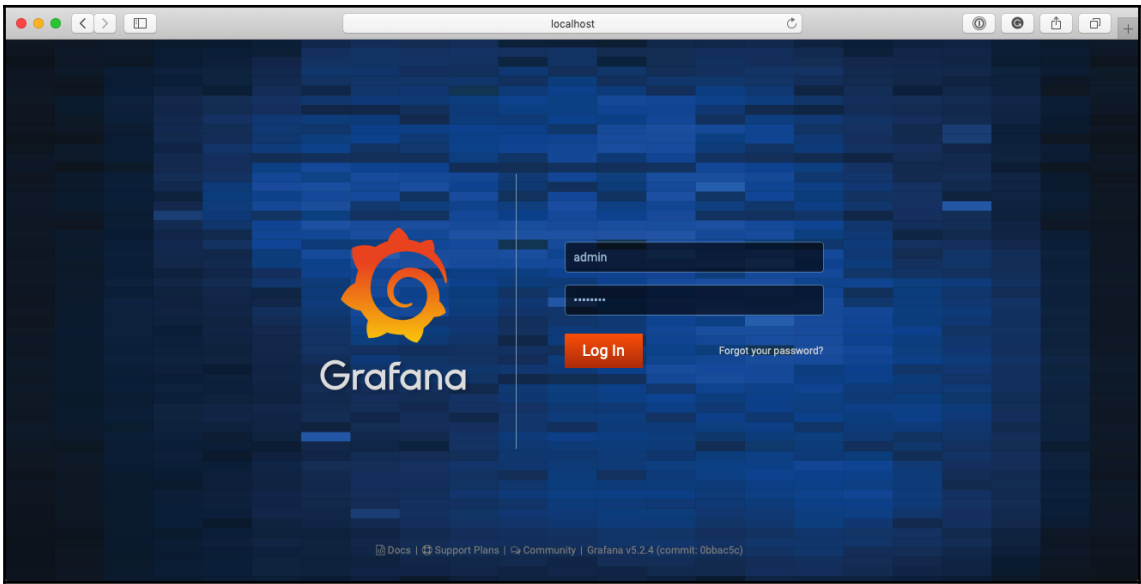
1. docker-wordpress (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡ docker-compose run wp db import /export/wordpress.sql
Success: Imported from '/export/wordpress.sql'.
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/docker-wordpress on master*
⚡

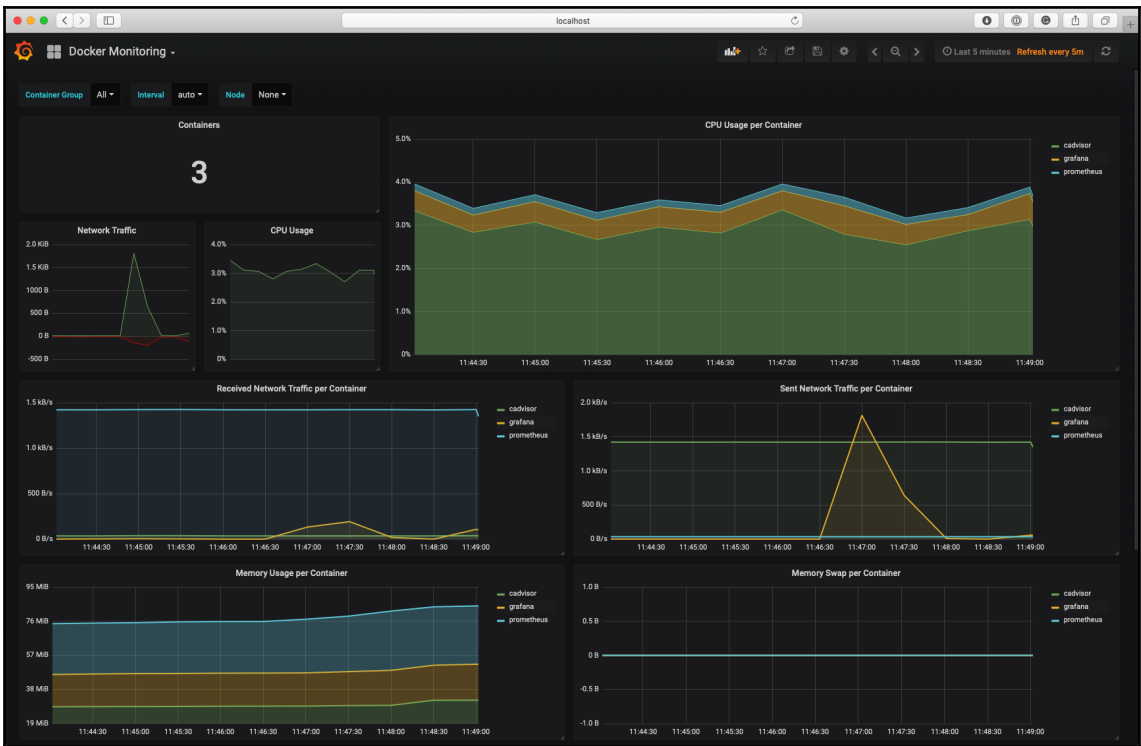
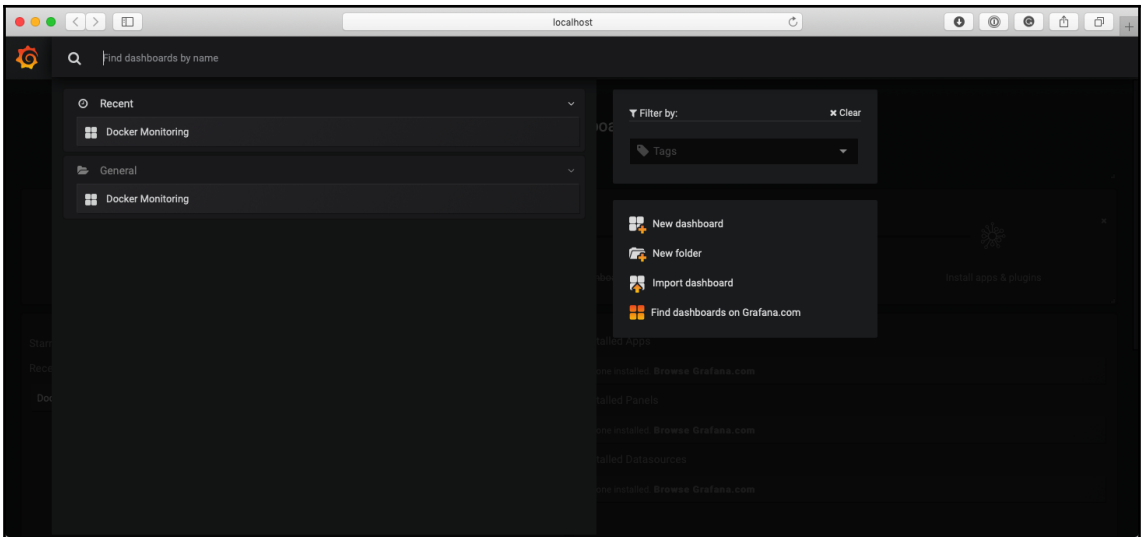
```



```
1. prometheus (bash)
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/prometheus on master*
⚡ docker-compose up -d
Creating network "prometheus_back" with the default driver
Creating network "prometheus_front" with the default driver
Creating volume "prometheus_prometheus_data" with default driver
Creating volume "prometheus_grafana_data" with default driver
Creating cadvisor ... done
Creating prometheus ... done
Creating grafana ... done
russ in ~/Documents/Code/Mastering-Docker-Third-Edition/chapter14/prometheus on master*
⚡
```

```
1. prometheus (docker-compose)
py login_attempt v1 to v2"
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Executing migration" logger=migrator id="dr
op login_attempt_tmp_qwerty"
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Executing migration" logger=migrator id="cr
eate user auth table"
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Executing migration" logger=migrator id="cr
eate index IDX_user_auth_auth_module_auth_id - v1"
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Executing migration" logger=migrator id="al
ter user_auth_auth_id to length 190"
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Created default admin user: %v" logger=sqls
tore admin=nil LOG15_ERROR="Normalized odd number of arguments by adding nil"
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing SearchService" logger=server
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing PluginManager" logger=server
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Starting plugin search" logger=plugins
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing InternalMetricsService" logger
=server
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing AlertingService" logger=server
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing HTTPServer" logger=server
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing CleanUpService" logger=server
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing NotificationService" logger=se
rver
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing ProvisioningService" logger=se
rver
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="inserting datasource from configuration " l
ogger=provisioning.datasources name=Prometheus
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing RenderingService" logger=serve
r
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing TracingService" logger=server
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="Initializing Stream Manager"
grafana | t=2018-10-07T10:40:21+0000 lvl=info msg="HTTP Server Listen" logger=http.server addr
ess=0.0.0.0:3000 protocol=http subUrl= socket=
```







Chapter 14: Next Steps with Docker

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