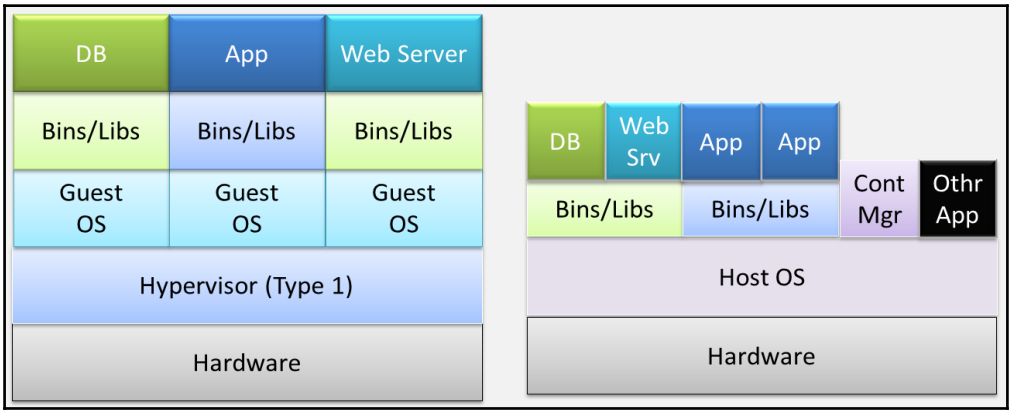
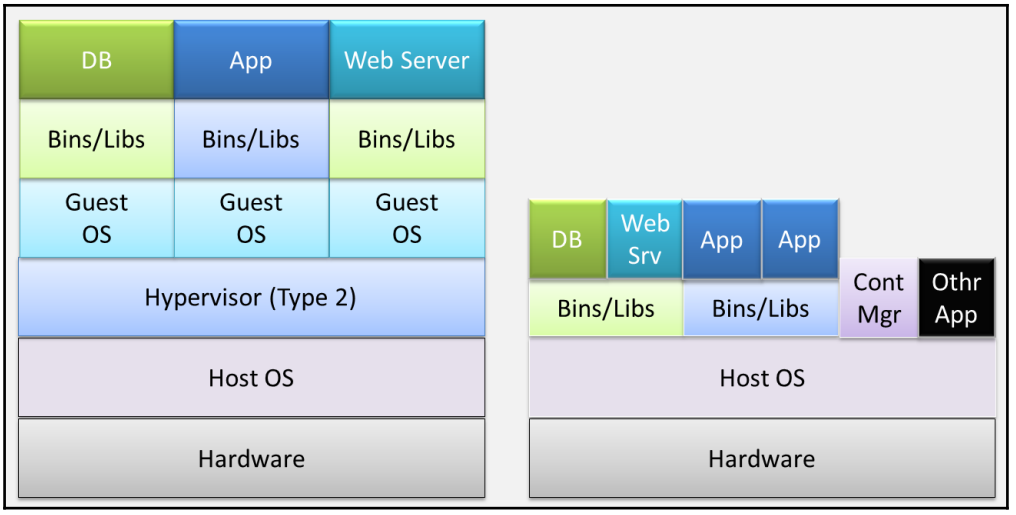
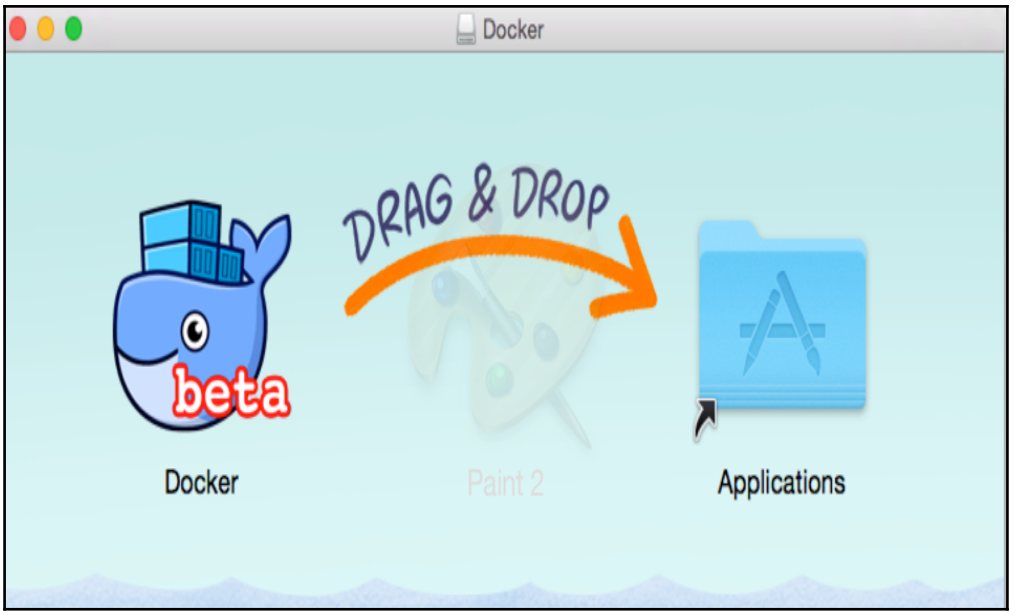
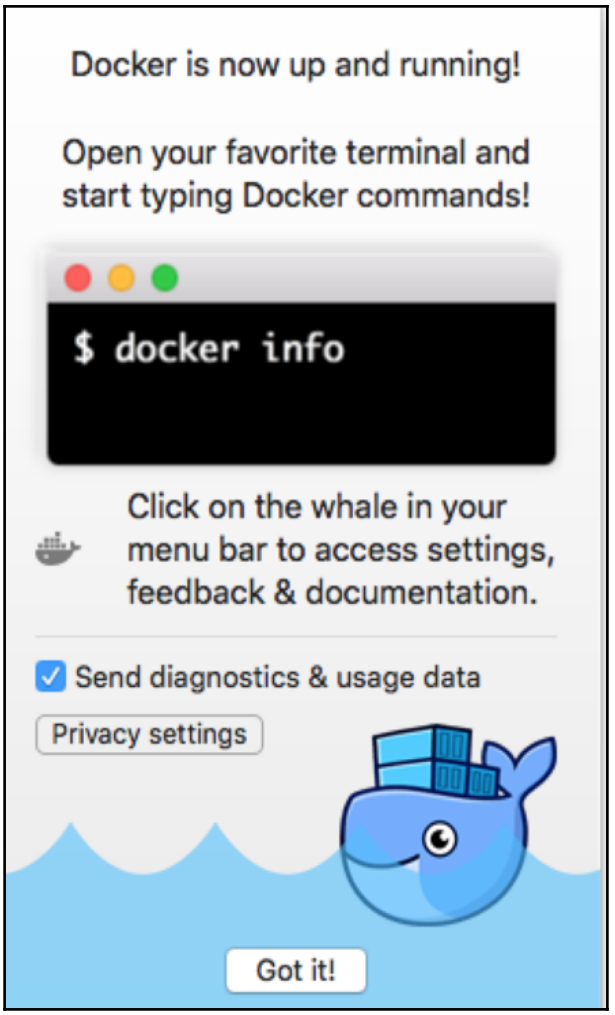
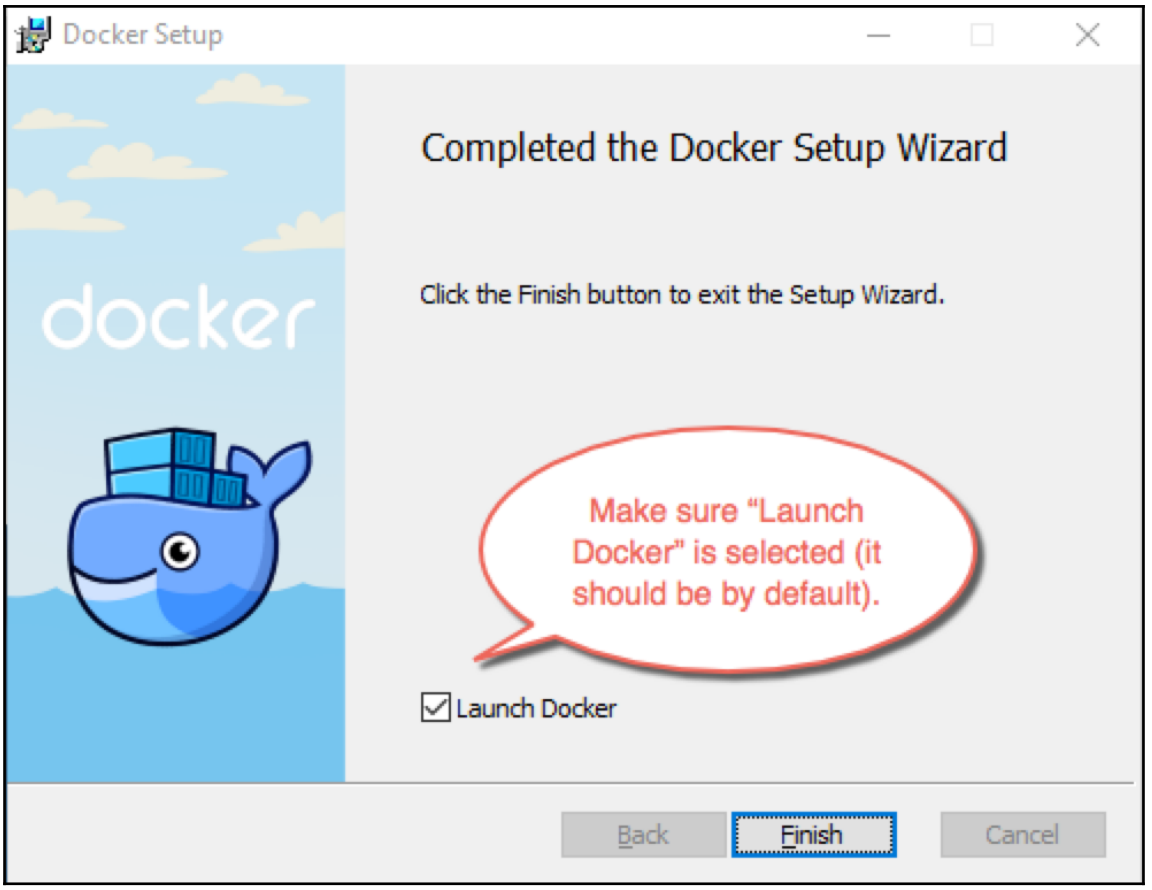
Chapter 1: Getting Started with Docker



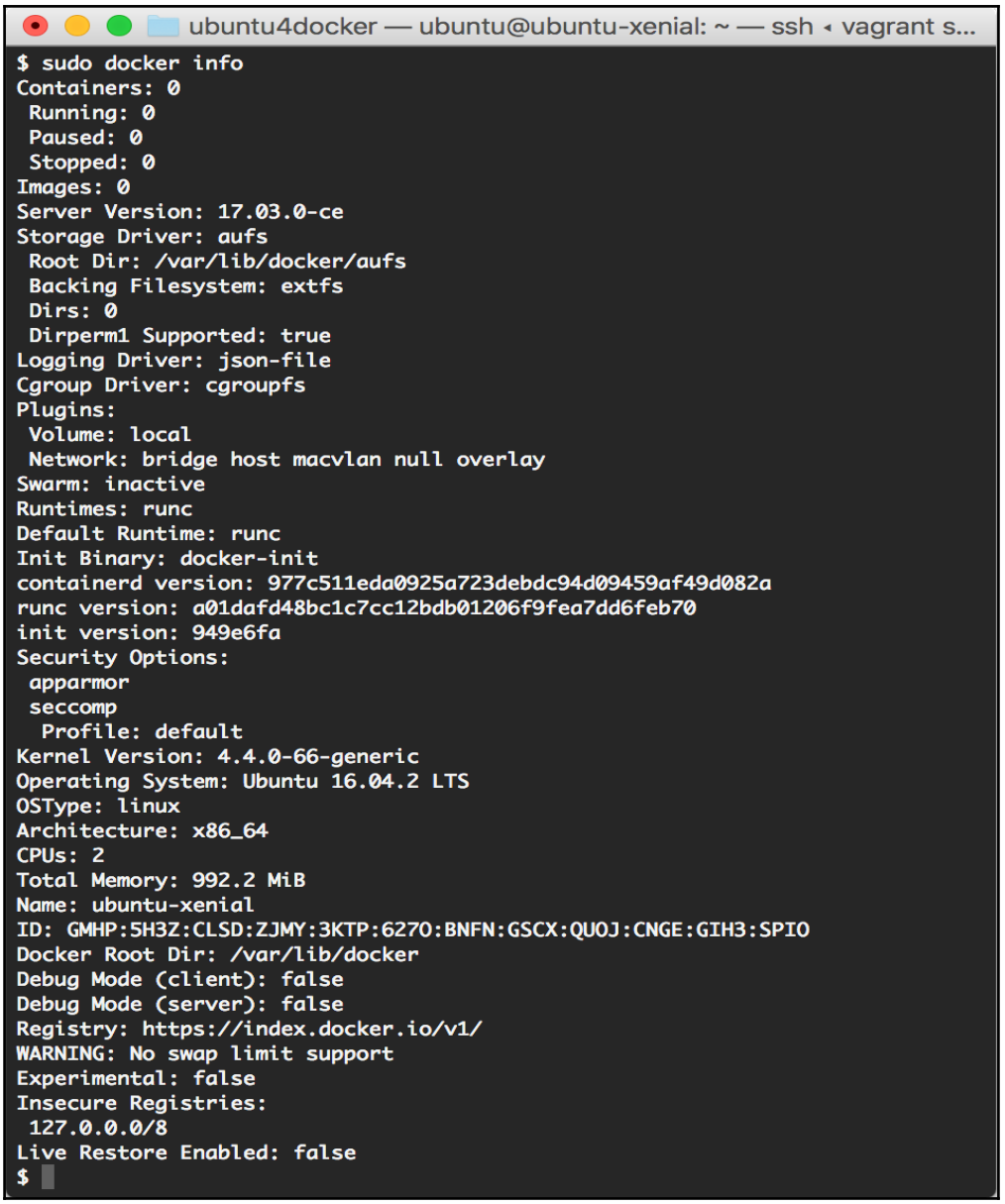



Docker
DRAG & DROP
beta
Docker
Paint 2
Applications


Docker is now up and running!
Open your favorite terminal and start typing Docker commands!
$ docker info
Click on the whale in your menu bar to access settings, feedback & documentation.
Send diagnostics & usage data
Privacy settings
Got it!


Docker Setup
Completed the Docker Setup Wizard
Click the Finish button to exit the Setup Wizard.
Make sure "Launch Docker" is selected (it should be by default).
Launch Docker
Back
Finish
Cancel

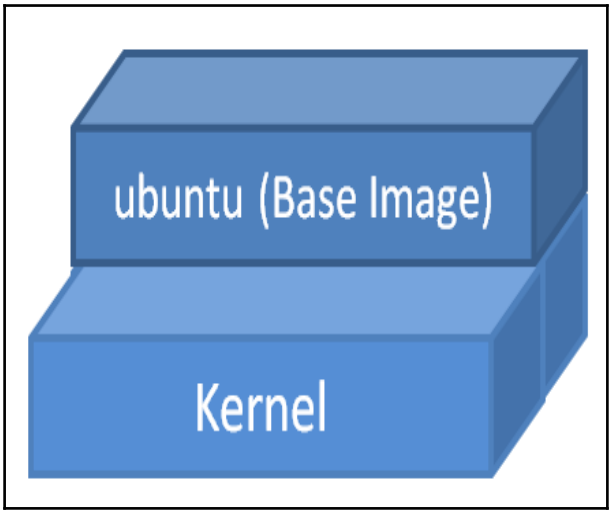

Welcome
Docker is now up and running!
Open your favorite terminal and start typing Docker commands!
Microsoft PowerShell
> docker run hello-world
Click on the whale in your notification area for settings, feedback and documentation.
We send usage statistics, check your privacy settings.
Got it!

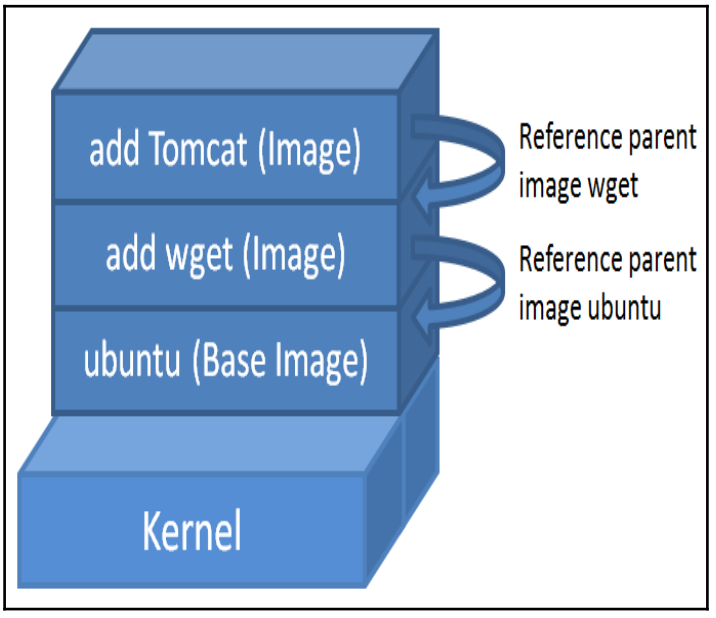

ubuntu4docker — ubuntu@ubuntu-xenial: ~ — ssh ◂ vagrant s...
$ sudo docker info
Containers: 0
 Running: 0
 Paused: 0
 Stopped: 0
Images: 0
Server Version: 17.03.0-ce
Storage Driver: aufs
 Root Dir: /var/lib/docker/aufs
 Backing Filesystem: extfs
 Dirs: 0
 Dirperm1 Supported: true
Logging Driver: json-file
Cgroup Driver: cgroupfs
Plugins:
 Volume: local
 Network: bridge host macvlan null overlay
Swarm: inactive
Runtimes: runc
Default Runtime: runc
Init Binary: docker-init
containerd version: 977c511eda0925a723debdc94d09459af49d082a
runc version: a01dafd48bc1c7cc12bdb01206f9fea7dd6feb70
init version: 949e6fa
Security Options:
 apparmor
 seccomp
  Profile: default
Kernel Version: 4.4.0-66-generic
Operating System: Ubuntu 16.04.2 LTS
OSType: linux
Architecture: x86_64
CPUs: 2
Total Memory: 992.2 MiB
Name: ubuntu-xenial
ID: GMHP:5H3Z:CLSD:ZJMY:3KTP:627O:BNFN:GSCX:QUOJ:CNGE:GIH3:SPIO
Docker Root Dir: /var/lib/docker
Debug Mode (client): false
Debug Mode (server): false
Registry: https://index.docker.io/v1/
WARNING: No swap limit support
Experimental: false
Insecure Registries:
 127.0.0.0/8
Live Restore Enabled: false
$

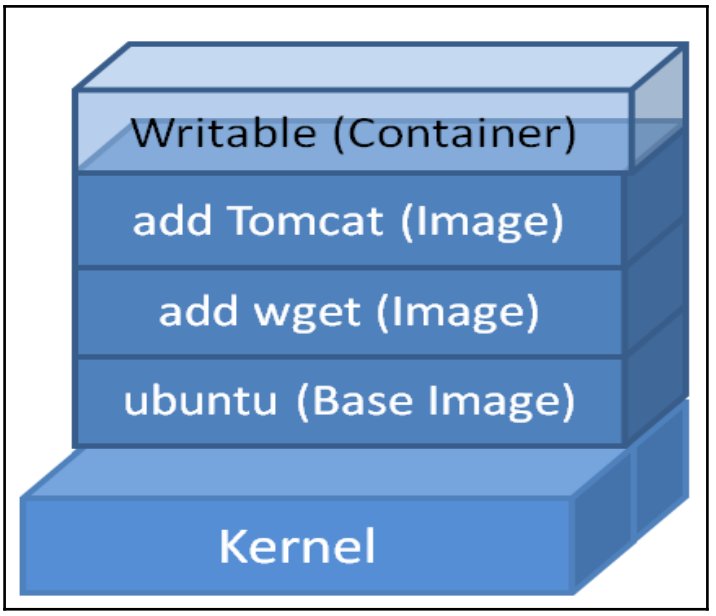
```
$ docker run hello-world

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.
 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://cloud.docker.com/

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

```
● docker.service - Docker Application Container Engine
   Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2017-02-23 10:52:39 UTC; 2 days ago
     Docs: https://docs.docker.com
 Main PID: 29327 (dockerd)
    Tasks: 22
   Memory: 31.6M
      CPU: 1min 18.943s
   CGroup: /system.slice/docker.service
           ├─29327 /usr/bin/dockerd -H fd://
           └─29336 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd
```

Chapter 2: Handling Docker Containers








```
$ sudo docker pull busybox
Using default tag: latest
latest: Pulling from library/busybox
8ddc19f16526: Pull complete
Digest: sha256:a59906e33509d14c036c8678d687bd4eec81ed7c4b8ce907b888c607f6a1e0e6
Status: Downloaded newer image for busybox:latest
```

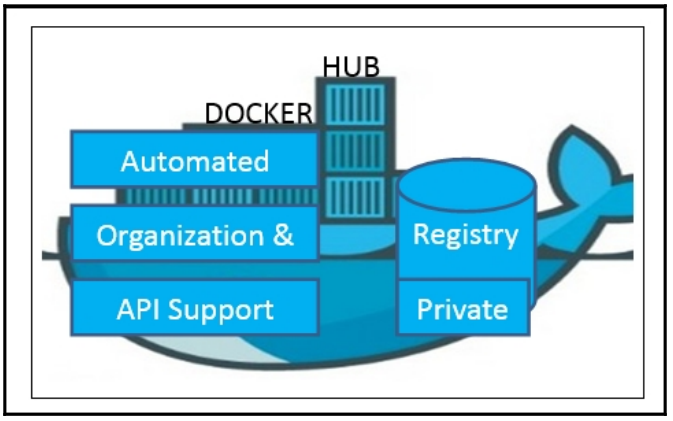
```
$ sudo docker pull busybox:1.24
1.24: Pulling from library/busybox

385e281300cc: Pull complete
a3ed95caeb02: Pull complete
Digest: sha256:8ea3273d79b47a8b6d018be398c17590a4b5ec604515f416c5b797db9dde3ad8
Status: Downloaded newer image for busybox:1.24
```

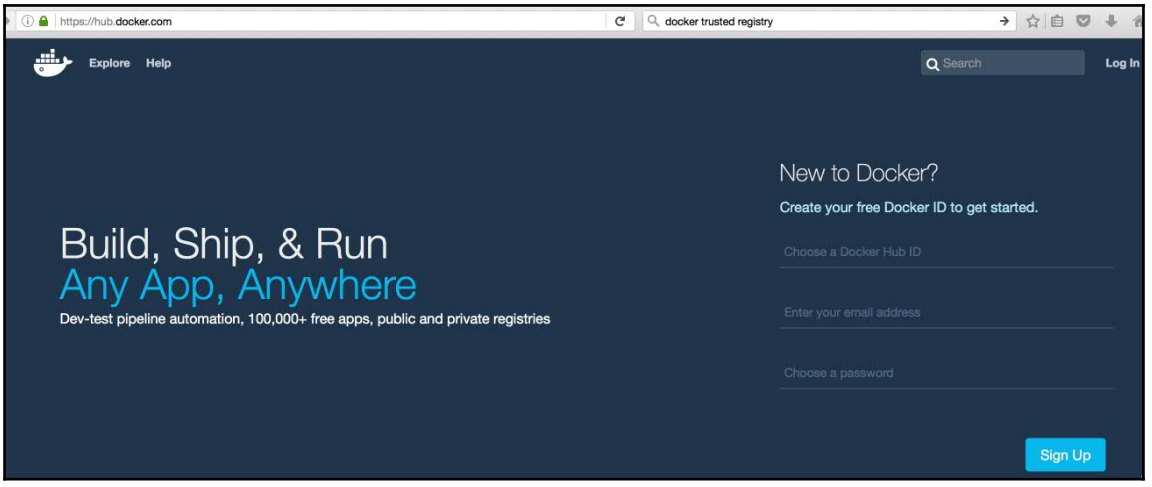
```
$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED
SIZE
hello-world         latest              c54a2cc56cbb        3 weeks ago
1.848 kB
busybox             latest              2b8fd9751c4c        4 weeks ago
1.093 MB
busybox             1.24                47bcc53f74dc        4 months ago
1.113 MB
```

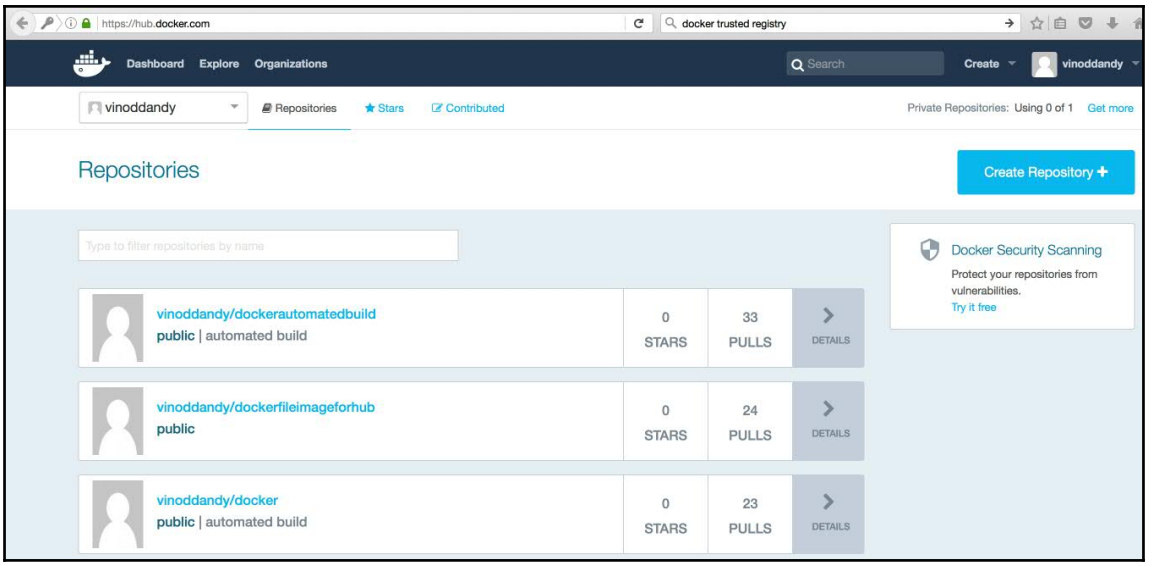
```
$ sudo docker search mysql | head -10
NAME                      DESCRIPTION                                     STARS     OFFICIAL   AUTOMATED
mysql                     MySQL is a widely used, open-source relati...   2759      [OK]
mysql/mysql-server        Optimized MySQL Server Docker images. Crea...   178                  [OK]
centurylink/mysql         Image containing mysql. Optimized to be li...   46                   [OK]
sameersbn/mysql                                                           36                   [OK]
appcontainers/mysql       Centos/Debian Based Customizable MySQL Con...   8                    [OK]
marvambass/mysql          MySQL Server based on Ubuntu 14.04              6                    [OK]
alterway/mysql            Docker Mysql                                    2                    [OK]
drupaldocker/mysql        MySQL for Drupal                                2                    [OK]
azukiapp/mysql            Docker image to run MySQL by Azuki - http:...   2                    [OK]
```

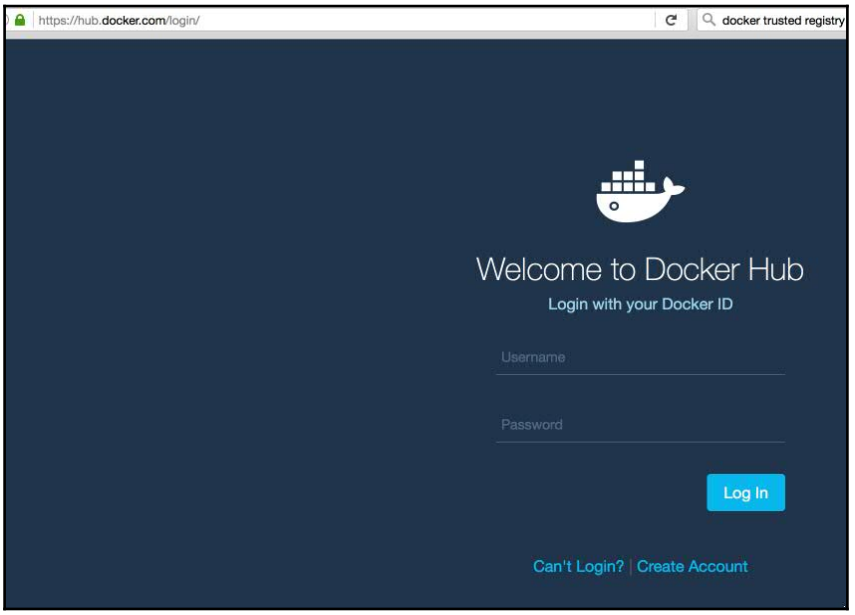
```
$ sudo docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
9b1aaaf108d3922d1a503fe01e9024302f0434a3b387c450d3b302020966a13e
d43c75065c6147501a7bc62f418fe501eeabaddd8617d77a4b28b5807dfeaa89
1614c44092f1c358cbb248a49430e70b674b52b32b8a193da9bba9b7136d1640

Total reclaimed space: 0 B
```

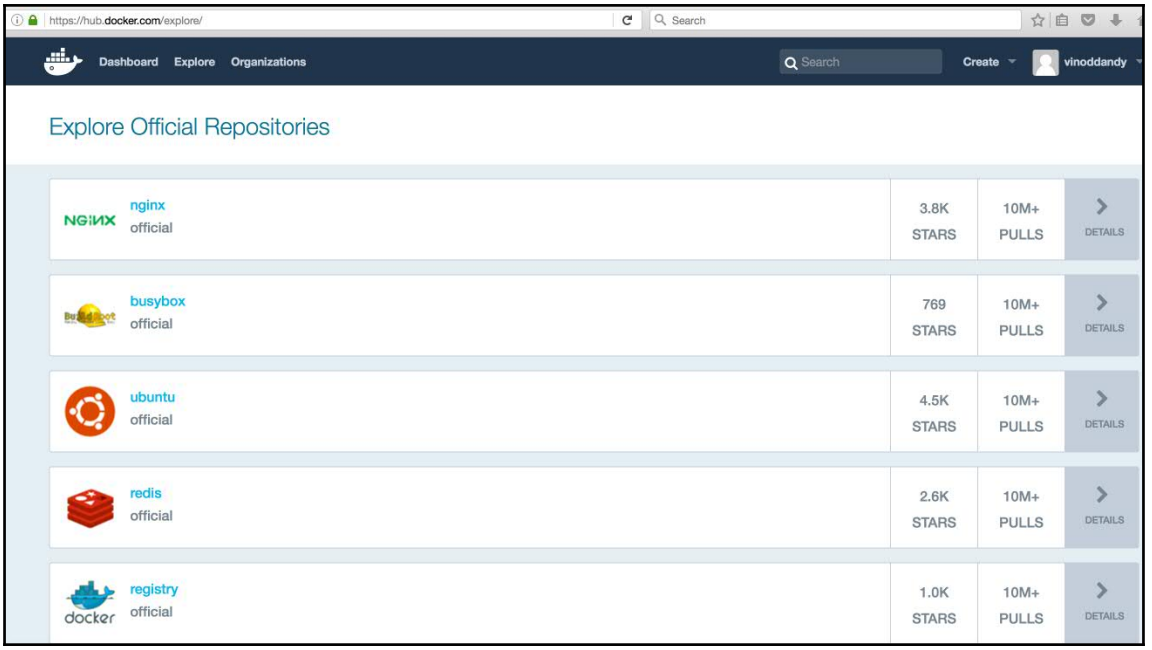
Chapter 4: Publishing Images

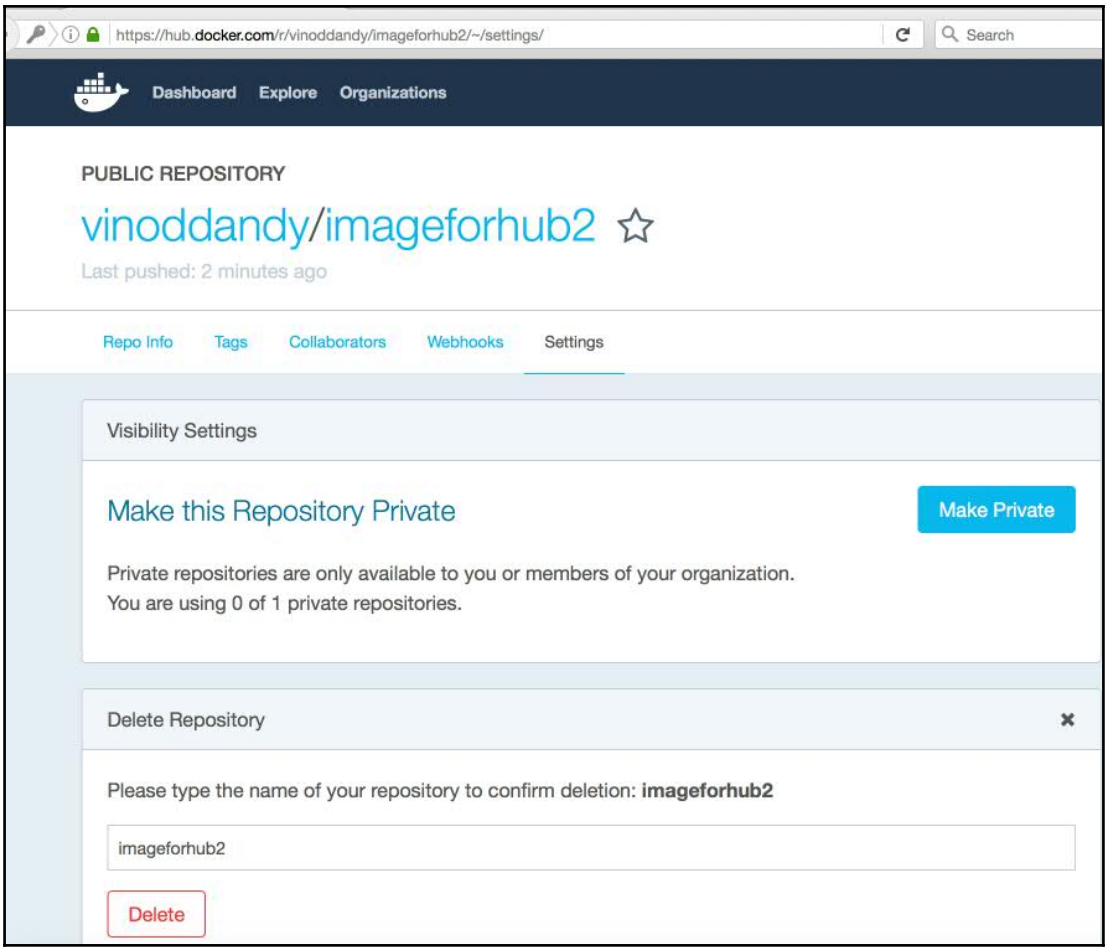


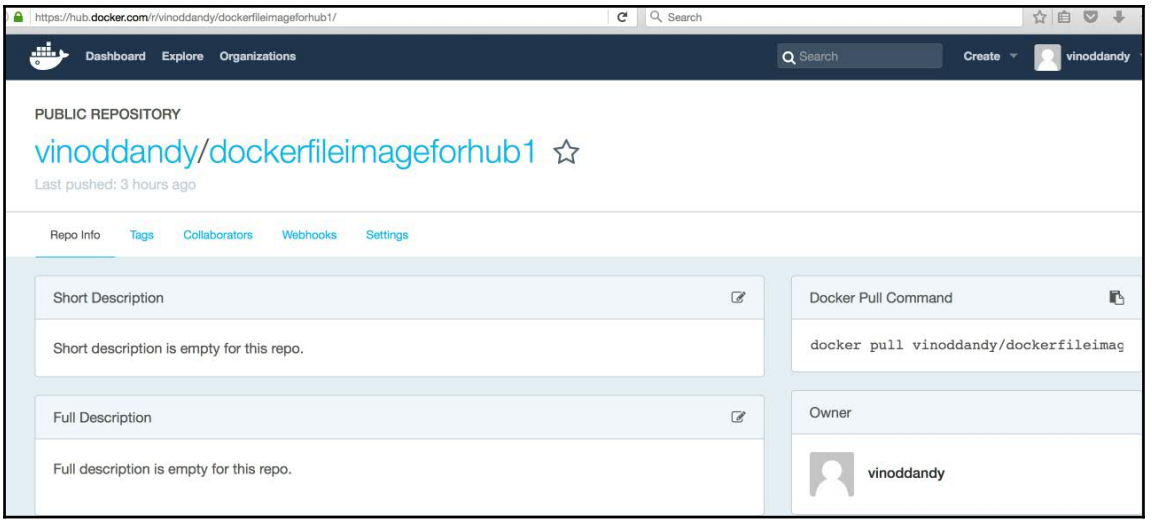


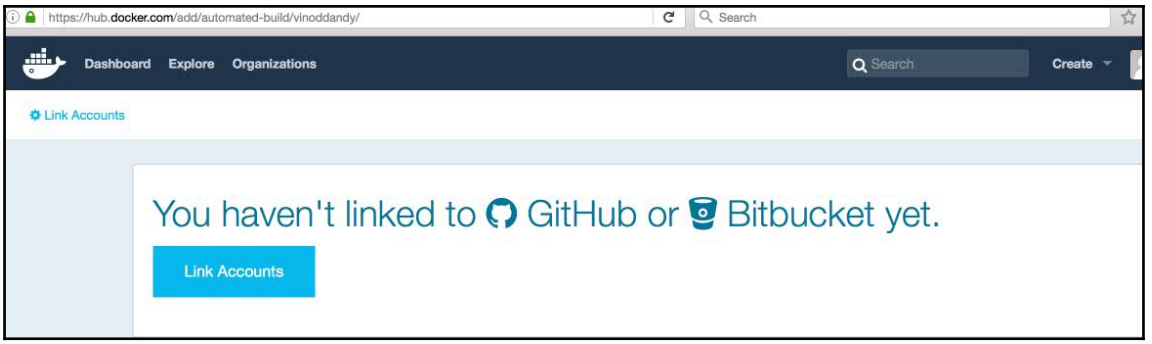

https://hub.docker.com
docker trusted registry
Dashboard
Explore
Organizations
Search
Create
vinoddandy
vinoddandy
Repositories
Stars
Contributed
Private Repositories: Using 0 of 1
Get more
Repositories
Create Repository +
Type to filter repositories by name
Docker Security Scanning
Protect your repositories from vulnerabilities.
Try it free
vinoddandy/dockerautomatedbuild
public | automated build
0 STARS
33 PULLS
DETAILS
vinoddandy/dockerfileimageforhub
public
0 STARS
24 PULLS
DETAILS
vinoddandy/docker
public | automated build
0 STARS
23 PULLS
DETAILS

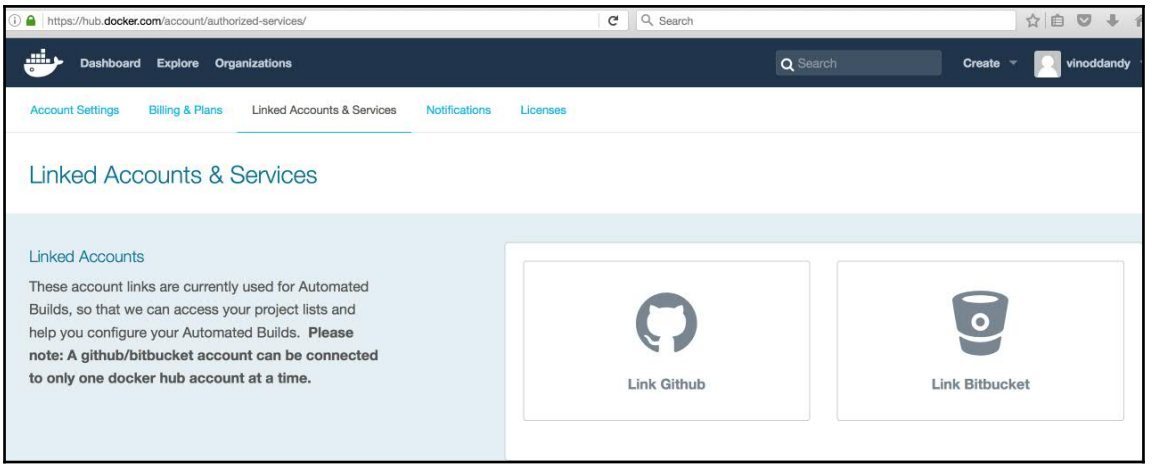

https://hub.docker.com/login/
docker trusted registry
Welcome to Docker Hub
Login with your Docker ID
Username
Password
Log In
Can't Login? | Create Account

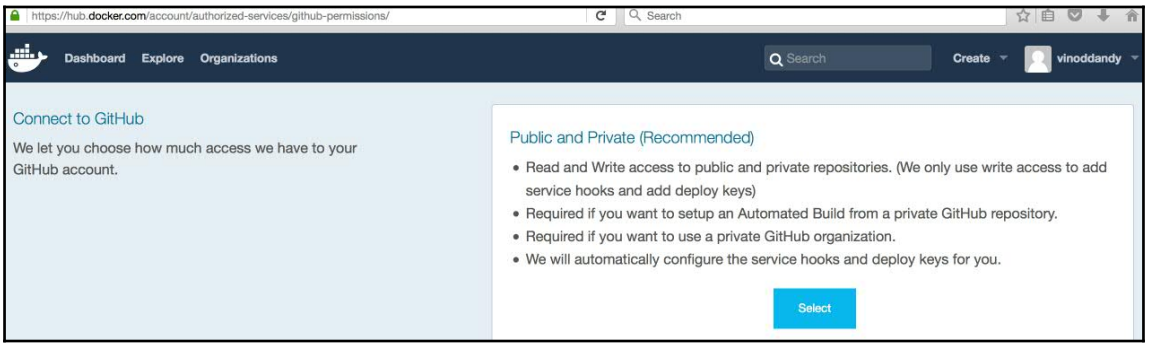

https://hub.docker.com/explore/
Search
Dashboard
Explore
Organizations
Search
Create
vinoddandy
Explore Official Repositories
nginx
official
3.8K
STARS
10M+
PULLS
DETAILS
busybox
official
769
STARS
10M+
PULLS
DETAILS
ubuntu
official
4.5K
STARS
10M+
PULLS
DETAILS
redis
official
2.6K
STARS
10M+
PULLS
DETAILS
registry
official
1.0K
STARS
10M+
PULLS
DETAILS

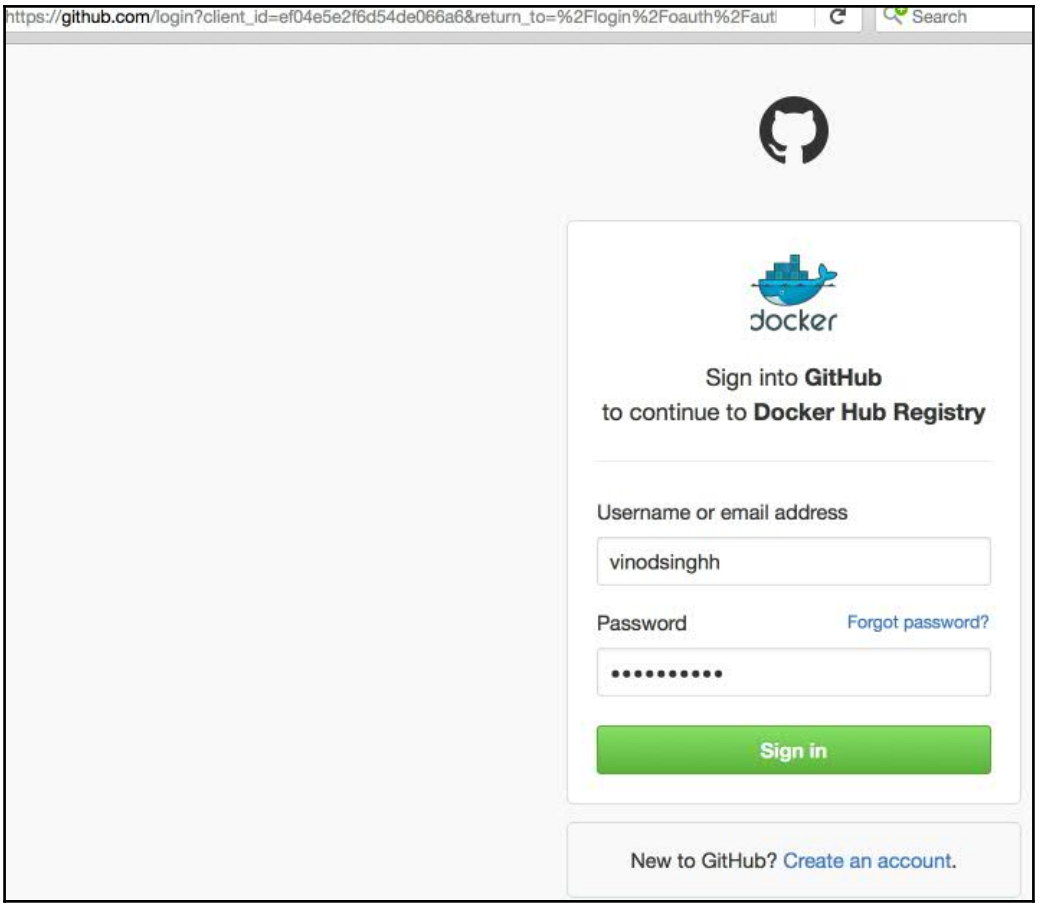

https://hub.docker.com/r/vinoddandy/imageforhub2/~/settings/
Search
Dashboard
Explore
Organizations
PUBLIC REPOSITORY
vinoddandy/imageforhub2
Last pushed: 2 minutes ago
Repo Info
Tags
Collaborators
Webhooks
Settings
Visibility Settings
Make this Repository Private
Make Private
Private repositories are only available to you or members of your organization.
You are using 0 of 1 private repositories.
Delete Repository
Please type the name of your repository to confirm deletion: imageforhub2
imageforhub2
Delete

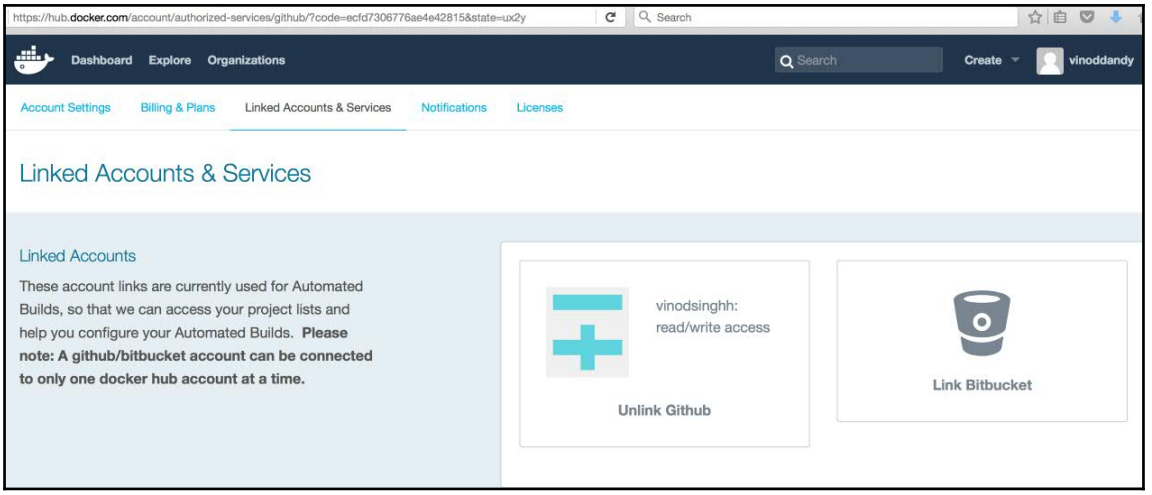

https://hub.docker.com/r/vinoddandy/dockerfileimageforhub1/
Search
Dashboard
Explore
Organizations
Search
Create
vinoddandy
PUBLIC REPOSITORY
vinoddandy/dockerfileimageforhub1
Last pushed: 3 hours ago
Repo Info
Tags
Collaborators
Webhooks
Settings
Short Description
Short description is empty for this repo.
Docker Pull Command
docker pull vinoddandy/dockerfileimag
Full Description
Full description is empty for this repo.
Owner
vinoddandy

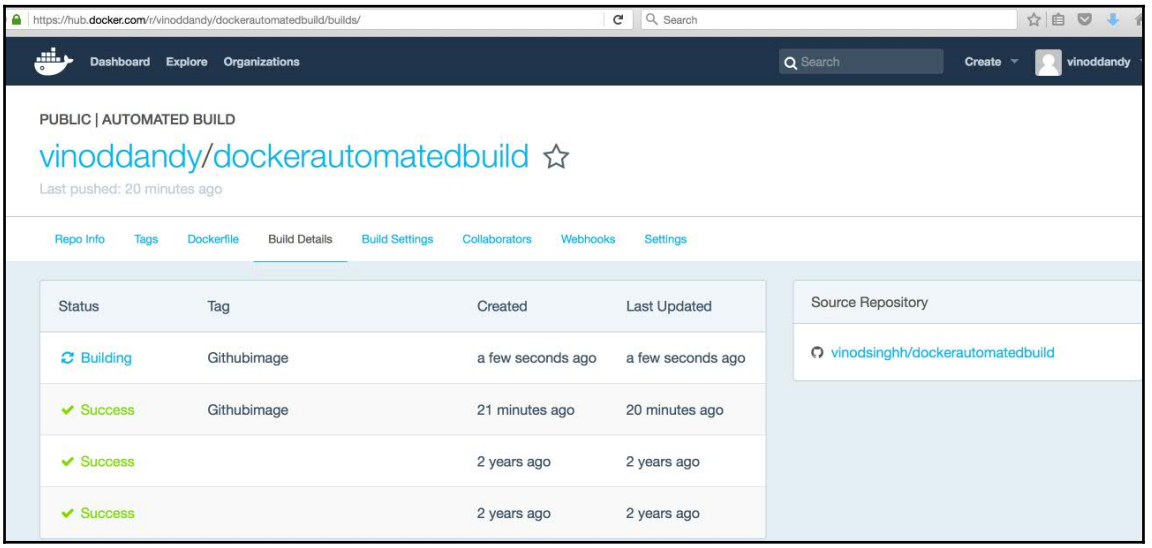

https://hub.docker.com/add/automated-build/vinoddandy/
Search
Dashboard
Explore
Organizations
Search
Create
Link Accounts
You haven't linked to GitHub or Bitbucket yet.
Link Accounts

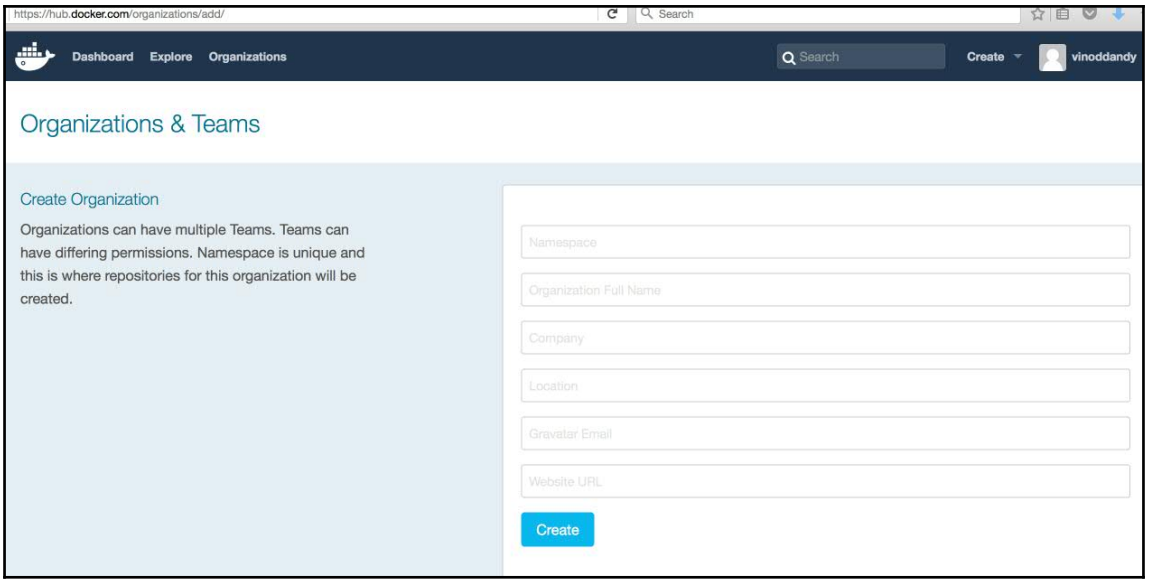

https://hub.docker.com/account/authorized-services/
Search
Dashboard
Explore
Organizations
Search
Create
vinoddandy
Account Settings
Billing & Plans
Linked Accounts & Services
Notifications
Licenses
Linked Accounts & Services
Linked Accounts
These account links are currently used for Automated Builds, so that we can access your project lists and help you configure your Automated Builds. Please note: A github/bitbucket account can be connected to only one docker hub account at a time.
Link Github
Link Bitbucket

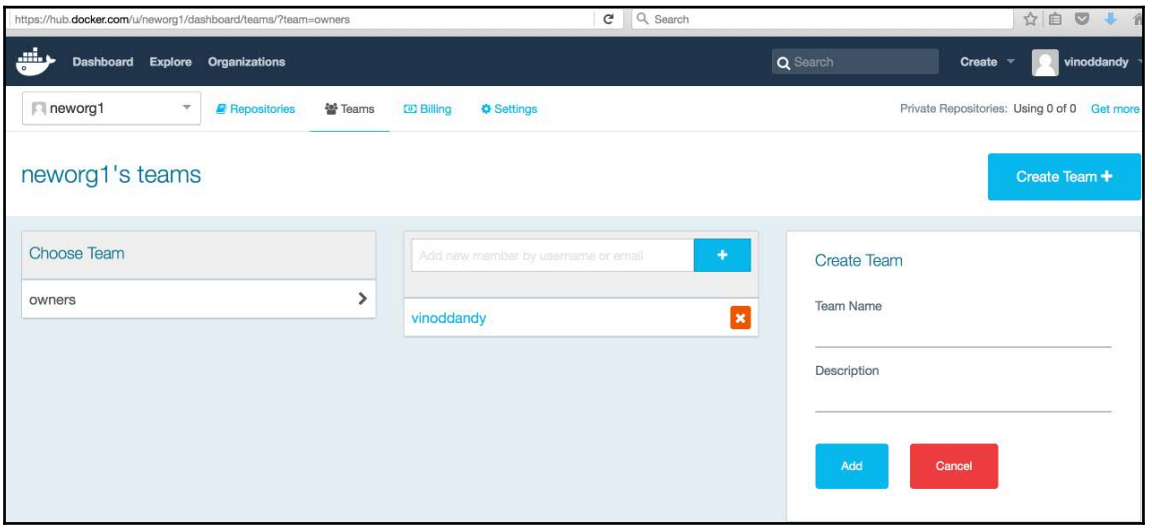

https://hub.docker.com/account/authorized-services/github-permissions/
Search
Dashboard
Explore
Organizations
Search
Create
vinoddandy
Connect to GitHub
We let you choose how much access we have to your GitHub account.
Public and Private (Recommended)
Read and Write access to public and private repositories. (We only use write access to add service hooks and add deploy keys)
Required if you want to setup an Automated Build from a private GitHub repository.
Required if you want to use a private GitHub organization.
We will automatically configure the service hooks and deploy keys for you.
Select


https://github.com/login?client_id=ef04e5e2f6d54de066a6&return_to=%2Flogin%2Foauth%2Faut
Search
docker
Sign into GitHub
to continue to Docker Hub Registry
Username or email address
vinodsinghh
Password
Forgot password?
Sign in
New to GitHub? Create an account.

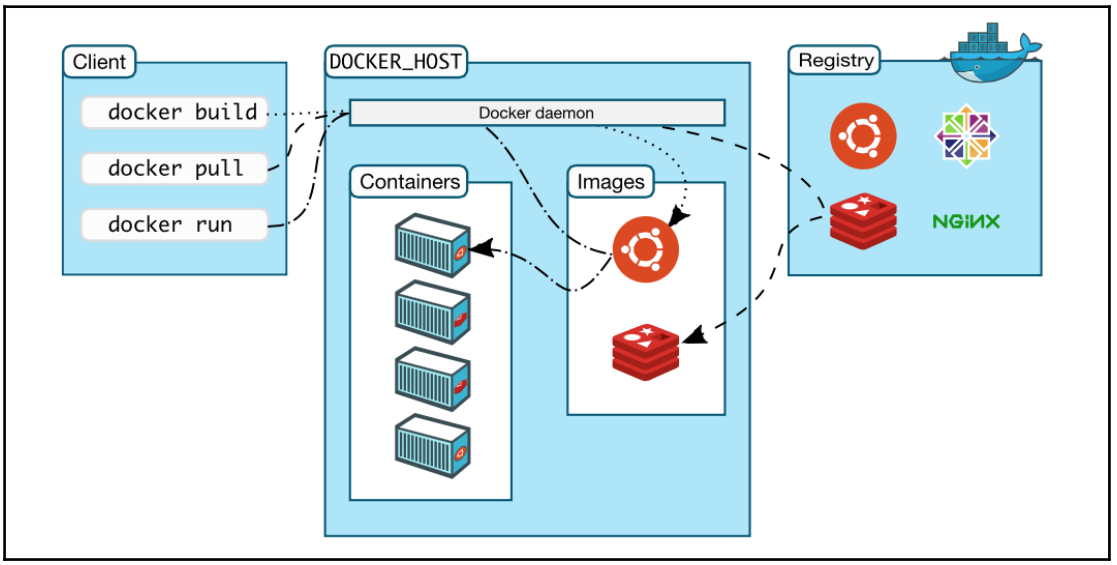

https://hub.docker.com/account/authorized-services/github/?code=ecfd7306776ae4e42815&state=ux2y
Search
Dashboard
Explore
Organizations
Search
Create
vinoddandy
Account Settings
Billing & Plans
Linked Accounts & Services
Notifications
Licenses
Linked Accounts & Services
Linked Accounts
These account links are currently used for Automated Builds, so that we can access your project lists and help you configure your Automated Builds. Please note: A github/bitbucket account can be connected to only one docker hub account at a time.
vinodsinghh:
read/write access
Unlink Github
Link Bitbucket

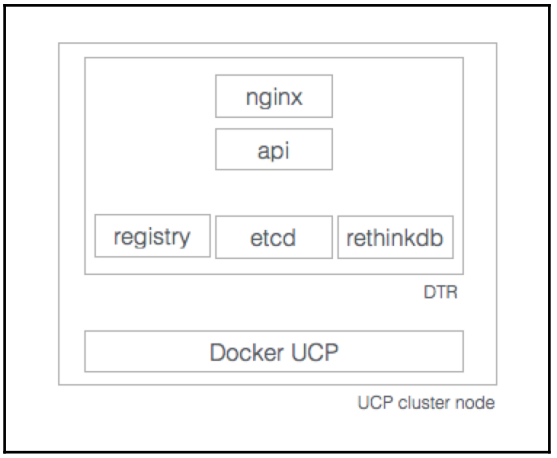

https://hub.docker.com/r/vinoddandy/dockerautomatedbuild/builds/
Search
Dashboard
Explore
Organizations
Search
Create
vinoddandy
PUBLIC | AUTOMATED BUILD
vinoddandy/dockerautomatedbuild
Last pushed: 20 minutes ago
Repo Info
Tags
Dockerfile
Build Details
Build Settings
Collaborators
Webhooks
Settings
Status
Tag
Created
Last Updated
Building
Githubimage
a few seconds ago
a few seconds ago
Success
Githubimage
21 minutes ago
20 minutes ago
Success
2 years ago
2 years ago
Success
2 years ago
2 years ago
Source Repository
vinodsinghh/dockerautomatedbuild

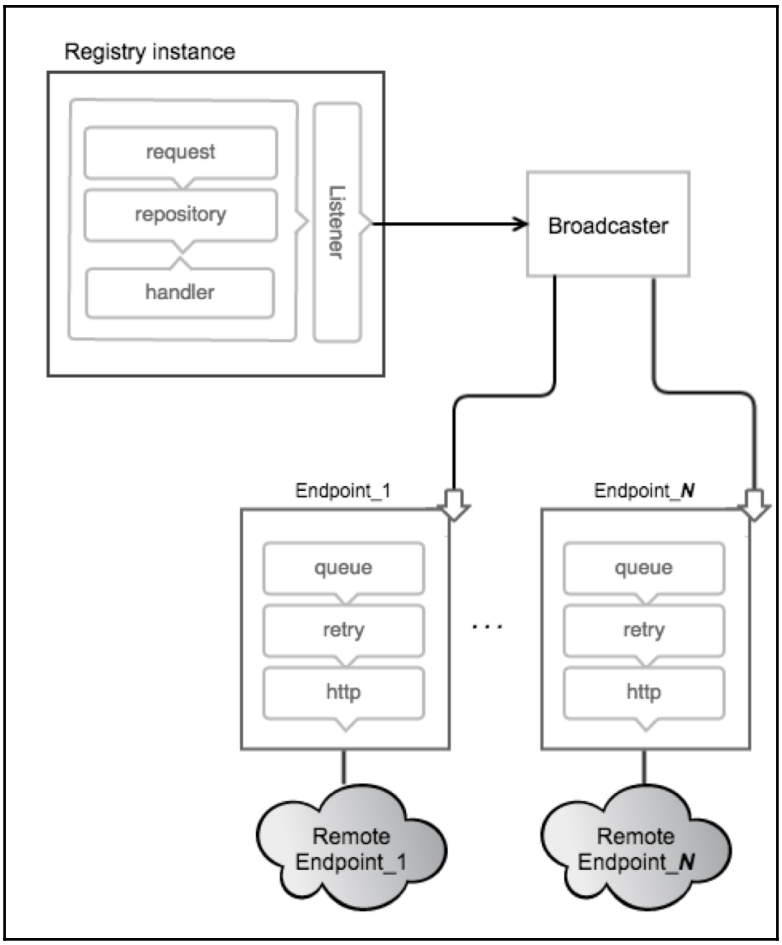

https://hub.docker.com/organizations/add/
Search
Dashboard
Explore
Organizations
Search
Create
vinoddandy
Organizations & Teams
Create Organization
Organizations can have multiple Teams. Teams can have differing permissions. Namespace is unique and this is where repositories for this organization will be created.
Namespace
Organization Full Name
Company
Location
Gravatar Email
Website URL
Create


https://hub.docker.com/u/neworg1/dashboard/teams/?team=owners
Search
Dashboard
Explore
Organizations
Search
Create
vinoddandy
neworg1
Repositories
Teams
Billing
Settings
Private Repositories: Using 0 of 0
Get more
neworg1's teams
Create Team +
Choose Team
owners
Add new member by username or email
+
vinoddandy
Create Team
Team Name
Description
Add
Cancel

Chapter 5: Running Your Private Docker Infrastructure





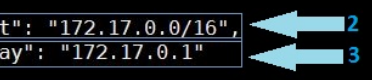

Registry instance
request
repository
handler
Listener
Broadcaster
Endpoint_1
queue
retry
http
Endpoint_N
queue
retry
http
Remote Endpoint_1
Remote Endpoint_N

Chapter 6: Running Services in a Container

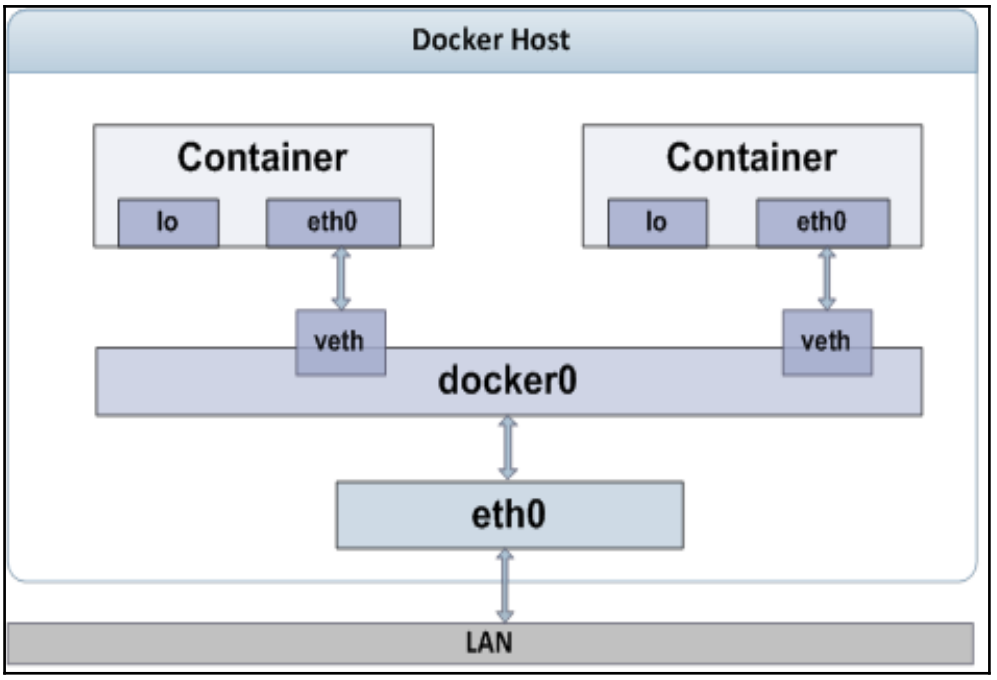
```
$ docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
daa55dd5830a        bridge              bridge              local
3e99b1085979        host                host                local
9b06957b4a00        none                null                local
$
```

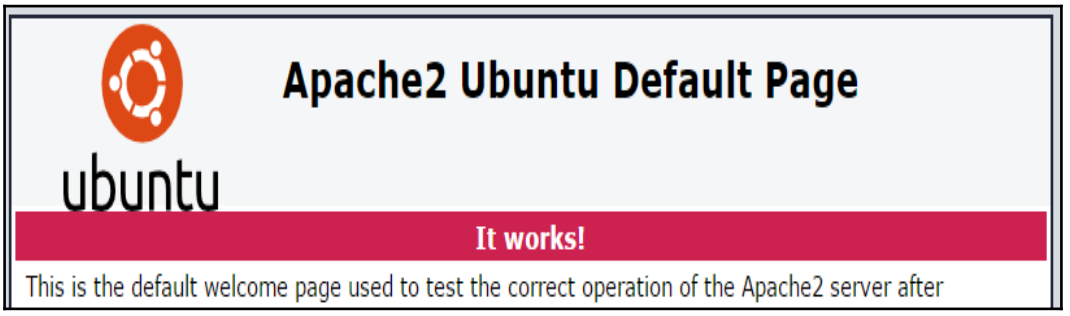
```
$ docker run --rm  --net=none busybox ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
$
```

```
$ docker network inspect bridge
[
    {
        "Name": "bridge",
        "Id": "daa55dd5830a4d5ad2cfa68085644baea2651a1a6ed8664ed8ef0a74b18f6bc5",
        "Scope": "local",
        "Driver": "bridge",
        "EnableIPv6": false,
        "IPAM": {
            "Driver": "default",
            "Options": null,
            "Config": [
                {
                    "Subnet": "172.17.0.0/16",
                    "Gateway": "172.17.0.1"
                }
            ]
        },
        "Internal": false,
        "Containers": {},
        "Options": {
            "com.docker.network.bridge.default_bridge": "true",
            "com.docker.network.bridge.enable_icc": "true",
            "com.docker.network.bridge.enable_ip_masquerade": "true",
            "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
            "com.docker.network.bridge.name": "docker0",
            "com.docker.network.driver.mtu": "1500"
        },
        "Labels": {}
    }
]
$
```

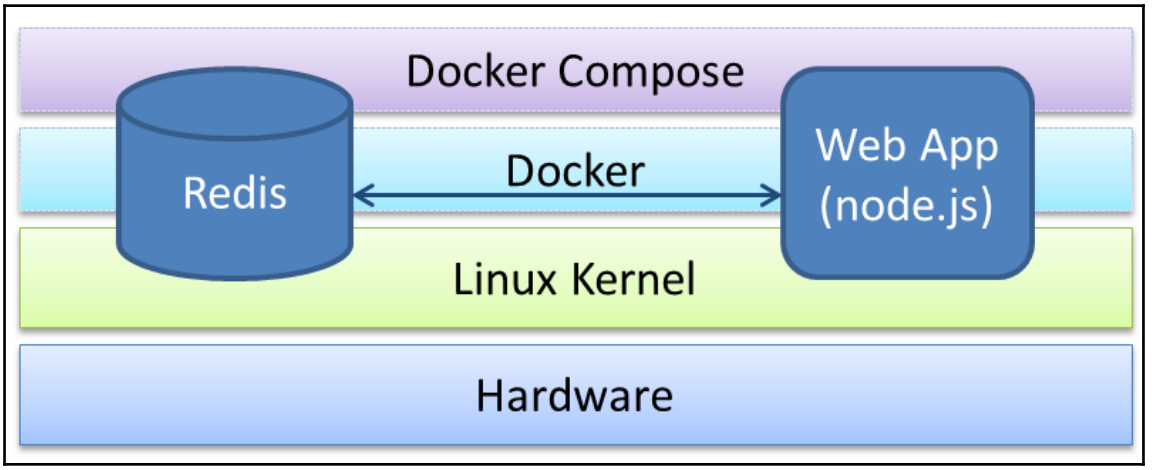



```
$ docker run -it busybox ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
201: eth0: <NO-CARRIER,BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue
    link/ether 02:42:ac:11:00:03 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.3/16 scope global eth0
       valid_lft forever preferred_lft forever
    inet6 fe80::42:acff:fe11:3/64 scope link tentative
       valid_lft forever preferred_lft forever
$
```

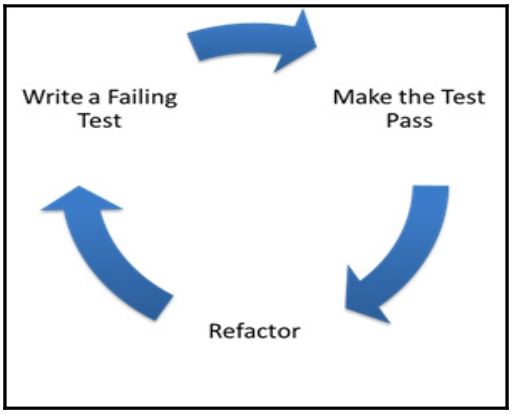

Docker Host
Container
lo
eth0
Container
lo
eth0
veth
veth
docker0
eth0
LAN

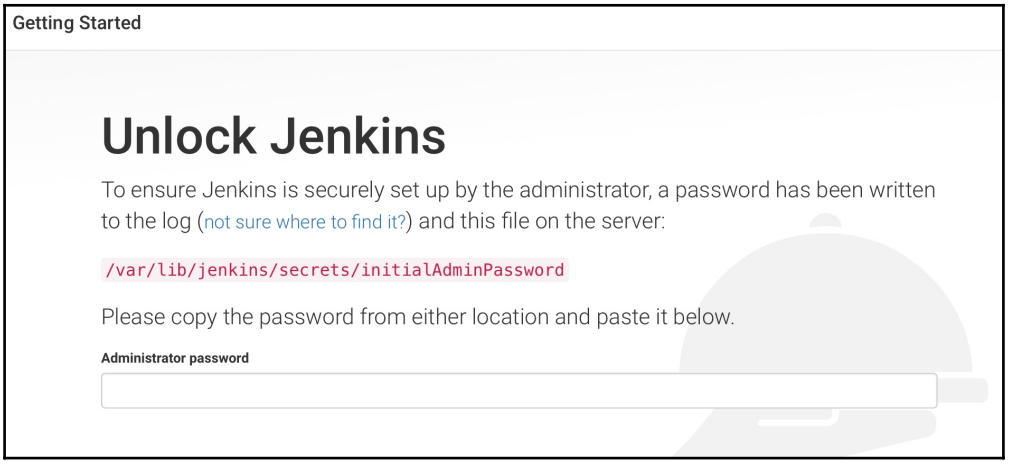

Apache2 Ubuntu Default Page
ubuntu
It works!
This is the default welcome page used to test the correct operation of the Apache2 server after

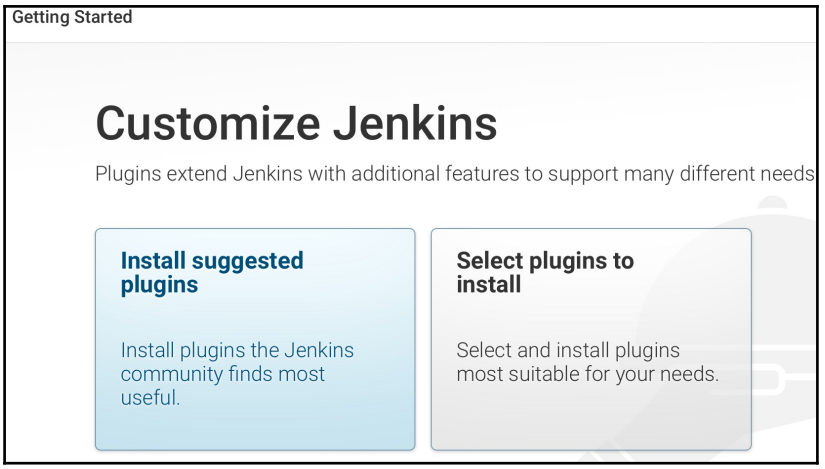
Chapter 8: Orchestrating Containers

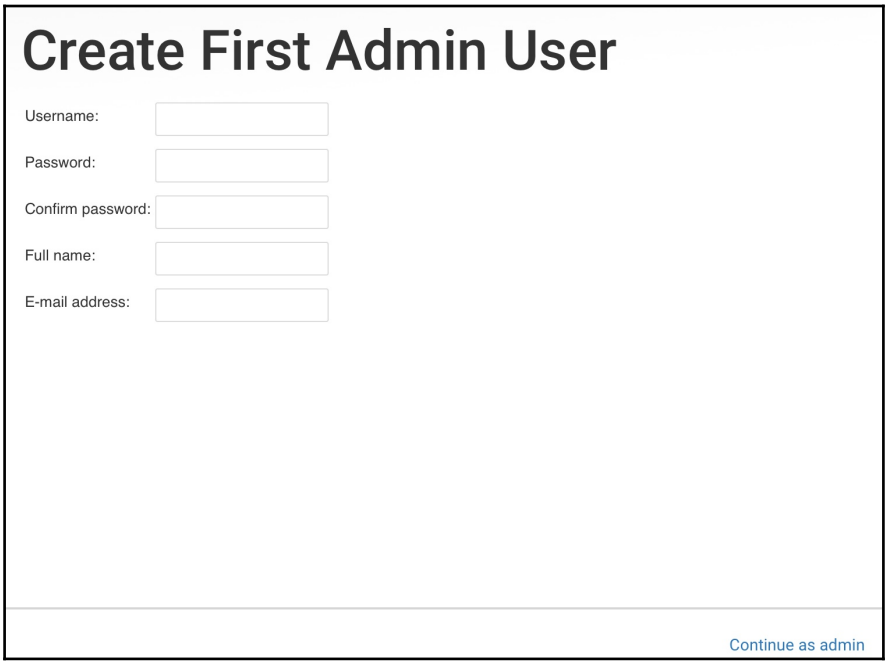


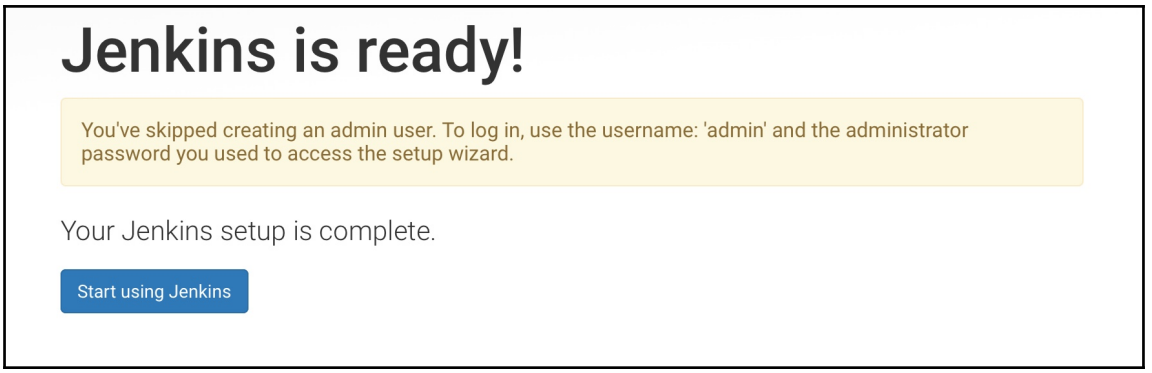
Chapter 9: Testing with Docker

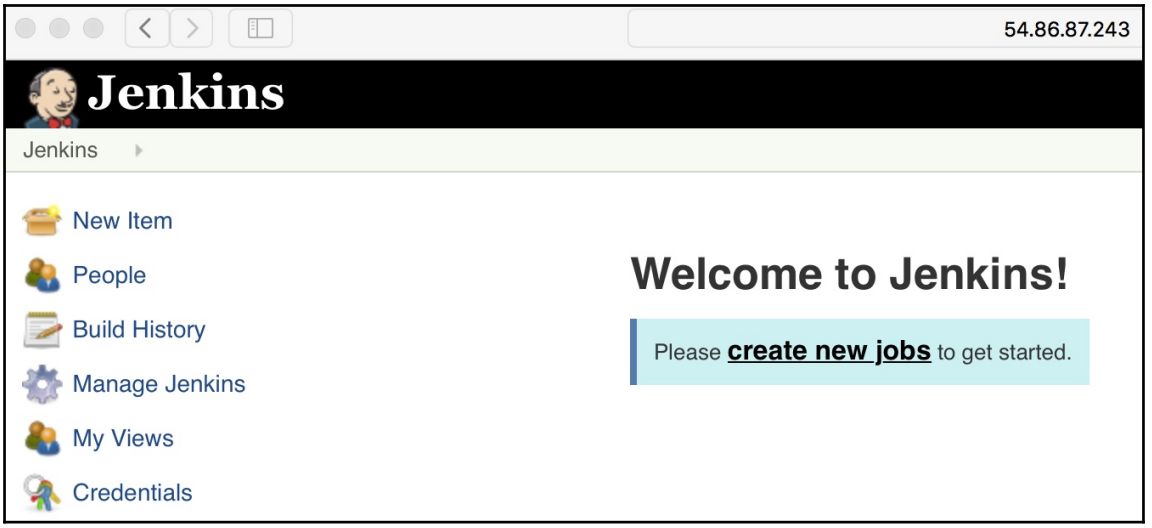


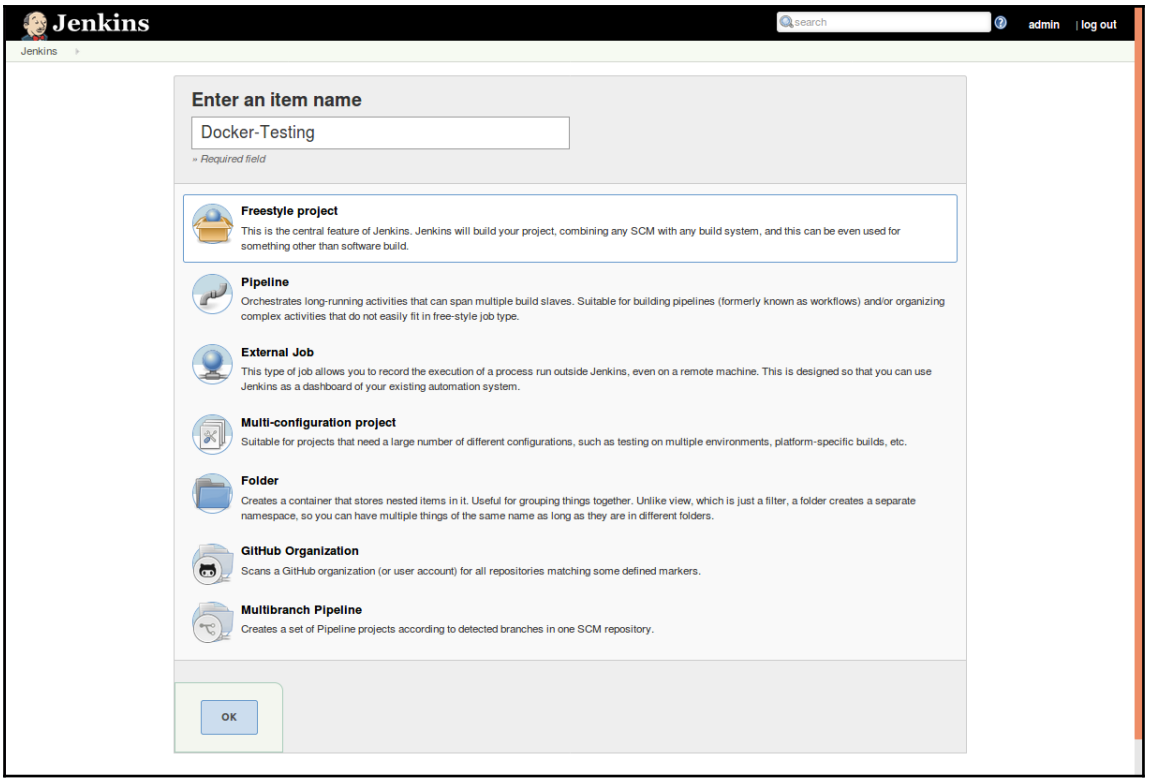


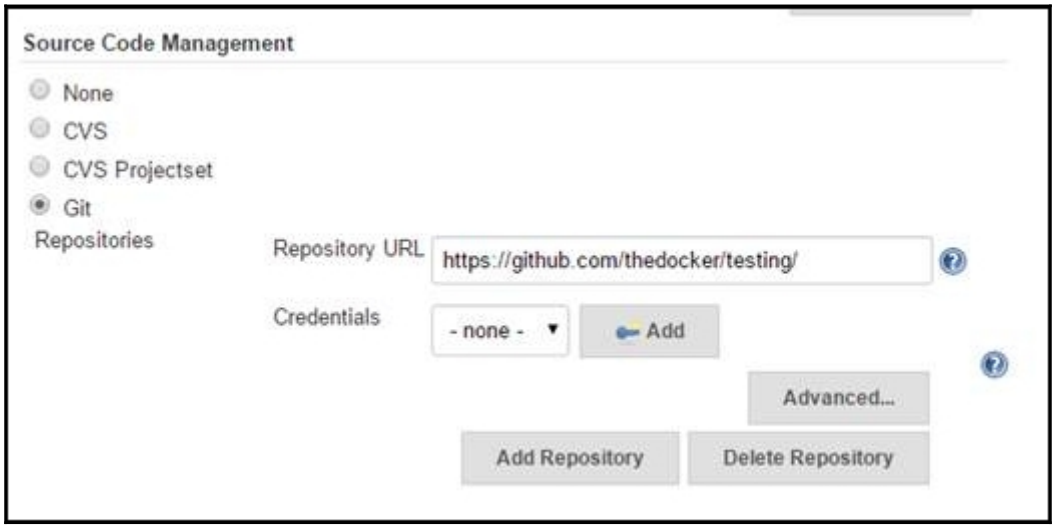

Getting Started
Customize Jenkins
Plugins extend Jenkins with additional features to support many different needs
Install suggested plugins
Install plugins the Jenkins community finds most useful.
Select plugins to install
Select and install plugins most suitable for your needs.

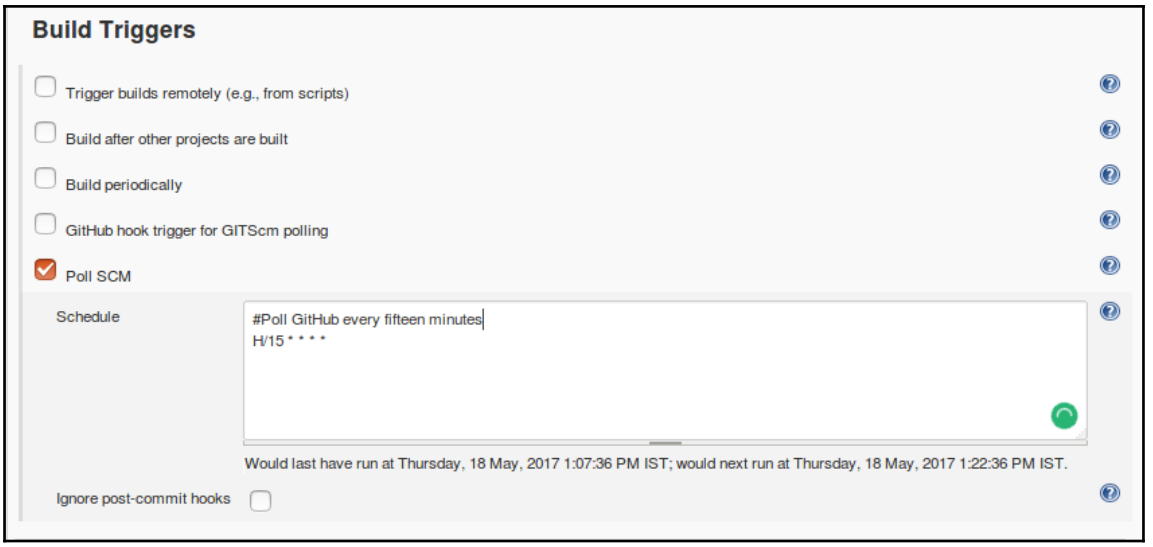

Create First Admin User
Username:
Password:
Confirm password:
Full name:
E-mail address:
Continue as admin


Jenkins is ready!
You've skipped creating an admin user. To log in, use the username: 'admin' and the administrator password you used to access the setup wizard.
Your Jenkins setup is complete.
Start using Jenkins

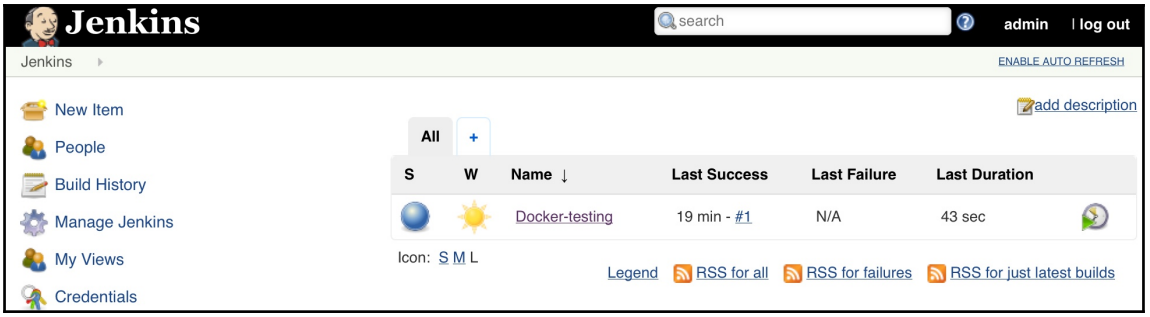

54.86.87.243
Jenkins
Jenkins
New Item
People
Build History
Manage Jenkins
My Views
Credentials
Welcome to Jenkins!
Please create new jobs to get started.


Jenkins
search
admin
log out
Jenkins
Enter an item name
Docker-Testing
» Required field
Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.
Pipeline
Orchestrates long-running activities that can span multiple build slaves. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.
External Job
This type of job allows you to record the execution of a process run outside Jenkins, even on a remote machine. This is designed so that you can use Jenkins as a dashboard of your existing automation system.
Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.
Folder
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.
GitHub Organization
Scans a GitHub organization (or user account) for all repositories matching some defined markers.
Multibranch Pipeline
Creates a set of Pipeline projects according to detected branches in one SCM repository.
OK

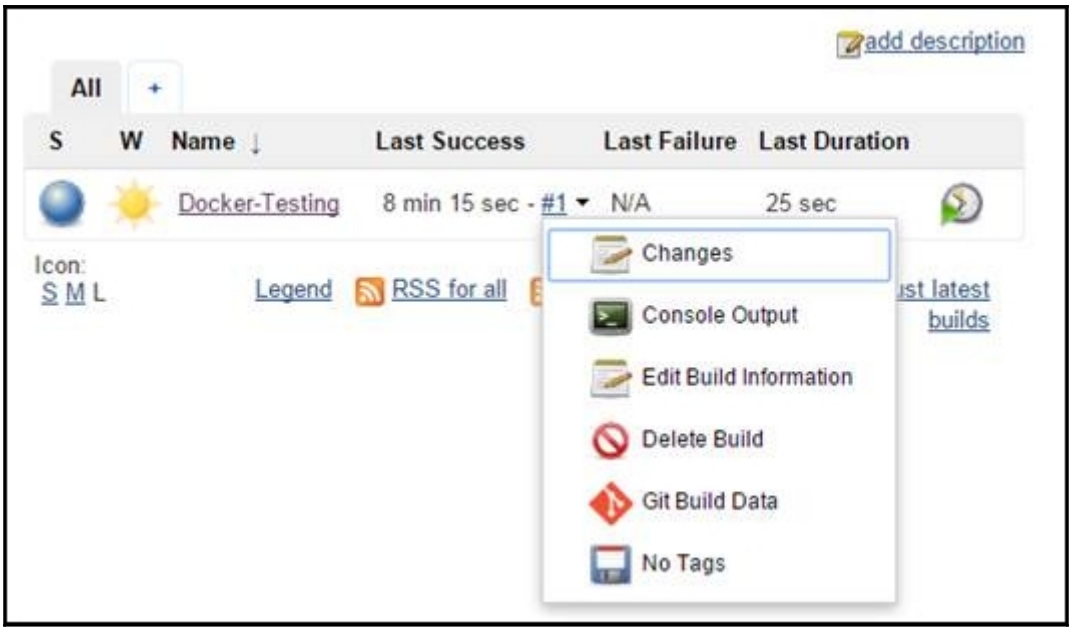

Source Code Management
None
CVS
CVS Projectset
Git
Repositories
Repository URL
https://github.com/thedocker/testing/
Credentials
- none -
Add
Advanced...
Add Repository
Delete Repository


Build Triggers
Trigger builds remotely (e.g., from scripts)
Build after other projects are built
Build periodically
GitHub hook trigger for GITScm polling
Poll SCM
Schedule
#Poll GitHub every fifteen minutes
H/15 * * * *
Would last have run at Thursday, 18 May, 2017 1:07:36 PM IST; would next run at Thursday, 18 May, 2017 1:22:36 PM IST.
Ignore post-commit hooks


Build
Execute shell
Command
docker build -t docker_testing_using_jenkins .
docker run --rm docker_testing_using_jenkins
See the list of available environment variables
Advanced...
Add build step
Post-build Actions
Add post-build action
Save
Apply

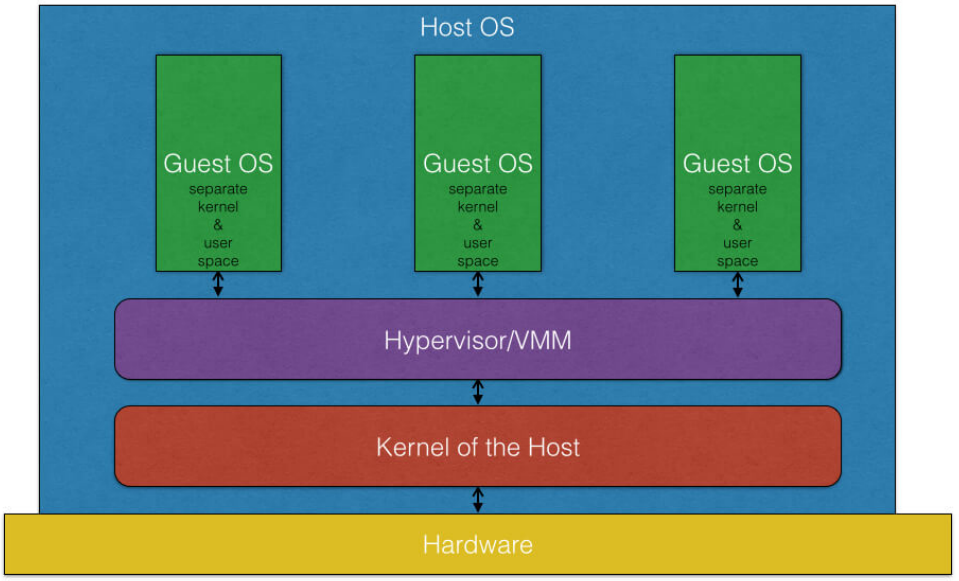

Jenkins
search
admin
log out
Jenkins
ENABLE AUTO REFRESH
New Item
People
Build History
Manage Jenkins
My Views
Credentials
add description
All
+
S
W
Name ↓
Last Success
Last Failure
Last Duration
Docker-testing
19 min - #1
N/A
43 sec
Icon: S M L
Legend
RSS for all
RSS for failures
RSS for just latest builds


add description
All
+
S
W
Name ↓
Last Success
Last Failure
Last Duration
Docker-Testing
8 min 15 sec - #1
N/A
25 sec
Icon:
S M L
Legend
RSS for all
RSS for failures
RSS for just latest builds

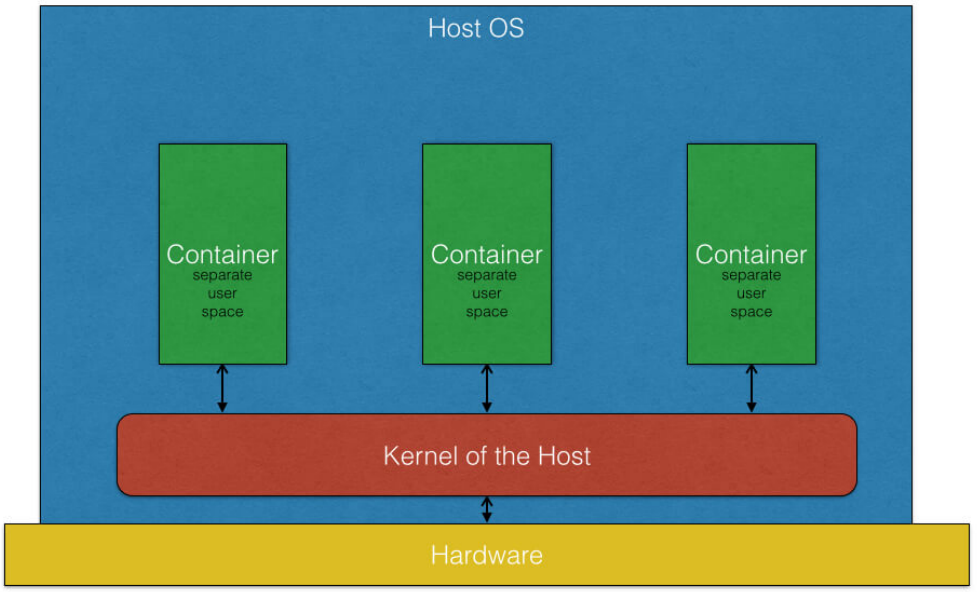

add description
All
S
W
Name
Last Success
Last Failure
Last Duration
Docker-Testing
8 min 15 sec - #1
N/A
25 sec
Changes
Console Output
Edit Build Information
Delete Build
Git Build Data
No Tags
Icon:
S M L
Legend
RSS for all
builds


add description
All
S
W
Name
Last Success
Last Failure
Last Duration
Docker-Testing
44 min - #1
8 min 7 sec - #3
25 sec
Icon:
S M L
Legend
RSS for all
RSS for failures
RSS for just latest builds

Chapter 11: Securing Docker Containers



Hypervisor based Virtualization



Operating System/Container Virtualization

Chapter 12: The Docker Platform – Distinct Capabilities and Use Cases