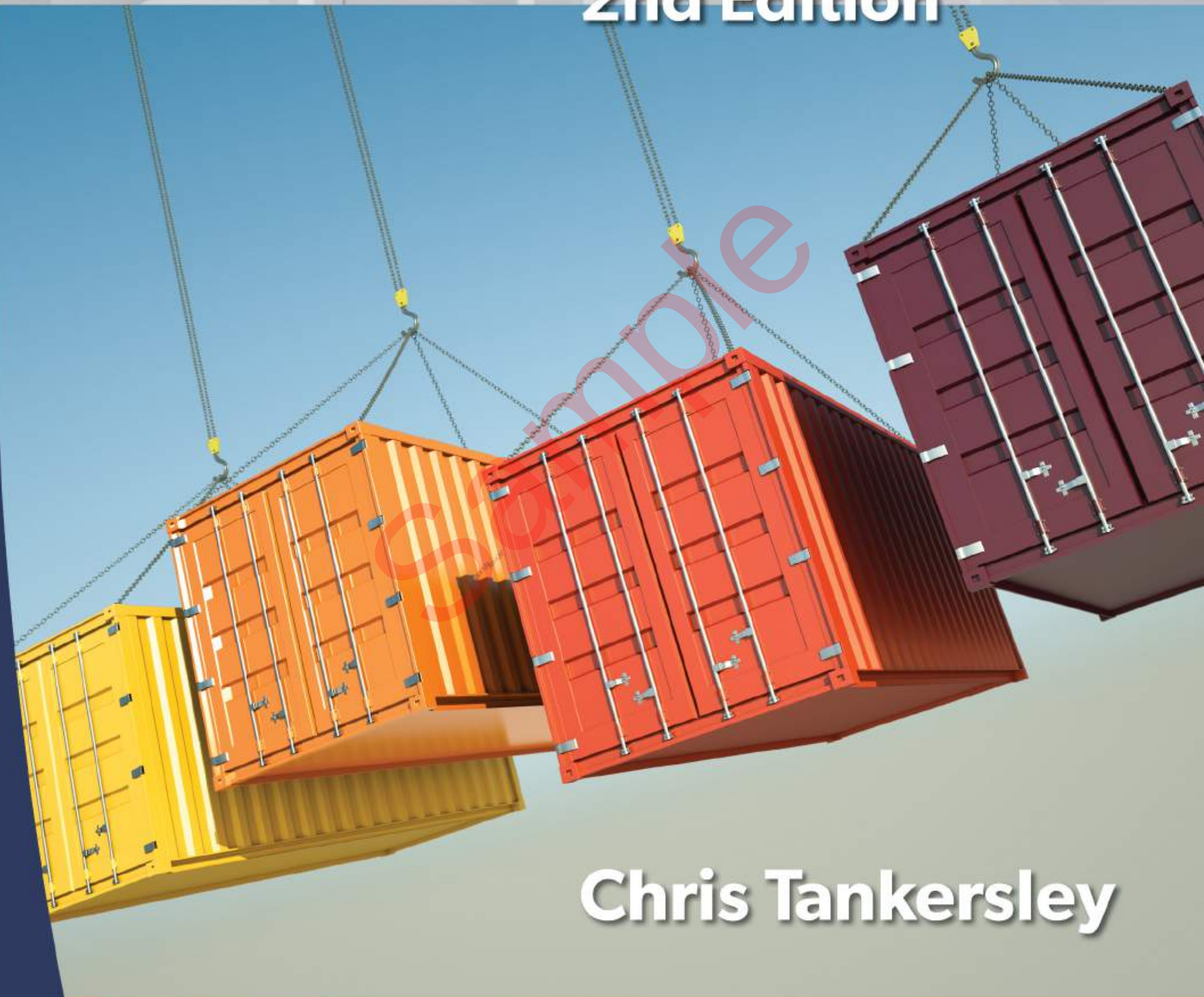
Docker For Developers

2nd Edition



Chris Tankersley

php[architect] edition

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Table of Contents

Chapter 2

Getting Started

Before we begin using Docker, we are going to need to install it. There will be a few caveats that we are going to discuss as we go through the installation because, unless you are on Linux, we're going to need some extra software to utilize Docker. This will create some extra issues down the road, but rest assured I'll keep you abreast of the more disasterous pitfalls that you may encounter, or various issues that might arise on non-Linux systems.

The installation is normally fairly easy no matter what OS you are going to use, so let's get cracking. We're going to install Docker Community Edition 17.03. I'll go over some basic installation, but you can always refer to *https://docs.docker.com/installation/* for anything special or other Operating Systems if you aren't using Windows, OSX, or Ubuntu.

Throughout this book, I'm going to be using Ubuntu for all of the examples because it not only gives us a full operating system to work with as a host, but it is also very easy to set up. There are smaller Linux distributions that are designed for running Docker, but we are more worried about development at this stage. Since we're using containers it doesn't really matter what the host OS is.

In 2016 Docker released Docker for Mac and Docker for Windows, which brings a much more native feel to working with containers on those operating systems. Everything that is discussed in this book should work fine on Mac or Windows. The few caveats that still exist are detailed in the section for those operating systems.

Docker Community Edition vs Docker Enterprise Edition

In March of 2017, Docker split the project into two versions - Docker Community Edition (CE) and Docker Enterprise Edition (EE). Functionally they are currently the same, with EE having a certification process for its releases and a different support plan than CE. You will not lose out on anything by using the CE edition of Docker, and as such we will be using it for this book. If you see references to Docker 1.13 in this book and online, that is essentially the same thing as Docker CE 17.03, as Docker changed the version numbers when releasing CE and EE.

Installing Docker

Ubuntu

Since Ubuntu ships with Long Term Release releases, I would recommend installing Ubuntu 16.04 and using that. The following instructions should work just fine for 14.04 or higher as well. Ubuntu does have Docker in it's repositories but it is generally out of date pretty quickly so we're going to use an apt repository from Docker that will keep us up-to-date. Head on over to *http://www.ubuntu.com/download/server* and download the 16.04 LTS Server ISO and install it like normal. If you'd like a GUI, grab the desktop version. Either one will work. I'll be using the Desktop version with the intent to deploy to Ubuntu 16.04 Server.

If you've never installed Ubuntu before, Ubuntu provides a quick tutorial on what to do. Server instructions can be found at *http://www.ubuntu.com/download/server/install-ubuntu-server* and Desktop instructions can be found at *http://www.ubuntu.com/download/desktop/install-ubuntu-desktop*.

There's a few commands we can run to set up the Docker repository. Open up a terminal and install Docker:

```
$ sudo -i
$ wget -qO- https://get.docker.com/ | sh
$ usermod -a -G docker [username]
$ exit
$ sg docker
```

Line 1 switches us to the `root` user to make things easier. Lines 2 runs a script that adds the repository to Ubuntu, updates apt, and install Docker for us. Line 3 sets up your user to use

Docker so that we do not have to be `root` all of the time, so replace `[username]` with your actual user you will use.

We can make sure that the Docker engine is working by running `docker -v` to see what version we are at:

```
$ docker -v
Docker version 1.13.0, build 49bf474
```

To make sure that the container system is working, we can run a small contaier.

```
$ docker run --rm hello-world
```

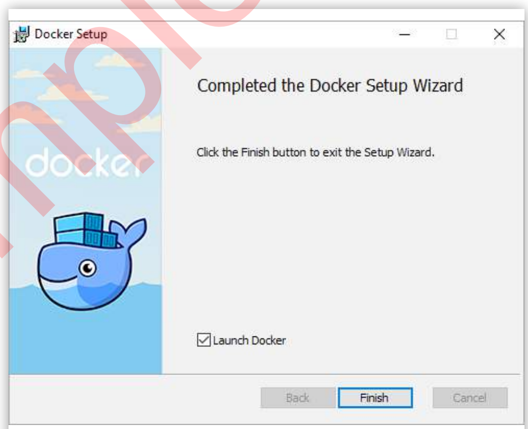
Ubuntu is all set up!

Windows 10 with Hyper-V

In 2016 Docker formally released a beta of Docker that runs on Windows, if your version of Windows includes Hyper-V. This includes Windows 10 Professional, Enterprise, and Education. If you have Home, you will need to upgrade to Windows 10 Professional to be able to use Hyper-V.

Head on over to the Docker Products[1] and download the package for Windows. The Docker for Windows package includes Docker Engine, Compose, Machine, and Swarm all ready to be installed, and the installer will also enable Hyper-V.

Launch the Installer. Accept the install agreement and let Docker install. Once the installer is done, make sure the 'Launch Docker' option is selected and finish the installation. That's it! See Figure 2-1.



Completed the Docker Setup Wizard

Click the Finish button to exit the Setup Wizard.

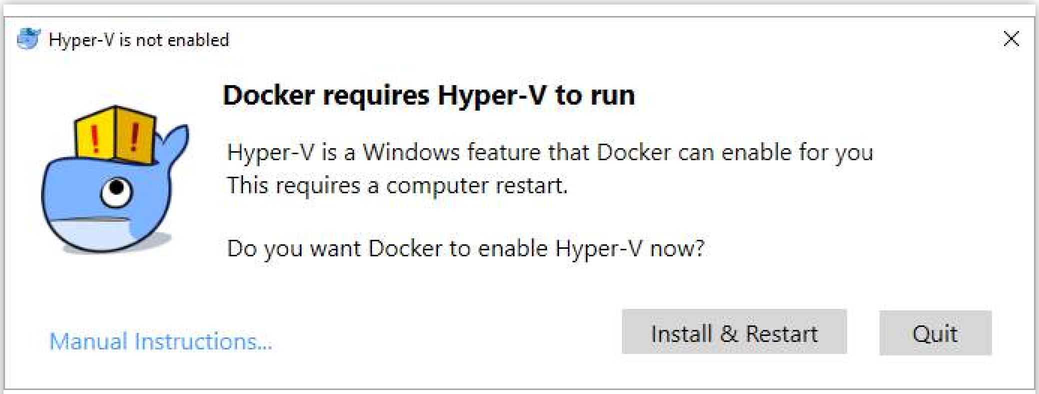
☑ Launch Docker

Figure 2-1

Docker will start itself up. If Hyper-V is not installed, it will prompt you to install Hyper-V and then restart the PC (Figure 2-2). This may take a few additional moments, and your PC may restart a few times.

Once that is all finished you will have a 'Docker for Windows' icon on your desktop, and a Docker icon in your notification tray. As long as it is not red, you should be able to power up a Powershell window and run `docker -v` to make sure everything is working.

[1] *Docker Products: https://www.docker.com/products/docker#windows*


Hyper-V is not enabled

Docker requires Hyper-V to run

Hyper-V is a Windows feature that Docker can enable for you
This requires a computer restart.

Do you want Docker to enable Hyper-V now?

Figure 2-2

```
$ docker -v
Docker version 17.03.0-ce, build 60ccb22
```

Out of Memory Issues

On my test laptop, which has 4GB of RAM, I had to lower the VM memory usage all the way down to 1024 MB before it would run. I am not 100% sure why exactly, as I had more than 2 GB of available RAM at startup. If you get this error, right-click on the Docker icon in your notification tray, select 'Settings', and then 'Advanced.' Lower the Memory slider until you are able to start Docker.

`pwd` In Code Samples

Various shells in OSX and Linux allow you to specify a shortcut for the current directory by using `pwd`*. You will see this throughout the book. If you are on Windows, just replace* `pwd` *with the full path of the folder that you want.*

Windows 7/8/8.1

Docker does not support Docker Toolbox as well as Docker for Windows, and as such I cannot guarantee that everything in this book will work properly. Your mileage may vary.

Index