## [Course Overview](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c)

### [Course Overview](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c)

[Welcome to the Docker for Web Developers course.](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=2.34) [My name is Dan Wahlin,](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=5.44) [and I'm a web developer and software architect and really excited about](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=6.93) [the potential that Docker offers us as web developers.](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=11.13) [Now, any time you start with a new technology,](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=15.24) [you want to know the benefits that it's going to bring to you,](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=17.76) [and we're going to start with that at the very beginning of the course.](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=20.04) [From there,](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=23.31) [we'll jump into installing Docker on a Windows machine and on a Mac and learn](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=23.71) [about the tools and commands you can use to work with Docker,](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=28.2) [including key Docker client commands you can run, such as docker pull,](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=30.87) [which will pull images from Docker Hub.](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=34.59) [We'll learn about what an image is,](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=37.64) [how you can convert that into a running container, and how the](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=39.72) [layered file system plays a role behind the scenes.](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=43.3) [By the time we're done,](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=47.64) [we'll have an entire development environment set up using](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=48.88) [something called Docker Compose. And this is a really powerful](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=51.92) [technology for the development environment,](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=55.1) [and you'll see the process from start to finish of](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=57.54) [building a fully functional website.](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=60.08) [So we have a lot of great stuff to cover in this course.](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=62.74) [As I said, I'm really excited about the technology, so let's jump into the official agenda for the course.](https://app.pluralsight.com/course-player?clipId=21d5e68b-be61-42a0-835e-0d8c70973d5c&startTime=65.76)

## [Why Use Docker as a Developer?](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497)

### [Introduction](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497)

[Docker gets a lot of attention nowadays and for good reason,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=2.64) [but if you've looked into it at all, you might have wondered,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=6.01) [what exactly is it?](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=9.12) [And is it something I can actually use as a web developer?](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=10.53) [I know when I first started reading about it,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=14.04) [hearing about it at conferences and user group talks and things like that,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=16.1) [I really wondered if it was something that even played a role in what I did.](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=20.25) [And the more I dug in, the more I found out that,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=24.24) [yeah, actually it can play a big role in our web development operations,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=26.92) [and that's what we're going to address in this first module.](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=31.05) [So we're going to start off by talking about what exactly is Docker,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=34.84) [and we'll clarify some key terms and concepts that you need to](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=38.45) [know in order to be successful to understand how Docker works and](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=41.71) [how you could use it. Now, from there,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=45.93) [we'll jump right into the benefits that Docker](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=48.73) [could provide us as web developers,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=51.06) [and you're going to see there's actually quite a few benefits that it](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=53.17) [can provide us. There's a lot of great stuff there.](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=55.72) [Next up,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=59.64) [we'll talk about the Docker tools and the role that they each play](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=60.14) [in this overall development workflow that we're going to be](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=63.73) [discussing throughout the course. And then we'll wrap up by seeing](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=66.47) [Docker in action, and I'll actually show an application that's using](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=70.53) [Docker to hit a database,](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=74.21) [do some caching, and some other aspects of a normal](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=76.12) [development workflow and development application.](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=79.67) [Let's go ahead and get started by answering that all](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=82.94) [important question of what is Docker, and then jump into the benefits it can offer us as developers.](https://app.pluralsight.com/course-player?clipId=f88ea874-17c4-41ab-80cc-154d27b31497&startTime=85.05)

### [What Is Docker?](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344)

[Let's start things off by answering the question, what is Docker?](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=2.9) [Docker does have some different terms.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=7.04) [So we're going to clarify what those are,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=8.93) [we're going to clarify where it can run,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=10.76) [and how this all kind of works.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=12.88) [So Docker itself is just a lightweight, open, secure platform.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=16.74) [This is kind of the official party line, if you will.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=20.68) [And the first time I heard that it didn't make maybe a](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=23.74) [whole lot of sense because I could think of several things](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=25.99) [that might fit a lightweight, open, secure platform definition.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=28.21) [But really what Docker is is a way to simplify the](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=31.42) [process of building applications, shipping them,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=34.76) [and then running them in different environments.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=38.14) [Now, when I say environments, of course,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=40.26) [I'm talking about development, staging, production,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=42.16) [and others that you may have at work.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=45.26) [Now, what actually ships with Docker then?](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=47.94) [Well, we're going to be talking about things called images and containers,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=50.94) [and containers are really, really important.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=54.5) [You'll see over at the left the Docker logo,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=56.46) [and you can think of the whale there as kind of like a ship that has containers.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=59.44) [And back in the old days,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=62.89) [there was no standardized way to ship things on the old‑school ships.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=64.48) [So it was a lot more time intensive and not very productive](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=69.61) [to get stuff on the ship and off the ship.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=73.84) [Whereas nowadays, the major shipping companies,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=77.24) [of course, have very standardized sized,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=79.91) [standard height standard width, shipping containers.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=82.35) [So as the crane goes over when the ship docks,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=85.36) [it's very quick and efficient,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=87.84) [very productive to get those containers on and off these ships.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=89.46) [Well, Docker is very similar.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=94.44) [If you think of the old days with ships that had no](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=96.74) [standards for shipping products around,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=99.17) [that's kind of where development has been for many years.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=102.03) [Everybody does it their own way.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=104.8) [Well,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=107.04) [Docker provides a consistent way to ship our code](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=107.31) [around to different environments,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=110.93) [and so it's going to provide a lot of benefits that we'll be talking about in](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=112.78) [this particular section of the module for us as developers.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=116.6) [Now it runs natively on Linux or Windows,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=121.34) [and when I say Windows, Windows Server 2016 or higher now supports it.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=123.92) [We'll talk more about that coming up.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=128.2) [And as a developer, if you're on a Windows box or a Mac box or a Linux box,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=130.18) [you can use Docker in your development workflow,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=135.37) [and it's very easy to get up and running.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=138.34) [Now if you're on Mac or Windows, you will need a virtual machine,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=140.49) [because by default it's going to expect a Windows server or a Linux server.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=143.85) [Now finally,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=149.17) [the key buzzwords that are typically thrown around with](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=149.97) [Docker are images and containers.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=152.37) [Let's clarify what exactly is an image and what is a](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=155.34) [container and how do they relate to each other?](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=158.59) [So when it comes to the role of images and containers,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=163.34) [an image is something that's used to build a container.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=166.08) [Now an image will have the necessary files to run something on](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=170.54) [an operating system like Ubuntu or Windows,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=175.18) [and then you'll have your application framework or your](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=178.39) [database and then the files that support that.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=181.11) [So if you're doing Node.js or ASP.NET or PHP or Python,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=183.94) [then you'd have that framework built into the image](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=187.28) [as well as your application code, typically.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=190.27) [Now the image itself is not overly useful because it just is the definition.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=193.84) [Think of it as the blueprint that's used to actually](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=199.25) [get a running container going.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=202.89) [So if you go back to the shipping analogy,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=205.34) [think of some person who does some CAD drawings of what's](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=207.6) [going to go in the shipping container,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=212.42) [maybe even how they're going to arrange it in the shipping container,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=214.64) [but the blueprints aren't very useful on their own,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=217.6) [but you can use those to create an actual instance of that container.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=221.04) [Well, that's the same process in Docker.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=224.37) [We'll have images that can be used to create a running instance of a container.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=227.49) [Now containers are actually where the live application runs,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=233.26) [or the database or caching server or whatever it may be that you need to](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=237.47) [actually run on a Linux or a Windows Server machine.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=242.07) [Now let's dive into the definitions of each of these just a little bit more.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=245.84) [So an image is a read‑only template.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=248.98) [And what it's composed of, and we'll be building these throughout the course,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=251.26) [is a layered file system.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=254.9) [So you'll have some files, for instance,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=256.58) [specific to your Linux operating system or your Windows operating system,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=258.89) [and then you'll have your files for your framework,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=263.64) [ASP.NET, or Node.js, or whatever it may be,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=266.7) [and then they are all put together to make this image.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=269.6) [Now once you have an image, you can use that to build this isolated container.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=275.04) [And again if you go back to ships,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=279.17) [every container is very isolated from the other containers.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=280.77) [It makes it so you don't necessarily know what's going on in another container.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=285.08) [Now there are some gotchas there that we can talk about later,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=289.63) [but in a nutshell,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=292.66) [the image is used to create an instance of the running container.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=294.21) [And then you can start the container, you can stop it,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=298.44) [you can move it, you can delete it, and it starts and stops really,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=300.89) [really fast.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=305.23) [And that's what's so cool about this technology is,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=306.54) [it's very quick and easy to get a container on the ship and off the ship.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=309.5) [And the ship, in our case, would be the development environment,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=313.56) [the staging environment, the production environment.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=316.35) [Now where does Docker run then?](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=320.54) [Well, as I've already mentioned, Docker can run on Linux or Windows servers.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=322.2) [And so if you're going to be running on a development machine,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=326.64) [you have to have a virtual machine, which we'll talk about.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=328.99) [Now the exception would be if you're developing directly on a Linux machine,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=331.93) [then you could just run Docker containers natively.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=335.63) [But Docker ships with what's called a Docker client,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=338.74) [and Docker client can then integrate with these different operating systems,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=341.44) [such as Linux, and it integrates with a Docker Engine,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=345.34) [a daemon that you'll see here.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=349.1) [Now Docker itself has its roots in Linux.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=351.14) [That's actually where it came out of.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=354.12) [The Docker, the company, built on top of some LXC support,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=355.75) [it's called Linux Container Support,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=359.86) [that's already built in to the Linux operating system.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=361.66) [Now likewise, Windows Server 2016 or higher also has Docker support built in,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=364.95) [and so the Docker client there could be used to](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=370.74) [integrate with the Docker Engine,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=373.7) [which can start and stop and delete and do all those things with our containers.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=375.83) [So think of the Docker client as kind of the commands that are given to the](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=381.04) [people that load the ship or remove things off the ship,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=385.55) [whereas the Docker Engine could be the cranes and the people running those that](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=388.55) [actually get the container on the ship and up and running.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=393.98) [Now what's the difference between Docker containers then in virtual machines?](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=398.24) [Because this is one of those things that,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=402.01) [the first time I learned about this, it didn't make a lot of sense to me.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=403.58) [So virtual machines always run on top of a host operating system.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=407.15) [So of course you could have a host running Linux or Windows,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=410.59) [and then you can run a guest OS on top of something called a hypervisor.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=413.47) [And so on the left, you might have, App 1 might be a PHP app,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=418.14) [for instance, with its binaries, libraries,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=421.34) [whatever it may be, or ASP.NET or Node, or whatever you have.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=424.45) [And then App 2 might be running on a different guest OS.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=428.83) [So let's say the guest OS on the left is maybe Windows,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=432.66) [and the guest OS on the right could be Linux.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=436.26) [The bottom line is you have a copy of the operating](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=440.24) [system for every virtual machine.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=443.98) [And so, depending on the type of hard drive and things like that,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=446.34) [it can be a little bit expensive to start up and stop a virtual machine.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=449.5) [They run well, but they're pretty big.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=454.22) [The images for a virtual machine to get it up and running](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=456.29) [are generally multiple gigabytes in size.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=458.9) [Well, let's compare and contrast that with Docker containers.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=462.74) [Now they do sit still on top of a host operating system,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=466.34) [Linux and now, most recently, Windows server 2016 or higher.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=469.56) [And then we have this Docker Engine,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=474.04) [which can integrate the containers with the host operating system.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=476.44) [And so now, as we get a container up and running,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=480.24) [you can think of the host operating system as the ship and](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=483.56) [then the container for App 1 has everything App 1 needs](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=486.93) [for that particular feature, so Node.js with all the application code,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=490.92) [for instance.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=494.94) [Now App 2 might have a completely different container,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=495.86) [and then typically applications will have multiple containers.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=499.42) [You might have a container for your database,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=502.13) [a container for a caching piece,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=504.3) [a container for your application code and the framework,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=506.48) [those type of things.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=509.54) [But the bottom line is they sit right on top of the native operating system.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=510.35) [So when I ship these around, I'm shipping a smaller image.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=515.74) [It's very small compared to a guest OS virtual machine.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=519.2) [They also start containers also start very,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=525.14) [very fast, and we'll be seeing that throughout the course.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=528.56) [They're great.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=531.93) [They just come up in a matter of seconds.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=532.85) [The difference here is very, very big.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=535.44) [Containers sit on top of the host,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=538.59) [whereas guest OSs and VMs sit on top of the actual host,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=541.44) [but they're their own copy of all the files.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=545.66) [Everything is a copy as you make a new VM.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=548.94) [So that's an example of what Docker is.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=552.51) [We've now talked about images and containers,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=557.04) [and we'll be delving much, much more into those throughout the course.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=559.64) [And then we've also done a comparison between Docker](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=563.01) [containers and virtual machines.](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=565.86) [So now that we've done that, let's start talking about,](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=568.54) [all right, this is great and all, but how does this actually help me as a web developer?](https://app.pluralsight.com/course-player?clipId=af1af2ed-329c-46bd-bbd2-ab9ea9da9344&startTime=571.51)

### [Docker Benefits (for Web Developers)](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e)

[Docker offers several different benefits to us as web developers,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=3.14) [and in this section,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=6.46) [we're going to walk through some of the key benefits](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=7.41) [that we can get by leveraging it.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=9.92) [So whether you work on a team of one or many, Docker can help set up a](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=13.54) [development environment very quickly, and that's really one of the key aspects](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=17.38) [that we're going to focus on throughout this course.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=21.75) [Although that's just a very minor benefit,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=24.24) [it's definitely a big benefit as a web developer. Docker](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=26.67) [can also help eliminate app conflicts.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=30.89) [If you have versions of framework saying you can't move to the latest version,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=33.27) [isolated containers can help out there.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=37.01) [It also provides a way to move your code and the entire](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=40.24) [environment of the code between your different environments,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=43.55) [so between things like development, staging, and production.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=46.19) [And if we can do all of that,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=51.04) [we can more than likely ship software faster, and that's a good thing,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=52.46) [of course.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=55.96) [So let's dive into each of these four areas really quickly.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=56.38) [So when it comes to accelerating developer onboarding,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=60.14) [oftentimes we have multiple team members,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=63.44) [of course, and we might have some developers,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=65.63) [maybe a mix of designers or people that kind of do both of those things,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=68.51) [and oftentimes we want people working with the actual version of the app](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=72.23) [versus just a prototype that's separate.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=77.25) [And so we might have a web server, we might have a database server,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=80.24) [caching server, and those types of things, and setting all](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=84.16) [that up on an individual developer machine,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=87.73) [especially for people that work remotely in different scenarios,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=90.16) [can be challenging because you have to get the security right, you have to](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=94.04) [get the configuration settings right, make sure the right versions are on](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=97.55) [there, and so getting that right and not having surprises after the fact](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=101.19) [can be a little bit challenging.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=105.73) [So Docker can help there because we can make one or more images that can then](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=106.98) [be converted into running containers, and those containers can run on our](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=112.27) [different developer and even designer machines.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=116.61) [You'll see in just a little bit to get this up and running, you can](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=119.62) [just run a simple command from the command prompt,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=123.11) [so you really don't even have to be a developer per se to get some of](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=125.6) [the benefits out of what Docker can offer here.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=129.89) [Now the next thing we'll talk about that Docker can help us with is](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=133.61) [eliminating app conflicts and version conflicts.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=136.56) [Oftentimes you have an app running on a specific version of a framework,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=140.14) [and you'd like to move to the next version of the framework, but](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=144.24) [you're told you can't because that'll impact other applications](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=147.22) [running on the production servers.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=150.9) [And so what Docker can offer is isolated containers, and each container that](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=153.34) [actually contains the framework that's having this versioning can actually be](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=158.48) [isolated, as we've talked about. And as a result,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=163.39) [we can have V1, and App1, 2, and 3 that are targeting V1 will run](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=166.26) [fine in their own containers, and then App1, 2, and 3 targeting](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=170.76) [V2 can run in their own containers.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=174.83) [And now we can have different versions of whether](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=177.76) [it's Node or PHP or ASP.NET running.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=180.7) [This makes a lot easier now to work with versioning and app conflicts.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=184.57) [Now some of the frameworks out there obviously have](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=189.73) [some of this versioning built in, but with this,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=191.94) [you really won't have to worry about it. Even if your framework](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=195.72) [doesn't have a good versioning story as you move between versions,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=198.44) [Docker can help out in those scenarios.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=202.64) [Now it can also help, as mentioned, with consistency between environments.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=206.74) [And this is one of those things that I know I personally](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=210.35) [have been burnt by over the years.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=212.89) [Going way back around the year 2000,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=214.43) [we had a particular project I was working on at a consulting company, and](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=218.35) [our development environment was set up by the company.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=222.89) [We didn't actually do it ourselves,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=225.98) [so we had to work on remote machines. And the staging environment](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=227.85) [was also set up by them, and everything was working great on dev and](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=231.78) [was supposed to be the same a staging,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=235.41) [but turns out it was not, and so we had a nice surprise and had to do](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=236.94) [some rewrites of things as we moved our first code over to staging. With](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=241.56) [Docker, we can eliminate a lot of these surprises because we'll simply](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=247.27) [move the different images that we're going to be building throughout](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=250.95) [this course over to the different environments and get the containers up](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=253.78) [and running.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=257.4) [And that way, if it runs on dev,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=258.54) [it definitely should run the same on staging and production,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=260.44) [and we'll talk about how to get all that set up. Now, when doing that,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=264.14) [that just means obviously we can leverage all of](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=269.3) [these benefits to ship code faster.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=272.39) [And that's really what software is all about is productivity, high quality,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=274.48) [predictability,](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=278.7) [consistency, you know, all these different words we can throw out.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=279.58) [But as we do move our images between dev and staging and production and](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=283.24) [get those containers going, we can leverage these benefits that Docker](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=287.76) [offers of the isolation of the containers.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=291.4) [We can have a consistent development environment and all the other](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=294.14) [benefits with versioning and things that we've talked about.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=297.7) [So there really is a lot of good things that Docker brings to the table for us as web developers, and now you've seen a few of those.](https://app.pluralsight.com/course-player?clipId=21114826-6d1d-482c-b2b1-fc2feeed5a8e&startTime=300.74)

### [Docker Tools](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832)

[Before we can get started using Docker, we need to install some Docker tools.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=1.04) [Now the tools that you install are going to depend on your operating system,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=5.34) [so I'm going to talk through some different options here.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=8.96) [We'll talk through a legacy option and then a more modern option, and that way,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=11.83) [regardless of what operating system you're on,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=16.38) [you should build to get Docker going.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=18.47) [The first one that we're going to talk about is called Docker Toolbox.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=22.04) [This is a legacy option that at this point is really only for](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=25.64) [Windows 7 or 8, or if you don't have Windows 10 Pro,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=29.2) [you just have Windows 10 Home, then you possibly might use it there as well.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=33.41) [Now this provides all the image and container tools though that you would need.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=37.94) [So while it's an older legacy option at this point and it's been](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=42.04) [deprecated, it does provide the key tools that you need.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=45.52) [So if you are are on one of these operating systems,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=49.33) [then you could at least get it working.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=52.04) [The way it works is it uses a virtual machine](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=55.12) [called VirtualBox to run a Linux VM,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=57.27) [and then the Docker commands that we're going to learn](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=60.54) [about are going to execute against this Linux VM that's](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=62.71) [going to be running in VirtualBox.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=66.8) [So what do you get with Docker Toolbox?](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=69.24) [Well, the first thing you're going to get is the Docker client.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=71.84) [This is going to be really important so that you can communicate with](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=74.52) [containers and images and all these different technologies in Docker](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=77.88) [that we're going to be talking about.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=81.82) [You're also going to get a tool called Docker Machine, and this will](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=83.74) [let you hook up to the virtual machine. Docker Compose we'll have a](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=86.53) [whole module on later in the course,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=90.75) [but this provides an orchestration mechanism for bringing up many](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=92.95) [containers, 1, 2, 10, or 50 if you wanted, on your machine. And then](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=96.78) [another tool is called Docker Kitematic.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=103.39) [This is more of a GUI tool,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=105.64) [and it's not one we're going to spend a lot of time on in this course,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=107.25) [but I will do a quick demo and give you the basics of how it works.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=109.89) [And then finally,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=114.54) [I mentioned that this is all running in a virtual machine called VirtualBox.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=115.3) [And this is something that actually can stand on its own.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=120.24) [You don't have to have Docker for VirtualBox, but that's what](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=122.48) [they use kind of out of the box to run this.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=125.54) [Now what if you're not on Windows 7 or 8 though? What would you run?](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=129.64) [Well, in that case,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=134.04) [you're going to run Docker Desktop. So this is going to be](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=135.22) [for Windows 10 Pro or higher or Mac.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=137.72) [So if you're on one of those, you'll definitely want to pick Docker Desktop.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=141.84) [It's much more modern, it's updated frequently,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=145.57) [and it's going to have all these tools at your disposal.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=148.49) [So this also provides image and container tools, but behind the scenes,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=152.04) [it actually uses Hyper‑V on Windows.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=156.68) [That's why you need Windows 10 Pro in this case.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=158.76) [Or if you're on Mac,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=161.74) [it uses HyperKit to run these Linux VMs. So that functionality right](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=163.04) [there will be one of the deciding factors on which one you'll be able](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=168.46) [to choose, Docker Toolbox or Docker Desktop.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=171.49) [If you're on Windows and don't have access to Hyper‑V,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=175.03) [then you're going to have to choose Docker Toolbox.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=178.04) [Whereas if you're on Windows 10 Pro or Mac,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=179.78) [then you're going to want to go with Docker Desktop.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=183.44) [So as mentioned, this works on Windows or Mac. Now on Linux,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=187.24) [you can run something called Docker Engine,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=190.95) [and it really depends on the flavor of Linux.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=193.43) [There's multiple options if you go to the docs that you can learn about.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=196.47) [But you can also run the Docker Engine there, but it's not the full Docker](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=199.35) [Desktop like you'll have on Windows or on Mac.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=203.55) [So what do you get with Docker Desktop?](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=208.34) [Well, you're going to get a Docker client again,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=210.84) [Docker Compose,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=213.54) [which is this orchestration mechanism for bringing up and](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=214.51) [managing multiple containers, and then you also have access to](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=217.3) [this GUI tool called Docker Kitematic.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=221.01) [Now it's not installed by default,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=223.53) [but it will run as long as you have Docker Desktop installed.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=225.58) [So to wrap up our discussion of the different tools,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=230.14) [let's do a quick comparison side by side.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=232.64) [So if you're on Windows 7 or 8,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=235.44) [you're going to have to choose Docker Toolbox. That will install VirtualBox, and](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=237.16) [it's going to use a tool called Docker Machine to allow you to connect from your](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=241.24) [command line into the running virtual machine.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=245.02) [If you're on Windows 10 Pro or higher or you're on Mac,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=249.04) [then you're going to be using Docker Desktop, and this is the modern version](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=253.44) [of Docker. And this uses Hyper‑V if you're on Windows,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=257.06) [that's why you need the Pro version of Windows 10 or higher,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=260.52) [and it uses HyperKit on Mac. Now on Linux, although](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=264.04) [you don't install Docker Desktop,](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=268.68) [you can install Docker Engine and Docker Compose separately. So it's](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=270.78) [possible to get these same types of tools but you're not going to have](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=275.17) [some of the other functionality that I'll be showing you here that you](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=278.66) [would have on Windows or Mac.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=282.08) [So that's a quick summary of the different tools that are available. Let's now switch our focus to Docker in action.](https://app.pluralsight.com/course-player?clipId=7e4b111c-7964-4a3b-bc21-8495167af832&startTime=284.74)

### [Docker in Action](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf)

[Now that you've seen what Docker is,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=2.64) [some of the benefits it can offer us as web developers,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=4.3) [and a few of the Docker tools that are going to be involved throughout](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=7.42) [this course, let's take a quick look at Docker in Action.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=9.96) [So the demonstration I'm going to show you actually uses six containers.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=14.14) [We have Nginx.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=17.58) [This is a reverse proxy.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=19.16) [We have three Node.js instances.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=20.67) [MongoDB is the database,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=23.18) [and Redis as a caching server, and I'll be able to get this up](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=25.2) [and running quite quickly on my machine.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=28.83) [So let's jump in and I'll show you how this works.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=30.85) [Let's assume I've been tasked with getting my](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=34.04) [development environment up and running,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=35.75) [and I needed to look not only like the other team members,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=38.11) [but also, like our staging and production environments.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=40.69) [Now, if you've done this very much,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=43.82) [you'll know that that can actually be a little bit](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=44.95) [tricky, but with Docker it's very, very simple.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=46.46) [So I've already configured some Docker images we're going to](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=49.5) [be talking about throughout the course,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=51.87) [and I already have some containers ready to go.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=53.74) [So I'm just going to run a simple command, that we'll learn about later, called](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=56.44) [docker‑compose up, and this is a way that I can basically start up six](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=59.28) [containers that I need to run this particular application. So we'll go ahead and](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=63.98) [let this run and it'll take just a moment to fire up, here, as the web servers](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=68.34) [connect to the database and things.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=72.39) [And right now I have an IP address that I already know Docker is](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=74.74) [going to give me, and I'm going to hit refresh, and you'll see](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=77.9) [right now it's not quite ready, so let's go on back, and we](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=82.2) [should be really close here now.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=85.77) [All right, looks like we should be good to go now,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=87.94) [so let's hit it now and there we go.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=89.83) [So this just hit a website that's using, again, Mongo, Redis, Node,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=92.44) [Nginx, some other features behind the scenes,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=96.5) [and this is actually a company site.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=99.83) [You're going to get to work with a subset of this site, so you can have a more](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=101.44) [realistic demonstration to work with throughout the course.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=105.4) [But it's a pretty standard application.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=108.22) [I can go in and get information about different things,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=110.25) [go back to the home page, pretty standard stuff,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=113.84) [and Docker made this really, really easy to work with.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=116.54) [Now I can do a Ctrl+C here, and now this is going to stop all the](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=120.24) [containers, and from there, we'll be kind of done and ready to go.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=124.9) [Every now and then we'll throw an abort message.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=129.34) [You kind of just ignore that because we can just start it back up.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=131.34) [It looks like we're good. And I can just wipe that out,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=134.69) [and if I want to start it back up,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=138.66) [we're ready to go there and we'd be up and running.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=140.19) [So that's an example of Docker in Action on a Mac. We can get the exact](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=144.01) [same environment going on the Windows side as well,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=150) [so I'll go ahead and run a command. We'll start everything up.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=152.54) [This will start up in genetics and some web servers and database and more.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=155.52) [And once this is all done, because we have the exact same environment](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=160.3) [that I showed on the Mac side, we'll of course get the exact same](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=164.45) [output in the same website running here.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=168.24) [So there's not going to be any variability between the two](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=170.21) [sides of the house, and the same goes as we move things](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=173.48) [between environments such as development,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=176.71) [staging, and production.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=178.8) [So this is almost done firing up for the first time, and we'll go](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=180.94) [ahead and try to load this at this point. You can see we can get](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=184.95) [the exact same website loaded up,](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=190.33) [and that allows us to very consistently run our code in different environments. So that's an example of running Docker on the Windows side.](https://app.pluralsight.com/course-player?clipId=32580301-6898-4f97-a31c-835bc9970bbf&startTime=192.84)

### [Summary](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175)

[In this module,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=3.64) [you've learned what Docker is and seen how it can simplify building,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=4.57) [shipping, and running applications across different environments.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=8.41) [We talked about that it runs natively on Linux and now on Windows Server,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=12.54) [but that it's not the same thing as a virtual machine.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=17.11) [In fact, it's very, very different. It can be a lot faster in many cases as well.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=20.23) [Now for us as web developers, there's a lot of key benefits](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=26.04) [that we also discussed. One of the big things is you can get](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=28.9) [your environment up and running very, very quickly and in a consistent way.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=32.27) [This allows developers, whether they're on the team already or](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=37.42) [contractors or new hires, to get up to speed very quickly,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=40.61) [whether it's on Mac, Windows, or Linux,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=45.04) [and not have to do some custom installs of various software.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=47.44) [We also talked about if you work with multiple apps and](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=51.74) [multiple versions of apps and frameworks,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=54.58) [Docker could help because of the container isolation.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=56.64) [We talked about moving code between environments, development,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=60.04) [staging and production, for example,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=63.45) [and how Docker can provide a consistent way to do that.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=65.42) [And all of this really leads to us shipping faster. We can](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=68.94) [ship our code in a production faster,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=72.35) [hopefully make everybody more happy along the way.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=74.64) [So I'm really excited about Docker because it offers some](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=78.74) [things that we really just haven't had before.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=81.85) [As I mentioned,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=84.9) [it's kind of like shipping in the old days across the ocean without](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=85.76) [containers to moving into consistent standardized containers for](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=90.48) [packing and shipping everything around.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=96.43) [Well, when it comes to software, we now have a way we can containerize,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=98.84) [if you will, our code, and our frameworks,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=102.81) [databases, and other things, and this provides a much easier way to ship](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=106.14) [these different things around between our environments.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=110.42) [So as we move along in the course,](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=113.74) [we're going to jump right into getting Docker installed.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=115.3) [You're going to see how to use the different commands and how you can actually work with Docker in your web development environment.](https://app.pluralsight.com/course-player?clipId=200601c6-f4c4-4a7b-8a25-087892ca5175&startTime=118.23)

## [Setting up Your Docker Environment](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b)

### [Introduction](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b)

[In this module,](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=2.44) [we're going to take a look at how we can get our Docker environment set up so](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=2.99) [that we can work with the different images and containers that we're going to](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=6.43) [be discussing throughout the rest of this course.](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=9.69) [So we'll start things off by talking about how to get Docker](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=13.34) [installed on Mac, and I'll introduce something called](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=16.05) [docker‑ce, Docker Community Edition.](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=19.08) [Now,](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=22.74) [we're also going to look at how you install Docker on Windows, and with Windows,](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=22.96) [you actually have to choose a different version of Docker.](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=26.34) [So if you're on Windows 7 or 8, you're going to be installing Docker Toolbox.](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=29.08) [Whereas, if you're on Windows 10 pro or higher,](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=33.84) [you can use Docker Toolbox, but most people are going to want to go](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=36.31) [with something called Docker Community Edition, a very similar version](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=39.22) [to what people on a Mac would want to run.](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=43.38) [Now, once we explain those differences,](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=46.44) [talk about how to get things installed on Mac and Windows, we'll](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=48.59) [also talk about something called Docker Kitematic.](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=51.94) [Now,](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=55.04) [most of what you do with Docker is command line, but Docker](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=55.19) [Kitematic is a GUI type of tool that will let you view images that](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=58.14) [are up on something called Docker Hub, pull those down to your](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=62.01) [machine, and then run them as containers.](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=65.06) [So we're going to introduce what Docker Kitematic is, and then I'll](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=67.7) [show you a quick example of Docker Kitematic in action and how we](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=71.03) [can actually pull down some different images out there and get them](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=74.7) [running on our machines.](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=77.72) [So let's go ahead and get started by discussing how to get Docker installed on a Mac.](https://app.pluralsight.com/course-player?clipId=d955b9c9-9402-4fc4-a80b-52ed7499a41b&startTime=79.94)

### [Installing Docker on Mac](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e)

[Let's take a look at how we can get started installing Docker on a Mac.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=0.94) [So the first thing I'm going to do is come over to docker.com, and](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=5.24) [then we can come to Developers, Getting started.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=8.98) [That gets me to this page.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=11.63) [That menu certainly may change,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=13.49) [but otherwise, just do a little search for Docker Desktop.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=15.28) [Now scrolling on down,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=19.14) [you'll notice that I have Docker Desktop, it](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=20.29) [mentions something called Docker Hub,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=22.83) [which we'll talk about later, and then you also have an online](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=24.43) [tool you can get too called Play with Docker. It's kind of a](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=27.51) [browser‑based way to interact with Docker and a command line](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=30.46) [right through your browser.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=34.54) [Now, with Docker Desktop, though, you'll notice that if I hover over it,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=36.44) [I can download for Mac, Windows, or if you're on Linux,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=39.34) [you can download Docker Engine,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=42.95) [and by clicking there it would take you to the different flavors of Linux,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=44.76) [and you can pick the appropriate engine. Now, for this particular](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=48.3) [example though, I'll of course choose Download for Mac. And now that](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=51.59) [this is done, we can simply double‑click it, this will extract it](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=56.75) [and get it ready to run through, and then setup's pretty straight](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=61.17) [forward you'll see.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=64.58) [Alright, so I can go ahead and drag that over to my Applications.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=66.74) [That will take a moment as it copies it.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=71.24) [And then from here,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=74.64) [I can go ahead and go into my apps, and we can](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=75.56) [actually click on it to fire it up.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=79.01) [So I'm going to come on in, and I'll just search for Docker. There](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=81.94) [it is. Click it. All right, now this will say,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=85) [hey,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=90.2) [I've downloaded it off the internet. Pretty standard. We'll hit Open, and](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=90.41) [now you'll notice up in the corner here it's firing up.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=94.73) [Now, I've already had Docker on this machine,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=98.24) [so this will be slightly different than what you might see, but](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=100.54) [once this whale is kind of done spinning up here,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=104.46) [you should see that Docker Engine has started.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=107.58) [There we go.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=110.14) [And now if I click on it,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=111.34) [you'll notice that Docker Desktop is running and that I](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=113.04) [have some different menu items here.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=115.58) [Now,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=118.54) [one of the more important menu items you're going to see is Preferences on Mac.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=118.74) [So let me go to that real quick.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=123.24) [Now you'll see right off the bat that we can start Docker](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=126.54) [when we log in, we can automatically check for updates,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=129.29) [include backups, send usage statistics,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=132.74) [all that fun stuff that you kind of see with a lot of applications. Down](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=135.57) [here in the corner you'll notice that Docker is running. Now, I also,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=139.69) [because I've already had this running on this machine, have something](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=142.93) [called Kubernetes that's running.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=145.75) [This is a way to run containers and orchestrate them in more robust](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=148.05) [production‑type scenarios. Check out my Kubernetes for Developers course if](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=151.68) [you're interested in more on that. Now coming back up,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=155.92) [we can go to Resources, and from here I can say, hey,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=159.46) [how many CPUs does Docker get? How much memory? What about the swap disk? And I](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=163.21) [can adjust these things so that I don't eat up too much hard drive space and too](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=169.47) [much memory because you can really max it out, and it will really push your](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=173.47) [system to the max. Or you can really minimize it, and maybe Docker won't be](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=178.22) [quite as fast or high performance,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=183.36) [but it would at least work if you have less memory on your machine. Now](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=185.71) [we can also come on in, and you'll notice I have FILE SHARING. This is](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=189.88) [going to be for something called volumes.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=194.25) [We're going to have a whole module on that coming up a little bit later in](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=196.82) [the course, but this is basically a way for a running Docker container to](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=199.66) [actually point back to a folder that's going to be on your local machine.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=204.65) [If we have to deal with proxies,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=209.54) [we could set up proxies here and even some network configuration,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=211.06) [which you normally don't need to mess around with at all.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=214.45) [Now coming on down. we have Docker Engine. This is one you](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=217.94) [normally don't mess with at all.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=220.68) [We have Command Line features for experimental up‑and‑coming](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=223.54) [features. We're not going to turn that on.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=227.44) [And then if you wanted,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=229.4) [you could turn on this other option called Kubernetes by](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=230.71) [checking this Enable Kubernetes check box.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=234.56) [We're not going to worry about that one here,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=237.24) [but feel free to play with that if you'd like.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=238.94) [So that's what you're going to get out of the box, and what](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=242.04) [we can also do is every now and then,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=244.88) [you might want to visually see what's going on with your containers.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=247.64) [So notice as I exited that screen,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=250.99) [I get to another dashboard screen, and currently I](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=253.38) [don't have any containers running,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=257.04) [but it says I could run this command right here.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=259.04) [In fact,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=260.89) [we can just copy it, and then we could go to a command line, so](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=261.21) [let me go ahead and do that. Let me go ahead and paste that in](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=265.18) [now, and we'll go ahead and run it.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=268.8) [Now this just pulled an image that wasn't available on my](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=273.84) [machine from something called Docker Hub down to my machine,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=277.46) [and it made this image available.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=281.52) [And we'll talk more about what that is and how you build custom](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=283.61) [images as well throughout this course. Now from here,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=287.33) [let me close this, we'll come on back to our dashboard app now, and](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=291.15) [notice that we have this condescending\_ aryabhata, I'm not sure how](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=296.9) [you say that, running on port 80 here. And we can click on it, we](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=301.79) [can get log information, right now we don't have much, we can](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=306.24) [inspect the container, get information about it,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=309.23) [get statistics about it, and this is all being done](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=312.34) [visually through the dashboard.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=315.42) [Now I can also come up and stop the container, restart it,](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=317.64) [go ahead and stop it again, and then we can delete it if we](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=323.04) [wanted, and I wouldn't even have to worry about any of these](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=325.72) [commands that we're going to learn later.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=329.83) [Now, I'm going to offer you want to know about these commands, because](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=331.21) [we're going to be using them a lot, but this is a really nice feature of](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=335.12) [Docker Desktop. It gives you this visual dashboard.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=339.46) [So that's an example of how to get it up and running on Mac. Now let's switch our focus to Windows.](https://app.pluralsight.com/course-player?clipId=106dda21-59a6-408b-9e8f-6c0e6775537e&startTime=342.84)

### [Installing Docker on Windows](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100)

[Now let's switch over to the Windows side.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=0.84) [Recall earlier that I mentioned that there's a few options for Windows](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=3.64) [depending on what version of the operating system you have.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=7.47) [If you're on Windows 7 or 8 or even Windows 10 Home,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=11.14) [then you're going to have to go with Docker Toolbox](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=14.78) [because you won't have access to Hyper‑V.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=17.53) [If you're on Windows 10 Pro or higher, then you will have Hyper‑V accessibility,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=20.44) [and therefore you could install the preferred version,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=24.81) [which would be Docker Desktop.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=27.9) [Now I'm going to walk you through how to get started with both,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=30.24) [but we're going to focus on Docker Desktop in the install](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=32.72) [and throughout this course overall.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=36.66) [So the first thing to talk about is Docker Toolbox.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=40.54) [And as you can see on the web page here,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=42.97) [this is the legacy desktop solution if you don't have Hyper‑V available.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=44.83) [This will run VirtualBox instead.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=49.09) [And the good news is you can still run images and containers and](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=51.74) [do all these commands we're going to learn.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=55.14) [It's just a older way to do it, but it definitely works.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=56.69) [Now you can go to docker.com/docker‑toolbox. And from here](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=60.44) [down at the bottom, you can install it for Windows, and then](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=66.09) [they have some instructions.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=69.54) [Now I'm not going to be running that one here,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=71.44) [but I'll let you if you need that. Go to this link,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=73.57) [get it installed.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=76.33) [If you need any help with that,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=77.41) [refer to the install instructions that they provide.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=78.74) [Now for Docker Desktop, it's going to look identical to what you saw on Mac.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=83.84) [We can scroll on down. We can click Download for Windows.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=87.92) [Once this executable comes down, we can simply run through the install routine.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=93.94) [All right, so now that's done.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=99.34) [Let's go ahead and open the file.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=100.9) [I'll go ahead and approve doing that.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=103.94) [And now this is going to start a download routine that will](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=107.54) [get everything we need. Now in my case,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=111.09) [I already have this installed on this machine.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=114.21) [So it's going to be really fast,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=117.44) [as you see here. It says existing installation is up](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=118.8) [to date, and I'll just close that.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=121.24) [But for you, you're going to have to run through it.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=123.64) [It'll take a little bit of time to get it going, of course.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=125.72) [Now from there, we can then go run Docker.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=128.57) [So if we come on down to the Start menu, we can type docker, and](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=132.24) [there's Docker Desktop. Now what'll happen is this will go down in our](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=137.47) [tray in kind of the right‑hand corner here.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=142.06) [So let me go ahead and go to that.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=145) [And you can see that our whale is currently starting up, and we now have a](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=147.54) [message that says Docker is starting. Let me click that again, and then](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=151.16) [we'll just wait a little bit for this to get going.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=155.18) [All right, so now that's done.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=159.24) [We can do much like we did on Mac I can right‑click.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=160.54) [Instead of Preferences,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=163.95) [I can come up to Settings. And the settings are going to look](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=165.28) [pretty identical to what you see on the Mac side.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=170.34) [There's a few differences here and there,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=173.16) [but it's very,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=175.17) [very similar now. So we can start once we log in, automatically check for](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=175.75) [updates. We can even expose some TCP ports here and do even more if you](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=179.95) [have Windows subsystem for Linux going. We can come down to resources, set](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=186.19) [our CPUs, our memory, our swap, and image size. Turn on volume sharing.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=191.41) [Notice that I have C drive exposed here. And again, we'll talk more about](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=197.08) [what a volume is and why you'd use it with containers a little bit later in](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=200.61) [the course.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=204.38) [If you deal with proxies, you can configure that.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=205.74) [And then just some general networking here.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=208.84) [Now Docker Engine, this again is something we normally don't have to touch.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=212.14) [Same with command line, more experimental in this case.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=215.77) [And then I've already talked about there's this other tool called Kubernetes,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=219.31) [which you can also enable here if you'd like to.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=222.11) [Now if we cancel out of this, we'll get to the dashboard again.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=226.44) [And this time,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=229.82) [notice I have quite a bit going. They're all stopped, but I have quite a](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=230.76) [lot going here you'll see. So I could actually start to just clean these](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=236) [up if I wanted. We could start deleting these,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=240.43) [but I'll go ahead and leave these.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=242.58) [But it's very much like what you saw with Mac.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=243.74) [I can actually come on in and start my containers,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=247.04) [stop them, delete them, and do more, get to the logs and other things we saw.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=250.35) [So as an example,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=255.34) [we could click on maybe this ASP.NET PostgreSQL Docker one, and](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=256.17) [notice it's exited. But I could start that back up.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=261.25) [Then we could get to the logs and do all kinds of fun stuff there.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=264.34) [So there's a lot of great stuff you can do with this dashboard.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=267.94) [And although we're going to focus on the core Docker commands,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=271.74) [knowing about this is nice.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=275.84) [I don't use it every day,](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=277) [but every now and then it's just easier to come into here to do certain things.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=278.25) [So that's how easy it is to get either Docker Toolbox or Docker Desktop going on Windows.](https://app.pluralsight.com/course-player?clipId=9954efcc-99e9-4e2c-8e06-f516a6f61100&startTime=282.94)

### [Getting Started with Docker Kitematic](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da)

[Now that we have Docker installed,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=2.24) [we can start working with the different command line tools that it provides.](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=3.44) [Before we do that, though,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=7.04) [I want to talk about an additional tool that's](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=8.35) [available called Docker Kitematic.](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=10.27) [And although we're not going to be using it throughout the course,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=12.65) [it's a great way to visually see what are images and what are](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=15.26) [containers, and you can even pull down images and start up](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=20.1) [containers right there on your machine very,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=23.43) [very easily.](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=25.36) [Let's take a quick look at what it offers.](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=26.64) [So Docker Kitematic is a GUI tool that makes it really](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=30.04) [easy to work with images and containers.](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=33.66) [And as I mentioned,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=36.54) [we're going to be using command line for everything](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=37.22) [throughout the rest of the course, but I like Kitematic](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=39.17) [simply because if you're new to Docker,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=42.32) [really haven't played with images or containers, or at this](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=44.76) [point don't even really know what those are,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=47.61) [so we'll be providing more details as we move along, then this will provide](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=49.36) [a really easy way to get started. Now, it allows you to visually search on](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=52.96) [something called Docker Hub for these images,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=58.4) [and the image can then be downloaded to your machine,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=62.24) [and then you can create, run, and manage containers using this GUI.](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=65.01) [So just with a few clicks of the button,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=71.24) [you can actually issue commands behind the scenes that we'll be](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=73.32) [learning about later that you would normally have to do on the command](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=76.64) [line, but Kitematic kind of hides that from us.](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=80.62) [So if somebody wanted to play around with images and containers and](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=83.84) [doesn't know the cmdlet at all or really doesn't use it,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=87.17) [Kitematic would certainly be an option, but I think even if](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=89.76) [you are going to be using command line,](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=92.84) [then it's nice to know about at least and interesting to explore. So let's go ahead and take a look at Docker Kitematic in action.](https://app.pluralsight.com/course-player?clipId=892f503c-592a-4e05-a2ee-29c513c846da&startTime=94.62)

### [Docker Kitematic in Action](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad)

[So let's see what we can do with Docker Kitematic and take a look at how we](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=1.34) [can install it and then from there use it to search images,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=4.69) [pull those images down to our machine, and even run containers.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=8.38) [So the first thing we'll want to do is go to this GitHub URL,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=12.94) [github.com/docker/kitematic/releases It's important to note that](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=16.19) [you can get Kitematic through Docker Toolbox,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=21.78) [but if you want the latest version of Kitematic,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=24.74) [you would want to go to here.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=27.54) [Now once I've done that, I can download for Mac, Ubuntu.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=29.01) [I can download for Windows as you can see. We'll do Windows in this case.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=33.09) [And once this is done, we can open it,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=37.99) [and you'll notice I have a bunch of files in here.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=42.14) [So from here,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=45.64) [it's really just a matter of extract these to a folder of your choosing.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=46.55) [So I'm just going to select all these.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=50.29) [We'll go ahead and copy these. And I'm going to go to my](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=53.34) [desktop for this case and just put a folder here.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=58.4) [We'll call it Kitematic.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=63.34) [But you, of course,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=64.69) [can put this wherever you like, and then we'll paste these in.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=65.56) [All right, now from here, we just need to find the exe,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=72.14) [and you'll see that right here, Kitematic.exe.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=75.01) [So we'll go ahead and click this.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=78.04) [You may be prompted with a message.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=80.84) [Just click on More info if you're on Windows. I'm going to hit Run anyway.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=82.77) [It just doesn't know what this program is.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=87.44) [And here we go.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=90.24) [So from here, I could log in to Docker Hub if I had a Docker Hub account,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=91.54) [which I do, but you may not.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=95.47) [So we're not going to worry about that.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=97.03) [You could sign up though if you'd like and get an account, and this would](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=98.84) [allow you to store your images, your Docker images, up in Docker Hub. Now](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=102.03) [I'm going to hit Skip For Now. Once Kitematic is up, now it's on us to find](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=107.88) [the image that we'd actually like to run. So we could choose a Hello World](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=112.86) [Nginx, Ghost for blogging,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=117.28) [Jenkins, Redis. You can even do a Minecraft server if you'd like](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=119.57) [if you have the client and on and on and on.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=123.48) [So you'll see there's a lot of different options. Now I'm](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=126.23) [going to go ahead and just type Nginx here.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=129.33) [And there's the Hello World.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=132.54) [But I'm going to go get the official Nginx right here. And notice](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=133.94) [if I hit ..., I can get a little bit of info.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=138.52) [So I can get what the selected tag I want to do is. We could filter.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=142.34) [I'm going to go ahead and just leave the latest here,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=147.14) [but notice I can pick different versions of it.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=149.17) [That's kind of nice.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=152.44) [And then to actually download the image and run it, we can just hit Create here.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=154.24) [Now this is going to go off to Docker Hub and download the Nginx image.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=160.04) [This will be the latest version.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=164) [Now that that's downloaded,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=166.54) [it's going to go ahead and actually start up the container](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=167.85) [now. And then once this is all ready to go,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=170.41) [then we can actually use this to call it.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=173.25) [Now notice up top, it says it's running.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=177.06) [I could stop it, restart it, exec into it, we'll learn](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=179.74) [about what that is later in the course,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=184.21) [even view documentation about. If we click on this, it will take us up to](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=186.02) [Docker Hub. And you can see that we can get information about Nginx.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=189.74) [Here's some of the different versions we have.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=195.34) [If we scroll on down, we'll even see how to use it from the command line.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=198.54) [Now what's nice about this though is that with Kitematic we can do](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=202.64) [all this without actually typing the command.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=206.17) [So let's go back to Kitematic now.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=208.32) [And if I come on over to Settings,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=210.94) [notice I can get some general information. So we can get some environment](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=213.84) [variables it's using in the container, the host name and ports. So it looks](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=217.69) [like there's a port 80 running in the container,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=223.53) [but we can call 32769 to actually call it from outside through the browser,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=226.84) [for example. We'll learn later about something called volumes, this](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=232.24) [one doesn't have any. Networking, we'll talk about what bridge](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=235.95) [networks are, and even some advanced features.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=239.33) [Let's come on back to the ports though,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=243.34) [and I'm going to copy this. And then let's run to the browser here, and](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=244.98) [we'll go to this localhost 32769. And there we go.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=249.62) [And now we have Nginx up and running.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=255.64) [What's great about this is number 1, we really didn't](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=258.54) [have to know anything about Docker.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=261.06) [We could just use Kitematic to help get us started.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=262.49) [But number 2, it makes it really easy to start these containers, restart them,](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=265.54) [stop them, delete them, and I'll show you some of that right now.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=269.8) [So let's go back to Kitematic, and let's just go back to home here.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=273.11) [So first off, we can see that the browser hit it.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=277.74) [Notice we have some logs here.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=280.34) [And then from here, I could stop it.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=282.54) [We could start it back up.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=285.94) [Notice it's running again.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=289.04) [We could restart it. We can shell into it or exec into it.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=290.38) [That opens a command prompt here, and now I could do things](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=295.36) [like show me all the files and folders. And then you](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=298.03) [already saw we can view the docs.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=302.92) [Let me go ahead and stop it though.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=304.64) [Here it is.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=307.34) [And then notice, we have a little X here.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=308.05) [If I hit that, we can now remove it. And there we go, it's gone.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=309.7) [So that's an example of some of the fundamentals of](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=315.54) [getting started with Kitematic.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=317.94) [Now I mentioned earlier, we're not going to be using](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=319.84) [this throughout the rest of the course.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=321.68) [We're going to learn how to do the actual commands. But it's a great](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=322.91) [way to get started and play with Docker images and containers and see how you can get started using them.](https://app.pluralsight.com/course-player?clipId=33905206-7445-4a28-b6f0-a379dbcc4bad&startTime=326.78)

### [Summary](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d)

[In this module,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=1.24) [we learned about different options for getting Docker](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=2.05) [running on different operating systems.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=4.32) [We started off by talking about a legacy version](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=7.04) [that's available called Docker Toolbox,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=9.49) [and that would be one you might choose if you're on Windows](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=11.88) [7 or 8 or even on Windows 10 Home Edition because that](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=14.54) [won't have support for Hyper‑V.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=18.53) [Therefore, you're going to have to go with VirtualBox.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=20.6) [Now if you do have Windows 10 Pro or higher or you're on a Mac,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=24.34) [then it's highly recommended, you run Docker Desktop.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=28.34) [If you're on Linux,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=31.83) [you can install the Docker engine that I mentioned to paint on](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=32.76) [the version of Linux that you're running.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=36.2) [Docker Desktop, as we saw though,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=39.14) [gives you not only direct integration with Docker,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=40.77) [but also a dashboard.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=44.24) [You can customize different preferences and settings.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=46.2) [So you can set, for instance,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=49.12) [the CPUs that are going to be used, memory, swap, size of the virtual machine,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=50.66) [all that type of information.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=56.88) [Not only is it very easy to get going,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=59.34) [but it also makes it very easy to interact with. And so](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=61.84) [we'll be focusing on Docker Desktop a lot as we move](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=65.58) [throughout the rest of the course.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=68.22) [We also took a look at Docker Kitematic,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=70.94) [and although I personally don't use it on real‑life projects,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=72.99) [it does provide a really,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=77.14) [really nice starting point if you're brand new to Docker.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=78.69) [Maybe you've seen nothing about it.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=81.64) [This is the first time you've learned about images and containers,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=83.89) [and you just want to get something going quickly and easily,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=87.19) [then you could use Docker Kitematic to do that.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=89.93) [And as you saw,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=92.96) [it provides a nice visual way to integrate with downloading the image](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=93.66) [from Docker Hub and actually running the container,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=98.01) [seeing what ports are being used on that container, and more.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=101.29) [So now that we've talked about how to get Docker and the](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=105.34) [various tools going on our systems,](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=108.15) [let's go ahead and move on and dive a little bit deeper into more Docker features.](https://app.pluralsight.com/course-player?clipId=979b8c8d-24f4-45b2-a6ee-dfc5eaed8b6d&startTime=109.94)

## [Using Docker Tools](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96)

### [Introduction](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96)

[In the previous module,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=0.94) [we talked about some of the different Docker tools that are](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=1.9) [available and what operating systems support them.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=4.39) [We're going to review that upfront here,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=7.64) [but we're going to dive right into some of the different commands that](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=9.56) [you can use with these tools to interact with the virtual machine or](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=12.98) [to interact with images or containers.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=17.2) [Now as a quick review, we talked about how we have Docker Toolbox or Docker](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=20.24) [Desktop. Docker Toolbox, again, is the legacy version, the older version,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=24.98) [Docker Toolbox is the newer and preferred version.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=29.12) [Now both of these provide what's called a Docker Client to let us](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=32.64) [interact with Docker images and containers,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=36.18) [and we're going to learn about some of those commands so that we can](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=39.24) [use the Docker Client tool. Later in the course,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=42.11) [we're going to talk about another tool that's built in, called Docker Compose.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=45.65) [This is used to bring up one or more containers and](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=49.33) [do what we call orchestration,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=52.84) [and you'll see that we can do other things with it as well,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=55.09) [including building one or more images.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=57.58) [Earlier, we looked at Docker Kitematic.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=61.14) [This is another tool that's available,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=63.2) [and this provides that GUI that lets us pull down an image and actually](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=65.14) [run a container without having to know these different commands that](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=69.13) [we're going to learn about in this module.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=72.48) [And then finally, if you are running it on Docker Toolbox,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=74.84) [the legacy version,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=77.79) [you'll have to use something called Docker Machine and VirtualBox.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=79.34) [They will be installed automatically if you have to go to that.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=83.29) [If you're on Docker Desktop, you're not going to need those, though.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=86.84) [So for those that might be running Docker Toolbox,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=90.34) [the legacy version, I'm going to start off with an](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=93.36) [introduction to Docker Machine.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=96.02) [Now, if you're on Docker Desktop,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=98.34) [you'll be able to skip these videos because you won't actually run these](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=100.14) [commands. You won't use it because it's not something that's part of](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=103.1) [Docker Desktop. But if you are on Docker Toolbox,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=106.22) [I'll show you how to get started with it, and then I'll show you](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=109.43) [a few examples of Docker Machine in action.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=111.53) [Now, whether you're on Docker Toolbox or Docker Desktop,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=115.14) [you'll definitely want the next part.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=118.58) [Now we're going to switch our focus to Docker Client,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=120.94) [and we're going to start learning about different commands you can](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=123.39) [use to work with images and to work with containers I'll provide](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=125.67) [examples of that again, show these in action,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=130.76) [and then we'll do a review at the end to talk about](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=133.26) [some of these different commands.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=136.13) [So let's go ahead and get started by talking about](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=138.34) [Docker Machine, and once again,](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=140.66) [this is only going to be if you're using Docker Toolbox. So if you're using Docker Desktop, feel free to skip the Docker Machine videos.](https://app.pluralsight.com/course-player?clipId=b119e729-6954-457d-b954-5d65dc77ee96&startTime=143)

### [Getting Started with Docker Machine](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9)

[Let's take a look at another tool in the Docker toolbox called Docker Machine.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=1.14) [Now Docker Machine can be used to create and manage your local](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=6.34) [machines that you're going to be working,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=10.54) [for instance, on your development environment machine.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=12.36) [It can also be used to create and manage different cloud machines,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=15.54) [such as ones on AWS or Azure or other cloud‑based providers.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=19.45) [But we're going to mainly be using it to manage our local machines.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=25.64) [Now, as mentioned, if you're on Mac or Windows,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=30.24) [you are going to have VirtualBox because Docker out of the box is either](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=32.4) [going to be running when the Docker containers run,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=36.15) [I should say, on either Linux or on a Windows server.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=38.57) [Now we're going to mainly leverage the Linux features here.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=43.14) [And so for us to interact with that, we need a way to host it.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=46.54) [And that, of course, is what VirtualBox does.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=50.73) [And so Docker Machine will let us start and stop and](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=53.04) [create different virtual machine images.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=56.34) [Now it can also configure the environment so that when you pull up a](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=59.54) [command line bash type shell in Windows or on Mac,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=63) [that you can use the Docker commands to manage your images,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=67.17) [start and stop your containers, and perform those types of operations.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=71.23) [Now there are a few commands that we need to know to get started.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=76.64) [And I'm just going to show you a quick list of a few of the key commands.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=79.5) [These are not things you need to memorize because I'm going](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=83) [to be using these throughout the course.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=85.56) [But they are good to know.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=87.44) [So one of the commands is called docker‑machine ls.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=89.64) [Now Docker Machine is the actual command line tool,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=93.29) [and then ls is the command we're going to run.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=96.94) [So this would list all the different machines that we](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=99.34) [can issue Docker commands against.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=103.87) [Now what do I mean by machine?](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=105.78) [Well, out of the box,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=108.64) [you're going to see in a moment that when you install Docker,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=109.52) [you're going to get one VirtualBox machine set up called default.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=112.11) [Now you can certainly set up others, but when you first get started,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=117.04) [one is good enough.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=121.32) [And so we'll have default,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=122.56) [and we can use Docker Machine to list that and any others that you might create.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=123.92) [That's what the ls command does.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=129.21) [Now we can also start and stop our virtual machines,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=131.32) [and so dockermachine start, and then machine name would be whatever it is.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=135.31) [As mentioned, default is the default name of the machine,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=139.81) [so we can use the start command or we could use the stop command.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=144.14) [That's how you can easily start and stop one of the VirtualBox images](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=147.94) [on Mac or Windows if you'd like. We can also configure the environment](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=151.78) [for a machine. This is really important,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=156.85) [and I'll be showing this in just a moment.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=159.38) [But when you first pull up a command line terminal window,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=161.54) [you're going to want to issue some Docker commands to manage your](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=166.14) [images, your containers, and things like that,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=168.41) [and you first need to make sure that Docker knows what machine it's going to be](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=171.45) [interacting with during that terminal session. So you'll see in a moment I'm](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=175.86) [going to use docker‑machine env command to do that.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=180.07) [Now we can also get the IP address of a given machine, and that's useful as we](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=184.34) [start to test our containers that are running. For instance,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=189.39) [we might pull up a browser and want to call into the](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=191.94) [machine and call a specific container,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=194.91) [and we'll be demonstrating that as we move along as well](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=197.64) [throughout the course. So these are some of the key commands](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=200.12) [that you can use for Docker Machine.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=203.81) [There are certainly others,](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=205.59) [but these are the ones you need to know to get started. So let's take a look at an example of some of these commands in action.](https://app.pluralsight.com/course-player?clipId=5ae6fb27-f1f9-4dd5-8231-07374995d4b9&startTime=206.81)

### [Docker Machine in Action (Mac)](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d)

[Once we have Docker Toolbox installed,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=0.94) [we can get directly to the Kitematic tool that showed earlier,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=2.83) [but we can also get to the Docker quickstart terminal.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=6.22) [And this is a terminal window, a command line window,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=9.5) [that you can get to to interact with Docker tools such as docker‑machine.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=11.92) [Now what I normally do is drag and drop this down to my doc,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=17.64) [and you'll see already have it here.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=21.13) [So I'm going to close this one.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=22.52) [We'll come on down and open it up.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=24.44) [And the first time this fires up,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=27.14) [if your virtual machine is not running, your VirtualBox](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=28.93) [machine that Docker Toolbox and stalls,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=32.05) [then it's going to go ahead and run a machine,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=34.37) [and it's going to give it a name of default.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=37.02) [You'll see that right here.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=39.11) [And it's going to take a moment to start this machine up.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=40.3) [Now from here,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=45.44) [it's going to copy over some certificates and do some other configuration.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=46.08) [And once you get to the nice little whale image,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=49.91) [you'll know that Docker is now configured as it says](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=52.44) [to use this machine called default,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=55.2) [and it even gives you the IP address of the machine](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=57.4) [that VirtualBox is actually hosting.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=60.16) [So what is default?](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=62.48) [Well,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=63.92) [default is our VirtualBox Linux machine that we're actually](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=64.27) [going to be issuing Docker commands against.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=68.07) [But before we do that,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=70.94) [the first thing you want to do is make sure that your terminal](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=72.67) [window is linked up to the proper machine.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=75.65) [Now ours obviously is because I have my default](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=79.04) [machine is all wired up here it says.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=82.06) [And once that's done, we can start working with these machines and using them.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=84.44) [So one of the key things you'll want to know about](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=89.64) [is things like the IP address.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=92.29) [And you'll see that, yeah, you can see it here.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=94.77) [But as you start issuing commands or maybe you type clear and clear it all out,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=97.31) [you might forget what that is.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=101.76) [So there's a couple ways we can get the IP address of the running](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=103.74) [machine that is hosting our Linux server in this case.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=106.87) [And one of those is we can say docker‑machine ls.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=109.87) [And the ls command will automatically let us know all the machines that are](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=113.89) [running on this particular box on my development machine.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=119.29) [Looks like I have one called default.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=122.52) [It's running through VirtualBox.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=125.19) [It's up and running, and there's the IP you can see.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=126.97) [If I just wanted to get the IP address though,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=129.81) [I could say docker‑machine ip for the name of the machine.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=132.82) [Now you would have to know the name by default.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=137.16) [It's called default.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=140.83) [But you can create other machines as well.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=142.3) [Now we're not going to do that.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=145.36) [We'll just use the default machine in this course,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=146.49) [but it is possible to create others.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=148.8) [So I'm going to hit Enter, and you'll notice I can get the IP address.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=150.81) [Now, likewise, if I just want to get the status,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=154.83) [you'll see the state which is running.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=157.81) [And if I want to get it for a particular machine,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=160.54) [we could say docker‑machine, give me the status for default,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=162.57) [and it's up and running.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=167.44) [Now from here, I can also start and stop machines.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=169.54) [Now this one is obviously already started,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=173.24) [but we could say docker‑machine stop default.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=175) [And this will take a moment to run,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=178.54) [but this will actually shut down the running virtual machine.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=179.84) [And typically, if I'm not using Docker on a particular day, I will shut it down.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=183.4) [You'll see it was pretty quick to do this because that'll free up some](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=188.62) [memory on your machine if you happen to need it.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=191.86) [But a lot of the time I'll just leave it up because I'm](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=194.84) [jumping in and out of Docker throughout the day when I'm on](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=197.11) [a particular development project.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=199.76) [Now we can also say docker‑machine start default,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=202.24) [and this will now start the machine back up.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=207.05) [Now, once again, when you run the quickstart terminal,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=209.41) [if it's not already started up, it'll start it up for us.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=212.3) [So you kind of don't have to use the start as much.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=215.45) [But every now and then you might shut it down yourself](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=219.08) [and then want to manually restart it.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=221.34) [Now while this is running,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=224.24) [I'm going to go ahead and open up just a regular command terminal window here.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=225.65) [All right, so I already have my running Docker Machine one,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=229.94) [but I'm going to do just a new window.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=232.76) [Now because I didn't use the quickstart terminal,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=235.54) [it didn't run any of the early shell scripts that](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=238.09) [kick us into the world of Docker.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=241.58) [I'm just in normal terminal mode.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=243.36) [In fact,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=245.23) [let me just make this a little bigger so we don't get](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=245.47) [confused by the one in the background.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=247.7) [And now let's go ahead and try to do something like](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=250.34) [docker‑machine ip of default.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=253.35) [And you'll notice I can get to that, but if I start to run commands,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=256.15) [and we'll learn about some of these Docker client](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=260.11) [commands a little later in this module, but I'm going to do one called docker ps,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=261.86) [and you'll notice I get an error. Cannot connect to the Docker daemon.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=266.68) [Is the docker daemon running on this host?](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=270.97) [And might, the first time you see this, do what I did and go well,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=273.94) [wait a sec, I know the virtual machine is running,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=277.41) [so what's the problem here?](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=279.76) [Well, if you go through the quickstart terminal,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=281.84) [you probably won't have to do this.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=284.38) [But if you want to either A, configure a different terminal to use the](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=286.16) [default machine so that you can issue Docker commands against it such as](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=291.61) [this ps, ps would list all of our containers,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=294.96) [by the way,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=297.78) [but we'll learn about that coming up, or B, we might want to hook this](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=298.26) [terminal up to a different machine other than default.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=302.68) [What we can do is wire up this terminal to the machine that we want to](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=306.74) [issue Docker commands against. And the way we can do that is through](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=311.56) [another command called docker‑machine env.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=315.2) [And then if I just do this, we'll get an error.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=318.78) [But we have to tell it the machine name.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=321.14) [So we'll say default.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=323.09) [And what this will do is add some‑‑‑ You'll see kind of](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=325.04) [variables here, into our environment variables.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=328.42) [And then it's going to say run this command to configure your](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=331.32) [shell. Now when we ran the quickstart terminal,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=334.39) [it's already doing this behind the scenes to hook us up to the](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=338.03) [default because that's the one you get out of the box.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=341.88) [But if I wanted to either hook up to a different machine,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=345.24) [then I could have said docker‑machine environment whatever](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=348.15) [that other machine is, my machine maybe.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=350.56) [And then what you have to do is run this eval command.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=353.14) [So you literally just copy this, paste it down, and then run that.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=356.35) [And now when I run docker show me all the containers, which is the ps](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=361.42) [command, you'll notice that at least it works. Now I don't have any.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=366.5) [We'll be doing that shortly. So that's a really,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=369.34) [really nice tip that I know I struggled with initially when I got into Docker](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=372.82) [because I didn't realize that you had to hook up the terminal window if you](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=376.9) [didn't use the Docker quickstart terminal anyway to the actual machine that](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=381.24) [you want to issue the commands against.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=387.09) [So that's a quick look at the docker env command as well.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=389.54) [All right, so now we've seen several of the commands.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=394.34) [You can actually list all of them by saying docker‑machine and just hit Enter,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=396.96) [and this will list all of the different commands that we have available.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=401.84) [You'll see there's quite a list here.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=405.75) [A lot of stuff you can do,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=408.04) [but we're now kind of going over the key ones, the environment command,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=409.34) [the ip, the status, the ls, the start and the stop.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=413.15) [You can even restart a machine. Very similar, just](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=416.5) [docker‑machine restart default.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=419.55) [And there's even ways you can create new machines.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=422.24) [If you wanted to have different versions of Linux](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=425.34) [or something like that running,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=427.85) [then potentially you could create a different machine if you'd like.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=429.06) [So that's a look at some of the key Docker commands that you can run that](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=433.44) [are specific to Docker Machine. And again, Docker Machine is part of the](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=437.48) [Docker Toolbox that we've already installed,](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=441.79) [and now we have that up and running. And we can now interact with that machine, and that's what it looks like from a Mac standpoint.](https://app.pluralsight.com/course-player?clipId=4c9e9503-a420-4137-9314-8cb7bebb152d&startTime=443.91)

### [Docker Machine in Action (Windows)](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d)

[Whether you're working on a Mac or on Windows,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=1.04) [you can run the same exact Docker machine commands.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=3.56) [In fact,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=6.3) [you'll run a Bash shell even if you're on Windows as you'll see in a moment.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=6.83) [Now we've already installed the Docker toolbox so it](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=11.24) [adds some icons on my desktop area.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=13.43) [What I like to do is drag down the Docker](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=16.06) [Quickstart terminal down to my toolbar,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=18.46) [so I'm going to go ahead and open that up,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=20.55) [and you can see that it automatically fires up the](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=22.64) [virtual machine called default.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=25.71) [This is running as a Linux virtual machine in](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=27.94) [VirtualBox and gives me the IP address.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=30.35) [Now, one of the things that's a little bit different,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=33.19) [though,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=35.51) [on the Windows side is that you'll note that I'm not in a normal DOS mode here.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=35.64) [I'm in a type of Bash shell, and so I can run commands,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=40.6) [for instance, like ls,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=44.47) [which would be very similar to dir that you're used to in](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=45.66) [Windows and that'll list where I'm at all,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=50.4) [the files and folders and things.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=52.92) [I can type clear kind of like cls in windows and notice that clears](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=55.15) [off the screen and there is a lot of other things we could do that](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=60.57) [are related to more of a Bash environment.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=63.17) [So what this does is it installs this Bash environment for](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=66.04) [Windows and that's a good thing actually because these same](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=69.24) [commands that we can run on Mac and Linux,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=72.31) [you can run here on Windows.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=74.83) [So let's get started by jumping into the Docker machine command itself.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=77.84) [Earlier, when I pulled this up,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=82.94) [you saw that we had a Docker machine called default,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=84.42) [and again, it listed the IP.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=87.28) [And so,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=89.34) [I can list all the machines on my Windows environment by](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=89.76) [saying docker‑machine ls and this will now list that I](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=93.35) [have a machine called default, it's running on virtualbox,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=97.03) [the status is it's up and running,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=100.67) [and there is the IP address you can see for that machine.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=102.6) [Now, if I wanted to get to the IP on windows for that particular machine,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=106.44) [we could say docker‑machine ip for the name of the machine.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=109.9) [So you simply take that name there, hit Enter,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=114.97) [and there we go,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=117.81) [and I could also get the status by doing docker‑machine status for default,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=119.19) [and you can see it's up and running, so ls will get you all the machines,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=126.27) [but if you just want to get a particular property of that](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=129.82) [machines such as the IP or the status, then you can run those commands as well.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=132.4) [Now, when we ran the quickstart terminal,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=137.74) [this actually ran some behind the scene scripts that made it possible to run](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=141.24) [other Docker commands against this machine called default and one of the](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=145.97) [commands we're going to learn about later is docker ps.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=151.57) [Now, if you watched all of this for the Mac side of it,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=154.43) [this is going to look exactly the same and that's kind of the point of it,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=157) [but if you are just jumping right to this Windows information,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=160.16) [Docker PS will list the running containers that we have and we'll](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=164.39) [talk more about this coming up later in the module,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=167.7) [but you'll notice that it works, alright,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=170.08) [and the reason this works is because when I did the quickstart terminal,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=172.68) [it already made sure that my default virtual machine was running,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=176.65) [if it wasn't, it starts it up,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=180.54) [and it hooks this terminal window here to that running](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=182.4) [machine so that when I issue commands,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=186.51) [many of which we'll learn about a little bit later here in this module,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=188.88) [such as docker ps, those commands work.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=192.14) [If we weren't linked to the machine,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=195.41) [then we'd have some problems and we couldn't run the commands.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=197.74) [Now,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=200.66) [one way you can switch machines or link it up yourself is you can run](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=200.94) [docker‑machine env for the name of the machine that you want to hook](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=205.75) [to and what this will do is it'll set up some environment variables](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=210.86) [for us, you'll see those there, and then it tells me go ahead and run](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=214.88) [this eval statement.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=218.91) [Now you'll notice there is a space here, and so, unfortunately,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=221.04) [if you run it as they sort of show you,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=224.62) [let me just copy that down, we'll paste that, we're going](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=226.56) [to get an error because of the space.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=231.48) [It didn't know what to do.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=233.64) [Now we could just kind of abbreviate this and run docker‑machine directly](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=235.44) [because it is a known command, you've already seen that up here, but if we](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=239.21) [want to leave what they give us and just fix it up,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=242.88) [I'm going to hit home to go to the beginning and I'm just going to add a](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=245.74) [single apostrophe and we're going to wrap this path,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=249.46) [let me do and and we'll kind of back it in here.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=252.55) [Alright, now it'll know that we have some spaces in our path, in this case,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=256.04) [in our folders, and now it's going to work appropriately.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=261.12) [Now we were already hooked into default so that was a very redundant](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=264.3) [thing to do, but it's good to know because if you ever for whatever](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=267.22) [reason want to switch to a different machine,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=271.56) [you'll have to set the Docker environment to something other than](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=273.57) [default, maybe my machine if that's what it was called.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=278.32) [Alright,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=282.64) [so the last thing is if you want to see all the commands Docker machine has,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=283.15) [you can say Docker machine and this'll list everything you can do do.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=287.25) [So you'll see there are quite a few commands here.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=291.7) [We can go in, and in fact, I'm going to show a start and a stop to wrap up,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=294.64) [but we can start a machine, we can stop a machine.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=298.15) [I've shown you the status, the ls, and the ip, but there](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=300.85) [is a lot of other things you can do.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=306.02) [You can actually create new machines.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=307.17) [We're not going to do that because the default](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=308.73) [machine has everything we need for now,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=310.31) [but there is a lot of information. You can inspect and kill](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=313.04) [a machine and do all kinds of fun stuff.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=316.31) [We're focusing right now on the key commands that you](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=318.84) [need to know to get started here.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=321.93) [The last thing I want to show you is that you can also come](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=323.74) [in and say docker‑machine start or stop.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=326.49) [Obviously, default is already started.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=329.31) [We've seen the ls and we can see it's running.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=331.43) [But I could also come in and say docker‑machine stop default. And now,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=334.64) [that's going to stop that virtual machine, and then likewise,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=340.72) [I could say docker‑machine start default and there is even a restart.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=343.16) [So let's go in and now that that one is stopped,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=347.55) [which was pretty quick, you could see, we can start default,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=350.4) [and this will take just a little bit more time to start it back up, but](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=355.04) [then we'll have a running virtual machine again and we'll be kind of](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=358.3) [ready to go. Now if when you start a machine,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=361.67) [if for some reason when you issue Docker commands,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=365.54) [you get a error, then you'll need to run that Docker environment,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=368.69) [the env command that I showed and then do that eval copy and paste thing.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=372.02) [So that's an example of how you can run Docker machine](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=377.04) [commands on a Windows environment, and again,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=379.81) [if you happen to watch the earlier one on how to do this on a Mac,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=381.92) [you should now see that the commands are the same,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=385.69) [which is really, really nice.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=388.04) [It doesn't matter what your on Linux, Windows,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=389.45) [Mac,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=393.15) [you're going to be running the same exact commands. And so once you learn](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=393.88) [these core commands that I'm going to focus on here,](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=397.43) [you're pretty much good to go regardless of what operating system you're going to be running against.](https://app.pluralsight.com/course-player?clipId=67e9f7b4-c581-4e2d-b5e9-b8ae68b4361d&startTime=399.84)

### [Getting Started with Docker Client](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82)

[Once we have Docker Toolbox or Docker Desktop installed and running,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=1.34) [we can start to use something called the Docker Client.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=5.5) [Now Docker Client is a way to interact with the actual](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=8.75) [engine behind the scenes or Docker daemon,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=12.19) [you may hear,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=14.42) [and this will allow us to run commands that can then interact with images,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=15.69) [Docker images or take those images and make running](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=20.24) [containers using other types of commands,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=23.66) [and this is all done through the Docker Client,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=25.93) [and again, this works with Docker Toolbox and with Docker Desktop.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=28.19) [As mentioned, this tool, Docker Client,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=32.64) [is going to allow us to interact with the Docker Engine,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=34.79) [the Docker daemon that's running behind the scenes. Through using](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=38.09) [this tool, we can build and manage images. We can then take those](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=41.68) [images and run and manage containers.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=45.71) [So let's look at some of the commands that you could use as](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=48.78) [you start to work with the Docker Client.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=52.14) [Now, some of the key commands are going to be shown here,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=55.64) [and this is a small subset of the commands.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=58.01) [There are quite a few that you can run.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=60.49) [One of the big ones you'll use, though, is called docker pull.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=63.24) [You might find a Node.js image or a ASP.NET or PHP or whatever it may be,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=66.94) [you might have an image up in Docker Hub and you want to pull that](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=73.56) [from Docker Hub down to your development environment.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=77.65) [Well we can use the Docker pull command to do that. Once we have an image we](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=81.08) [can run it. We can use docker run to do that. We simply say docker run and](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=86.74) [then give it the name of the image that we want to run. We can also list all](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=91.69) [of our images by simply running docker images. And then when it comes to](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=97.22) [containers, we can run docker ps,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=101.33) [and this will list all of the different containers that we might have available.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=104.71) [Now, once you have the containers and the images and everything available,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=110.34) [we can then start containers, we can stop containers, and do all kinds of](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=115.04) [things that we're going to look at throughout the course.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=119.3) [And so before we go too far, though,](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=121.94) [let's take a look at using the Docker Client with these commands and see how](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=124.54) [they can interact with our different images and containers that we may have or that we might want to grab from Docker Hub.](https://app.pluralsight.com/course-player?clipId=01d56409-56fb-4115-a6b7-65e9da7b8b82&startTime=128.87)

### [Docker Client in Action (Mac)](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4)

[Let's take a look at some of the commands we can issue.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=0.84) [So the first thing I'm going to do is just type the word docker.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=3.54) [And if I just hit enter or return here,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=6.54) [this is going to show all the different commands.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=9.23) [And you'll notice there's quite a few commands.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=11.62) [Now we're only going to focus on just the](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=13.95) [essentials that we need to get started, but those are the command you can use.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=15.49) [And there's a lot you can do with images and containers](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=20.55) [and a bunch of other stuff as well.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=23.9) [Now from here, let's learn how we can pull an image off of Docker Hub.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=26.24) [And we talked about Docker Hub a little bit earlier,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=30.84) [and if you go to hub.docker.com, you can get to it.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=33.17) [Now you can certainly log in and create an account and all that.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=36.56) [But if we just come up to the search, I'm going to type hello‑world,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=39.55) [and this'll pull up the hello‑world image.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=43.84) [And we'll click on it,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=46.84) [and you'll notice there's this Docker client pull command that we can issue.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=48.66) [So I can actually just copy that from here,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=52.7) [get information if I'd like to read up on it.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=55.56) [But we'll go on back, and I can just paste this in.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=58.64) [So let me clear this and we'll just paste docker pull and the name of the image.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=62.03) [Now this is going to pull down the layered file system,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=67.44) [it's called This is the actual image itself,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=70.15) [very small, you can see.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=72.54) [And so now I have this image locally.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=74.44) [But how do we know if it's really there?](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=76.96) [Did it work?](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=78.82) [Well, the second command we're going to look at for Docker client is,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=79.91) [we can type the Docker client tool again,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=83.61) [and now I can say images.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=86) [And what this'll do is list all the images that I have installed.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=88.44) [And it looks like we now have one image.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=92.84) [Let me make this just a little bit bigger.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=95.3) [You can see it's hello‑world, we have the latest,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=97.54) [it assigns a unique ID to it, and it looks like it was created 11 weeks ago,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=100.19) [and it's very small, 960 bytes.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=105.97) [Now that's how easy it is to first off pull an image off of Docker Hub](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=109.04) [and then actually see what images do we actually have?](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=113.94) [Now I mentioned a couple times, an image on its own is not](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=117.94) [ultimately that useful because we need to take that image and](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=121.52) [actually get a running container.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=125.85) [And so what we can do from here is,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=128.34) [we can say docker run and then we can give the name of the image.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=130.82) [We're going to do hello‑world.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=135.14) [And this will now run the hello‑world image as a container,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=137.74) [and you can see all of this output.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=141.82) [And if you see this Hello Docker, then you did good.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=144.28) [It worked.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=147.23) [And so we now have a hello‑world container.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=148.44) [So we have an image that's sitting there.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=151.52) [We've now taken that image and made an instance of the container that's now,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=154.04) [it ran and then it actually stopped.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=158.62) [And so how do you know what containers that you have](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=161.14) [available? So I can come in and type docker ps,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=164.48) [but let's see what we get here.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=167.76) [You'll notice nothing shows up, which I know the first time I saw this,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=169.84) [was a little bit confusing because I knew I had a container because](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=173.56) [that's what the run command that we looked up here does.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=177.39) [So what's going on?](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=181.64) [Well, docker ps, this command, only shows the running containers.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=183.16) [So how do we see all containers?](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=190.24) [Well, we do ‑a, and that will tell the Docker client ps command,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=191.95) [I would like to list all containers.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=197.63) [And there we go.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=199.39) [So now we have the container ID, we have the image that was used for it,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=200.42) [we have, it's kind of wrapping here,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=206.26) [this is a sort of friendly name it comes up with if](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=208.58) [you don't want to refer to this guy, we created about a minute ago,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=211.31) [and the status is it's Exited.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=215.62) [So this particular container right now is not up and running because this](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=218.14) [container just outputs this log data you see up here,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=222.7) [and then it kind of stops.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=225.99) [So that's a really important little add‑on to the ps command](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=228.44) [for a command line switch to do docker ps ‑a.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=232.92) [Because again, if you don't do that, you're not going to see it in this case.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=236.78) [Now, that's not that useful of an image or a container,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=241.04) [so how do we get rid of these now?](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=244.16) [That's great, we see it works, but now I'll probably never, ever use it again.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=245.95) [So what I'm going to do is,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=249.93) [I'm going to come in and say remove and that's remove container.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=251.99) [And then we have the container ID right here.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=256.12) [And then we also have a little alias,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=259.81) [but I just normally type the first few characters.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=261.3) [So I'm going to do 59f. So we'll do 59f, I'm going to hit Enter.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=264.6) [Now When I do docker ps ‑a, you'll notice I don't have any containers left,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=270.52) [so we deleted it.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=275.42) [Now what about the images?](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=277.14) [Let me get do a clear here.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=278.91) [Well, let's do docker images again.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=280.26) [Okay, It's still there.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=282.94) [We deleted the container, but we didn't get rid of the image.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=284.24) [So it's really similar to what we just did.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=287.24) [Its Docker rmi, and then, again,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=289.59) [we can take the image ID and just do the first few.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=292.68) [So in this one sense there's only one.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=295.94) [I'm just going to do 0a.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=297.34) [And there we go.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=299.54) [It just deleted the layered file system for that particular image.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=300.75) [So that's an example of how easy it is to use the Docker client](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=306.14) [command line tools to get started with pulling an image,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=310.72) [viewing images,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=314.75) [and then taking those images and converting them into running containers.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=316.21) [So now that we've seen the basic commands for Docker client,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=321.84) [let's pull down the Nginx image that I showed,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=325.44) [if you watched the Kitematic demo earlier in the course,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=328) [and see how we can get that actually running as well.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=330.73) [So if we go back up to Docker Hub and go to hello‑world](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=334.14) [and I'll just kind of research on this.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=337.37) [We'll hit Enter there.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=339.79) [And you'll notice that there's quite a bit of things we can do.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=340.68) [There's a tutum hello‑world.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=343.82) [There's also a Kitematic one down here.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=345.78) [It looks like I'm not finding it immediately,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=348.03) [so we could actually search for Kitematic.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=350.28) [And there it is right there, so let's click on that.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=355.14) [And just to save a little bit of typing,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=358.44) [I'm going to go ahead and grab this pull command and just paste this](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=360.48) [again into my Docker client terminal that we have here.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=364.52) [So we'll pace that in, and now this image will have a little bit more to it.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=368.64) [It's bigger than the last one,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=372.36) [so it'll take a moment to download but It's pretty quick,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=373.9) [and there we go.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=376.28) [We have it.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=377.22) [So there's docker pull again.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=378.44) [Now we can do docker images.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=379.94) [There it is.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=382.54) [So there's our Kitematic, it's the latest,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=383.32) [there's the unique ID it gives it, and it's about 6 months old,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=385.79) [it looks like.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=389.03) [So now we can actually start this image up and get it running.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=390.54) [And to do that we can, again,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=394.78) [do docker run and then give the actual name over here that we have of the image.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=396.89) [So I'm just going to copy that and paste it in.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=403.61) [Now this particular image, though, has a port that we need to set.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=406.34) [And so you can kind of think of it this way.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=412.13) [The image is going to become a running container.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=415.3) [Now ultimately what we have is a machine that hosts the container.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=418.32) [Well, the machine, as a port we're going to hit,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=424.84) [because you'll notice I already have an IP address](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=426.88) [up here typed for the machine.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=429.34) [But we can also set the port the we're going to call on that machine.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=432.04) [Now when that gets called,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=436.44) [it's then going to call into the appropriate container, in this case,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=438.55) [the Nginx container, which is a reverse proxy type of tool.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=442.68) [We can also set a port inside of the Nginx.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=447.44) [Now,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=450.94) [normally Nginx is kind of a front‑end server that'll serve up static files and](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=451.4) [forward more complex requests to back‑end servers, ASP.NET,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=456.62) [Node.js, and others.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=461.28) [And so normally, it's on port 80, if it's a kind of a public‑facing website.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=463.04) [So what I'm going to do is come into here,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=467.94) [and we're going to use a command line switch on run.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=470.45) [And I'm going to say that I would like to run this image but I](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=474.04) [want to run it on port 80 for the machine,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=477.54) [and that's going to forward internally to port 80 in the container itself.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=482.22) [Now,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=489.24) [this is a really important one because we need to set what is](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=489.57) [the port we're going to call on our actual machine and then](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=492.62) [what's it going to call on this container that's going to get](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=496.25) [created based on this image?](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=499.44) [So let me go ahead and just hit return here,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=502.02) [Enter, and you'll notice this now started up my Nginx container,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=504.24) [in this case.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=509.42) [It converted from the image into the container.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=510.44) [So I'm going to come up here, and now if I hit the IP address for my machine,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=513.34) [we should see an Nginx output here, and there we go.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=518.64) [Now, this looks very, very similar to what we saw earlier,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=522.44) [if you watched the Kitematic demo, again,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=525.31) [because it's the same exact image.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=527.44) [It's just that we're now using the terminal here to actually](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=529.96) [work with this particular image and container.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=534.63) [What I'm going to do from here is,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=538.64) [I can actually just start up a new kind of Bash tab here and I'm going to](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=540.89) [go into the docker ps command that I showed you earlier.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=545.86) [And you'll notice that right off the bat,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=550.37) [because I didn't click on a Quickstart terminal,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=552.81) [I get this Cannot connect to Docker daemon.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=555.84) [Now, one way around this is,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=558.34) [I can close it and just open up a different Quickstart.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=559.75) [But let's go ahead and use what we learned earlier.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=562.01) [I'm going to do docker‑machine env, default is my machine,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=564.54) [and then I'm going to run this eval command.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=569.94) [Okay, so now let me try docker ps.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=572.84) [All right, now it works.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=576.14) [And you'll notice this command terminal is now tied to my default machine.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=577.27) [And again, I didn't have to do that.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=582.94) [I could've just clicked on the Docker Quickstart terminal here.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=584.83) [But that's a nice little thing.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=587.67) [So here we go.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=589) [We have the container ID, here's the image it's based on,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=589.99) [there's a little start.sh script that's run,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=593.96) [we started about a minute ago, and it looks like the status is up.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=596.53) [It's wrapping a little bit there,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=601.43) [but you'll notice status is up for about a minute or so,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=603.14) [it looks like.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=607.26) [Now, we can come into here and we can say docker stop,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=608.56) [and then we can actually list just a few of the digits here.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=612.54) [So I can just say docker stop 109.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=616.74) [And now this is going to go in and try to stop that particular running](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=621.64) [container that we have going over in this tab right here.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=625.87) [And so we'll let this run just for a sec.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=630.74) [Okay, there we go.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=632.71) [Now let's do docker ps, and if it's stopped, it shouldn't show it.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=634.6) [All right, and it's empty.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=638.7) [So now we'll do docker ps ‑a, and there it is,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=639.8) [but you'll notice that the status is Exited.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=643.44) [So that's how easy it is to pull that down,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=646.56) [and then you now know how we can get rid of this as well.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=648.76) [Once it's stopped we can say docker remove and then](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=651.4) [give it that same container ID.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=655.25) [So we'll just do 109, since that's a quick and easy way.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=657.74) [Okay, so now docker psa.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=661.34) [It's gone.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=664.24) [Let's go to docker images, and there's the image.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=665.08) [Notice the, again, image ID here.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=668.88) [So we can say docker remove image 385,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=671.18) [and that now deleted all the parts of the layered file system.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=676.34) [And there we go.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=679.87) [So now our container's gone and our images are gone.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=680.55) [And from a development standpoint, this is pretty awesome,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=683.79) [because now my machine is completely clean of this Nginx server.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=687.29) [I don't have to worry about other files sticking around because I](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=693.24) [got rid of the actual image and the container.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=696.74) [Now compare that to manually installing different servers](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=699.44) [and databases and things like that,](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=703.96) [and I think you'll find that that's a pretty compelling thing](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=705.68) [we can do in the development environment.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=708.78) [Because I don't know about you, I tend to like to keep my machine pretty clean.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=711.65) [So that's an example of some of these different Docker client commands that we can actually run in a Mac environment.](https://app.pluralsight.com/course-player?clipId=57d564aa-4d54-425f-8344-effb9f8115c4&startTime=716.44)

### [Docker Client in Action (Windows)](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405)

[So, the first thing I'm going to do is I'm going to run off to hub.docker.com,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=0.94) [and I've already typed in this hello‑world image that I'd like to](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=5.59) [find that's up there up in the cloud on Docker Hub.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=9.51) [And so let's go ahead and find this, and you'll see](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=13.14) [the official hello‑world image,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=14.96) [and this is a very basic image you can use to get started.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=16.57) [So if we scroll on down, you'll see a description,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=21.04) [some information about it,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=23.18) [you'll see some example output of what we would](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=24.51) [expect if we run it as a container,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=26.79) [and then over here to the right you'll notice that I can run this](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=29.44) [command that's a docker client command called pull.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=32.6) [Really simple to run, you simply say docker pull, and the name of the image.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=36.31) [So I'm going to copy that, run on back here,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=40.08) [and let's paste that into our terminal window.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=43.46) [Hit Return or Enter, and this is going to pull down a layered file system.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=46.72) [And you'll see the pull is now complete,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=51.37) [very fast because it's a very small image,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=53.57) [and now we're kind of ready to go.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=56.78) [So it pulled that image down to our local machine.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=58.86) [Now how do I know that it actually worked?](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=61.49) [Well, we can come in and say docker images,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=64.44) [and this will list all the images that we have on the machine.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=68.34) [And it looks right now that I have this hello‑world,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=71.52) [it's the latest, here's a unique IMAGE ID it assigns per image,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=75.79) [it was created about 12 weeks ago, and it's really small,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=80.67) [960 bytes it looks like.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=83.7) [Now from here we have an image,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=86.01) [but images on their own aren't really that useful.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=88.12) [They're like having a blueprint, but never creating a building.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=90.86) [We want to create the building.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=94.54) [We want to create the container that can do something.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=95.64) [So now I can use the docker client command called run,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=98.64) [and I can say docker run, the name of the image that you'll see here,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=101.52) [hello‑world, hit Enter there, and there we go,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=107.43) [this is the actual container running.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=112) [And so you can see Hello from Docker, this message](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=114.69) [shows that apparently we're working,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=117.73) [so we've done pretty good so far, we have a really,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=119.48) [really simple image running,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=122.06) [and they have some other info you can check out there if you'd like.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=123.94) [That's not super impressive, obviously, but we do have a container.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=127.34) [Now is that container still running, or what happened there?](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=131.6) [So we can actually see all the running containers by doing docker ps.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=135.34) [And so I'm going to hit Enter there, and you'll notice it's empty,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=141.04) [which is a little bit weird, because, you know,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=143.51) [I do have a container, obviously it ran,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=146.13) [but it must not be running.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=148.29) [So if we want to list all the containers on the system,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=150.64) [we can say docker ps ‑a, and that'll show all of them.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=153.56) [So we'll hit Return there, and there we go.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=158.24) [So this is wrapping a little bit, so I'll make it a tad bit bigger.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=160.59) [But you'll notice that we have a CONTAINER ID,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=164.16) [and that's assigned per container.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=167.98) [It's based on the hello‑world image.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=170.14) [There's a command it runs internally, just hello.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=172.74) [We created it about a minute ago, and it exited about 55 seconds ago.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=175.94) [Now it also gives it a little more friendly alias, if you will.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=180.23) [And this particular alias is kind of something you can](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=185.44) [use instead of the alphanumeric characters you can see](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=188.16) [over here for the CONTAINER ID.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=191.32) [Alright, so we've now run the container,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=193.74) [we can see the container, but it exited.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=195.64) [So this is a different container,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=198.83) [this isn't one that you run the container and it](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=200.66) [stays up and running like a server.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=203.1) [It just runs and then it just shuts down, so it's a very](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=205.25) [simple hello world type of example.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=207.92) [Alright, so let's get rid of this container then.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=210.84) [We know it works, but we really don't need it anymore,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=213.36) [and you'll probably never, ever use it again.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=216.33) [So we're going to do another docker client command called remove,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=218.26) [and this removes containers.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=222.46) [Now, I'm going to go ahead and use the CONTAINER ID,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=224.44) [but I really don't want to type all this.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=226.65) [I know when I first started using Docker,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=229.39) [I didn't realize that you don't have to type the entire CONTAINER ID,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=232.04) [so I went in type the whole thing, though,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=236.54) [but you don't need to.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=238.99) [We can actually, in this case we only have one, so I could get away with 24,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=239.97) [I can get away with 2 if I wanted, but let's go ahead and do that.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=244.13) [And you'll see it echoed back out the container it removed.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=247.69) [Now let's make sure it worked.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=250.95) [We'll do docker ps ‑a again, and everything's gone you'll notice.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=252.14) [Okay, so the container is gone now.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=256.46) [Now what about the image?](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=258.84) [Well, the image is still there, and I probably don't need that on my system,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=261.44) [so let's clean that off.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=264.65) [And we can do that, and remove it by doing docker rmi, remove image.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=266.63) [And then just like we did with the CONTAINER ID, there's an IMAGE ID here.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=272.97) [So we only have one, so it's pretty simple, I'll just do like 0a,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=277.74) [and now it just deleted that layered file system.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=283.24) [Now, if we go back and do docker images,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=287.04) [you should see that it's completely gone.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=290.1) [So now we've downloaded the image, or pulled the image,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=291.94) [we've run it, the container immediately stopped.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=295.45) [We removed the container with the rm command,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=298.72) [and now we just removed the image,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=301.21) [so now there's really no trace of this on our system,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=302.53) [and that's a great feature that we're going to talk more about in a](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=305.36) [moment with Docker in the development environment.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=308.43) [So that's an example of how to get started with those commands.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=312.74) [Now let's take a look at how we can pull a more robust image from](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=316.54) [Docker Hub and get that up and running on our machine.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=319.31) [So if we go back over to the Docker Hub site,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=323.1) [I can come in and search for a hello‑world,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=327.24) [but for the nginx.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=329.54) [And if you saw the Kitematic demo earlier in the course,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=331.32) [I'm going to do the same thing,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=333.88) [but we're actually going to do it using the docker client tool.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=335.39) [So I'm going to come in and we'll just search for kitematic,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=339.44) [and we can just do hello‑world here.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=342.27) [It should pull it up, and there it is.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=344.64) [So we can view some information about it.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=347.74) [There's not a whole lot on this one,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=350.05) [but it's a simple nginx reverse proxy container.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=351.59) [And you'll notice over here, again,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=355.52) [just like with the hello‑world image, I can also pull](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=357.47) [the kitematic/hello‑world‑nginx image.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=360.55) [So let me make sure I grab that whole command,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=363.29) [and I'm just going to come on back and paste this in.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=366.24) [So we'll paste in the docker pull command, and this](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=369) [one will have a little bit more, so this is going to pull down,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=372.64) [again, the layered file system.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=375.27) [You'll see this'll start to fill in.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=377.02) [It's still pretty fast.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=378.89) [Alright, so we're ready to go.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=380.27) [So I'm going to do docker images, and there we go.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=381.61) [We have the kitematic/hello‑world‑nginx,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=386.85) [latest, there's the IMAGE ID again, and we can see the age and how big it is.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=388.63) [So this one's a little bit bigger, looks like about 8 MG or so.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=393.86) [So the next thing I'm going to do is we have the image,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=397.74) [and just like with the hello‑world image,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=400.85) [I want to go ahead and run this. So we would do the same thing.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=403.02) [We would say docker run, and then we would put the image name.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=406.78) [Now, because this is an actual server, it doesn't just write simple log output,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=410.72) [there's a little bit more that we need to supply here.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=415.66) [Now, we have a Docker machine, in fact,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=419.44) [that machine IP is shown right up here because I'm](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=421.69) [going to use it in just a moment.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=423.89) [We saw that when I started the Quickstart terminal.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=425.43) [And that machine needs to be told what port do you want](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=428.14) [to call to come into on the machine, and then we have to tell the machine,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=432.95) [okay, well, once you get on that port, we're going to do port 80,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=437.16) [how does it call into the container,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=441.12) [and what port does the container actually have?](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=443.32) [And I like to think of it as a bubble around the container,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=446.51) [and on the outside of the bubble is the machine port,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=449.63) [and then it's going to call a port that's the actual nginx port](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=452.66) [that's in the bubble or in the container,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=456.58) [in other words.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=458.54) [So let me show you how this works so it'll make a little more sense.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=459.56) [So I'm going to say ‑p, and then we're going to do 80,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=462.17) [and that's going to be the port for the machine,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=466.29) [colon,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=468.94) [and then that's going to say I want to forward from port 80 on](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=469.65) [the machine to port 80 in the container itself.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=472.83) [Now, if we wanted to do maybe 5000 on the actual machine,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=477.19) [but 80 on nginx we could do that,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=481.92) [but nginx is typically used as a frontend type of reverse proxy server,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=484.79) [it can serve up static files and then forward requests to](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=489.59) [more complex backend servers like ASP.NET,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=493.78) [and Node.js, and PHP,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=496.71) [and things like that, so we're going to do 80:80 and this will forward it.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=498.05) [And we're going to say docker run,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=502.89) [on this port on the machine and on the container,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=504.26) [and then we have to put the name,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=506.96) [so it's going to be kitematic/hello‑world‑nginx.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=508.52) [Alright, so now that we have that in place,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=514.34) [we can go ahead and start up this nginx server.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=516.38) [So we'll go ahead and run that, and there we go,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=519.42) [it looks like that container is now up and running.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=521.27) [So what I'm going to do is leave that up,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=524.54) [and I'm going to right‑click here on our Quickstart terminal,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=526.42) [and I'm going to start a new terminal.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=529.47) [And that'll link us up to the default machine again, and there's the IP address.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=531.09) [And now let's see, what do we have as far as containers.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=536.54) [So we're going to come in and we're going to run the docker ps command,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=539.84) [and it looks like we do indeed have a container,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=544.24) [and you can see that it is up for about 23 seconds, up and running.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=547.84) [There's the IMAGE it's based on, there's the CONTAINER ID,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=553.29) [and then here's the port forwarding I was talking about.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=556.95) [So the IP here just is kind of generic, but this will be the machine IP,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=559.94) [:80, that forwards to port 80 in the actual container itself.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=563.72) [Now that container is up and running, as you can see here.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=571.34) [And it looks like when we started it up,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=574.66) [we have this start.sh that the nginx image actually had in it,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=577.44) [and that actually started up the nginx server.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=582.04) [So I'm going to run over to this tab now,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=585.44) [and we're going to try to refresh here.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=587.58) [We're on port 80, so obviously I don't have to put, you know, :80.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=589.63) [We could, but I'm just going to hit Enter, and there we go.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=593.69) [So we now have on our development machine an nginx container up and running.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=597.04) [Very cool, because I didn't officially install anything from the nginx site,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=603.54) [we're just using, obviously, Docker images and containers here.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=608.16) [So I'm going to run on back.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=611.81) [Let's bring both of these back up.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=613.58) [You'll notice that a request was made here.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=614.99) [It shows the GET request was made, it was a successful 200,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=617.29) [and some other information about the browser.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=621.21) [And then if we come on back here, you can see that we're back where we were,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=624.24) [and we can see that it's up, and all that.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=628.46) [So, now what I'm going to do is let's go ahead and try to stop the container.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=630.12) [So we'll go ahead, and not to confuse terminals here,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=635.14) [let's go ahead and leave this one up.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=638.74) [And I'm going to type docker stop,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=640.38) [and then I'm going to take the CONTAINER ID over here.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=642.74) [Now, again, we don't have to type the whole thing.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=645.74) [In this case, I could say, for instance,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=647.86) [d7, and that's going to stop, using the docker client tool,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=649.76) [that particular running container.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=655.14) [And this will take just a moment for it to stop.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=657.2) [Alright, so once it echoes back out the ID you typed,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=660.32) [that pretty much means it stopped.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=663.16) [So if we type docker ps, we shouldn't see it,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=664.61) [and we don't, but if I do docker ps ‑a, for all,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=668.04) [we should see it.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=672.73) [But you'll notice that now it says it's Exited, about 14 seconds ago.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=673.83) [Alright, great, so we now have a running container that we stopped.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=679.34) [Now we've seen that because it stopped we have to do](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=684.44) [the ‑a switch again to see it.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=687.4) [And now let's go ahead and clean it up.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=690.04) [Now, this is one of the more exciting features,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=691.59) [I think, from a development standpoint.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=693.6) [Instead of installing a server on your physical machine,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=696.34) [whatever it is, database server, web server,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=699.68) [normally when you uninstall it, you know,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=702.32) [it seems like there's always a few files left over.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=704.75) [But in this case, because we're using images and containers,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=708.34) [we can use our normal docker client commands,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=711.21) [and I can say remove, give it that d7 container,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=713.58) [and now if we do docker ps ‑a,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=718.33) [you'll notice everything is gone from the container.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=721.66) [So, alright, that's great, but what about the image?](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=723.71) [Let's do docker images.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=727.06) [We still have the image.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=728.46) [Now, normally, if you're going to be reusing this image to make other containers,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=730.43) [you'd probably just leave it if we do it a lot,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=734.38) [but in this case, let's just say, hey, I'm done with it.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=737.05) [I really don't want it on my machine anymore.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=739.75) [I've maybe tested something, and everything is working great.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=742.17) [Well, just like we did earlier, we can do remove image,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=746.04) [and in this case the IMAGE ID has this 385.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=749.11) [So we'll go ahead and do that.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=754.04) [That completely deletes that image, and now if we do docker images,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=755.31) [you can see we're clear, and docker ps ‑a,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=759.84) [of course, we're clear on containers.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=762.5) [And this is pretty cool I think.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=764.3) [I'm a little bit picky on my development machines,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=766.5) [and I like to keep everything really clean,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=770.16) [and so when I'm done with something,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=772.19) [I really would like all traces of it to be removed,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=774.38) [and now it is.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=777.57) [And I think this is a very,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=779.16) [very cool feature for development that I literally can get,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=780.49) [whether it's a database server,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=784.26) [a server that's a reverse proxy like nginx or others, up and running](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=785.52) [quickly on my machine without a lot of effort,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=790.36) [just a few commands,](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=792.55) [and then I can completely remove all traces of it](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=794.04) [using these docker client commands.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=797.12) [So that's an example of some of the different docker client commands that you can run on your Windows machine.](https://app.pluralsight.com/course-player?clipId=55fd5760-d52f-4986-9307-c29f533a9405&startTime=799.54)

### [Docker Commands Review](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a)

[Let's go ahead and do a quick review of some of the key commands so we](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=1.04) [cement our knowledge and make it easier to remember them.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=4.11) [So some of the image commands we talked about were docker poll.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=8.14) [We talked about docker images lists all the images you have on your machine.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=11.26) [And then we talked about how you can remove an image with docker rmi,](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=16.44) [and you give it the image ID that's available when you run docker images.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=19.65) [Now when it comes to container commands,](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=25.94) [we talked about docker run, and the image name.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=27.89) [And docker run, interestingly enough,](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=31.04) [will actually pull the image if it's not already found locally.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=34.27) [So although technically you run docker poll first and then](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=38.54) [run docker run, if you want to save a step,](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=42.44) [you could actually run docker run and then give it the image name.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=45.27) [And if it doesn't find it,](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=48.81) [it'll go download it and then we'll run that container.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=50.09) [We also talked about how you can list the containers.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=53.74) [Now if you only want the running container, so you could do docker ps.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=55.88) [But if you want to see all of them, you would add ‑a to the end of that.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=59.47) [And finally, we talked about docker rm, which can be used to remove a container.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=64.33) [So that's an example of some of the key commands that](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=70.24) [we've covered throughout this module,](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=73.06) [and I hope that helps cement them a little better in your mind. We'll be using them throughout the rest of the course, actually.](https://app.pluralsight.com/course-player?clipId=07d72673-503a-4880-a409-9b9cd32d065a&startTime=74.71)

### [Summary](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8)

[To wrap up this module, we've talked about several different](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=0.94) [Docker Client commands that you can run,](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=3.78) [and we also talked about a special command that's just for](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=5.81) [Docker Toolbox, called Docker Machine.](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=8.57) [So, as a quick review,](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=11.84) [we talked about how Docker Machine is used to actually hook up](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=12.91) [to that running VM that's running in VirtualBox, and that's a](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=17.15) [Linux VM that we need to hook into.](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=21.73) [We talked about some of the commands you can run there,](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=24.64) [but again, you're only going to need that if you're using Docker Toolbox.](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=26.83) [If you're on Docker desktop,](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=30.92) [you don't have to worry about it because they kind of hide all that from you.](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=32.44) [Now the main one that we all need to know,](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=36.54) [regardless if you're on Docker Toolbox or Docker Desktop, is the Docker](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=38.7) [Client commands, so we talked about commands such as docker images to list](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=43.11) [all the images, docker rmi to remove an image,](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=47.8) [and then we talked about several container commands as well,](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=51.8) [the most important being docker run or maybe docker ps, and](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=54.91) [docker ps shows our running containers and then,](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=59.7) [of course,](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=62.26) [we saw how docker ps‑a can show all the containers, even stop containers,](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=62.62) [paused, those types of things. So knowing these commands is a really good](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=68.37) [start to interacting with pulling images and then converting those images](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=73.38) [into running containers, and now what we're going to do is keep building](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=78.31) [upon this knowledge and adding more and more and talk about some other](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=81.92) [commands and some other features of Docker that we need to know to work](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=86.08) [with it. So let's go ahead and jump on into the next module.](https://app.pluralsight.com/course-player?clipId=9c193ffb-c237-4a0a-b8e9-6253e43454c8&startTime=89.35)

## [Hooking Your Source Code into a Container](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36)

### [Introduction](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36)

[We've learned how to work with images and containers in Docker,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=2.04) [but we haven't seen how to hook our source code into a container,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=5.31) [so that's going to be the focus of this module.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=9.34) [Now we're going to start off by introducing something](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=13.44) [called the layered file system,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=15.51) [and this plays a really critical role with your images and](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=17.28) [any running containers that you have.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=21.09) [So as you want to, for instance,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=22.95) [write to a log file or have database files or even work with source code,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=24.39) [it's important to understand how Docker actually works with files.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=28.65) [Now, once we talk about that,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=33.34) [I'll introduce a term called volumes. Volumes are really important,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=34.65) [especially as you work with your source code, if you want to get](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=39.14) [that source code hooked into a running container,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=42.53) [so I'll introduce it here.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=45.12) [And then we'll talk about Docker client commands that you](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=46.64) [can use to actually create a volume.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=49.65) [Now, from there,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=52.94) [I'm going to show you some actual examples of hooking](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=53.79) [real source code into running volumes,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=56.23) [and I'll show all the tools that even create the source code from](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=58.72) [scratch, get that up into a volume that's associated with a running](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=61.81) [container, and how everything works there.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=65.94) [And then once we're done with those demonstrations,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=69.44) [I'll show you how we can, with just a really simple command, remove a](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=71.56) [volume that might be associated with a running container.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=74.94) [So the big question that we're going to answer in this module is,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=79.24) [how do you get your source code into a container?](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=81.74) [Because that's really what we're after here.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=84.79) [And it turns out there's actually multiple answers.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=87.04) [We're going to focus on this first one.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=89.64) [How do you create a container volume that points to your source code?](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=91.54) [And that's what I'll address and show you how to do. Now later in the course,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=95.39) [I'm also going to show you how you can add your source code into a custom](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=99.33) [image that can then be used to create a running container,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=103.07) [and I'll show the tools and how all that works as well.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=105.85) [But for now, we're going to focus on container volumes,](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=108.72) [and I'm going to show you how we can get started using those and how the file system works.](https://app.pluralsight.com/course-player?clipId=eb1efe94-70d1-46e8-b35a-9ceef7c2de36&startTime=111.89)

### [The Layered File System](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8)

[Before we can talk about how we can get our source code](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=1.64) [into an image or a container in Docker,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=4.49) [we first need to understand how Docker images and containers work and](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=7.13) [discuss something called the layered file system.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=11.06) [Now I've mentioned this term a few times earlier in the course,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=14.44) [but we really haven't gone into any good details on what it is and](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=17.36) [the role of plays with our images and containers,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=21.43) [so let's talk about that now.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=24.04) [Now, from a high level, a dessert perspective in this case,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=27.64) [we have a bunch of layers here you can see.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=31.34) [And at the very bottom we have the base layer,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=33.01) [and then we add layers on top of that and build up and up and up](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=36.31) [until we get the final dessert in this case.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=39.86) [Now you may immediately say,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=42.94) [what does that have to do with Docker images and containers?](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=44.58) [And actually, the concepts have a lot to do with images and containers,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=47.84) [Docker images and containers are actually built of this layered file system,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=53.24) [and so you can think of instead of the dessert layers,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=57.6) [layers of files that build upon each other.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=60.47) [And you're going to see that's good for a lot of reasons.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=63.35) [It's good for disk space, it's good for reuse, and even other things.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=65.76) [So let's take a look at an image and see how these layers play into that image.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=70.14) [So here's an example of Ubuntu,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=75.44) [and let's say that we grab this off of Docker Hub.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=77.07) [And so we've got all these different layers,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=80.29) [and this is our layered file system in the image.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=82.46) [Now the file system and the layers that compose it within a given image,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=84.67) [they're all read only.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=89.83) [And so once that image is baked,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=92.09) [you're not going to be writing anything to that image from a](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=93.98) [container, for instance. The image has the files, they're](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=97.08) [kind of hard‑coded in the image,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=100.65) [and they're ready to go and be used, but you can't actually write to this.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=102.4) [Now that may seem a little bit limiting at first glance because we might](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=107.32) [have images with a database that needs to write files.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=110.64) [Maybe we have to log some files.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=114.44) [Maybe we have some source code we want to swap and](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=116.46) [change as a container is running.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=119.16) [So fortunately,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=121.71) [while images and the file system they have is read only, a container builds](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=122.62) [on top of this and gets its own thin read/write layer.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=128.29) [And really,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=132.04) [that's the main distinguishing factor between a container and an image.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=132.67) [An image is a set of read only layers,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=136.32) [whereas a container has a thin read/write layer. Now, as you write](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=138.9) [to that layer, if that container gets deleted,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=143.51) [then the writable layer also gets deleted. But coming up,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=146.72) [I'm going to show you how we can change that and use something called volumes.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=149.97) [But for now,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=153.84) [just understand that it is possible to write to a container](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=154.42) [and do log files or database files or even have source code](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=158.67) [that does something like that.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=162.67) [And we need to put it, though,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=164.34) [either in the image as a baked in layer or up in this thin](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=166.39) [read/write layer of a container. And we're going to focus first in](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=171.33) [this module on the container layer and what we can do there and how](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=174.22) [we can use it. Now, as mentioned,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=178.49) [these file layers that we're using within our images are really,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=182.16) [really efficient when it comes to disk space and reusing things like that.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=186.85) [So, as an example,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=190.35) [if I were to use this Ubuntu image and make a bunch of](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=191.8) [containers, then all these image layers that you see here, and](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=195.26) [they all have unique identifiers per layer, you'll notice they](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=199.1) [have some universal, unique identifier,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=202.26) [and these are all going to be shared across all the different containers.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=205.34) [So that's really,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=211.19) [really good for disk space because we don't have to make](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=211.95) [a copy of that entire file system.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=214.01) [And that's why it's pretty quick to actually pull down different images,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=216.71) [especially once you already have some images installed.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=220.84) [Because if you take this one on the very bottom of Ubuntu that starts with](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=223.36) [d3, if that particular file layer is used in other images,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=226.37) [then it'll just detect that, hey,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=231.83) [I already have that, and it won't have to redownload it.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=233.46) [It'll just share it between those images.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=236.02) [Now, in the case of each container that's created here,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=238.94) [you can see they all have their own unique read/write](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=241.72) [layer. And so that's going to be okay.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=244.88) [Each one can uniquely log or store database files. But as mentioned,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=247.12) [if you delete the container,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=251.42) [you also get rid of that thin read/write layer, and that's where some](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=253.04) [things called volumes are going to come into play.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=257.49) [Now that we've talked about this layered file system,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=260.94) [this can help us answer the question we addressed earlier in the module](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=263.76) [of how do you get your source code into a container?](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=267.35) [Well, at a minimum,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=271.44) [you could put it in the image, and we'll talk about that in a later module,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=272.63) [and I'll show you how to do that.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=276.13) [But as mentioned for this particular module,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=277.94) [we're going to focus on the container level,](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=279.96) [that thin readable/writable type of layer, and we're going to integrate the](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=282.26) [source code into that container using that particular layer.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=286.23) [So let's go ahead and take a look at more information on how we can do that with containers in something called volumes.](https://app.pluralsight.com/course-player?clipId=be5d07b4-f9cb-4e3b-aa0b-2086812aa1c8&startTime=290.54)

### [Containers and Volumes](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935)

[Up to this point,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=2.14) [we've learned about the layered file system and how it](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=2.81) [works with images and containers,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=5.35) [how containers are a little bit unique and have their own](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=7.29) [thin read/write type of layered file system,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=10.45) [and we call that the container layer typically.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=13.2) [Now I mentioned though that any changes made while a container is](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=15.85) [running that are written to the writable layer,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=20.28) [they kind of go away if a container is removed.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=23.14) [So if you delete that container,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=26.81) [you're also going to delete the file layer that is the read/write layer.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=28.29) [Now obviously in scenarios when you have database](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=33.24) [files and logs and source code, we might want to keep that around potentially,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=35.6) [especially while we're doing development and just trying to](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=40.09) [use Docker as a development environment.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=42.9) [So fortunately,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=46.14) [Docker and containers have another feature we can use called volumes. And what](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=47.14) [I'm going to do in this section is just introduce volumes,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=51.92) [and then later we're going to learn about how we can use those volumes.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=54.52) [So what is a volume?](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=59.2) [Well,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=61.44) [a volume is nothing more than a special type of directory](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=61.76) [that's associated with a container,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=65.04) [and typically you'll hear it referred to as a data volume, and](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=66.84) [that's because we can store all types of data.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=71.27) [It could be code, could be log files, could be data files, and more.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=73.58) [Now we can share and reuse these among containers,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=78.54) [so it is possible for multiple containers to write to this](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=82.15) [volume, or you could just have a single container that has one](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=86.28) [or more volumes that it writes to.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=89.88) [And what's nice about this is any updates to an image](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=92.34) [aren't going to affect a data volume.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=95.69) [It stays separate.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=98.34) [Also, data volumes are persistent.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=99.85) [So even if a container is deleted and it's](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=102.3) [completely blown away from the machine,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=105.69) [the data volume can do still stick around, and you have control over that.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=108.32) [Now, from a high level, you can think of volumes this way.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=114.7) [If we have a container,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=117.42) [then we can come in and define a volume within that container.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=119.34) [So in this example, /var/www, where do we want that to write?](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=123.4) [Well, you kind of have two options.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=129.34) [You can let Docker figure it out, or you can give it your own.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=130.79) [And I'm going to show you how to do your own custom](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=135.64) [volume coming up in the next section.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=137.47) [But for now,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=140.14) [let's just know that when you write to a volume, so let's say](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=141.07) [that your code in the Docker container actually does a write](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=144.76) [operation to this /var/www path, well,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=148.76) [that is really just going to be an alias for a mounted](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=152.79) [folder that is in your Docker host.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=156.09) [Now remember that the Docker host is actually hosting the container.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=159.62) [So if you're running on a Linux system or a Windows Server 2016 or](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=163.96) [higher type of system, then the host would be that OS. It's the thing](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=169.7) [that the container is actually running on top of.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=174.02) [And so in this example,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=176.84) [if we had a volume that we wrote to, instead of writing into that thin](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=178.22) [read/write type of layer that is associated with the container that we](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=183.03) [talked about with the layered file system,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=186.46) [it can actually write it up into this mounted folder area that's part](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=189.34) [of the Docker host. Now if you delete the container,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=193.73) [the folder that's on your Docker host, it can actually stick around,](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=197.24) [and you can preserve all of that code if you'd like.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=201.16) [So that's a quick introduction to what a data volume is and what a](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=204.44) [volume in general is in the world of Docker containers.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=209.52) [So now what we're going to look at is how can we actually get our source](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=213.18) [code into our containers using volumes? And we'll see how we can set that up using things like the Docker client.](https://app.pluralsight.com/course-player?clipId=be0d327c-65a7-4391-a184-0e94d159f935&startTime=217.63)

### [Source Code, Volumes, and Containers](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b)

[Up to this point,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=2.24) [you've learned about the layered file system and how](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=2.98) [it's used with images and containers,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=5.2) [and we've also learned about the basics of volumes.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=7.59) [But let's go a little more in depth into volumes and how we can](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=10.39) [actually use these to store some source code.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=13.42) [So earlier,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=16.44) [we looked at containers and saw that we can define a volume in a container.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=17.47) [Now, we haven't quite seen the syntax to do that,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=22.47) [but I'm going to show you that here.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=24.63) [And I mentioned that when you write to a volume,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=26.64) [if you set that up,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=29.84) [that it's actually going to write to some special](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=31.09) [area that's on your Docker host.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=33.46) [And by default, Docker takes care of that.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=35.5) [It takes care of creating this area where it mounts this folder.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=38.3) [And so I like to think of the var/www/volume that's in the container](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=42.17) [here as really being an alias that points over to the Docker host](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=46.68) [and this mounted folder type of area,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=51.8) [and that's where you can put your log files and that type of stuff.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=54.33) [Now to do this,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=58.64) [we normally run a command like the following to start](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=60.29) [up an image and make a container.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=62.79) [So we can say Docker run, give it our port,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=64.52) [and we have the external and the internal container port,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=67.31) [and in this case, I'm going to run the Node image.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=70.69) [Well, if we actually want to have a special area,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=73.54) [a data volume, where that Node app could write to,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=76.56) [then we can change it to look like this.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=79.86) [So I can put ‑v, and that stands for volume,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=82.64) [and in this case, say, /var/www and then put the image name.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=85.85) [Now the var/www, or www, however you like to say it, that would be the volume.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=92.19) [And then the area that it writes to would be in the Docker host,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=98.78) [and so it would kind of look like this.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=101.95) [We create a volume, this is the container volume alias,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=103.71) [but it actually is going to right to the host area,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=108.24) [and Docker again will automatically create that.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=112.14) [Now, where does it store it?](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=115.94) [How would you know?](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=117.37) [Let's say that, for instance,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=118.63) [your Node application writes a log file out to this var/www](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=119.67) [folder; how does it know where that's going to be?](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=124.15) [Well, what's going to happen is,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=127.41) [Docker kind of magically makes that mounted folder.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=128.99) [And the way you can find where it is is by running docker](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=132.06) [inspect and then the name of your container.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=135.32) [And so we could come in and do that,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=138.64) [and if you scroll through the information it gives you,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=140.41) [you'll see a Mounts area.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=143.44) [You can see that over here.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=145.07) [And the Mounts area has a name, and it's going to be a really long,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=147.19) [unique identifier, and then a source path,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=151.25) [and it's also a fairly long path.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=154.61) [You'll notice it's in this Mount, mnt, folder,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=156.77) [and that's going to be on your host, your Docker host.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=160.44) [The destination that the container actually writes](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=164.14) [to is going to be this var/www.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=167.41) [And so we have the host location defined there in the source,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=171.24) [and then we have the volume location that's in the container](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=174.21) [defined by the destination property that you can see.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=177.51) [And so, in this case,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=181.34) [Docker is automatically taking care of where that data gets written to.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=182.45) [But you now have to know if you ever wanted to go](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=187.74) [get it outside of the container, have to know how to get to this path,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=190.63) [which can be a little bit long.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=194.82) [And it works great in scenarios where you don't want to control it.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=196.38) [You just want to set up a container volume,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=199.59) [write to it,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=202.24) [and then have Docker take care of storing that](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=203.29) [somewhere and persisting that data.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=205.6) [And this is the default way it will do it.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=207.63) [Now, the other option is, we can actually customize our volumes.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=211.06) [Because in this case, Docker is determining the mount location,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=215.64) [the folder, where the var/www is actually going to write to.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=219.72) [So let's look at how we could actually customize this.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=225.04) [So instead of actually having Docker set up the](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=228.24) [folder that it writes to on the host,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=230.7) [we could come in and give it our own folder path.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=233.24) [And in this case, I'm just saying /source, but it could be a variety of paths.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=236.47) [And this could be in your source code, could be where you want your log files,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=240.26) [your database files, or whatever it may be.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=244.62) [So this gives us an option to work with,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=247.54) [for instance, source code in this example,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=250.81) [store that in a certain folder, maybe on your Mac or your Windows machine,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=253.3) [and then have the volume actually read and write to that specific area,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=257.84) [which in this case, would be our /source.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=262.15) [So what does the Docker client command like like to make this possible?](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=265.34) [Well, again, if we start out with the following where we just run the node image,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=270.14) [we could change it to this type of pattern.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=274.58) [We could say ‑v, and that again creates a volume.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=278.74) [This $(pwd) basically says, hey,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=282.14) [go from the current working directory and use that as the host mount.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=285.2) [In other words, use that as the folder where I want to put my source code.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=292.43) [Now the actual container volume, though,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=297.04) [would be this /var/www, and then, of course,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=299.62) [we have the name of the image, in this case node.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=304.03) [So what this will do is create a volume in the container,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=307.24) [which is going to be var/www,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=310.03) [but when you write to that or when source code's read from that](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=311.68) [as the Node container's actually running,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=316.68) [that's it's actually going to look in the host location,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=319.64) [which would be the current working directory.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=322.53) [So if you set up a /source folder and that was where](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=326.1) [you ran the command prompt from,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=328.97) [then that would be your current working directory.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=330.94) [If you were in your user folder,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=333.34) [then that would be the current working directory.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=335.39) [Just depends on where you are.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=337.48) [Now, if you do an inspect on this, things change a little bit,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=339.32) [and so we'll run docker inspect on the name of your container,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=344.12) [and here's what we'll see in the Mounts area.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=348.14) [So again, we'll always have a name, which is a unique identifier,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=351.14) [but you'll notice now that the source on the host location is what we wanted,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=354.2) [in this case, /source.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=360.49) [Now, if you're on Mac or Windows,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=363.24) [Docker's smart enough to allow you to work with source code](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=364.93) [directly on your Mac or your Windows machine,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=368.28) [have that talk through VirtualBox and up to the container,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=371.04) [and it kind of does some magic there to make all that happen.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=374.01) [So that's really nice for us as developers because now I can](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=376.84) [work with my source code right on my Mac,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=379.87) [Windows,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=381.98) [or Linux machine but have my container be loaded up and then reading the](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=382.57) [source code or writing to that area using this volume support.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=387.69) [Now the destination, or the volume in the container,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=392.78) [the destination as far as the container is concerned,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=396.88) [is now going to be var/www again, so that part doesn't really change.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=400.14) [But again, that's kind of like an alias,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=404.64) [is how I like to think of it,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=406.85) [and that's actually going to read and write up to this /source.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=408.28) [And again,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=412.34) [anytime you're working with this ‑v syntax as you run a](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=413.57) [particular image and make a container,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=417.68) [whatever you write to that volume gets persisted.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=420.24) [So even if you delete the container, that's going to stick around,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=423.15) [and in this case, that's a good thing.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=427.64) [Obviously, if we delete a container, we don't want it to delete our source code.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=430.09) [So that's an example of how we can get started using the Docker](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=435.44) [client with setting up a volume that could either automatically](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=438.88) [generate a folder using Docker on the host or how we can control](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=443.52) [it by using our own syntax.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=448.22) [So now that I've shown you the basics there,](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=450.54) [let's look at some examples of how we can actually hook source code into different types of containers.](https://app.pluralsight.com/course-player?clipId=89251f07-5919-4454-8f3a-a583a23aa76b&startTime=453.14)

### [Hooking a Volume to Node.js Source Code](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469)

[In this section we're going to take a look at how we can get Node.js source](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=1.04) [code into a running Docker container by using volumes.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=4.66) [Now, this source code is actually going to live on our local development machine,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=8.57) [but we're going to magically link it into the container using volume support.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=12.82) [Let's go ahead and get started here.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=18.24) [So I'm going to come on in and start up the Docker client.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=21.04) [I'm going to use something called Express.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=23.63) [This is a web framework for Node.js,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=25.81) [and it has a little feature called express‑generator that will](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=28.1) [generate a little sample site that will make it easy to get](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=31.28) [started with some Node.js code.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=34.86) [So the first thing I'm going to do is run an npm command,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=37.14) [and this will install some modules.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=39.79) [We're going to install Express and express‑generator, we're](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=41.89) [going to do these globally because express‑generator will add](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=45.48) [some command line integration support, which you'll see in just a moment.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=48.57) [All right, so we're kind of ready to go,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=52.24) [and what I'm going to do from the location,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=54.24) [which is really the user account I'm in right now,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=56.67) [is I'm going to create a new folder and generate some source](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=58.97) [code in that folder that's for Node.js.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=62.49) [And the way we can do that is run express,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=65.04) [I'm going to give it a folder name, we'll say ExpressSite,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=67.78) [and then I can give it a technology for how to render the views,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=70.64) [I'm going to use something called Handlebars.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=73.56) [So that will run,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=76.84) [and now what we have to do to get this site up and running is first off,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=78.34) [run these commands.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=82.75) [So we're going to cd into the folder,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=84.74) [and then we're going to install all the dependencies](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=86.62) [of this particular web application.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=89.06) [So this will take just a moment to pull these dependencies down.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=91.94) [All right, we're ready to go, and then I'm going to get this running.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=97.64) [Now I do have Node.js running on this local machine of course,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=100.63) [that's how I'm running npm and these other commands,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=103.8) [but the goal is not to run node here, it's to run it in a Docker container.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=106.74) [But this will show us that the source code is running properly,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=111.57) [at least locally to start.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=114.35) [So, now that I'm in the ExpressSite I can just type npm start,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=116.44) [and this will fire off this little web server here,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=121.14) [and now we can come on in and there we go,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=124.44) [we now have a little Express site.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=127.93) [All right, so we're off and running.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=129.56) [Now that's nice and all, but that's actually just running](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=132.34) [Express directly from this particular folder.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=135.23) [So I'm just going to go ahead and kill that, we'll leave this open to start.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=138.55) [So the next thing I'm going to do is show you how we can work with volumes.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=142.01) [So we're going to come back to the Docker client, and if I run docker images,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=146.3) [I've already pulled the latest Node.js image that we're going to](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=152.84) [ultimately create into a container from Docker Hub,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=156.73) [and so normally to run this we would just say docker run,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=160.08) [we'd give it a port, we'd give it the external port,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=164.32) [I'm going to say 8080, and then you saw that the Express website](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=167.57) [that I got going is actually going to run on 3000.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=171.39) [And we would say node, but if we run this, we don't have any source code.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=174.74) [So, basically what will happen is the container will try to start,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=178.74) [it will see there's no command to run, and it'll just exit.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=181.46) [It'll just stop.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=185.12) [So we're not going to do that.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=186.84) [What I'm going to do first is create a volume.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=188.94) [Now, the first volume I'm going to show you is going to be this var/www,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=192.03) [or I like to call it dub dub dub to shorten it up, but](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=196.73) [this is going to create a volume,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=201.44) [but it doesn't actually point to our source code.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=202.67) [This is just an area that if we did have something running in the container,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=205.02) [and the path for the running app wanted to write to var/www or read from it,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=209.74) [then it would create a volume outside of the container in the host machine.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=215.24) [And so now I could say node here for the image and we'll go ahead and return,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=220.11) [and now it just started the container, but again there was nothing to run.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=224.77) [So if we do docker ps ‑a, you should see that it's exited.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=229.02) [So really, what happened is it tried to start it,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=235.24) [didn't see anything fancy, and then stopped it, but we](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=237.17) [should now have a volume under the covers.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=241.22) [Now you'll notice the container ID.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=244.44) [Now what we can do from here is we can say docker inspect,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=246.84) [and then give it the start of that container ID,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=251.23) [or we could do the drunk\_borg,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=253.86) [that's one of the more interesting ones I've seen as an alias,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=256.12) [but we'll go with the 03 here,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=259.15) [and this will spit out a whole bunch of information about that](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=261.44) [particular container, and I'm going to scroll back up and we're](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=265.95) [going to look for something called Mounts.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=269.5) [All right, there we go.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=272.64) [So there's our Mounts you can see right there.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=273.63) [Now you'll notice that we have a source on the host](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=277.14) [system that's a really long path, and it uses this name,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=280.16) [which is a unique identifier for the particular volume, and it](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=284.32) [kind of buries it in this folder structure that you'll see right](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=289.04) [here. Now on the container itself,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=291.89) [the alias for this path that's on the host is just var/www.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=295.78) [So again, if we read from var/www or we write to var/www,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=301.54) [what it's going to really do is be writing to this](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=307.74) [location or reading from this location.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=309.89) [Now that doesn't help us as much with source code because I'd](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=312.84) [have to get my source code into that folder, and that's not a](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=315.77) [path I really want to work with,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=319.59) [so what I'm going to do is come back down and we're going](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=321.59) [to go ahead and remove the container.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=326.67) [So again, if we do docker ps ‑a for all,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=328.17) [this will show us all the containers, even the exited ones,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=331.94) [and then I'm going to do the normal docker remove that we've learned up](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=335.58) [to this point, but I'm going to add one more thing.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=338.97) [I want to make sure that that volume that's on the host machine](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=342.04) [also gets removed when we removed this container.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=345.83) [So I can do the 03 for the container ID, but by adding ‑v](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=348.94) [that'll go ahead and clean up the volume.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=353.29) [Now normally when you remove a container,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=356.34) [it's not going to delete the volumes because there might be](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=360.54) [another container that's using that volume.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=362.86) [So if this is the last container that uses that volume,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=365.04) [you typically want to clean that up, and that's what I'm going to do here.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=368.09) [All right, so now if I do docker ps ‑a again,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=372.24) [you'll notice that we're all cleaned up and we're good to go here.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=376.42) [All right, now we have that ExpressSite folder that I created earlier though,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=380.44) [so what I want to do is let's cd into that,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=385.95) [alright,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=391.84) [and we can do an ls to basically list everything, kind of like a](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=392.02) [dir that you normally do on the Windows side,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=395.98) [and you'll notice that we have this app.js and some](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=398.84) [node\_modules and package.json,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=401.42) [and this is pretty standard folders for an Express site.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=403.48) [So what I want to do is link this folder into the](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=407.74) [container and then start up Node, very similar to what I just did earlier.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=412) [So what we can do is use the volume support that I talked](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=417.44) [about in a previous section in this module.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=420.02) [And so we could do something very similar,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=422.54) [we can say docker run, give it a port on the external 8080,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=424.4) [internal it's 3000,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=428.43) [but this time when I create the volume I'm going to say let's](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=430.44) [start from the current working directory, and this is the little](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=434.13) [shortcut I showed earlier you can do.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=438.49) [And this is going to be the directory that the volume in the](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=441.14) [container is actually going to point to.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=444.08) [Perfect, because that's what we want.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=446.44) [We want to point to our source code, which is in this Express site.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=448.08) [Now, the name again we're going to use is var/www.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=452.84) [Now I made that up, it could have been something else,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=456.61) [but I'm going to go with that.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=459.02) [And then normally we would say node,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=461.34) [and then if you want to run any commands in the container,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=464.44) [we could run that npm start command.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=467.18) [Now we're going to have a problem here.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=470.23) [It won't actually run npm start from this folder.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=472.34) [It'll run it from a different location.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=477.34) [So I'm going to show you a little trick you can do](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=478.99) [here called the working directory.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=480.8) [So we're going to say ‑w, and that stands for the working directory,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=484.02) [it's a shortcut of what is the startup directory,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=488.83) [what's the folder in the container where any command](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=492.71) [should actually be executed from.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=496.6) [So it kind of sets the context of where to run these commands.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=499.14) [And I'm just going to say /var/www here,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=502.54) [put the image,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=507.64) [and then after that we can put the command that we want](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=508.65) [to run, and I want to run npm start.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=512.04) [Alright so to review, we're going to say,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=516.34) [hey Docker, let's run on port 8080 on the external,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=518.47) [3000 is going to be internally what we're going to run and](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=522.96) [I picked that on purpose because that's what this Express](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=526.4) [site will use by default.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=529.05) [We could change it, but that's how it's set up currently.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=530.79) [We're going to set up a volume that points to our source](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=533.65) [code in the current working directory,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=536.88) [and then the volume, though, that's inside of the container that's going to](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=539.44) [point to this ExpressSite folder is going to be var/www,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=543.89) [then we're going to go ahead and use that volume as our working directory.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=547.91) [That way when I run npm start,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=553.64) [really what it's going to do is forward the call from var/www into this](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=555.98) [ExpressSite, which will call into an area over here.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=561.49) [Alright, so a lot going on, but let's go ahead and try it out,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=565.44) [and I'll just hit Return here.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=569.35) [All right, now you'll notice it started it up,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=572.24) [but this time it's not running on my local machine, it's](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=574.54) [actually running in the Docker Node container.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=577.55) [So this is very,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=581.04) [very cool because I've now linked my source code into this container,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=581.84) [and even if I didn't have Node installed,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=586.95) [if I just had the source code, but didn't have Node on my dev machine at all,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=590.26) [then we could still work with Node because obviously it](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=594.44) [would be loaded up in the container.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=597.01) [All right, so let's try this out.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=599.54) [Now, instead of going to localhost, I want to go to the IP address.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=600.96) [Now, this will be the Docker machine IP, so we're going to go to 192.168.99.100.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=604.17) [I'm not going to go to 3000 though.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=613.74) [Back here we said that, what we'd put,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=616.34) [we want to go from 8080 to 3000 internally in the container,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=619.74) [so I want to use 8080 right there.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=623.23) [We'll hit Enter, all right, and you'll notice we get the exact same Express site.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=627.14) [Now, just to kind of prove this, let me dive into the source code real quick,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=631.77) [and so I'm just going to run off to this folder in Users,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=637.57) [and where is Express, there it is, ExpressSite,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=642.94) [and let's just come in and I'm going to do a change to the view.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=645.83) [And right now it's loading the home page,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=649.29) [this is called index, I'm just going to open this up in VS Code editor.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=651.68) [We'll do a very simple edit.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=656.64) [So it says Welcome to title,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=658.12) [and say Welcome to title running within a Docker](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=659.53) [Container with a volume, no less, which is pretty cool.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=665.12) [Alright, we're going to go ahead and save that,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=670.24) [that should now be committed in the source code,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=671.96) [and you'll notice, look at that.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=675.44) [So now our source code is linked, and we just proved it, into the container,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=677.93) [so now I can do all my edits locally,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=683.24) [but I can actually run it in whatever container I want.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=686.21) [Now, in this particular demo I'm using Node.js, but this applies to PHP,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=689.15) [ASP.NET, Python, whatever it is you want to run.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=693.84) [So that's an example of the actual commands that we learned about going back to](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=698.44) [up here that would allow us to link our working directory,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=702.54) [the current folder that is on our local machine on](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=706.77) [a Mac or Windows or even Linux,](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=709.04) [and we can now link that into the volume that we](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=711.64) [defined this var/www up in the container. Pretty cool stuff.](https://app.pluralsight.com/course-player?clipId=6cbc0b90-d450-4165-9432-bceb7c325469&startTime=715.64)

### [Hooking a Volume to ASP.NET Source Code](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3)

[Now let's take a look at how we can work with](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=0.84) [volumes in an ASP.NET Core container.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=2.61) [So I've already created an MVC project using the dotnet new command.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=6.44) [And I'll show you that real quick in case you're new to it.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=10.86) [But this is just and out‑of‑the‑box project.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=13.2) [It's an MVC project,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=15.79) [and what we're going to do is get this running inside of a container.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=17.32) [So the first thing I'm going to do is run off to the command line.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=22.34) [So let's come on back to the command with Open in Terminal.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=25.89) [And then inside of here, what I'd like to do first off is get a container going.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=29.51) [Now before I show you that, if you're new to .NET Core at all,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=35.45) [you'd have to go to dot.net, and then you can download the SDK it's called,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=38.88) [and I have that installed on this machine.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=44.11) [And then I could do this, dotnet new, and then we can give it the project type.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=46.02) [I did MVC.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=50.09) [That actually generated the project that you see right here.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=51.34) [What we're going to do, though, is we're going to get this code running,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=55.34) [but not locally.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=58.15) [We're going to get it running in a container running on my machine.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=59.44) [And it's going to be a Linux container.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=62.9) [So to do that,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=65.24) [the first thing we need is the actual image that we want to work with.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=66.38) [And in this case,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=70.74) [Microsoft publishes an image that we can actually use](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=71.55) [to work with this type of thing.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=75.25) [So I'm going to go ahead and pull this image onto my machine.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=77.54) [I actually already have it, but I'll show you the command.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=80.06) [So we could say docker pull, and instead of going to Docker Hub,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=82.68) [we're going to go to the Microsoft Container Registry,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=86.4) [mcr.microsoft.com.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=89.13) [So that's the domain of the registry.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=90.49) [Now we're going to give it a path to what we want from an image standpoint,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=94.24) [and we want the dotnet/core/sdk image.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=97.83) [And if I hit Enter, this will now pull it down.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=102.24) [Now the first time it pulls, you'll get the different layers.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=105.14) [It will probably take you a minute or two to get](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=107.82) [those depending on your bandwidth.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=109.74) [And we've already seen how it pulls layers and kind of shows you that output.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=111.54) [So now that we have the image, the next thing I want to do is I want to run this,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=116.44) [but I want to link it through a volume back to this source code here.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=120.13) [So what we're going to do is kind of an interesting](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=124.24) [take on running the container,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=126.41) [link it back to this source code on the left here that's on my local machine.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=128.11) [But then I'm going to interact with the running container](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=132.94) [right through this command prompt here.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=135.57) [And the way we're going to do that is with a ‑it command.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=137.15) [This is an interactive, and it stands for TTY,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=141.14) [kind of an older term, but, in essence, it's going to allow my terminal window,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=144.21) [my terminal shell, to link into the container.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=148.81) [And I'll show you that in just a moment.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=152.64) [Now the next thing I'm going to do is we're going to say the volume](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=154.64) [that we want is to our current working directory,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=157.38) [print working directory (pwd).](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=159.98) [Now the next thing I'm going to do is put the name of the folder.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=162.64) [I'm going to call it /app.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=165.21) [But I could call this anything.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=166.56) [It could be foo, foe, fum, whatever your folder is.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=167.68) [But we'll just do app in this case.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=170.97) [And then I'm going to make that the working directory,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=172.6) [the startup directory, so that when the container starts up,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=174.84) [it jumps right to the app folder.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=177.89) [Then we're going to say the name of the image,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=180.34) [and we, again, do dotnet/core/sdk.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=183.84) [But then I'm going to say, Hey,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=186.5) [I'm going to shell into a bash shell in this container.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=187.87) [Now one thing I want to point out really quick here](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=193.04) [is what port should we run on?](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=195.57) [Okay, we haven't defined that yet.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=197.96) [And also that pwd syntax.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=200.04) [So let's briefly talk about that really quickly before we move on.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=202.13) [So I kind of purposely left out the port because we do need that.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=205.74) [We can put it anywhere in here.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=210.04) [I'll put it right after this, let's say.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=211.47) [And what do we want to run this on?](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=213.51) [Well, let's say externally that we're good with 8080,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=216.14) [but what's the internal port?](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=218.61) [Well, it depends on your project actually.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=220.94) [We have a launchSettings.json file that they included by default,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=223.55) [and this will become the two ports that we look for.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=228.24) [Now we're not going to have a Development certificate, though, available.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=231.63) [We could do that but not in this particular demo.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=235.63) [So I'm going to take out the HTTPS one,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=238.84) [and then I don't necessarily just want localhost to work.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=242.14) [I want any IP address, so we're going to put a + right there.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=245.09) [Now there are many ways you can override the default port where your code](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=248.54) [runs in the container or even on your local machine.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=252.12) [You could update this launchSettings, you could set environment variables,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=255.3) [or you could even go to the Program.cs,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=259.36) [and there's some syntax you could use there.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=260.88) [But this is kind of the easier way based on what they give us.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=263.34) [Okay, so now that we know that, we can do 5000 right there.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=266.54) [Okay, so that looks good.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=271.15) [Now what about this syntax right here though?](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=273.04) [Well, this is only going to work on Mac or Linux.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=275.27) [Okay, so let me show you just real quick.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=279.15) [If you had PowerShell, then it would look like this.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=281.84) [And that'd be kind of PowerShell.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=286.44) [If you are on, let's say, just regular DOS, then you could do this, %cd.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=287.69) [So the syntax that you put right here really depends on what](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=294.36) [command shell or command window you're using.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=299.48) [Because I'm on Mac in this demo, I'm going to put the Mac or Linux‑type syntax.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=302.74) [They're both the same in this case.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=307.7) [But be aware that you need to kind of look into that,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=309.44) [and you can see from the link down below here,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=312.85) [there's a blog post you can go to to learn more about that different syntax](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=315.5) [across the different operating system command line prompts.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=319.57) [Okay, so now we've done that, we have docker run in interactive mode.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=323.14) [We know the external and internal ports.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=327.25) [We're going to have the volume link from a folder in the container called](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=329.74) [app back to the code that is in our working directory.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=333.42) [That's our DEMOS.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=337.33) [You'll see right up top here.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=338.28) [The startup directory's app, that's our working directory.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=340.44) [We have our image,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=343.54) [and then we're going to fire up an interactive, kind of bash terminal modes.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=344.76) [So let's hit Enter. And there we go.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=348.31) [So now we are in the container actually,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=350.8) [and I can actually do things like ls, and you see how it](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=353.74) [linked back to my local source code.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=356.81) [This code was never in Microsoft's image.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=359.84) [How would they know to obviously put this code? They wouldn't.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=362.26) [So, instead, that volume linked the app folder,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=365.34) [which is our working directory, back to this local source code.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=368.63) [So just think of it as you have a container kind of like in a bubble.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=371.8) [Somebody poked a hole in the bubble and put a hose in there,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=375.64) [and that hose kind of flows back to the directory on your machine.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=378.04) [Now we can kind of talk between the two.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=381.34) [So now I can do dotnet run, dotnet build. In fact, let's just do a build](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=383.74) [real quick. Dotnet restore, all those type of commands.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=388.55) [There we do.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=392.54) [I could do dotnet run, or I can even do dotnet watch run.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=393.84) [Let's do a watch run if you're not familiar with that. That](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=397.4) [will make it so if any files change over here,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=400.26) [it will automatically restart the server that's running in the container.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=402.87) [Super cool! So let's hit Enter.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=407.14) [All right, we'll let this fire up, and then we'll run off to the browser.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=410.04) [So notice it's listening on any IP 5000.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=412.84) [Okay, and then we just saw we did 8080 to 5000, so we're good there.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=417.24) [So let's go ahead and go to the browser.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=421.94) [Okay, so let me go from localhost to localhost 8080, and notice it works.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=424.64) [This is now running the server,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=430.74) [though, in the container even though our source code is local. Now here's](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=432.65) [what's kind of cool about that. Let me go back to VS Code.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=437.95) [Let's go to our index, our home. Instead of just Welcome, let's say](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=442.74) [Welcome to Docker Volumes or something like that. And let's save. Now](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=447.85) [watch down below. See how File changed, Index.cshtml.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=452.75) [Now it's doing the rebuild, and it restarted the](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=456.36) [Kestrel server in the container.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=458.42) [Pretty cool.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=460.74) [So let's go back to the browser. And there we go, Welcome to Docker Volumes.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=461.78) [Now, are you going to develop this way?](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=466.74) [Probably not because, normally, if you already have the .NET tools local,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=468.77) [you'll just run dotnet run local.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=473.25) [But what this shows is how you literally could link this](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=475.64) [container or any container to local code.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=479.8) [And if you didn't want to install something for whatever reason,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=484.04) [you literally wouldn't have to.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=487.84) [You could run the container that has your framework,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=489.64) [your server, whatever it is, and just have it link back just like we did here.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=492.09) [Now coming on back, let's clear.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=497.94) [We'll exit. Let's do docker ps ‑a, and there we go.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=499.9) [We have an exited container, you'll notice, f5b, so let's do docker](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=504.04) [rm f5b. Now I could do this to remove volumes,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=508.43) [but because we created the volume, it wasn't a Docker kind of allocated volume.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=513.29) [We did it.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=518.4) [We said pwd, for example.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=519.1) [Then this ‑v won't have any effect because we created the volume, not Docker.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=521.6) [I'll talk about this a little bit later as well. But in this case,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=525.84) [I'll just do f5b.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=528.81) [There we go.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=530.84) [Let's run docker ps ‑a again, and it's gone.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=531.74) [And so imagine that I didn't actually create this code.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=535.54) [I checked it out from somewhere,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=538.59) [but I don't have the SDK installed on my machine.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=540.43) [I could just get this image going and literally do live](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=543.54) [development against it without ever installing it.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=546.63) [Now, again,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=549.02) [that's not what I'd do in the real world because I already have](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=549.52) [.NET and the tools installed on my machine.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=552.88) [But there are a lot of powerful techniques here that](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=555.64) [you can use in various scenarios.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=557.97) [Keep in mind,](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=560.24) [volumes could also be just to store log files the server writes out. There are all kinds of reasons you might use volumes.](https://app.pluralsight.com/course-player?clipId=c6b4f8d7-bbe4-47a4-a800-f33ebe6512e3&startTime=560.85)

### [Removing Containers and Volumes](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5)

[In some of the earlier demos,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=1.94) [I showed how you can clean up volumes as you delete your containers.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=3.31) [So I want to reiterate and go through some examples of when you need to](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=7.2) [do that and when you really don't need to do that.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=10.9) [So if you run a container,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=14.84) [and as you do that you actually add a volume to that container,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=16.92) [like we saw earlier, and you only specify one part to the volume,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=20.26) [as you see here, I just have /var/www, then in this case,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=24.36) [Docker is actually going to manage the volume](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=29.57) [location where it reads and writes.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=31.93) [And so we're not specifying where our source code is or where to](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=34.19) [write. We're going to let Docker figure that out.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=37.87) [All we're doing is saying that the container has a volume of var/www,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=40.02) [and then Docker is going to do the magic that actually creates](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=45.23) [that folder and mounts it on the host machine.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=49.09) [Now, in those cases,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=52.64) [which definitely will be reality in some production or staging scenarios](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=54.32) [where maybe you write log files or things like that,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=58.8) [then when that container goes away, if this Node container,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=61.95) [for instance, needs to stop and then be deleted,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=65.97) [we'll probably want to clean up that volume,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=68.17) [because otherwise, you kind of have some dangling files,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=70.74) [and it eats up some hard drive space.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=73.29) [And I mentioned this in some of the earlier demos, but just want to reiterate.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=74.91) [So, if you run docker inspect on your container,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=79.54) [I showed earlier that you can actually see the mounting location, and](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=82.57) [you'll see the Source property in the Mounts property.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=86.98) [So you'll notice a nested object with Source and Destination.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=90.03) [Now, if you see that it's mounting it and that Docker is taking care of it,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=94.44) [and that means again you did ‑v with just one piece,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=98.62) [not two pieces, as you define the volume,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=102.17) [then when you're down to your last container,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=105.06) [you're going to want to remove this so you don't waste any hard drive space.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=107.71) [So, as I showed earlier in some of the demonstrations,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=112.14) [you can just simply say docker rm ‑v, and that will say,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=114.77) [in addition to removing the container using the volume,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=119.52) [let's also remove the Docker managed volume.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=123.54) [Now, as I showed in one of the demos,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=127.54) [if you do this and your volume has two parts,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=130.04) [you have the container volume name,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=132.51) [but it actually points to a folder you specify,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=134.38) [like your source code,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=137.17) [doing ‑ v is not going to delete like your source code.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=139.04) [It's going to leave it all there.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=141.93) [So this is really only needed when you specify a volume](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=144.04) [and you let Docker manage the location on the host machine](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=147.75) [of where that volume lives.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=151.1) [Now, if any other containers are using the volume,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=153.44) [you'd only want to run this when you're down to your last container using it.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=155.93) [And then it would go ahead and clean that up because](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=160.24) [obviously some other containers, if they need it,](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=162.48) [you don't want to get rid of it.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=164.56) [So that's a quick review on volumes and the need to clean those up in](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=166.94) [cases where you delete a container and where you defined a volume that Docker actually manages on the host machine.](https://app.pluralsight.com/course-player?clipId=2609766b-4461-4943-934e-013ba1abfeb5&startTime=170.9)

### [Summary](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea)

[In this module, you've taken a look at the layered file system,](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=2.44) [and you've seen how images are composed of layers and how containers are](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=6.44) [really the same thing, but they have a thin read/write layer that sits on](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=11.25) [top of all the other layers provided by the image.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=14.86) [Now we talked about that because there may be times when you](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=18.14) [want to read or write specifically to store some information,](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=21.32) [but you want it to stay around.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=25.29) [And so we learned about how we can hook source code and how we](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=27.64) [can even write if we wanted to do like log files or database](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=31.56) [files into things called volumes.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=34.47) [And we learned that volumes are persisted even if a container is deleted.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=36.87) [So to do that,](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=42.64) [we can use the docker run command and specify ‑v, and then we can](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=43.59) [either do a Docker managed volume, or we can specify a folder](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=47.85) [where the volume and the container points to that might have](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=51.74) [things like our source code.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=54.52) [Now, as mentioned, volumes are persisted on the Docker host,](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=56.54) [and that's a good thing because we might have some log files that a](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=60.04) [container writes out, and even if the container goes away, we don't](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=63.49) [want those deleted. Or we might have maybe database files or](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=66.65) [something along those lines.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=69.86) [But if you do get down to the last container and you](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=71.18) [don't need the volume anymore,](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=74.52) [then we can remove that using the docker remove command, and we can simply](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=76.23) [say ‑v and then the container ID or the container alias.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=80.15) [So that's an example of how we can actually get our](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=85.64) [source code linked into a container.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=88.68) [And that's a really,](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=90.98) [really useful feature to know about because now I can get Node or PHP or](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=91.92) [ASP.NET or whatever it may be up and running as a container. Don't even](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=97.94) [have to install anything on my machine.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=103.62) [I just have to get that image in that container running,](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=105.43) [and then I can simply create a volume that links into my source code,](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=107.96) [and I'm off and running. When I'm done, I could just delete that container,](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=111.06) [and there's really no trace of it, especially after I get rid of maybe the image.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=115.29) [So I hope that clarifies what the layered file system is and how we can use Docker volumes.](https://app.pluralsight.com/course-player?clipId=269e83c1-96c8-44ad-94ae-980eab6e9cea&startTime=119.94)

## [Building Custom Images with Dockerfile](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b)

### [Introduction](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b)

[Up to this point in the course, you've worked a lot with images and containers,](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=1.94) [but they've been images that were hosted up on Docker Hub,](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=5.75) [and we've pulled those down.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=9.07) [In this module,](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=10.11) [we're going to focus on building custom images, and you're going](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=11.44) [to learn about a special text file called a Dockerfile and learn](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=14.15) [about some of the instructions that you can put in that. Let's](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=17.62) [jump into the full agenda.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=20.6) [So we're going to start off by talking about what a Dockerfile is,](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=23.34) [and I'll introduce some of the key instructions you're going to](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=26.63) [need to know about and explain the general process of how it](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=28.9) [works for building custom images.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=31.99) [From there, we're actually going to create several types of custom Dockerfiles.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=34.51) [We'll see the different instructions, and we'll do that on Windows and on Mac.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=38.22) [Then we're going to learn some Docker client commands we can](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=43.44) [run to build a custom image and tag it.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=46.06) [And then finally, once we're all done with multiple images,](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=49.34) [we'll talk about how we can publish an image up to Docker Hub to make](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=52.31) [it available for us on any other machine, for other team members, or](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=56.23) [even for the general public if you want.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=60.16) [Now the main question that we're trying to address in this module and some](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=63.14) [others is how do you get source code into a container? And one way we've](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=66.44) [already learned about. You can create a volume,](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=71.7) [and you can have a volume that points to your source](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=73.91) [code on your local development machine.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=76.99) [And that's great when you're working in development mode.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=79.04) [But in this module,](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=81.94) [we're going to see how we can actually get our source code into a custom image.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=82.98) [That way,](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=87.34) [that image could be used by other team members or anyone out there](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=87.73) [in the public if we wanted to set it up that way.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=90.94) [So let's go ahead and get started by talking about what is a](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=93.94) [Dockerfile and what are some of the instructions you need to know to create a custom Dockerfile.](https://app.pluralsight.com/course-player?clipId=30598e44-6d57-460d-a3a5-253993937f1b&startTime=97.77)

### [Getting Started with Dockerfile](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae)

[Developers are quite used to writing instructions in a code file,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=1.04) [running those through a compiler,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=4.34) [and then outputting some type of binary or other file.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=6.01) [Well in the Docker world,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=10.04) [we have a very similar type of process that we can follow to](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=11.22) [create an image and then a running container,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=14.72) [and that's to create something called a Dockerfile.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=17) [Now, a Dockerfile is nothing more than a text file that has instructions in it.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=20.94) [Now these instructions, of course, are unique to Docker,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=26.19) [and they're defined up in the Docker documentation,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=28.7) [but it's a very,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=31.08) [very similar process to, if you're writing Java or](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=32.73) [C# or another compiled language, you'll write some instructions in a file,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=35.41) [and then in the developer world we'd run those through a compiler.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=40.1) [Well in the Docker world, we'll run them through the Docker client](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=43.74) [and it has a build command we can run,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=47.34) [and then that build command can read through those instructions,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=49.53) [generate a layered file system, as we've talked about earlier in the course,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=52.5) [and then we have a Docker image that comes out of this that we can then use,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=56.42) [and we can make a container from that.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=60.79) [Dockerfile itself, as mentioned, is really just a text file.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=64.24) [There's really nothing fancy about it, in fact,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=67.49) [it's normally called Dockerfile and oftentimes doesn't even have an extension,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=69.81) [but you can name it whatever you want.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=74.03) [It's just a text file that we want to feed into the Docker build process.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=75.98) [And so it contains some build instructions,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=81.34) [which we're going to be looking at,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=83.24) [and these build instructions will do things like work with](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=84.84) [environment variables or copy source code into the image,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=87.43) [and more.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=91.25) [Now,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=93.64) [the instructions that we're going to be doing oftentimes](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=93.84) [create intermediate images, and these images are kind of](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=96.21) [behind the scenes images that are cached,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=99.73) [and that way if you maybe change an instruction,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=102.84) [need to rebuild the image, it won't have to do everything from scratch.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=106.04) [Now, there are ways you can override that and not cache anything,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=110.41) [but then it'll make your build process take a little bit longer.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=113.8) [And, as mentioned,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=117.24) [we're going to be using a docker build command to actually](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=118.17) [convert the text file into an image.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=120.97) [Now here's some of the key Dockerfile instructions,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=125.84) [and this certainly is not all of them, it's just a few,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=128.21) [and I'm going to talk through the high‑level look at what do these do.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=131.32) [So normally what you'll do is you'll start off by saying I would](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=135.87) [like to create an image from another image.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=139.28) [Now you can create it from scratch, from kind of nothing,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=142.03) [but normally you'll create one based on,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=145.94) [for instance, a Node.js image or a MongoDB image or PostgreSQL,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=148.15) [or something like that.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=152.51) [You'll use that as your baseline,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=153.79) [and then you'll build on top of that using this layered file system.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=155.91) [There's also a way you can define who maintains it,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=160.84) [that's a very simple instruction, but you could say your name,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=163.2) [and then there's a run command.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=166.94) [Now the run command's really important because you can actually have different](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=168.85) [things defined that are going to be run, and these would be,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=172.43) [I want to go out to the internet and grab something,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=176.64) [I want to run npm install, dnu restore,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=179.29) [those types of things could be actually run using this run instruction.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=182.64) [Another really important one is copy.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=188.54) [When you're ready to go to production,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=191.14) [we learned about earlier in the course you can use volumes for source code,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=192.82) [but when you go to production we want to copy that source](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=196.31) [code into the container oftentimes.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=198.75) [There's multiple ways to do it, but that's pretty common,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=201.45) [and so we can use the copy instruction to do that.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=204.16) [You can also set what is the main entry point for this container.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=207.03) [In other words, when you have an exe, or something like that on a system,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=211.26) [you can normally double‑click it and it has a main](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=215.73) [entry point that kicks everything off.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=218.23) [Very similar here, what is the initial entry point that kicks off the container,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=220.74) [for instance?](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=226.31) [You can also define what the working directory is.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=227.44) [This sets the context for where that container is going to run as,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=229.64) [for instance, the entry point is run.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=234.31) [So I could say what folder has my package.json, and I can do an npm run.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=236.24) [You can also expose a port,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=242.24) [and this will be the default port that the container](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=243.85) [would then run internally with, define environment variables,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=245.9) [these environment variables can be used then in that container,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=249.76) [and then we can even define volumes.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=254.14) [And we've already looked at volumes in the course,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=256.74) [but you can now define the actual volume and control how it](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=258.53) [stores that on the host system for that container,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=262.23) [as we've already talked about with volumes.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=266.06) [Now let's take a look at what a Dockerfile actually looks like then.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=269.84) [That's a few of the commands, but it kind of helps to see them in action.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=272.64) [So, first off you could say from,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=277.34) [and this will always be the very first instruction that](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=279.16) [you're going to put at the top of your Dockerfile, and I'm](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=281.32) [going to say FROM node build an image.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=283.23) [And this will grab Node as the base file system and then](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=286.59) [add additional layers on top of that.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=290.28) [Now I could say the maintainer, in this case I obviously put me,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=293.15) [but this is where you could put yourself,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=296.41) [you could put your email, things like that.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=297.73) [Then we can say I'd like to copy my source code from my](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=301.04) [current folder I'm building from, in this case dot,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=304.75) [and I'm telling Docker in this case that when you build the image,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=308) [copy that source code into the var/www folder,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=313.54) [which is just one I of course made up.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=317.45) [What that will do now is this layered file system will have a layer](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=320.24) [in it that's going to be just for our source code,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=325.11) [and that will be the copy command or instruction.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=327.52) [We can then set the var/www as our work directory because we might want to run](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=331.04) [some different commands like npm install if it was Node,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=337.81) [we can define the port we'd like to expose that the](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=341.74) [container actually runs with, and we can also define an entry point.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=344.12) [In this case I'm saying that the node command and](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=348.47) [server.js is my initial entry point into this,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=351.37) [but of course that could be whatever you want for your chosen technology.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=354.16) [So that's a quick look at some of the different instructions,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=359.04) [and as mentioned,](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=361.85) [there are more, but we're focusing on the ones that you really need](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=362.58) [to know to get started with as a developer. But what we're going to](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=365.4) [do now is take a look at building custom Dockerfiles from scratch with some different technologies.](https://app.pluralsight.com/course-player?clipId=0093c4ca-be92-4c57-a182-49964c0f3bae&startTime=369.52)

### [Creating a Custom Node.js Dockerfile](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48)

[Let's assume that you just got back from a team meeting,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=0.74) [and you've now been tasked with making a custom](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=3.62) [Docker image that the team could use, and specifically,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=6.99) [you need to build a Node.js image.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=10.26) [Now to do that,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=13.54) [we're going to need to build a custom Dockerfile, and we're](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=14.42) [going to need to add instructions into it.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=16.94) [Now, once we're done with that, I'll show you a little bit later,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=19.04) [we can then use Docker client to actually build that into an image.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=21.41) [And then, of course, we can convert the image into a running container.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=25.87) [So let's take a look at how we can do this.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=29.44) [So I have some code here for a Node.js Express site,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=33.14) [and this is the same one generated from Express generator,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=36.29) [and I want to call out one thing in the package.json file.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=39.41) [You'll notice that we have an npm start command that can be run,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=42.97) [and when that runs,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=46.32) [it actually runs the node command and then points to a file called www here.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=47.35) [Alright,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=52.44) [that's going to come into play in just a moment as we make this Dockerfile.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=52.72) [Now,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=57.34) [the next thing I have in here is I've already added](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=57.43) [an empty file called Dockerfile.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=59.37) [Now it turns out you can actually name it whatever you want.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=62.44) [This is the standard format,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=65.65) [but if I wanted to rename it to something like](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=67.3) [node.dockerfile just to give it an extension,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=70.03) [I could definitely do that.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=74.34) [And when I have just one Dockerfile in a project,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=75.56) [then I'll usually just go with the de facto standard,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=79.34) [which is this Dockerfile, this one here.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=81.43) [But if you have multiple or you just want to give it a more explicit name,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=85.34) [then you certainly can rename it.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=88.94) [It's just a text file.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=90.21) [Now, the first thing we're going to do is use the from instruction.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=92.44) [Now the from instruction instructs Docker,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=96.84) [I want to build this particular image that we're going](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=100.2) [to make from another base image,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=102.35) [and because we're going to be doing Node.js in this example,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=105.86) [I'm going to base it on the official node repository](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=108.8) [image that's up on hub.docker.com.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=110.95) [Now this particular image has a lot of different versions.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=115.04) [So you could do this alone, and that would be like doing this,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=117.65) [latest,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=121.99) [and that will always grab the latest version of Node](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=123.44) [every time you rebuild the image.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=125.96) [Now that could be good, that could be bad because,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=128.04) [you know, it could be you don't want to move forward with the latest version,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=130.85) [but you could also come in and we could specify a different version,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=133.94) [for instance, if we wanted as well.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=137.27) [Now I'm going to go ahead and go with the latest one here,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=139.84) [and I do like to put latest in cases where I want to grab the latest,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=142.31) [because it makes it really obvious, even though,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=145.89) [as I mentioned, this is the default that will grab the latest,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=148.84) [but I like to be explicit.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=151.41) [So we're going to go ahead and do that.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=153.98) [Now,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=156.04) [the next thing I'm going to do is I'm going to say that I'm the](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=156.16) [maintainer of this particular Dockerfile,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=158.44) [and then you can give your name, you could put your email address,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=161.42) [whatever you want on this line.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=164.09) [So this is a little bit more of just metadata,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=165.54) [but it's good to have as other people look at your Dockerfile,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=167.93) [maybe they want to get in touch with you for whatever reason.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=171.14) [Now the next instruction I'm going to put is called expose.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=175.44) [I'm going to say that we would like this particular image and the](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=178.29) [container that comes out of this to actually run on 3000,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=182.04) [and that's because that's what the Express side by default will run on.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=185.47) [Now, when we do Docker run, as you've seen,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=189.44) [we can actually map different ports if we want,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=191.65) [but this will give the default.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=193.64) [And then finally, I'm going to put something called ENTRYPOINT,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=196.14) [and the ENTRYPOINT command is when the container actually gets started up,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=199.82) [what is the entry point to fire up that container,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=205.72) [and for us, it's going to be the npm start command.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=209.17) [So I'm going to put npm start.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=212.35) [Now something interesting about this,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=214.96) [you'll notice I'm putting it in a JSON array.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=216.82) [In fact, I have to put the double quotes in this case,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=219.84) [because it is a JSON array; it's treating it that way under the covers.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=222.09) [Now, I could do this as well,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=226.24) [but the normal recommended way that most people will tell you anyway,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=228.48) [is to go with something like this.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=233.04) [Alright, so there we have it.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=235.94) [We now have our very first node image.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=237.47) [Now, it hasn't really done a whole lot,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=241.04) [because I could have just done a Docker run on the](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=243.91) [node image up in Docker hub itself.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=247.31) [And the only thing I've gained here is I put who the maintainer was,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=249.84) [really, not a whole lot.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=253.74) [You know, I did put the default entry point.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=255.49) [Okay, that could be useful,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=257.99) [but there's no source code that's going to be built in this image,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=259.64) [so we'd have to use volume support to make that happen.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=262.82) [So let's take this up just a notch and see what we can do here with it.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=265.94) [So let's say that part of the requirements for making this image was](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=270.94) [that we needed to copy some source code into it so that when other](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=274.69) [people on the team run the container, they don't really have to do anything.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=278.96) [Maybe it's going to be a Node.js RESTful API,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=283.06) [maybe it's just a web app that's just going to be running that will](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=285.49) [be hit from some other container potentially.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=288.4) [So what I'd like to do first is come on in and use another](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=291.44) [instruction for Dockerfile called COPY, and COPY does kind of what it says.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=295.1) [It allows you to copy in whatever you want.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=300.38) [It could be an individual file.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=302.91) [It could be an entire folder structure, but we're going to copy the](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=304.24) [entire project that you see over here on the left.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=306.7) [That's everything in here.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=309.15) [And I'd like to copy that into the var/www,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=311.34) [and that's just a folder structure I'm going to go with to](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=314.12) [say that's what we want our code to run.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=317.71) [And what that will do is now bake the source code as a file layer into that](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=319.97) [layered file system that Docker builds up for images.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=324.79) [And so now our code is going to be in there,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=328.24) [it's baked in, it's going to be ready to go.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=329.86) [We could also then come in and set the work directory.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=332.84) [What the work directory allows us to do is set the context for](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=337.14) [different commands we might want to run.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=340.71) [Where does it run them from?](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=342.39) [Does it run them from the root?](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=343.75) [Does it run them in this folder called var/www?](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=345.29) [It's kind of up to you.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=348.49) [So I'm going to say, yes, we want to run it from this var/www.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=349.65) [Now, the reason that's important is when I use instructions like run,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=353.88) [which is another one that's built into Docker and the Dockerfile,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=358.32) [then it needs to know, in some cases,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=362.08) [the folder where the context is where that should be run.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=365.84) [So, for instance, if I run something like npm install,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=369.19) [then we probably are going to want to run that](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=372.94) [where the package.json is located.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=375.21) [Had I not put the work directory,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=377.84) [then we would have to actually tell it the context of where to run](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=379.76) [this command so it can find that package.json,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=383.15) [and find all these dependencies that it might want to add to get those going.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=386.24) [Alright,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=391.14) [so the work directory you'll find is actually pretty common and very useful,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=391.48) [especially for us as developers,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=395.46) [because our images might need to run some specific](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=396.89) [commands in that folder or that location.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=400.3) [Now,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=404.04) [the other thing we can do that's related to this work directory is we](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=404.29) [could say that maybe we want it for whatever reason on the host system](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=408.21) [where the container is ultimately going to run,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=413.28) [and we know how to do that, and that's to use volumes.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=415.84) [So I could actually come in and say volume, and then I could give it var/www.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=418.6) [Now that alone is going to cause Docker,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=425.67) [once the container runs, to mount this particular volume that's in the container,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=428.25) [onto a folder or into a folder on the host file system.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=434.94) [And we talked about this in a previous module in pretty good depth,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=438.96) [but this would set that scenario up, and it's really useful.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=443.14) [We might even have multiple volumes.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=447.71) [Maybe this app needs to write to, we'll just pretend there's a logs area.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=449.61) [Well, we could set up a volume so that the logs actually stick around,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=454.94) [even if the container is deleted, and then maybe brought back up at a later time.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=459.24) [So that's what the volume command can do.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=465.04) [Now, I'm just going to leave this in here just to show it.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=466.63) [Keep in mind that with the Docker run command that we](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=469.88) [looked at in previous modules in the course,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=472.67) [I showed you how we can actually set up a volume; it was the ‑v switch,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=475.04) [and we can point that, for instance, to the source code on our developer machine.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=481.24) [But in this case,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=485.74) [we're going to go ahead and use the volume just so we can kind of see it here.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=486.27) [Alright, now,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=489.64) [the last thing we're going to do is let's assume that also that this](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=490.21) [needs to run with certain environment variables,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=493.39) [maybe, for instance, our code.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=496.03) [We're going to expose it here,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=499.03) [but maybe instead of using this when they run the container,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=500.6) [they might specify a different port.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=504.65) [Maybe in production, it's port 8080 or something like that.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=506.53) [Well, we can use environment variables as well.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=509.96) [Now, I normally like to put these up at the top,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=512.34) [although they can go in different places.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=515.11) [It depends on if you're going to use them in the Dockerfile or not,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=516.93) [but in this case, we're just going to make an environment variable,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=519.38) [and I'm going to make two of them.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=522.64) [We're going to do the node environment,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=524.44) [and let's just assume we want production for this particular container,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=525.81) [instead of the default, which would be development.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=530.64) [Let's go back to production,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=534.04) [and then I could right here do another named value pair,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=535.97) [as you'll see these environment variables are just the](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=539.65) [name of the environment variable, and then the value.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=541.77) [And I could just do another one,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=544.74) [but I'm going to break it into two steps so you can](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=545.82) [see the separate instructions.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=547.8) [Let's say we also want to put a default port,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=550.34) [and I'm going to go ahead and leave 3000,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=552.91) [that is what Express runs,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=554.52) [but this would be an environment variable that your](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=556.84) [Node.js code can now read from.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=559.14) [So now when that container gets fired up,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=561.84) [and if this is for production, you could potentially say a different port,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=563.77) [maybe for production containers or something like that.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=567.97) [Now I'm going to go ahead and match it with the EXPOSE that we have here,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=571.14) [but the goal again is just to show you that,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=574.03) [yeah, we can do environment variables.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=576.23) [So that's an example of a custom Dockerfile that does a few things.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=579.44) [Number one, as a review, it pulls in the latest Node.js image.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=583.84) [We say who the maintainer is.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=588.94) [We define two environment variables that will be in](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=591.04) [and available to that container.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=593.59) [We copy our local source code from here into the](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=596.04) [image into a folder called var/www, which is also our working directory,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=599.2) [and it's going to be set up as a volume,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=604.06) [which in this case means the Docker host would actually be](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=606.32) [where that source code is going to live.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=609.96) [But we can override that again with Docker run.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=612.24) [We're going to run the npm install command,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=614.94) [because we need to get our dependencies installed once that container is](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=616.42) [going, EXPOSE port 3000 for the internal port for our container, and then](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=619.74) [we're going to have our entry point as npm start,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=626.38) [and that would be an example of a Dockerfile.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=628.96) [Now, before we wrap this up, I'm going to clean it up just a little bit,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=632.54) [because I don't want to actually put this here and here for the port,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=635.6) [because if we are going to be running dynamically](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=640.05) [based on a port that code loads,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=642.69) [and I probably want to expose that same type of thing. So we](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=644.68) [can actually use environment variables, and I can do something like this.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=647.55) [And what the image will do is once this is defined,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=652.19) [it will then go and apply that exact value,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=655.54) [which in this case will be 3000 right there.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=658.21) [And there's a few other spots we could potentially even do that,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=660.47) [maybe even for in these areas.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=663.41) [But we'll go ahead and leave it right now,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=665.24) [because I don't need to set that as an environment variable,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=667.51) [but the port might be something.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=670.05) [So now the EXPOSE will actually read it from the environment variable value.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=672.64) [So that's an example of some of the key Dockerfile instructions you can use.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=677.54) [There are certainly many, many others out there,](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=682.23) [but these are the key ones that you need to get started with.](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=684.68) [So now what we're going to learn about is how do we take this and actually convert it and build it into an image?](https://app.pluralsight.com/course-player?clipId=50c1ed92-60f9-4078-9f49-277658b6ce48&startTime=687.93)

### [Building a Node.js Image](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c)

[Once you have your Dockerfile completed and all the instructions are in place,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=2.44) [you're going to need to run that through the build process using Docker client,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=7.14) [and that's what we're going to look at here.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=11.1) [So how do we take that Dockerfile for Node.js and](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=12.81) [actually make it into an image?](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=15.96) [Well, it's actually a very simple process.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=18.5) [Docker, the client, has a build command you can run,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=20.36) [and then what you can do is tag that build,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=24.54) [and you'll want to tag each build.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=27.31) [Now you can do ‑‑tag, or the shortcut that you see here, which is just tag.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=29.02) [I prefer the ‑t, it saves you a couple keystrokes.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=35.64) [Now from there,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=38.84) [you're going to go in and give your image that you're going to make a tag name.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=39.47) [Now, if you go up online and look at all the node images,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=43.21) [there's a whole bunch out there,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=47.21) [lots of different versions because they're all tagged with the version.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=48.77) [Now in this case, I'm just going to say whatever my username is /node,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=52.94) [we're just going to say it's good enough for our team,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=57.31) [but we could put more details there with version info if we wanted.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=59.47) [And then finally, I'm going to give it to build context,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=64.14) [which is going to be the folder where it's actually going to](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=66.64) [run this from that will help find the Dockerfile and do some](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=68.67) [other things along the way.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=72.61) [So let's go ahead and do this with the image that we have.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=76.14) [Now,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=78.81) [the first thing I'm going to do is I want to get rid of my node\_modules here.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=79.31) [So I'm going to come in and use a little npm tool I use a lot called rimraf.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=83.34) [So the first thing, I'm just going to right‑click and open in Terminal,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=88.14) [and I'm going to use this rimraf, which is a delete module.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=91.24) [And I want to show you that if I get rid of the modules here,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=95.64) [that as we build the image, that it will take care of that for us.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=100.02) [From here,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=104.08) [we can go ahead and build our Dockerfile into an](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=105.43) [image using the docker build command.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=108.1) [Now, I mentioned that you can do ‑t for the tag,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=111.64) [but before we do that, notice that our name,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=114.94) [again, is Dockerfile.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=118.02) [And that's the default name that the docker build process looks for.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=119.13) [But if you do have a different name for the file,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=122.84) [it could be dockerfile.dev or node.dockerfile or something like that,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=125.14) [then ‑f will be for the file name, and then I can put the name.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=129.93) [Now in this case it's redundant because that's what it looks for anyway,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=134.27) [but that's a nice one to know as you might have](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=137.55) [different file names for your Dockerfiles.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=140.42) [Now I can do my tag, we'll give my Docker Hub ID,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=143.44) [and we'll give it the name and then the context,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=146.51) [the folder in which we're going to run this is dot.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=149.04) [So let's go ahead and run it.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=152.34) [Now I already have the node image, just as a heads up,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=153.35) [already installed locally as a Docker image,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=156.3) [so I did that on purpose to speed this process up.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=158.66) [So aside from the npm install, which it's doing right now,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=161.94) [this should go really, really fast.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=164.92) [But once this is done,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=167.84) [I'm going to show a couple things here that relate to](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=168.91) [something called intermediate containers.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=171.92) [All right, so we're all done.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=174.64) [And if we do docker images, you'll see my danwahlin node,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=176.06) [and then there's my node base image that it's based upon.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=181.65) [But notice that every single instruction generated](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=184.57) [what's called an intermediate container.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=188.65) [And if I go way up to the top, and let me just slide quickly back up,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=191.84) [even the environment instructions each generated their](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=197.44) [own separate intermediate container.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=201.05) [Now, what happens is these containers,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=203.16) [they won't show up in your Docker images when you run that,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=205.02) [but they will be cached behind the scenes so that the next time I do a build,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=208.44) [if this instruction, such as the environment one,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=213.84) [doesn't change, then the build process can just say,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=216.3) [hey, I've already seen that before.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=219.6) [Let me just go load the layered file system layer and](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=221.69) [just include that in the build.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=225.03) [So it's very much like source control.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=226.67) [Every time you check in a small little thing in source control,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=228.69) [it tracks it incrementally.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=231.51) [That's exactly what happens with Docker instructions.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=233.47) [Now in the case of our environments, I could have put,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=236.94) [because I used the equals, if we go back to here,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=239.59) [I could have put the port equals 3000 right next to this one up on top,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=243.71) [and I mentioned that earlier,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=247.31) [and that would have just done one intermediate container,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=249.14) [but because I ran them as a separate instruction,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=252.54) [it has to do two lookups, and so those are very quick lookups,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=254.56) [not a big deal,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=258.14) [but it's important to know that every instruction leads to](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=259.16) [an intermediate container being created that's ultimately](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=262.57) [cached behind the scenes.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=265.57) [All right, now that we have that done,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=267.84) [let's go ahead and try to do the run process.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=269.62) [I'm going to do a docker run,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=273.44) [I'm going to run this in something we haven't seen much up to this point,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=275.24) [in a daemon mode,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=278.26) [that way the output of running the container won't](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=279.7) [actually show up in the console.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=282.63) [It will run behind the scenes,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=283.89) [and then I can do other things with the console if I want.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=285.44) [So we're going to do the port, we'll do 8080:3000, and then we'll put the](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=288.94) [name of the image, and let's run off to the location.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=294.41) [And this will be 99.100:8080.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=301.31) [You see it right there. All right, and it looks good.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=304.69) [This is showing that the source code we copied in that we did previously](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=307.84) [in the course is actually being used in the container.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=311.31) [That's an example of how we can work with our Docker files,](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=314.94) [use some of the different instructions, and then use the Docker client commands like build and run.](https://app.pluralsight.com/course-player?clipId=e7c92e04-5655-4312-b3ca-cb77021f397c&startTime=319.44)

### [Creating a Custom ASP.NET Core Dockerfile](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081)

[Let's take a look at how we can create a custom ASP.NET Core Dockerfile,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=1.24) [some of the different options for doing that and some of the different](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=4.97) [images that are available that we're going to use as the base of that](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=8.43) [cake that we kind of build on top of.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=12.38) [So the first thing I'm going to do is run off to hub.docker.com,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=15.24) [and I've already searched for Microsoft .NET Core,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=18.14) [and if I scroll down just a little bit, you'll see .NET Core shows up.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=22.44) [Now there's a few options here, but we're going to click on this first one,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=26.24) [.NET Core, and you'll notice these are the official images for .NET core 2.1,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=29.31) [3.1, and of course this will just increase over time to different versions,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=34.69) [so make sure you always check for the latest version as you do this.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=39) [Scrolling on down though,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=42.94) [you'll notice there's some different featured .NET Core images.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=44.74) [We have .NET Core SDK; .NET Core ASP.NET,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=48.54) [notice that's for production runtime; and then we have some other ones as](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=51.74) [well that you could use if you're not doing like ASP.NET,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=56.27) [for example.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=59.96) [They even have some .NET 5.0 images.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=61.24) [So, if we move on down, they'll give you some info about this.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=63.94) [They'll talk about how to build,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=66.99) [and they'll even have a little example of how to run it,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=68.61) [but,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=71.6) [what we're going to do is use the SDK image first and](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=72.28) [I'll show you the basics of that.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=75.72) [Then we're going to go ahead and look at the runtime image,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=77.74) [and I'll show you the basics of that as well.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=81.53) [So let's jump into VS Code here.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=83.27) [The project that I have loaded is just a standard ASP.NET Core MVC type project.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=86.14) [You'll see a Controllers folder, and Models,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=91.39) [and Views; and inside of it I already have two Docker](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=93.49) [files that we're going to look at, but,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=97.4) [I'm going to show you how we can actually generate](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=99.53) [one of these kind of automagically, if you will.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=101.27) [Now let's go to our dev.dockerfile here,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=105.14) [and this will look pretty familiar based on what](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=108.44) [we've covered earlier in the course.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=110.5) [We have our from, there's our base image,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=111.87) [so, mcr.microsoft.com would be the registry,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=115) [and then we have the .NET Core SDK,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=118.06) [and that's the one we want in this case because you'll see we're](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=122.44) [going to do a dotnet restore and a dotnet watch run,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=124.88) [but notice there's no code in this one.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=127.92) [So we'd have to set up a volume and you can see an](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=130.24) [example of that down here in the comments,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=133.12) [and we've already looked at that.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=135.31) [But walking through it, we have the base,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=137.39) [which is our from; we have our label; three environment variables here,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=139.9) [notice that we're going to target Port 5000 on this one; our](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=144.36) [working directory is going to be /app, that again can be whatever you'd like,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=148.03) [and then we're going to do a bash command that would run the dotnet restore,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=151.88) [followed by the dotnet watch run.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=156.57) [Now a little trick I'm going to show you though is we could come](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=159.14) [down and build the image like we've already seen,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=161.42) [but we could also use a VS Code plugin. So you'll notice on the left here, I](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=164.34) [have a little whale icon for Docker, and you can notice that I have my](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=168.96) [images, any running containers would be listed here.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=173.46) [I can connect to registries, so if I had a personal registry or a](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=176.83) [company registry, and then networks, volumes, and you'll notice all](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=180.42) [this kind of really cool information down here.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=185) [Now I have quite a few images you'll notice,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=188.24) [and if we move on down,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=190.94) [here's an mcr.microsoft.com one, there's the SDK one actually.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=192.41) [So how do you get this? Well in VS Code, if you go down to the extensions,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=197.14) [which is this icon here, you could just type docker,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=202.2) [and then you can install the Docker extension from Microsoft.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=207.24) [It's a really, really nice extension,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=210.93) [totally worth installing, I use it for a fair amount of](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=212.77) [things. And so once you have it installed,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=215.69) [you now will have this little whale icon on the left](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=219.24) [that would get to your local images,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=222.46) [local containers, and then I could even connect to a registry here,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=224.51) [such as ACR, Azure Container Registry; Docker Hub; some](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=228.34) [other one that's maybe local that stores these; GitLab,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=232.79) [and you'll notice a few options.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=236.03) [Alright,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=238.54) [so that's a really nice plugin and I'm going to show you how](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=238.82) [we can use that to do some cool stuff here.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=241.02) [Now, this first image would be more if we're going to do a volume,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=243.84) [but let's say we're not going to do that,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=247.51) [we would actually like to build a production version of our image.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=249.06) [Well,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=253.54) [prod.dockerfile in this case would be for that, and this is](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=254.11) [what we call a multistage build Docker file.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=258.84) [This has multiple steps that we can go through to not](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=261.97) [only build our code in a container, publish it,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=266.39) [but then copy that published code to the final image that we want to generate.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=270.84) [So literally from starting the build to actually generating](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=275.84) [the final image that's going to go up to,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=280.26) [say, Docker Hub or some other registry, we can do all that right here with this.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=282.69) [So let's walk through this.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=287.96) [So in the first part,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=289.74) [we're just going to find a base which is based on the aspnet runtime.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=290.67) [That's a production version and I'm going to alias it as base.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=294.99) [That's something you can do in Docker files just to give an alias.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=299.34) [Now we're going to in stage two, come down and go to the SDK image,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=303.21) [and we're going to alias that as build.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=308.76) [Now all this does is it goes and copies in this local project here,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=310.56) [the csproj, does a dotnet restore, copies in everything else,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=315.36) [sets the working directory, and then does a build. You'll notice we're](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=321.04) [going to build a release mode, we're going to output to a folder called](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=325.69) [app, in this case. So we're literally building the code using](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=328.99) [containers, ultimately, behind the scenes.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=333.39) [Now from there,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=336.14) [we're then going to create this from build as publish, okay, and remember,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=337.56) [build is our alias up here that's going to have our build code.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=342.81) [Now we're going to run the dotnet publish command, and we're](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=346.44) [going to output that to the app folder.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=349.19) [So, what'll end up happening is ultimately the app folder will get our](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=352.54) [distribution code that we'd want, our DLLs and things like that.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=356.04) [Now the final stage of this is we're going to create this from base.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=360.84) [Now remember, base is ASP.NET, that's our runtime production image.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=365.73) [We're going to generate that, and we're going to put the](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=371.34) [environment variable for the port we want to listen on,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=373.76) [you'll probably be changing that,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=376.16) [but that's what I have, and then notice that we have our expose, our](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=377.56) [working directory, and then here is the magic right here.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=382.18) [Notice this from=publish, now remember,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=385.54) [publish was the one up here that was based on build, and that actually ran the](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=388.86) [dotnet publish command and updated the app folder with it.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=393.23) [From that publish image, we actually want to copy from](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=396.74) [the app folder to the local folder.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=400.09) [Well what's the local folder?](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=403.12) [It's the working directory.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=405.04) [It's also named /app.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=406.43) [Now,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=407.69) [I could've come in and done this, it would have been the same](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=407.93) [thing, but since we set the working directory,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=410.43) [that would just be duplication, we don't really need that. Now from here,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=413.39) [we take the name of the DLL that would be generated, and that](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=417.69) [is what will actually be run in this case.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=421.6) [Now, if you're looking at that going, gosh,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=424.74) [there's no way I could memorize that and do all that by hand.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=426.58) [Well, I don't really either,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=429.47) [to be honest, and I'm going to show you a really cool trick here.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=430.76) [So remember I installed the Docker extension that I talked](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=433.84) [about that gets me to all these things.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=436.7) [Well, it can do more than that.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=438.42) [If you hit Shift+Command+P or Shift+Ctrl+P ‑ Shift+Command would be on Mac,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=440.64) [Shift+Ctrl would be on Windows ‑ and type docker, you're going to notice](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=446.07) [all kinds of stuff that shows up. Now, the one I want is docker add, and](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=451.53) [notice this Docker Files to Workspace.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=458.41) [What this will do is actually generate Docker files](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=461.54) [based on your target framework.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=464.2) [So I'm going to click on that, now it's going to say okay,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=466.3) [well, what are you targeting?](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=468.98) [Well, I'm going to say ASP.NET Core, and now notice I get an error down here.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=470.64) [Now, if we expand this error, it says please generate a build task.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=475.38) [So we need to do the same thing.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=480.64) [We need to get back to the command palette and type this .NET Generate.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=481.95) [So let's do that.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=486.29) [I'll go back to the command palette,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=487.64) [.NET Generate Assets for Build, I'm going to click on that, and there we go.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=489.74) [Now what that just did is updated a launch and a task JSON file,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=495.94) [which basically can handle the build tasks.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=502.04) [So now that's there, let's go back to the command pallet, we'll type docker](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=505.54) [again, and I'm going to do this Add Docker Files to Workspace.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=508.93) [We'll pick ASP.NET Core, and now from here, we can pick either Linux or Windows.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=513.14) [Now I'm going to pick Linux.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=518.51) [Do you want to include a Docker Compose?](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=520.74) [I'm going to say no in this case,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=522.46) [we'll talk about Docker Compose later, and then what are your ports?](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=523.8) [Well, for us it's 5000, and then we hit Enter.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=527.69) [Now what this just did is generated something very,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=533.74) [very similar to what you saw earlier in kind of my custom one.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=536.54) [This is a multistage build where we have a base; we have our build image,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=540.74) [which does our build; we have our publish and then we have our final](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=545.27) [down here, and then base this name based on what's in my csproj,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=548.41) [you'll see that name matches up right there.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=552.39) [Now, what's really cool about this is number one, I didn't have to write it.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=555.74) [This is only for production though,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=560.24) [so it's important to note that any time you see ASP.NET,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=562.33) [that's going to be for production.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=565.35) [Now we have pulled in the latest version of the image at this time.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=567.04) [That will obviously change over time,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=570.54) [but that gives you a nice starting point, again depending on what](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=573.24) [version you're working with. Now it's pretty much identical to what](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=576.27) [you're going to see here, it's really close,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=579.04) [and then I even have some steps on how you can build this, but with the](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=581.44) [extension, we could actually come on in like this, and you'll notice right](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=584.84) [here at the bottom, Build Image, and if I click that,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=590.42) [it'll actually try to build that image right now on my machine and I don't even](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=595.74) [have to really know what I'm doing. Now, it's pulling down some layers that](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=601.1) [were missing, it's now doing the multistage build,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=604.27) [the publish, all that fun stuff.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=606.88) [We're going to look at this a little bit more manually in the next section,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=609.64) [but, that's how easy it would be to get started with this.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=613.74) [Now I'm going to Ctrl+C to stop this, we're not going to really use it](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=617.64) [anymore, but that would be an example of generating a Docker file that you](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=621.04) [don't even have to write the code, really all I did again is either](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=626.7) [Shift+Command+P to get to the command palette or Shift+Ctrl+P, and if the](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=629.2) [Docker extension's installed,](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=633.88) [just type docker and you'll see there's all kinds of Docker commands.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=635.11) [But, that's an example of a more production Docker file, and then I](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=638.64) [showed you a more development Docker file, where you might want to](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=642.64) [create a volume to link back to your code.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=645.81) [So now you kind of have both ways of doing it.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=648.03) [So from here, let's see how we can take this and build it, and then we'll start looking at this.](https://app.pluralsight.com/course-player?clipId=7d089015-12e1-43de-aea0-2590d28d3081&startTime=650.64)

### [Building an ASP.NET Core Image](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6)

[Now that we have some Docker files available for ASP.NET Core,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=0.94) [let's take a look at how we could build those.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=4.21) [The normal command you're going to use to convert a](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=6.3) [Docker file into a image is Docker build.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=8.62) [Now what you're going to do, though, is tag it,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=11.46) [and the tag is going to contain a couple things normally.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=14.42) [Number one,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=17.45) [if you're going to publish this up to a registry such as Docker Hub or](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=18.24) [Azure Container Registry or something like that,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=22.84) [you're going to have a username, typically. It could be](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=25.38) [your team's name, maybe it's you, for instance,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=27.4) [on Docker Hub. I use danwahlin, that's my username, and that's going to be the](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=30.52) [first part. Now that is technically optional if you're just working locally,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=34.89) [but as you start to work with registries out there,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=39.2) [you'll want a username.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=42.27) [Then we can put a slash, and then we can put the name of the](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=43.94) [actual image, and then we can even put a version, and I'll](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=47.75) [show you some of that coming up.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=50.22) [So this tag that you see here, this ‑t, that's shortcut for ‑‑tag. Then](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=52.14) [you have the tag name, and then you have to tell it where is the actual](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=58.71) [Dockerfile you're going to be building from. You might have to use a ‑f](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=62.77) [switch; ‑f would be the file name, and give it a path, but if it's just](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=66.98) [called Dockerfile, you could just put the dot that you have right here.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=71.24) [But if it's not, then you have to give it, where is the Dockerfile?](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=75.29) [What's the path to it, if it's named differently?](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=79.44) [So that's what we can do to actually build an image; it's very, very simple.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=82.84) [So let's take a look at that.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=86.94) [So coming back in,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=89.04) [we have our dev version where we can hook this up to the](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=90.21) [local source code through a volume,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=93.76) [and this has everything I kind of need to run the SDK in a container.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=95.94) [We saw something like this earlier. So I could come in and do this.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=100.08) [We could copy that.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=104.11) [Let's go ahead and open a terminal. Now we could copy that in and run it,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=106.74) [but that's going to run the Dockerfile, because we didn't give it another name.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=112.14) [Now, before I do all this,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=116.34) [let me go ahead and let's just get rid of this for now, and](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=118.5) [let's do docker build help, ‑‑help here.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=121.63) [Alright, now if we scroll on up,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=127.94) [you're going to notice that we can use a ‑f. We can give it the name of the](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=129.4) [Docker file, because the default path is Docker file.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=133.29) [So we'll paste that back in,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=138.14) [and we'll come on in, and we'll add a ‑f, and we'll](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=139.88) [update the image name as well.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=142.07) [But we'll give this dev.docker file, or whatever your file](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=144.04) [name is, and let's put an image name in.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=147.32) [And I'm just going to call this aspnetcore‑dev.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=151.84) [Now,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=156.34) [I don't have a username in that case, notice,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=156.65) [because I'm not going to publish this.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=159.1) [But if I was, like to Docker Hub, it would be danwahlin/ like that, and](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=160.65) [that way it would be whatever your username is. Now,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=166.74) [I can also tag it with a version.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=169) [We can say this is version 1.0 or 2.0 or whatever it is.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=171.71) [If you don't tag it,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=176.04) [it becomes what's called latest. Latest is it doesn't really have a](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=177.16) [version per se, it's just when somebody pulls it,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=181.05) [they get whatever the latest version is. That can actually](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=183.91) [be a little bit dangerous, so I would recommend that you](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=186.74) [do tag them with versions, but we'll keep it pretty simple here.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=188.8) [Alright, so I'll hit Enter and there we go.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=193.34) [It just did the build.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=196.55) [Let's clear. Let's go to docker images. And there we go.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=198.14) [There's our aspnetcore‑dev latest, it looks like it's](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=201.93) [about 705MB, because it's the SDK,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=206.29) [so it's going to be a little bit bigger. Now another way we](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=210.06) [could have done this is instead of first off, looking there for](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=213.49) [the images, if we come on in here, we could also find it.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=217.88) [There's aspnetcore‑dev, latest. So aspnetcore‑dev, let's remember. Now.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=221.84) [I could have done this, though, and I showed you a little bit of this earlier.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=227.62) [We could actually right‑click and build, and then give it a name,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=230.78) [aspnetcore‑dev, and then I could give it a version if I wanted, but let's](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=236.15) [just hit that. Now this will do the same exact thing,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=241.9) [but notice if I scroll back up, it actually wrote out the Docker build.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=245.83) [It did some other things,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=251.24) [but the big one is it did ‑f dev.dockerfile, and it tagged](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=252.27) [it, and then it gave it the local folder.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=256.05) [So there we go.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=258.64) [It just built it.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=259.56) [Now we could use what's in this file. So we could](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=261.4) [come on down, and let's copy this, paste it in,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=265.04) [and then we'll get rid of this, and we'll put the name of our image,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=270.71) [which is aspnetcore‑dev.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=274.48) [Now notice we have the app folder linking back](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=277.44) [volume wise to my local code again.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=279.91) [And just as a reminder, what you put there depends on the console you use.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=283.14) [So this will work with Linux or Mac or Bash or SH‑type shells.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=287.52) [But if you're on Windows, it depends.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=292.94) [So I showed that a little bit earlier.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=294.64) [Alright, so let's hit Enter there, and this should now fire up the container.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=297.74) [Now this kind of locked it up, because I didn't do ‑d for](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=303.1) [detached, but that's okay. Now if we scroll on up,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=306.79) [it's listening on port 5000. We said to go to 8080 to 5000.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=310.16) [So let's pull up the browser.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=315.1) [Alright, so we'll go to localhost 8080, and there we go.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=317.64) [It's working. Now if that didn't work, remember that I talked about](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=322.45) [that through a properties folder and through the launch settings, you](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=327.3) [can also control the port that it runs on.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=332.32) [So if that's in your project,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=334.68) [it may be overriding what was actually included here in the Dockerfile.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=336.94) [Last one kind of wins,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=342.34) [so just kind of be careful. If you go to that and it's not working,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=344.34) [it's probably because your port is wrong.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=347.92) [Because maybe you have a properties with the launch settings, and you](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=350.14) [need to actually change that port, potentially.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=353.83) [Alright,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=357.74) [now let's do a docker ps ‑a, and you'll notice that we](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=358.14) [have a status of up two minutes ago.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=362.93) [It's been up for two minutes.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=365.36) [Let's go ahead and stop this one.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=366.54) [So we'll do docker stop b8, and docker remove b8.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=368.44) [Alright, and then docker ps ‑a. You can see it's all gone.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=374.14) [Alright, now for the production one, to get that one running,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=379.04) [I could use the one they generated. Now I'll give you a little gotcha on this.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=381.94) [They didn't say the actual port for Kestrel to run on.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=385.94) [They did expose port 5000, but if you look in the other prod.dockerfile](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=390) [I have here, notice I have an environment variable.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=395.09) [Alright, if you don't put that,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=399.04) [then it just is going to default, and the default is 80, and that's fine.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=400.83) [You could leave 80 if you'd like,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=404.49) [but I just want to point out that again, sometimes you'll bring](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=406.24) [these up, and you'll just get not found, and you sit there and](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=409.16) [struggle going, why isn't this working?](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=412.4) [Probably a port issue. So you'll have to kind of figure out if](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=414.44) [you're using the right port. Now for this one, I'm going to go](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=417.43) [ahead and use the Dockerfile they generated,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=421.74) [but I could do this one as well.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=424) [So if I right‑click on this, notice I could build it again.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=426.24) [So let's go ahead and do that. Now, for this one,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=429.93) [it's actually going to name it, kind of based on what the project is.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=432.42) [Alright,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=438.74) [so notice it's aspnetcoredocker31, because that's](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=439.12) [what the project name up here was.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=443.23) [And that's fine.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=445.24) [We'll go ahead and leave that. now if I come into the Docker icon, and](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=446.12) [let's refresh this. There we go, there's our image, latest. Now I can](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=451.17) [right‑click on that, and I can actually run from here.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=454.97) [Now when I do run, notice it's going to start it up, and you'll see that it](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=459.64) [did this 5000 to 5000, and it looks like it started up.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=464.73) [So let's go ahead and do docker ps ‑a, and it's been up for 11](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=469.94) [seconds, but it did 5000, you'll notice.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=474.54) [Okay, and then because we exposed 5000, it did 5000 there as well.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=478.94) [So let's go back to the browser.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=483.31) [So let's come on into :5000 here, and notice it didn't work.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=485.24) [Kestrel never ran on 5000; it actually ran on port 80.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=491.64) [So let's go back to VS Code and see if we can fix this.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=497.14) [Alright, so I'm going to go ahead and stop it.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=500.24) [We'll say, docker stop f0. And then if I hit the up arrow here,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=501.78) [there's the docker run that it did, but the 5000 on the left](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=508.14) [is fine, because maybe that's what we want.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=511.96) [We did 8080 before,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=515.16) [but doesn't really matter, but the problem is this 5000 right here.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=516.51) [We never told Kestrel to run on 5000. We don't have a launch settings.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=520.14) [We didn't put the environment variable that I showed](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=525.16) [earlier. So it's kind of defaulting to 80.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=527.31) [Let's go ahead and try this again now. Alright, so it's up and running.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=530.94) [You can notice right here that it shows us it's running.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=534.93) [And from here we can even do things. I can right‑click and view logs.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=538.04) [Let's go ahead and do that real quick. And notice it's on port 80](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=542.09) [inside. And again, this is one of the big challenges you'll run into is](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=547.52) [sometimes it doesn't work because of the ports.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=551.6) [So let's go back to the browser to wrap up.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=553.64) [We'll go to 5000, which now forwards to 80, and now it works.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=556.34) [So kind of be careful if you use the Docker extension.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=561.34) [Sometimes it will assume the port internally is 5000 in this case,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=564.38) [but it was actually 80. So you might have to tweak](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=570.22) [that a little bit in some cases.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=573.16) [So that's an example of different ways we can build images.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=576.24) [We did a dev image with a volume, and then we did a production image,](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=579.87) [and I showed how you can do it through the command line or using the Docker extension.](https://app.pluralsight.com/course-player?clipId=ae2658ff-fd19-4cdd-9e98-7b8b5d47e6c6&startTime=584.58)

### [Publishing an Image to Docker Hub](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7)

[Although you can always build a custom image using the](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=1.04) [docker build command anywhere you'd like,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=3.28) [you may want an easy way to deploy this and pull it down so you](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=5.84) [don't have to build it every single time.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=9.68) [And we can do that by publishing an image up to Docker Hub.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=11.75) [And that's what we're going to take a look at here.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=15.41) [So the command you'll use is really,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=18.04) [really simple. Number one, you will have to go to](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=19.79) [hub.docker.com and create an account,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=22.97) [and we talked about that earlier actually in the course. Very simple to](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=25.92) [do, very quick. And then you'll have to run a logging command, and I'm](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=29.9) [going to be showing that in just a moment.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=33.59) [But once you're logged in, it's very, very simple to push your image.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=35.15) [All you have to do is say docker push,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=38.74) [give it the username and the name of the image, in this case, node, and then](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=41.39) [that's going to go ahead and push it up to the Docker Registry.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=45.81) [So let's take a look at how we can do that with the node image and](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=49.74) [the ASP.NET Core image that we generated earlier.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=53.2) [Now,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=56.94) [before we can run a docker push, we will have to log in. So](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=57.15) [we'll do docker login. Just hit Enter, and then you can put](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=60.01) [your username and your password. And then it's going to ask for](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=63.41) [the email you used as well.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=69.31) [All right, once it's done that, from here we can go ahead and try to push,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=73.14) [and you'll notice it's kind of saved some of our credential information locally.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=77.48) [So now I could come in, and let's do docker images again, and we'll do](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=82.14) [docker push danwahlin/aspnetcore, and then this is actually going to](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=85.62) [prepare the image and then push it up into Docker Hub.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=91.36) [I'll go ahead and let it do that,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=95.64) [and we're going to come on over as well to the Mac side,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=97.3) [and I have the node image that was created.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=101.14) [Now I've already logged in on this machine, so we can again do](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=103.19) [docker push, my username, and the image tag,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=106.32) [and that will go ahead and prepare that.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=112.04) [And after a little bit of time after it's done pushing this up,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=114.94) [we'll be able to log into the site, and you can actually see](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=118.61) [your image up there. Now, right now this is going to go ahead](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=121.56) [and put it into a public repository, and I'll show you that as soon as it's done.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=125.25) [It looks like the image is now pushed up to Docker Hub.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=131.44) [So we'll go to hub.docker.com, and let me go ahead and log in here.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=136.14) [All right, and there we go.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=142.24) [So there's my node one that was pushed up, and there's the aspnetcore](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=143.35) [you can see. So we could click on this, and there won't be much in here](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=147.53) [because I don't have any descriptions yet,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=151.64) [but you could see how somebody could easily pull this and then use that image.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=153.24) [And we're going to do that in just a moment.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=157.33) [Now, likewise over here on this side, on the Mac side,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=160.24) [we've pushed up the Node.js image that was created, and](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=162.89) [you'll see that's all ready to go.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=166.57) [So what I'm going to do is let's go ahead and try to run](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=168.74) [this now directly from Docker Hub.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=172.64) [So we're going to say docker remove image, and we'll give it this f4 image here.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=174.49) [All right,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=181.24) [so that should be gone. Now we can say docker pull if we'd](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=182.04) [like, or even docker run if we want to run it.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=186.73) [Well, we've already seen that, and now we could put the name of the image.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=189.24) [So let's go ahead on this machine and we'll grab the node one, and](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=192.58) [this is going to pull down the latest version.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=197.36) [So you can see some of the layers already exist because they were cached.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=200.14) [So you can see how fast that was. Now, I could go in and clear](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=203.65) [everything out or do kind of a no cache scenario,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=207.72) [but you can see that worked. Now, likewise on the same machine, if I wanted](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=210.11) [to come in and do a docker pull on the aspnetcore one that was also shown in](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=214.11) [this module, then we can grab that as well.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=219.13) [Now this one won't be cached,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=222.42) [so it's going to have to pull down everything because I've never](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=223.79) [run this image on this particular machine.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=226.14) [All right, so that will take a moment to run.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=230.14) [And then we could, of course,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=232.28) [do the same thing over on my Windows box over here as well. It would](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=233.06) [be the same exact command. We could do docker pull. And since I've](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=236.97) [already done the aspnetcore one here,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=240.64) [let's go ahead and I'll show you how fast this should be. And it should be](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=243.26) [pretty quick because a lot of the layers are already there.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=247.69) [You can see that was extremely quick.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=249.8) [Basically what it did is it looked at the IDs for each of those layers and said,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=251.94) [hey, I already have these.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=255.73) [There's really no need to recreate these because they](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=257.28) [haven't changed. And that makes it really,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=259.56) [really fast as you work with multiple containers and](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=262.08) [images. So it'll start caching those.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=265.27) [So you can see this one's still going; it's going to take a](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=268.04) [little bit longer. And we're all done.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=270.09) [So now I can say docker images, and there we go.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=273.33) [We now have the node, the aspnetcore, and then the base node that I had.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=276.8) [So that's how easy it is to actually take an image once it's built, push](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=281.94) [that up to Docker Hub, and now I can pull that from anywhere. Team members](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=286.25) [can pull it. Even other people out there, since these are public images](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=290.34) [right now, could pull it as well.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=293.83) [So it's a really, really powerful technology because now it makes it very,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=296.14) [very easy to share my exact environment, and we still have a](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=299.96) [lot more to cover. So that will get us started with custom](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=303.76) [Docker files, how we can do builds,](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=306.42) [run containers, and even push images up to Docker Hub. But we're](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=308.93) [going to start diving into more about linking containers and more as we move along in the course.](https://app.pluralsight.com/course-player?clipId=53afdac0-14d5-4fd6-a5b0-82e09b8836a7&startTime=313.43)

### [Summary](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875)

[To wrap this module up,](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=1.14) [we've learned that Dockerfile is nothing more than a simple](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=2.55) [text file that has specific instructions.](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=5.41) [You can say what the image that you're going to be creating is based](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=7.89) [on. That's the FROM instruction. We can run different types of](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=11.17) [commands, such as npm install or many others.](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=14.44) [We can define environment variables, set the entry point that](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=18.24) [will run as you run the container, and much,](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=21.42) [much more.](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=23.94) [Now the FROM is where it all starts as mentioned, and this has to go at the](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=25.44) [very beginning of the file because we have to know what is the base image, and](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=29.69) [then once we've added the other instructions we can,](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=34.1) [go ahead and use the Docker build command, tag the image,](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=36.63) [and then it will be available on your local system.](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=40.23) [Now,](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=43.34) [if you do want to make it available either remotely for other](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=43.48) [team members or maybe even for the public,](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=47.36) [then we can push that image up to Docker Hub, and that's very easy to do,](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=49.67) [once you've logged in, using the Docker push command.](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=54.76) [So now you've seen the process of building custom images,](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=58.34) [getting those images working as containers, and now, what we're going to talk](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=62.74) [about moving forward is how we could start to orchestrate multiple containers and have them start communicating with each other.](https://app.pluralsight.com/course-player?clipId=d9bece03-b25e-4be6-a385-938178c9f875&startTime=67.04)

## [Communicating between Docker Containers](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370)

### [Introduction](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370)

[We've learned about how to work with images and get containers up and running,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=1.24) [as well as different Docker toolbox tools and how you can use those,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=5.21) [but we haven't addressed a really,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=8.95) [really important question that you'll certainly](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=10.74) [encounter as you work with Docker, and that is,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=12.74) [how do you communicate between Docker containers?](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=15.78) [And so that's what we're going to talk about in this module,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=18.94) [we're going to focus specifically on how can we do things like have a](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=21.56) [container that has a web server, talk to a container that maybe has a](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=25.31) [database or something else along those lines.](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=29.15) [So we'll start off by talking about the general concept of](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=33.14) [container linking or container communication,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=36.69) [whatever you'd like to call it, and I'll talk about two options](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=39.57) [that are available that we can use there.](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=42.79) [We're then going to dive into the first of those two options,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=46.11) [which is called legacy linking, and this is a way that we can name](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=48.48) [our containers and then easily link one container to another](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=52.62) [container based upon the naming. I'll then show some examples of](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=55.91) [linking up different containers,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=61.5) [and specifically I'm going to show Node.js with MongoDB, then I'm also going to](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=62.89) [show ASP.NET Core with PostgreSQL. So we'll have some real examples to walk](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=67.26) [through of how we can get this container communication going. Now Docker also](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=72.64) [provides a really powerful way to communicate between containers that's related](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=78.35) [to setting up networks, and so we're going to learn about something called a](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=82.76) [bridge network or you might hear a container network, and we'll talk about what](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=86.7) [that means,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=91.09) [the benefits it offers and how you can set it up, and you'll see it's](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=91.91) [actually really easy to get set up, it doesn't take a lot of time to](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=95.06) [get going. And then we'll go ahead and show the same examples of Node](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=98.14) [and Mongo, and ASP.NET Core and PostgreSQL using container networks.](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=102.46) [And then finally,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=107.88) [I'm going to wrap up by talking through the scenario of what](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=109.3) [if you don't just have two containers,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=113.5) [you have three, four, five or more containers that all need to communicate, and](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=115.15) [we're going to talk about some future parts of the course,](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=119.37) [and some other techniques we'll be able to do](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=122.02) [that'll simplify that entire process.](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=124.15) [So let's go ahead and dive right in and introduce the concept of container linking and communicating between containers.](https://app.pluralsight.com/course-player?clipId=d7bf8e00-49b4-4be7-8749-ab1e70e2b370&startTime=126.59)

### [Getting Started with Container Linking](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c)

[As you use more and more Docker images and containers,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=2.84) [you will certainly run into the need to link them up.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=5.97) [We need a web server, for instance,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=8.77) [to communicate with the database server or something like that.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=10.93) [So, for example,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=14.84) [we might have a web server that not only hits a database](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=15.78) [server but also needs to hit a caching server and maybe](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=18.64) [even some others potentially.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=21.64) [Well, normally, each container will hold its own individual functionality.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=23) [In other words, you can have a web server container,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=28.85) [a database container, a caching type of server container,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=31.27) [and maybe others as well.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=34.89) [So we need a way for containers to talk to each other because,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=37.44) [up to this point, we've only worked with single containers,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=41.2) [not with multiple containers kind of orchestrating things together.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=44.48) [Now Docker provides two different linking technologies that can be used.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=49.44) [The first is now referred to as legacy linking,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=54.04) [and you're going to see that this is just done using container names.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=57.26) [Under the covers, it creates what's called a bridge network,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=60.5) [and within that network,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=63.92) [you can communicate between the containers based on](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=65.05) [the name of each of the containers, and I'll show you how all this works.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=68.25) [Now this particular option is still very useful.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=71.91) [It's still very easy, actually, to do you'll see.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=75.53) [And in a development environment, it's especially easy to set up.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=78.18) [But there is another option,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=83.14) [especially as you move multiple containers into staging and production areas,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=84.66) [and this provides even more power.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=89.87) [This second option involves adding containers into a custom bridge network.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=91.49) [Now this is a newer option compared to the legacy one anyway.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=98.62) [And what this entails is creating a custom bridge network,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=103.04) [and this is a type of isolated network,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=107.74) [and only containers in that network can communicate with each other.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=110.14) [Now this is nice because now you would have a way to create one](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=114.54) [network for a certain set of containers to communicate,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=118.47) [another network for some other containers that they need to communicate,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=121.5) [and this allows you to divide things up a little more elegantly than](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=125.19) [what you can do with the older legacy linking.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=129.68) [So throughout this module,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=132.73) [I'm going to walk you through, first, the legacy linking and how that works.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=134.72) [I'll show you some examples of getting some actual containers communicating.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=138.83) [Then we'll move on to using those same exact containers, but we're](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=142.94) [going to move on to the bridge networking. And I'll show you how you](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=146.74) [can create a custom bridge network very,](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=150.15) [very simple, it sounds a lot harder than it really is, and how we can then](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=152.28) [communicate amongst containers in that bridge network.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=156.39) [So let's go ahead and jump right in and talk, first, about](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=160.14) [legacy linking and how we can name containers so that they can communicate with each other.](https://app.pluralsight.com/course-player?clipId=108cb67b-50c6-4f18-beaf-08d3a36f893c&startTime=162.94)

### [Linking Containers by Name](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff)

[One technique you can use to link up containers to each](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=2.74) [other is called legacy linking now.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=5.68) [And this is a very simple technique where you can give a container a name,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=8.13) [and then another container can link to it using that same name.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=12.21) [Let's jump into a step‑by‑step walkthrough of how this works.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=16.41) [So the steps to link containers is really basic actually,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=22.14) [just a few little command‑line switches you'll need to know about,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=25.07) [and we'll go through each of these.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=28.08) [First off,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=30.54) [we're going to need to run a given container that](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=31.11) [we want to link to with a name.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=33.63) [I'll show you how to do that,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=35.77) [it's just one little command‑line switch you have to add.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=36.91) [Now,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=40.64) [we can use that name then as we run another container](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=40.89) [to link those containers together.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=44.89) [We're going to take a look at that as well.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=46.54) [And then, of course, if you have additional containers,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=49.14) [you just kind of repeat and keep going.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=51.28) [So you'll add a name, and then link it to the next container,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=53.52) [add a name, link it to the next container.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=56.84) [So it's like a step one here.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=59.44) [All right, so when we do docker run,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=62.24) [we've seen that a few times throughout the course, we can do the daemon,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=64.84) [that's the ‑d, that'll make it so it runs in the background,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=67.87) [but we can also do ‑‑name and then give that](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=72.24) [particular running container a name.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=75.74) [Now, up to this point in the course,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=78.64) [we've mainly relied on the ID for the container or the alias](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=80.05) [that was automatically generated by Docker,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=84.43) [but you can give each of your running containers your own custom name.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=86.69) [So in this case,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=91.64) [we're going to define a name for the container called my‑postgres, and](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=92.38) [that would take care of the basics of naming it.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=96.58) [Now, if that's all we did, it's not going to accomplish too much,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=100.04) [it's just going to add a name that we can then use to,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=103.67) [for instance, remove or stop the container,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=106.03) [but now that we've named it, we can go to step two,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=108.15) [and we can link up another container to this database container.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=111.48) [So, for instance, let's say that we would like to run an aspnetcore container,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=116.44) [then we can run it as you see here with the daemon mode,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=121.44) [give it a port, pretty standard stuff that we've seen,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=124.15) [but we can also come in and link to another container.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=127.14) [And we do that with this ‑‑link command‑line switch.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=130.82) [Now, this is the actual name that you saw previously,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=134.94) [my‑postgres,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=137.18) [and then we can even give it an alias that we use internally in the](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=138.84) [aspnetcore container that's going to be running.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=142.72) [So, as we connect,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=145.55) [we can use this postgres alias in our database connection string,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=147.75) [for example.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=151.89) [So that's really all you have to do to link a container to](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=153.64) [another container that's already running.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=156.93) [Now, step three would be we just keep going if you have more and more containers,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=160.44) [so you'd start another container, give it a name,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=164.07) [link it to the next container, and then repeat.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=167.03) [So normally the containers that you're going to link to,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=170.02) [they'll typically be started up first with the docker run command,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=172.58) [and then once you're done with that,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=175.93) [you can then use the ‑‑link command‑line switch to link any](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=177.85) [other containers by name to those containers.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=181.89) [So now that we've seen how we can do this with](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=186.04) [Docker client on the command line,](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=188.23) [let's go ahead and take a look at linking up different types of containers across different technologies.](https://app.pluralsight.com/course-player?clipId=94784c9f-9c7f-4370-9a4c-cb57729ba6ff&startTime=190.24)

### [Linking Node.js and MongoDB Containers](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b)

[In this section,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=1.34) [we're going to take a look at how we can link a Node.js](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=1.84) [container to a MongoDB container and the Docker technology](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=4.48) [that makes this linking possible.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=8.89) [So I've already loaded up a Node.js project that hits MongoDB.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=13.14) [I'm just going to walk you through the fundamentals of what happens](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=16.99) [here to show you that we are, indeed, going to be inserting data into](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=19.65) [Mongo and then pulling that data back out.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=23.36) [So first off, I have a config folder,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=26.34) [and this just stores the connection string type of info, so I have the host](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=28.38) [and the database. And you'll notice this name, mongodb.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=32.72) [Now, I didn't pull that out of thin air.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=36.65) [That's actually what we're going to be naming the MongoDB container.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=38.63) [So we'll come back to that in just a bit.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=42.21) [Now, we're also going to be calling a dbSeeder,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=45.04) [and that calls up into this dataSeeder, and you'll notice](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=47.95) [that we have some Docker commands here.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=52.98) [Now,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=55.13) [this is just a custom object I made in Node.js. It just has some custom](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=55.26) [properties that I'm going to insert. Could've picked anything.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=59.73) [But I'm going to insert a Docker command, a description, and then some](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=62.84) [examples of using that command so we could kind of pretend this is like](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=66.75) [a help database or something like that.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=70.67) [And then I'm going to save it here.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=73.04) [And then I'll also create a Docker command, this time ps,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=75.04) [and we'll run some examples of that.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=78.16) [So it's just some basic sample data that we're going to insert into](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=80.3) [Mongo using the Node application that you see here.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=83.79) [Alright, so that's kind of the fundamentals of the app itself,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=88.04) [and it'll just write out those commands to the home page.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=90.67) [Now, the next thing I'm going to show you is this node.dockerfile.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=94.74) [The actual set of instructions that you see here shouldn't](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=98.64) [surprise you. We're going to copy the source code into a folder on](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=102.13) [the container, set that as the working directory, run npm install,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=105.99) [and then start up the server.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=110.67) [But you'll notice at the top here I have some instructions on](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=112.54) [how to link everything up, because we want to link again Node.js](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=115.62) [as a separate container to Mongo, which is its own container.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=119.8) [So the first thing we're going to do is we need to convert this](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=124.14) [into an image, and so let's go ahead and do that.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=126.9) [I'm just going to copy this down. And we'll pull this up and](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=129.93) [just paste that right in there and build it.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=133.71) [Now, this should be cached, so it should be pretty fast to do.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=135.76) [All right, so we're all done there.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=140.74) [And if we do docker images,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=142.28) [you'll notice that I have my custom image, I already have a node image,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=145.04) [and there's mongo.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=148.6) [So we're ready to go there.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=149.55) [Now, the next thing we're going to do is we're going to run the Mongo image,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=151.34) [but you'll notice that in the run, I'm running it first off in daemon mode,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=155.92) [so in a background mode, but I'm also giving it a name,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=159.91) [and we really haven't done that much up to this point.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=163.67) [So let's see what that does.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=166.05) [So I want to paste this down, and we'll get this mongo going.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=167.3) [All right, so let's run docker ps, and you'll notice that it's up and running,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=173.74) [but you'll notice the name here is now the name that I](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=178.29) [chose, as you'll see right up here.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=181.9) [So the my‑mongodb, It could be useful in this case, if you just want to start](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=186.54) [and stop the container and don't really want to use the ID that we have, but](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=190.77) [it's also very useful as we want to link containers.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=196.1) [And that's where we're really going to use the name here.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=199.7) [So the next thing we're going to do, then, is we need to start up node as a](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=202.94) [container, but we want to link it into this my‑mongodb.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=206.7) [So let's go ahead and paste this command in, and before we run it,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=212.64) [let's talk about it real quick.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=219.3) [So we'll do the standard docker run in daemon mode, external port of](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=220.4) [3000, internal port of 3000 for the container.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=224.39) [But here's the magic. We're going to link to my‑mongodb,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=228.44) [which, of course,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=233.18) [is the name that we gave Mongo that you can see here,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=233.84) [and I'm going to give it an alias, though, in the node container of mongodb.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=237.36) [Now, remember, when it came to the connection string,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=243.4) [if you will, MongoDB was used as the host name,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=246.98) [not localhost or an IP in this case,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=250.45) [the actual name that was assigned to the container.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=252.79) [So that name now is really, really important.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=256.74) [Now we didn't have to alias it.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=259.13) [We could have just used this external name as well, but we're](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=260.72) [going to go ahead and go with that here.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=263.97) [So let's start that up. We'll run docker ps, and now you can see that we have](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=265.63) [two containers up and running that are hopefully linked here.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=270.43) [So let's run off to the browser, and I already have the IP address for](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=274.54) [my Virtual Box machine and that port that you just saw, so let's hit](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=278.49) [it. And it looks like it's running, but,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=282.55) [you know, we didn't get any data yet,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=285.34) [and that's expected because I didn't run the dbSeeder.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=286.65) [So I need to run this dbSeeder now in the node container because that's](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=290.74) [not something I set up when the server.js fired up.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=294.76) [So, I kind of did that on purpose so I could show you](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=298.64) [another Docker command that's very useful.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=301.53) [It's called docker exec.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=303.69) [This allows us to execute a command in a running container.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=305.94) [I need to know the container, though, so let's do docker ps.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=309.94) [Let's just go with d6 here, that would be a little easier,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=314.24) [so I'm going to say docker exec.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=316.87) [We want to execute this command in the d6 for the ID, and then I](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=320.04) [want to run node dbSeeder.js, and I have that set up so that you](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=324.6) [can run it directly as a module.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=330.41) [And that should now insert some data into this MongoDB](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=333.14) [database, and there is the name of the database.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=336.4) [So the server is MongoDB, the database is funWithDocker.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=340.34) [All right, so we should have some data in there.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=344.94) [Let's run on back and refresh, and this will now hit it, and there we go.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=346.8) [So it looks like we now are able to pull that data that was inserted and](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=351.64) [were able to render it using express in this case.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=355.58) [So, that's an example of some of the different commands](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=358.84) [that you can actually run to, first off,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=362.05) [name a container,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=365.67) [then reference that name using ‑‑link in this case, give it an alias,](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=367.54) [and then we can use that alias in the linked container, and that makes it really easy now for Node.js to call MongoDB.](https://app.pluralsight.com/course-player?clipId=adadda8a-5b19-49de-8bcb-b608b86f9b1b&startTime=372.85)

### [Linking ASP.NET Core and PostgreSQL Containers](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d)

[Earlier, we saw how we can link Node.js to MongoDB.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=1.34) [In this section,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=4.58) [we're going to talk about how we can link up ASP.NET Core to PostgreSQL.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=5.87) [So to get started, I have an ASP.NET Core application.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=11.74) [It's an MVC app, and it uses Entity Framework Core.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=14.94) [Now, one of the first things it has is a DbSeeder.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=18.74) [And so if I come into here,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=21.94) [you're going to notice that I seed it with the Docker commands, if I scroll on](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=23.42) [down that you saw a little bit earlier with the Node.js example. We're just](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=27.19) [going to use some different containers this time.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=31.17) [Now, in addition to that, it has our DB context for this.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=34.24) [So you'll notice we have a DockerCommandsDbContext.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=37.7) [And this is pretty standard stuff, very basic.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=41.54) [It just has a collection of DockerCommands that are](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=44.35) [going to be seeded into the database.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=47.71) [And then if we go into our Startup file,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=51.44) [you'll notice that we add Entity Framework support, and this is the extension](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=54.14) [method right here for calling into PostgreSQL. Now moving on down at the very](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=57.46) [bottom, you're also going to see at the very bottom of the middleware that here](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=62.08) [is the dockerCommandsDbSeeder, and then,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=66.4) [although I'm not going to go into it much here,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=68.97) [this also has a single page application,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=71.08) [a spot application available as well, and it shows customers.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=73.44) [So there's what we're doing the seeding, and that's the general flow of the app,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=78.04) [if you will. Now to get started using it, we can go to](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=82.38) [aspnetcore.dockerfile. And this is pretty standard based on what we've seen.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=86.13) [We have our mcr.microsoft.com/dotnet/core/sdk.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=90.31) [We have the label, environment variable for the port we want to](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=95.04) [use, our working directory. We're going to copy all the code in,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=98.76) [this is a real simple example, to the Working Directory folder.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=102.05) [Expose that port, and then, in this case,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=105.73) [because it's an SDK image,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=108.19) [we're going to do a .NET restore and a .NET run. So](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=109.97) [this wouldn't be used for production, of course,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=113.03) [but it's a nice and easy way to quickly build this. Now at the](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=114.88) [bottom, I put some comments here for running this particular demo.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=118.93) [Legacy linking, just to reiterate, is, well,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=123.2) [it's Legacy.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=127.14) [That's why they call it Legacy linking.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=128.05) [And so while it's older, you may come across it,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=129.98) [though,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=132.68) [and you may even have a scenario at work where you have to use it,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=133.01) [potentially, because that might be how it was set up.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=135.92) [That's really the reason we're covering this.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=138.74) [Although what I'm going to show you here isn't necessarily](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=140.72) [the preferred way these days, that'll be coming up next](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=144.07) [when we talk about networks, it is viable,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=146.7) [and it does work, and you could do it with ASP.NET Core.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=150.3) [So, the first thing I'm going to do is just a standard build.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=153.05) [Let's go ahead and do that right here.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=156.54) [And I've already run this, so it'll be superfast, you'll see.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=159.74) [Now the next thing is I'm going to start up my PostgreSQL image,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=162.65) [and we're going to pull that down, which I already have,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=166.73) [and then we're going to run it.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=169.32) [But notice that I'm giving it a name of my‑postgres.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=170.94) [Now, it could be anything again.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=173.76) [We could just call it postgres, for example, if we wanted.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=176.43) [But down below, you're going to see where I link to it.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=180.14) [I'm going to alias that.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=183.84) [Okay,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=185.34) [so postgres is actually what we want to call, but my linking name is going](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=185.57) [to be my‑postgres because it's based on the name up here.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=190.67) [Now I want to emphasize you don't have to do that,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=194.54) [but you may come across this, and then you'll know why](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=196.78) [there's a colon between these two.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=199.26) [It's really just mapping kind of an alias, a name to the actual target.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=201) [Now the other thing we do is we add an environment variable.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=206.44) [And in this case, I'm just setting the password of the database.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=209.2) [Please don't use password, by the way, for real,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=212.54) [but for the demo it's fine. And this will actually pass](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=215.11) [that to the startup of the container.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=219.04) [So when the database first comes up,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=221.96) [it will read this and actually use it as the password.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=223.6) [Now the rest of this you've already seen,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=227.14) [you'll see a docker run in detached mode, port](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=228.8) [external is 5000, internal is 5000.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=231.64) [And then here's our linking,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=234.92) [which is really the core of what we're talking about here.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=236.25) [And then there's the image I just built.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=239.71) [So, first thing I'll do is let's get this running, our PostgreSQL.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=242.04) [All right, so that should be started up.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=248.74) [Now let's get our aspnetcore, and that started up.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=251.04) [Now let me clear this and we'll do a docker ps.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=255.91) [All right, so you'll notice both are up.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=259.74) [Here's our aspnetcore, here's our postgres.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=262.74) [Now, look at the names here.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=265.71) [They gave it a name because I didn't name the aspnetcore](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=266.87) [container, and they gave it angry\_franklin.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=269.73) [They come up with these really bizarre, random names.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=272.67) [But here's our name, my‑postgres. Now, what's important here,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=276.04) [though, is if we go into our connection string settings.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=281.03) [So if I come on in to appsettings here,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=284.87) [come on down to our DockerCommandsConnectionString,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=288.24) [notice that the server is postgres; not my‑postgres, postgres.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=291.58) [Now,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=297.74) [that's why we did the alias because we named the](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=297.93) [container my‑postgres, but in reality,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=300.22) [we want to call the postgres that's actually](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=303.31) [running behind the scenes here. Now, since both these are linked up and running,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=306.06) [let's run off to the browser now. So I'm going to go to localhost 5000.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=312.2) [Now,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=316.2) [this is going to load a single page app I mentioned](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=316.33) [earlier that shows customers,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=319.03) [but I'll leave this and go to the Docker commands. And](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=321.24) [there we go. So you could see it worked.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=324.62) [It seeded the database with these Docker commands,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=327.44) [and then it linked those two containers together so that first off,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=330.22) [it knows that the PostgreSQL container needs to start first,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=335.21) [then ASP.NET Core.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=339.04) [Now as a heads up, it's not going to wait.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=340.94) [There's no way for Docker to know when Postgres or Mongo or any of](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=343.96) [these especially databases are finished loading.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=347.79) [So if you ever do have code that has to seed,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=351.74) [maybe lookup table data, for example, you might call,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=354.52) [and it fails because the database hasn't finished loading](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=358.63) [in the container yet. All linking does is make sure that](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=361.49) [they start in the proper order.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=365.05) [It doesn't guarantee the database is done,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=366.88) [though,](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=369.54) [so that's something to be aware of, and that means you might](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=370.34) [have to have some try catch type code and some retries if](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=372.62) [you're ever seeding something, especially in development.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=376.29) [So that's an example of how we could do linking with ASP.NET Core and Postgres.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=380.04) [You can see it's very similar to what we did earlier with Node and MongoDB.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=384.35) [So from here, let's move on to the more modern way to do this, and that's going to be networks.](https://app.pluralsight.com/course-player?clipId=0c98035f-15b6-4af6-a2aa-fb1bbd040b8d&startTime=389.44)

### [Getting Started with Container Networks](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7)

[You've seen how we can link up containers using the name of a](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=3.14) [container and how that allows us to communicate between,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=6.31) [for instance, a web server and a database server.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=9.56) [But Docker does provide a different technique that can be used](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=12.63) [that also provides additional functionality, and that's what](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=15.91) [we're going to talk about here.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=18.87) [So what we're going to cover is something called](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=20.74) [container networks or bridge networks.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=22.6) [Now to understand this, think of a Docker host.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=26.44) [Now, this could be a Linux box up in the cloud,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=29.21) [it could be VirtualBox running locally with that Linux box in it,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=31.4) [wherever it may be.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=35.94) [And then in that Linux box, you have these different](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=37.74) [containers that need to talk with each other.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=41.24) [And so to do that, we could use naming,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=43.74) [but anything that knows the name could automatically](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=46.22) [get to that container by the name.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=49.66) [And while that's a good thing,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=52.34) [especially I think in the development environment, it's very](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=53.6) [easy to get started with and to use, once you start having a](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=55.94) [whole bunch of containers running,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=60.94) [you might want to start to isolate those containers so](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=62.91) [that you have to be in the same group, if you will.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=66.64) [Well, we don't call it a group, but we do call it a network,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=69.84) [or a bridge network is the official term you'll see in the Docker documentation.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=73.18) [And the way it works is you can, through Docker client,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=78.44) [create an isolated network, and you just give it a name.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=82.34) [It's a very simple command that I'll show you coming up here in a moment.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=85.31) [Any container that's run in that isolated network can communicate](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=89.54) [with other containers in that same isolated network,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=95) [and they do so by name.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=98.3) [That's why we took a look at the legacy linking type of](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=100.2) [container naming and linking earlier.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=103.25) [That means I could have one set up here, maybe this is a](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=106.34) [Node.js server talking to MongoDB, whereas I might have a separate,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=109.67) [isolated network with Postgres,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=113.51) [ASP.NET Core, and some other type of infrastructure set up there for containers.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=116.98) [So this is nice because I can actually now group the](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=122.74) [containers into their own isolated network,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=126.39) [and that allows me to isolate them much more in who they're allowed to](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=129.71) [communicate with as far as their container friends,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=134.36) [if you will.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=137.59) [The steps to follow to create a container network](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=139.44) [are actually very straightforward,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=141.89) [and the commands you're going to run with Docker client are also very easy.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=143.17) [So the first thing we'll do is we need to create a custom bridge network,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=147.24) [and we'll give that a name.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=150.89) [Now, once you've set up your custom bridge network and given it a name,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=153.64) [then you can start the containers up using the standard docker run,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=158.24) [but we can specify what isolated network to run in.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=162.16) [Now it is possible for a container to run in more than one network,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=166.84) [and that would allow it to communicate with multiple](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=170.63) [containers that might be kind of cross group,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=173.5) [if you will, cross isolated network.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=175.68) [Now we're going to focus just on one isolated network in this](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=178.74) [particular example and the examples that follow,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=181.75) [but you can definitely do some more advanced things if you'd like there.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=184.9) [So let's walk through the steps here real quick.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=188.74) [So step one involves creating a custom bridge network.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=191.84) [And the way we do that is we use the Docker client,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=195.94) [and we use the network command.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=199.64) [And we could say, hey Docker, I'd like to create a new network.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=201.73) [I'd like to use the bridge as the driver,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=205.44) [and there's a bunch of different drivers you can do as mentioned,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=208.46) [even cross host is possible, and more.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=210.99) [And then I'm going to name the custom network.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=214.84) [Now, I gave it a real basic name of isolated\_network,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=217.27) [but it could literally be whatever you want.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=220.23) [This is just like naming an image or naming a container when you run it,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=222.16) [you can come up with whatever name you want here.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=227.45) [Now, that's it.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=230.34) [Now,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=231.62) [what that will do out of the box is not a whole lot because](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=231.84) [it just creates this isolated network, but at this point,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=234.77) [nothing's in it.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=238.09) [So step two involves then running your containers,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=240.14) [but specifying that I'd like to run that container in a specific network,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=244.35) [and notice that I'm now saying I'm going to run it in isolated\_network,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=249.14) [which of course is what we just saw that was created.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=253.09) [Now we've said what network we want this container to run in,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=255.94) [but how would another container in the same network call into this container?](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=259.16) [And the answer there is we do just like we did earlier with](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=264.74) [the legacy linking and we give it a name.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=267.55) [So every container that you want to link up will have a name.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=270.28) [So in this case, I named it just plain old mongodb.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=274.44) [Now, the connection string for a web container that's also in the](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=278.44) [isolated\_network could then call into MongoDB by using a server name of](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=283.3) [mongodb because that's what the container name is.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=289.2) [So I won't have to use the ‑‑link that we saw earlier with the legacy linking,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=292.14) [and you're going to see all this coming up with an example in just a moment,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=296.92) [but all I have to do is just give every container that I want to link to a name.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=299.84) [As long as they're in the same isolated network in this case,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=304.84) [I can now reference that name just like we saw earlier,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=308.25) [and then I'm off and running. I can hit a database,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=311.03) [a caching server, or whatever it may be.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=313.44) [Now it's important to note that the Docker documentation](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=316.54) [doesn't actually refer to this technique with the bridge and](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=319.53) [the container networking as linking.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=322.51) [That's a term I like to use because it just makes sense.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=325.44) [We want to link one container to another,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=327.86) [but in this world, really,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=330.39) [we would just call it communicate between one container and another container.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=332.03) [Now to wrap this up, I also want to mention that linking,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=337.24) [as far as the legacy linking, is actually not supported in this world.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=340.44) [We don't need it of course.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=344.45) [We have our isolated network and we can just use that directly.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=345.85) [So now that you've seen an example of what this bridge](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=350.04) [network or container networking looks like,](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=353.78) [let's jump into the samples that we already saw earlier with](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=356.83) [Node and Mongo and ASP.NET Core and Postgres. Let's see how we can change those up to use this technique.](https://app.pluralsight.com/course-player?clipId=6759646c-a8cb-4f0d-b236-2cabd859f5f7&startTime=360.16)

### [Container Networks in Action](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d)

[Let's jump into an example of creating a custom container network](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=2.44) [using the bridge driver and then adding some containers into that](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=6.3) [network so they can communicate.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=10.22) [So what I'm going to do is the same exact demonstration I](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=12.74) [showed earlier with the legacy linking,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=15.34) [but we're going to do this with our own custom bridge network.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=18.06) [Now I've updated the comments here and added two options.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=21.94) [So Option 1 is what we looked at earlier,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=24.98) [and this is the legacy linking that I showed.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=27.03) [But Option 2, which is the new one, is we're going to create our own network.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=30.04) [I'm going to call it again isolated\_network,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=34.73) [but you would normally give it a more specific name,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=36.39) [probably based on the containers that are going to be in that network.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=39.1) [Before I run this though, let me come back to the command prompt here,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=42.14) [and I'll show you another Docker client command,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=46.76) [and it's called network, and we can do ls,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=49.44) [and we can list the networks.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=53.43) [And you'll notice currently that I have none,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=54.62) [host, and bridge, and it shows these different drivers.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=57.31) [Well,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=60.26) [we're going to be creating some containers in a custom bridge](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=61.14) [network so we can communicate locally on this host.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=64.61) [And so to do that, we first need to create the network.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=68.84) [So I'm just going to grab this command here, and we'll run this.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=72.36) [And it gives an ID, and now I can run the same commander earlier,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=78.19) [docker network ls, and there we go.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=82.58) [You can see my isolated\_network, and it's the bridge driver.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=85.99) [Now what's interesting about this is I can inspect the network is well.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=90.44) [So I can say docker network inspect,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=94.11) [and I can give it the name of isolated\_network.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=98.34) [And this gives me some information,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=102.41) [but I want to point out currently there's no containers in there.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=104.79) [So it does have some information about the subnet and the](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=107.93) [gateway and some other info up here on the ID,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=110.82) [but it's really not very useful at this point.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=113.19) [All right, so we need to run some containers in that network,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=116.94) [and we're going to do that using the ‑‑net switch](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=120.46) [that I showed a little bit earlier.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=124.27) [So the first one I'm going to start is the MongoDB container.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=125.47) [So we'll paste that in, and that's going to fire that up.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=131.74) [Now that's in the network.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=134.29) [So we should build a now do a docker network inspect on our network,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=135.56) [isolated\_network.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=140.26) [And now you'll notice in the containers that we have mongodb listed.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=142.14) [And only the items that show up in here are going to be available.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=147.04) [So this is actually pretty cool to work with.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=151.65) [Now we'll come back and we'll start up our Node container.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=155.54) [All right, same thing.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=162.44) [This will now add it.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=163.83) [And when we do our docker ps, we should see those both running.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=164.94) [All right, now I can go to the browser, and I didn't load the sample data here,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=168.84) [but let's just refresh.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=172.03) [And we should see this Docker Commands show up once it loads up here.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=174.04) [All right, and there we go.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=178.74) [Now I've already shown earlier in a previous demo that if we want,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=180.4) [we can do this docker exec,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=183.87) [and this will run against the name that you see here of the container.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=186.34) [So it made it a little bit easier.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=191.34) [You don't have to know the container ID now.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=192.66) [Go ahead and run that, and that starts it up,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=195.84) [and then I can just stop to get out.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=198.08) [Now the MongoDB database should have some data, and there we go.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=200.64) [We're now able to run that.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=204.63) [So that's an example of how we can use our container](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=207.04) [networking or bridge networking.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=210.82) [It really depends on how you want to look at it,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=212.81) [but the official term is container networking with a bridge driver.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=214.87) [And that's how we can have multiple containers communicate](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=219.44) [with each other in a way that isolates them to this custom](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=222.71) [network container that we created.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=227.14) [Pretty cool stuff.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=228.72) [Now that you've seen that,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=232.84) [let's do the same thing with the ASP.NET Core and PostgreSQL.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=234.19) [So I'm going to run through this want to little more](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=239.24) [quickly because we've already seen it.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=241.13) [But if I run in and say docker network ls,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=243.54) [you'll notice I have kind of the standard items here,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=247.88) [and now I'm on the Mac side versus the last one was on the Windows side.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=250.85) [So we can again create our custom network.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=254.45) [We'll paste that in.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=260.64) [There we go.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=261.85) [So now we can run our docker network ls, and there we go.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=262.74) [It's in there.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=267.11) [But if I ran the inspect, it would be empty,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=267.75) [of course, as far as the containers.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=269.56) [All right, so from here,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=273.14) [we'll go ahead and now we'll start up our database container,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=274.5) [and then we'll go ahead and start up our web server](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=278.74) [container that wants to communicate with that.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=281.44) [All right, we're off and running, so let's make sure they're started.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=286.14) [All right, both are up it looks like over here.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=288.98) [So we can come back over and let me refresh this particular IP and port,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=291.64) [and we should see the same type of page on this particular browser.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=296.67) [All right, there we go.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=300.36) [So there's ASP.NET Core again with Postgres.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=301.36) [But again, this time they're running inside of their own network,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=304.34) [so let's just prove that one more time by doing docker network inspect.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=307.47) [And then the name of the network was isolated\_network All right,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=312.94) [and you can see we have two containers.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=319.28) [There's aspnetcoreapp, and there's our postgres.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=320.83) [So the name is actually the name that was used in](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=324.5) [the connection string up in here.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=328.21) [And likewise on the MongoDB side, the name of that container,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=330.34) [of course, was used in the connection string.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=333.35) [So this is the preferred route moving forward with Docker as you](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=335.94) [are definitely moving to staging and production.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=340.56) [Now I'd say in development,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=343.84) [I don't know that it matters quite as much because](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=345.7) [you may not even need a network,](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=347.69) [but it's just as easy I think to set up a network as it](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=349.12) [is to link with the legacy linking.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=352.25) [So I'll let you kind of debate the merits there.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=355.12) [Either one works. But that's an example of how we can do this with container networks.](https://app.pluralsight.com/course-player?clipId=8256ec32-dde7-4a80-b2e8-e71aa440d76d&startTime=357.54)

### [Linking Multiple Containers](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787)

[As you've walked through the different samples in this module,](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=2.94) [you might have wondered,](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=5.27) [do I really have to type so many commands to link up](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=6.63) [multiple containers to each other? Obviously,](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=9.87) [if you only have two or so containers,](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=12.52) [it's not that big of a deal, but as you start adding more and more and more,](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=14.57) [it starts to convolute things and definitely make it a little](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=18.62) [bit more challenging to get those containers up and running and](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=21.89) [all connected and communicating.](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=25.6) [So the good news is there is an easier way.](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=28.04) [If you do have the scenario where you have a web server and a database](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=31.94) [and a caching server and more, then in the next module,](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=36.15) [we're going to learn how we can apply all the different topics we've talked](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=40.41) [about here and put those into something called Docker Compose.](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=43.89) [And as you could see by their logo for Docker Compose,](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=48.56) [it's good at juggling and really managing multiple](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=51.75) [containers in a way that's really, really easy to work with.](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=55.41) [And so the good news is while you might use some of the](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=59.64) [commands that I showed throughout this module just to get up](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=62.99) [one or two containers for sure, if you have requirements that say,](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=66.22) [hey, we have, you know,](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=71.23) [four or five containers maybe, or maybe even more, then it is](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=72.22) [a lot easier to use this other tool that's part of the Docker](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=76.03) [Toolbox called Docker Compose.](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=79.27) [And so we're going to be covering that in the next module, something for you to look forward to.](https://app.pluralsight.com/course-player?clipId=2bd3d100-a976-4279-867e-54960e0a5787&startTime=81.92)

### [Summary](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3)

[I hope you have a good idea now about how you can communicate between different](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=2.24) [containers that you need to get up and running in your develop environment or](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=6.52) [even in maybe a staging or production environment.](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=10.27) [So we've learned that Docker containers can communicate in different ways.](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=13.24) [We can use the legacy linking function,](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=17.16) [and that's where we use the link command line switch or we can do the](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=19.66) [networking option as well and that would be one that definitely is very](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=24.05) [powerful because now you can isolate containers to only be allowed to talk to](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=28.35) [other very specific containers if you'd like.](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=32.53) [So the link switch is the one that provides the legacy linking, and of course,](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=35.54) [the net command line switch is the one that provides the bridge network](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=39.04) [functionality. Now, I also mentioned that this is all great,](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=43.09) [but if you start getting past more than two or so of these,](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=47.65) [then you end up running a lot of commands. then you start trying to](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=51.02) [come up with ways to batch those to save some time,](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=54.79) [and the good news is we already have a solution built in](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=57.84) [the Docker toolbox called Docker Compose, and that's what we'll jump into in the next module.](https://app.pluralsight.com/course-player?clipId=1b4a370a-a98f-4c4f-8430-75e057ac4de3&startTime=61.13)

## [Managing Containers with Docker Compose](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735)

### [Introduction](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735)

[We've covered a lot of really fun concepts when it comes to](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=2.14) [working with Docker in a development environment,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=4.75) [but we're now getting to one of my favorite parts of Docker,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=7.08) [and that is Docker Compose.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=10.37) [Docker Compose provides a great way and a very simple way,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=12.64) [you'll see,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=16.45) [to get multiple containers up and running with a minimal effort on your part.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=17.34) [It's very easy to get started with.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=23.14) [The configuration files that we're going to talk about aren't hard to work with,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=25.55) [and the commands are even more simple than you've seen up to this point.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=28.61) [So let's take a look at the agenda for this module.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=32.36) [So we're going to kick things off by talking about](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=36.34) [what exactly Docker Compose is,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=38.66) [and I'll kind of make the case for why we need it,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=40.77) [especially in a development environment.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=43.84) [We're then going to introduce a file that you're going to need](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=46.84) [to know about to work with Docker Compose,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=49.23) [and it's called docker‑compose.yml, or y m l you'll see here.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=51.68) [And this is going to be your configuration file that's](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=55.72) [going to be responsible for taking images and getting them](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=58.5) [up and running as containers.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=61.61) [And you're going to see we're going to call those actually services.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=63.84) [Now from there,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=68.04) [we're going to talk about some of the commands you can run with](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=68.58) [a Docker toolbox tool called Docker Compose.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=71.17) [So we've seen Docker Machine.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=74.54) [We've seen Docker Client,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=76.29) [and Docker Compose is yet another tool that you can run a](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=77.82) [few commands with to do all kinds of great things that are](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=80.74) [very productive and efficient.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=84.29) [Now once we get through the overview of what it is and how the](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=86.94) [configuration file works and how to run some commands,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=90.29) [we'll take some of the images and containers that we](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=93.54) [worked with earlier in the course,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=96.13) [and we'll see how we can very easily get those up and running and](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=97.9) [even communicating with each other as well.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=102.21) [Then, from there,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=105.84) [we're going to wrap up the module by walking through a more robust example.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=106.45) [Earlier in the module,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=110.64) [I'm going to introduce a scenario where we might have a bunch of services.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=111.83) [In our case,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=115.81) [it's going to be about six services that we need to get up and](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=116.35) [running for our development environment.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=119.15) [I'm going to walk you through the overall development environment services.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=121.24) [We'll talk about a custom docker‑compose.yml file that can](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=125.64) [configure these different services, and then we'll talk about](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=129) [how we can manage those services, and this will include bringing them up,](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=133.07) [taking them down, removing containers, and some more topics.](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=136.27) [So let's go ahead and dive right in, and let's take a look at what](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=140.64) [is Docker Compose and why is it so important, especially in the world of web development environments?](https://app.pluralsight.com/course-player?clipId=1f0267e3-f59a-4df8-8c62-e9d970ab2735&startTime=144.45)

### [Getting Started with Docker Compose](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8)

[From a web development standpoint,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=2.44) [Docker Compose is definitely one of the more exciting pieces of Docker.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=4.17) [It's a great way to automatically manage the lifecycle of your application](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=8.23) [in the development environment and get it up and running,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=13.96) [and stop it, and things like that very,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=16.65) [very quickly, and that's what we're going to talk about in this first section.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=18.75) [The logo really kind of gives away a lot about what it does.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=22.34) [It allows you to have multiple images and then convert those](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=26.03) [images into containers. Now to do that, though, by hand,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=30.05) [which we've pretty much been doing throughout the course up to this point,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=33.49) [we've been going into the command line and having to do a manual docker run,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=37.44) [and you can see that with a lot of containers that can be a little bit](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=41.75) [problematic and definitely not very efficient or productive.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=45.12) [So the image that you see here from their logo reflects exactly what it does.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=48.64) [It allows you to manage multiple containers and the overall lifecycle.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=53.79) [Now, if you go look at the official docs,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=60.64) [they'll highlight four main areas that it works well. And it's](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=62.97) [great for the development environment, staging, maybe for](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=67.55) [production, Docker has some other options you could use there](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=70.57) [for DevOps like Docker Cloud,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=73.11) [but definitely in the development environment it can do these types of things.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=75.24) [So as mentioned,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=79.15) [it manages the entire application lifecycle, and](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=80.25) [that includes things like starting, stopping,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=83.2) [rebuilding, what they call services.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=85.82) [And you're going to see that a service really becomes a running container.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=88.44) [So we're still going to be using images behind the scenes that get converted](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=91.98) [into running containers, but we're going to call those services in the world of](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=95.88) [Docker Compose, as you'll see as we dig in deeper.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=99.97) [It also allows us to view the status of running services,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=103.54) [including the log output of all those running services very easily.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=106.65) [You don't have to do a command per container to get the](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=110.84) [logs, you can actually get to all the different container](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=113.52) [logs at once if you'd like.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=115.8) [Now, if you do want to get to one container and do a one‑off operation,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=118.94) [you want to maybe view the logs for it,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=123.54) [or just start and stop that one container or even build it](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=125.51) [from the image standpoint, then Docker Compose will let you](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=128.81) [do that as well, so it's a really,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=131.99) [really nice way to manage different containers in an app](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=134.52) [that you're going to be working with.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=139.44) [Now, let's talk about the need for Docker Compose.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=141.94) [This gives you some high‑level kind of 10,000‑foot level stuff,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=144.4) [but let's dive in a little bit more here.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=147.92) [So let's assume that we have a setup in a web app where we have nginx on](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=150.84) [the frontend, and that's a reverse proxy, we have Redis for caching on](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=155.62) [the backend, and MongoDB as our data storage,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=159.9) [let's assume, and the nginx when a request comes in,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=163.02) [let's assume that it also is going to route that into different Node.js servers.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=167.05) [Now, again, you could substitute your chosen framework, it could be PHP, ASP.NET,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=171.33) [Java, whatever it may be here. Now,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=177.09) [as these servers get called, they'll of course call into the database,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=180.26) [they'll more than likely then cache some of that data in Redis,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=184.7) [and then that's kind of how it proceeds. Now, what's nice,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=188.54) [though,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=191.36) [is Docker Compose can manage all of these. And you'll see that we have](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=191.82) [six different containers in this particular case,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=196.3) [and you could certainly have a lot more if you have other application](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=198.93) [servers and things going, and managing those by hand,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=202.1) [I don't know that I want to do that.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=206.09) [It's a little bit problematic, like I said,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=207.22) [not very efficient, not very productive.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=209.01) [So Docker Compose has a file that we're going to be talking about](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=210.81) [called docker‑compose, and it's a YAML file.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=213.75) [So if you're new to it, don't worry, it's a super, super simple format.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=217.04) [And in this file,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=220.74) [you can define all these services and even the](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=222.21) [relationships between the services.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=225.74) [If you remember earlier in the course we talked about linking,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=228.11) [and we also talked about networking or bridge networks, and we're going to talk](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=231.22) [about that as well here as we dive into this docker‑compose.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=235.06) [So what we're ultimately going to be after here is we're](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=239.34) [going to make a docker‑compose file that can manage the](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=241.91) [different application services.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=246.17) [Now,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=248.04) [the services in this case would be the nginx, the Node. the](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=248.23) [Redis, the Mongo, really they're just containers,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=251.56) [of course,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=254.62) [at runtime. but in this world of Docker Compose we're going](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=255.05) [to call and refer to them as services.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=258.36) [Now the standard workflow, once you have your Docker files set up,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=263.54) [if you have custom Docker files, and your docker‑compose.yml file, is](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=267.7) [you're going to use Docker Compose to then build your services. Now](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=272.52) [under the covers that's just going to create images like we've been](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=276.79) [doing all throughout the class.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=279.53) [From there,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=282.64) [we can then use Docker Compose to start up our](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=283.26) [services, and then when we're done,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=285.35) [we can tear down those services, and stop the containers, and even remove](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=287.66) [them if you'd like. Throughout the rest of this module,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=291.77) [we're going to be talking about these different aspects of the Docker](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=295.19) [Compose workflow, and we're going to start off,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=298.16) [for instance,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=300.7) [by talking about the docker‑compose.yml file and how you can work with that.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=301.14) [Then we'll move into some of the Docker Compose commands that you can run,](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=306.04) [and then we'll jump into some actual examples of using it and applying it to a development environment.](https://app.pluralsight.com/course-player?clipId=da70d177-f189-4b04-b566-757c9cbbbfb8&startTime=309.61)

### [The docker-compose.yml File](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822)

[So let's jump into how this YAML file is used and some of the key aspects and](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=1.24) [instructions that you're going to find in the YAML file.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=6.27) [So first off,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=11.04) [the docker‑compose.yml file defines, as mentioned, all of our services.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=11.97) [And so this would be things like,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=16.11) [what's the instances of different web servers you might have](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=17.73) [running, the different frameworks there, Node, PHP, Java,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=20.43) [whatever it may be; your database services,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=24.29) [caching services, you might have some application server](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=27.64) [services, and so on, and so forth.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=30.27) [And so this will just be a normal text file that on its own is not that useful,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=33.24) [but we can run it through a docker‑compose build process.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=38.07) [And this build process can actually generate images that we can](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=43.14) [then use to create containers as we run this.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=47.58) [Now the docker‑compose build process you're going to](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=51.54) [see is extremely simple, in fact,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=53.52) [it's probably the simplest command we've run throughout the entire course.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=55.57) [That's why I'm a big fan of Docker Compose.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=60.04) [It provides a lot of functionality with just a little bit of](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=62.24) [work on your part, so we'll be looking at these commands in a](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=65.06) [moment. Now, that's going to generate, as mentioned,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=67.93) [the images. We're going to call these services,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=71.17) [though, once they get up and running. And then on a development](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=73.39) [machine just with one little command I can then build out my](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=76.37) [services, and then with one other very small command I can then](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=79.84) [get those services up and running.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=84.39) [And so it's very, very nice in the development world,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=87.44) [because if I just was given a YAML file with just a few basic commands,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=90.49) [I can actually have all my images ready, and then actually convert](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=96.45) [those into running containers and have these services,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=100.36) [if you will,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=103.03) [that are actually up and running. Then I can start](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=103.92) [building my code against those services.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=106.02) [So what goes in this docker‑compose.yml file? Well, the first](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=110.24) [thing you'll always see at the top is a version.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=115.05) [Now, if you do see a docker‑compose file out there,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=117.42) [just out on GitHub or out on the web somewhere, and if it](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=120.56) [doesn't have a version at the very top, then it's probably an old version.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=123.9) [The initial versions of docker‑compose didn't have a version,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=127.54) [but everything moving forward is supposed to have that](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=130.55) [as the very first thing at the top.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=133.27) [Now under the version, you can have different options.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=135.84) [You can have things like services, which we'll be talking about,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=138.59) [but you can define other things like volumes and networks as well.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=141.53) [Now for our services,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=145.34) [this is where we're going to define what is it we want to be running once we](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=146.5) [build this docker‑compose.yml file, and then get all those images up and](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=151.68) [running as containers. So this is where we define,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=156.07) [for instance, Node.js or ASP.NET or Java or PHP.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=159.23) [Our databases, our caching servers, and so on, and so forth would go in here.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=164.64) [Now, there are a lot of different options for defining these.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=169.84) [So, for example,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=174.04) [some of the configuration options you can supply](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=175.64) [include things like the build context.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=178.72) [This would be things like what folder do we kind of build from as the](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=181.87) [context and what Docker file do you want to use to build that](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=185.62) [particular service, and you'll see this coming up.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=189.69) [We can define environment variables, and these environment](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=193.04) [variables then can be automatically put into that running](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=195.91) [service, that container, at runtime.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=198.71) [So that makes it really nice to swap, for instance,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=201.4) [between an app environment of maybe development, to production, and see how](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=203.89) [your app responds to that. We can also define just an image.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=208.45) [Maybe you're not going to build an image, you already have one either local or](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=212.95) [up in Docker Hub, you just want to use that as the service.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=215.9) [We can also associate a given service with a network that's](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=220.84) [been defined. Now if you'll recall earlier in the course we](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=224.4) [talked about ways of linking up,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=227.34) [if you will, Docker containers at runtime, so for instance](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=229.56) [linking up a Node.js to MongoDB database. Well,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=233.02) [the recommended way to do that, of course,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=238.14) [is through networks,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=239.84) [and we talked about something called a bridge network and how that can be](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=241.21) [used to allow these containers to communicate with each other, and we can](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=244.32) [define those networks and then reference them to link things up in our](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=248.44) [docker‑compose.yml file. We can also expose different ports and define](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=252.32) [those, and we can even define volumes,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=257.71) [including pointing to source code on your local dev](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=260.89) [machine volumes, and so it makes it really,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=263.76) [really easy to hook up a volume into a container at runtime.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=265.75) [So let's look at an example that dives a little bit deeper](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=272.74) [into some of these different options.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=275.08) [So, as mentioned, we'll have the version at the top,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=277.54) [and then we'll have our services. Now under the services](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=279.74) [you then name the different services.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=282.96) [So I have one here just called node.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=285.52) [Now that becomes the name of the service.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=287.92) [Now under that, in this case,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=291.24) [I say I'm going to have a custom build for a dockerfile called](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=292.68) [node.dockerfile, and the context is the current folder.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=297.47) [So when it builds, use the current folder as kind of starting point,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=301.78) [the folder context, of how to reference sub‑paths and things.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=305.53) [Now I'm also saying that this node service needs to be associated](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=310.64) [with a ‑nodeapp network, and this is a bridge network. And that](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=314.91) [will allow me to put this in a specialized network and then](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=318.68) [communicate with other services, other containers in that network.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=321.83) [Now, here's another service called MongoDB.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=326.74) [Now in this case I'm not building from a custom Docker file, I'm going](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=329.64) [to be using the Mongo image that's up on Docker Hub.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=333.02) [So this will cause it to pull it down and then use that image, and](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=336.11) [then notice I'm adding it to the same network, nodeapp‑network. And](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=340) [then you can even define multiple networks.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=344.6) [In this case, I define a single network called nodeapp‑network,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=347.14) [and then it has a driver, which is our bridge type of network.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=350.67) [Now,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=354.64) [if you're new to the YAML format and you're coming from maybe an](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=354.84) [XML background or JSON or something like that,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=358.84) [then this is definitely very different. You'll notice that there's a](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=361.68) [little bit of an indentation kind of going on here.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=363.96) [And what's nice about this is, number one, you don't](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=367.24) [have to worry about closing tags, so it's very simple that way.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=369.77) [And you also don't have to worry about closing brackets and things,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=372.77) [as with JSON. It's just a different way to do it.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=375.6) [So you can see it's just a simple file. On its own it's not that useful,](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=378.88) [but as I teach you and we walk through the different Docker Compose](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=382.59) [commands, we can take this and convert it into a node service, a mongodb](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=386.07) [service, and then a network that both of those services are in so they can](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=392.28) [communicate with each other.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=396.1) [So that's a simple example of what could be in a docker‑compose.yml file.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=398.04) [Now let's look at how we can work with some of the commands](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=402.84) [that can take this and convert it into images, containers, and services.](https://app.pluralsight.com/course-player?clipId=8276c44f-e32b-451a-bdda-af05b8d1e822&startTime=405.37)

### [Docker Compose Commands](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e)

[Once you have your docker‑compose.yml file available,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=2.84) [you can go into the Quickstart Terminal and run the Docker](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=5.68) [Compose tool and use some different commands that we're going](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=9.11) [to talk through real quick here.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=11.44) [So here are a few of the key commands that we're going to be](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=14.04) [using in the upcoming sections in this module.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=16.37) [First off, we need to build our services into images,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=19.74) [and we can do that with the Docker Compose tool,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=22.92) [and we can run the build command.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=25.77) [That's it, really simple.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=28.14) [You'll notice there's not a lot to that,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=29.94) [especially if you look back to what we've done when we did](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=32.01) [builds in the past with just the Docker client.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=34.53) [Now once you have your images available,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=38.14) [you can then say docker‑compose up to start those up as running containers.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=39.74) [You can tear them down with the docker‑compose down command.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=43.95) [And then you can do a lot of other things in addition to that.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=47.99) [We can view the logs.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=51.76) [We can list the different containers that are running as our services.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=53.58) [We can stop all of the different services and then](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=57.34) [start them back up if we'd like.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=60.6) [And then once we've stopped them,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=62.32) [we can even remove the different containers that are making up our services.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=64.03) [Now we're going to be diving into a lot of these as I move](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=69.04) [into some of the examples of using them.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=71.75) [But let's walk through the fundamentals of the key ones here,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=74.03) [the build, the up, and the down.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=77.03) [So, earlier, I talked about the Docker workflow involved,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=80.74) [building your services, starting them up,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=84) [and then tearing them down.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=85.97) [So let's focus on the build part here.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=87.24) [So, as shown earlier, we can come in and say docker‑compose build,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=90.54) [and that will automatically build or rebuild all of the](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=95.01) [different service images that we need that are all defined](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=98.51) [in your docker‑compose.yml file.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=102.14) [Now this is great because if you had a bunch of services,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=105.24) [like I showed earlier, maybe NGINX, Node,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=108.58) [Mongo, Redis, and maybe even others, then,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=111.75) [with one simple command,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=115.24) [you can automatically create all the different images that those](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=117.01) [services will need to run on your development machine.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=120.64) [So it's really, really nice that way.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=123.36) [Now you can also build individual services.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=126.24) [Oftentimes, as I'm doing this, I make a tweak maybe to a custom Docker file,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=129.34) [or maybe there's just a new version of an image that you want up on Docker Hub,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=133.64) [and you don't want to rebuild everything.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=137.81) [You just want to rebuild one of those services.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=139.84) [Well, you can do one‑off commands as well,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=142.18) [and this would only build or rebuild the Mongo service of course.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=144.49) [Now once you have everything built, we can then start those services up.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=150.04) [And you saw that's very, very simple to do with our docker‑compose up command.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=153.9) [That will automatically create the containers and then fire them up,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=158.23) [start them up.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=161.89) [That includes linking them together if you're doing linking technology or](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=162.75) [if you're using bridge networks or whatever it may be.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=166.24) [So very, very simple.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=168.62) [One simple command and you're up and running.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=170.33) [Now, again,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=172.84) [I want to highlight and compare that to what we've done up to this point](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=173.33) [in the course where we've had to do individual docker run commands, and](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=177.07) [some of those commands get a little bit long.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=180.46) [This is a lot easier.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=182.82) [So this is a great way to simply take a Docker.yml file, do a](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=184.01) [docker‑compose build. Once that's built, we can then say](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=189.28) [docker‑compose up, and we're off and running.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=192.79) [Now we can also come in and do a docker‑compose up and supply](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=196.44) [some other command‑line arguments here.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=201.22) [Maybe there's a particular service we want to bring up individually,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=203.74) [such as Node in this case, you'll notice over to the right here.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=207.6) [And we don't want any of the other dependencies though. Maybe Node](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=211.54) [depends on MongoDB or PostgreSQL or something like that.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=214.98) [And we don't want to recreate those other services, just the Node one.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=218.94) [Well,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=222.94) [we can do that with the docker up. That will make sure that the node is](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=223.24) [brought back up, but we don't re‑create the other containers that might be](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=227.22) [linked into or bridged into the Node container.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=231.22) [So we've now looked at building the services,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=236.54) [starting up the services, and now let's look at tearing down the services.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=238.84) [So the simple command here is docker‑compose down,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=243.84) [and that automatically will take all the containers](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=247.03) [and stop them and then remove them.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=249.59) [Now if you don't want to remove them, you could just do docker‑compose stop.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=252.04) [I showed you that a little bit earlier. But down is really nice in cases](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=255.67) [where you're kind of done maybe for the day or something like that, and you](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=259.52) [just don't want those containers hanging around.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=263.1) [Maybe you're going to be rebuilding your images anyway.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=265.39) [And so you just like to kind of clear all that out.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=268.12) [Now if you'd also like to not only stop the containers,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=271.94) [remove the containers, but also remove all the images, then you can](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=275.15) [add some extra switches here. You can do ‑‑rmi all would remove all](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=278.67) [the different images that we have associated with those services.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=284.11) [And then you can even remove any volumes associated with those with](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=286.93) [just a very, very simple command you can see.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=291.43) [So, again, you can imagine if you had five containers](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=294.34) [running or more, this provides a really,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=296.86) [really easy way to not only stop those and remove them,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=299.37) [but even remove all the different images and all the containers associated](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=302.07) [with those instead of having to do that individually,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=306.1) [like we've done up to this point.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=309.31) [Now there are a lot of other commands you can run,](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=311.74) [but those are the key ones that you're going to start seeing](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=313.67) [as we look at Docker Compose in action. So let's jump on into the next section here, and let's put this to use.](https://app.pluralsight.com/course-player?clipId=a57eaddb-a274-46cd-9a2d-d2317d50042e&startTime=316.11)

### [Docker Compose in Action](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16)

[Let's take a look at Docker Compose in action,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=2.24) [and we're going to work with a custom YAML file,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=4.9) [as well as use some of the different Docker Compose](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=7.61) [commands that we talked about earlier.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=9.92) [All right, so I've already opened up a Node.js, MongoDB type of project.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=13.44) [This is the same exact one that we saw earlier where we had to](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=17.75) [manually run some of the different commands to build our images](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=21.41) [and then run our different containers.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=25.31) [So while that works, it's a little bit inefficient,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=27.94) [I would argue,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=31.31) [and definitely not something I want to have to copy and paste those](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=32.1) [commands in every time I want to run a container,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=34.97) [rebuild an image, or whatever it may be.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=37.36) [So I've already created a docker‑compose.yml YAML file,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=40.04) [and the first thing we're going to do to make it easier to](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=44.8) [bring up our Node and our Mongo services,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=47.9) [which is again, really our containers,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=51.18) [is add them and define them into this particular YAML file.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=53.42) [So the first thing I'm going to do is we're going to come in and mark](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=58.54) [the current version that I have to do as of today.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=60.86) [Next thing we're going to do is we're going to add the services that we want.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=64.44) [And because we're going to have two services here that sort of link up,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=67.99) [if you will, we're going to do that through the bridge network.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=71.72) [So I'm going to come in and I'm going to name it nodeapp‑network.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=74.94) [And then we're going to have to say that the driver for this network,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=79.04) [since there are different options here,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=81.98) [is the bridge one that we've already talked about earlier in the course.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=83.56) [All right,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=87.94) [so that will take care of having a network that's named nodeapp‑network.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=88.24) [So that part represents the name.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=92.98) [And then the only property I had to put in this case for](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=94.83) [that was that it was a bridge network.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=97.99) [So the next thing we're going to do is come in and](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=101.74) [define I'm going to call it node, and we're going to do a node service.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=103.77) [And I want to build this from the custom Node Dockerfile that I already have.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=107.54) [And so I'm going to come in and add a build property,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=112.54) [and then it has some subproperties.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=116.14) [I'm going to name the first one context.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=117.93) [I want to run from the context of where this YAML file is here.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=120.84) [So if there's any subfolders I had to get to in the Dockerfile,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=124.99) [it would set the context of where that runs from.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=128.18) [So that's actually a really important concept.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=130.57) [Then the next one is what's the Dockerfile?](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=133.24) [Well, I'm not using the standard just Dockerfile name.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=135.23) [I'm doing node.dockerfile.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=138.65) [All right, and that'll take care of that.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=141.94) [Now this particular one is going to run on some ports.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=144.24) [We're going to do the mapping of the external to the internal.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=147.64) [I'm going to do 3000 to 3000.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=150.71) [Very similar to what we've done, 3000 on the external, 3000 on the internal.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=153.23) [And then we're also going to need to hook this into our nodeapp‑network.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=158.44) [So I can say networks and then simply put in‑‑‑ Every time you see the dash,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=162.94) [it's because I could add multiple items here in the YAML file format.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=167.24) [We're going to call this nodeapp‑network,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=171.14) [and that just matches that name right there.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=173.93) [All right, so we're kind of off and running with that particular service.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=177.84) [So one more time, we're going to call it node.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=180.94) [We set the build context to basically the folder where the YAML file is,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=183.74) [and then we give it our Dockerfile.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=189.45) [We're going to expose the ports that we want to set up and hook it into](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=191.44) [the network that you see here in this particular case.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=195.94) [All right, now the next thing we're going to do is hook in our MongoDB,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=200.04) [and this one is not going to be built from a custom image](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=204.54) [or a custom Dockerfile that I have.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=208.44) [It's going to be based on the one that's up in Docker Hub.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=210.21) [So I'm just going to list the name of the image there,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=212.71) [and let me change that because it's actually just mongo.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=215.44) [And then we also need to hook it into the network.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=218.5) [So I can just kind of copy and paste this part right here.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=221.64) [And were off and running.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=225.24) [So that would be an example of creating a custom Docker Compose YAML file.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=226.93) [It's not that hard.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=231.78) [Really it's just a matter of going to the documentation on docker.com,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=232.97) [looking up the Docker Compose YAML file documentation,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=236.95) [it's pretty well documented, and then just taking the time to do it.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=240.36) [And the nice thing is, once you've done this a few times,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=244.17) [you can just start to copy and paste and tweak things](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=246.53) [between your different YAML files there.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=249.41) [All right, so now we have our services defined.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=252.84) [We have a node.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=255.71) [We have a mongo.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=256.56) [They're both in the same nodeapp‑network here.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=258.07) [And that way, when we run these services and run the up command,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=261.94) [then it's going to put both of them in the network](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=265.64) [so they can talk to each other, and we've seen that earlier again in the course.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=267.49) [All right,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=272.14) [so let me run off now to the terminal that I already have up for this](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=272.68) [particular folder and because we have a Docker Compose file,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=276.77) [imagine that you just checked this source code,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=281.54) [maybe out of your version control, and brought it down to your local machine,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=283.77) [and now all I'd have to do to get an environment up and](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=287.72) [running is say docker‑compose build.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=290.87) [So I first need to get the images in place.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=294.24) [Now this will take just a little bit of time.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=296.94) [I have some of this cached, but it should be pretty quick.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=298.83) [And you can see it's now done.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=301.45) [And then mongo was already there locally if I did docker images.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=302.97) [So it didn't have to do anything there.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=306.45) [So if we do docker images,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=308.28) [you'll notice I have this](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=311.14) [nodeexpressmongodbdockerapp\_node. It kind of named that](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=312.29) [part.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=317.3) [And we could even name it, by the way. That's possible to do too.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=317.63) [And in here is my mongo image.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=321.14) [And so those are all ready to go.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=324.15) [So now the next thing to try to get this going would be to do docker‑compose up.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=326.84) [Now this is going to go ahead and start both of these up.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=334) [They just did.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=336.77) [And you'll notice though that when I brought it up,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=338.24) [it's kind of in log mode right now.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=340.31) [And so I'd have to open up a new terminal to really do anything here.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=341.97) [Probably not what I want.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=346.44) [So let's go ahead and go into here now. I'm going to say docker‑compose down,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=347.79) [and that's going to go ahead and stop both of those.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=354.44) [And it's going to go ahead and remove the containers as well,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=356.94) [which is really nice.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=360.02) [So we'll let this stop.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=361.22) [All right,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=363.74) [so that's all stopped now, and you'll notice it also removed,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=364.08) [so stopped and removed all in one shot.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=366.72) [Now what I didn't like about that is when I did docker‑compose up,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=369.64) [it kind of blocked us from using the terminal. So let's go ahead](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=373.64) [and do it, but we want to run in daemon mode.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=377.84) [I want to run it behind the scenes.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=380.09) [Let's go ahead and try that.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=381.8) [All right, now notice they should be up.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=384.04) [We'll prove that in a moment.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=386.12) [But I can get back to the command prompt.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=387.94) [So you've seen that before when we did docker run.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=389.7) [So let's go in and do another command, docker‑compose, and](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=393.24) [let's do ps and see what we have running here.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=396.69) [And you can see we have two containers.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=400.34) [So there's our mongodb. There's our node. It shows the status of the ports](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=402.93) [and the IPs and all that stuff we've already seen before.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=408.63) [All right, so since those are both up,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=412.94) [let's run off to the browser. And I already have the](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=415.04) [IP for the virtual machine here.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=419.05) [We're going to do the port of 3000, and this should now hit it, and there we do.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=420.76) [Now I'm not going to run the db seeder that we saw earlier.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=424.72) [I'm not seeing any data because this was a fresh container,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=428.01) [and so there's no data in the MongoDB database. But we certainly](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=430.72) [could also run commands against that if we wanted, and that way we](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=434.71) [could seed it with some data. But you can see it is up and running,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=438.83) [and we didn't get any errors there.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=441.74) [Now if you wanted to see that hey, there are no errors, then we could also,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=444.54) [while we're here,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=449.03) [do docker‑compose, and we can do logs. And what this will do is give](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=449.61) [us the logs for all the containers that are associated with this](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=454.56) [docker‑compose that we ran. All right, and there we go.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=458.78) [So notice that now I have the entire kind of log infrastructure here,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=462.21) [if you will.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=466.77) [I'm going to go ahead and exit that out. And you'll notice I can](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=467.41) [get to all the details about, in this case,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=471.24) [the MongoDB setup.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=473.2) [Here's my npm it looks like. Here's the calls that went in as we hit the](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=474.94) [web page. And it looks like, other than me aborting down here, everything](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=479.55) [is looking pretty good. Now to bring these down,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=484.22) [which you've already seen, we can do docker‑compose down. And this will](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=487.67) [go ahead and bring these down, and now we'll be kind of off and running,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=493.61) [and we can rebuild the images or do what we want. And I can even remove](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=497.02) [all the images if we wanted to.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=501.2) [When you do the down,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=502.96) [there's a ‑‑rmi all that I showed a little bit](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=504.14) [earlier, and we could do that as well.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=506.99) [So now let's do docker‑compose ps.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=509.17) [You'll notice nothing is running there. And we could even do the normal](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=512.14) [docker client ps ‑a if we wanted, and there's nothing there.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=515.71) [But if we go to docker images, you'll see that I still have my two images here.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=520.24) [There's my mongo and there's my node image.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=524.93) [So that's an example of how we can use Docker Compose to very](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=528.44) [easily, not only build, but also run our services and then](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=532.29) [take those down when we're done.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=537.07) [And then if I wanted to set up volumes and all that kind of stuff,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=539.04) [we certainly could. We'll see that coming up in the later demo in this module.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=542.28) [Now before we wrap up this section,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=548.84) [let me show you one more Docker Compose YAML file.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=550.54) [Now this is for ASP.NET Core and PostgreSQL.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=554.11) [Now again,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=558.34) [I could come into our Dockerfile, and we could manually run the](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=559.07) [different commands that we looked at earlier in the course.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=563.95) [But now I have my version, my services,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=566.32) [and I have a web and a postgres. And you'll notice that for the](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=569.77) [web, it's very similar to what I just showed for node. We have a](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=573.51) [custom Dockerfile, we set the context,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=576.5) [we give the ports, and we hook it into a bridge network. And for postgres,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=579.2) [it's really close to the same thing.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=583.71) [But you'll notice right here, I'm actually adding on environment variable value.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=585.39) [Now this is something that the PostgreSQL image knows about.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=589.96) [And so we did this manually earlier when we ran docker‑client run,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=593.64) [we had to put this on the command line, And you could do that, but again,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=598.74) [I don't really want to type that over and over and over or](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=602.85) [copy and paste over and over and over. So we just simply](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=605.03) [use this environment property.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=608.07) [Now I can put in the different environment variables that I'd like to set,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=610.32) [and you can certainly put more than one if you'd like.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=614.17) [And then we link that into the same network, and we can](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=616.74) [call this from the ASP.NET Core container that'll be](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=620.18) [running based on this name right here.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=623.4) [All right, so we can do the same exact thing now. If I just had grabbed this,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=626.74) [which,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=629.97) [actually I don't have this going as an image yet,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=630.26) [then we can come into the folder, which I'm already in.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=632.71) [We can say docker‑compose build.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=635.49) [Now this will have to build the ASP.NET image, which will take a moment.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=637.84) [And you can see there's a postgres image as well, which I already have locally.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=642.84) [So now we're kind of ready to go.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=646.5) [And if we do docker images,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=648.13) [we should now see that we have the web one here for](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=649.76) [the aspnetcorepostgresqldockerapp.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=653.79) [All right, so that's kind of the first step.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=657.81) [Now we know we can do docker compose up. This should now start those up.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=659.33) [Didn't do ‑d, But that's okay, in this case. There's all our logs for that.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=666.14) [Now we can come back and hit port 5000.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=671.84) [So let's go ahead and try that.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=674.46) [Change that up. And we'll be off and running here, and this now hits it.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=677.74) [And this one already seeded the database.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=683.06) [So this one you can see is definitely working because it](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=684.93) [shows us the seed data that ASP.NET put in.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=688.4) [And if I scroll up,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=691.43) [you'll be able to see some of the SQL statements and things. Even](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=692.6) [the inserts for the seeding are shown here.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=695.22) [So now we can break out of here, and I can say docker‑compose ps. There we go.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=698.31) [They're both up.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=705.47) [And then, of course,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=706.39) [docker‑compose stop if I wanted. That would just stop them,](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=707.16) [but we're going to do down, and that'll actually stop them and](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=710.62) [remove them as we talked about.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=714.05) [So that's an example of how you can get started with Docker Compose, with Node and Mongo and a YAML file and then ASP.NET Core and Postgres.](https://app.pluralsight.com/course-player?clipId=4125d523-7214-4a46-9f5f-6a7ca0864f16&startTime=715.94)

### [Setting up Development Environment Services](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a)

[Now that we've taken a look at how you can work with Docker Compose YAML](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=2.74) [files and some of the different commands you can run,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=6.35) [let's walk through setting up a more robust development environment,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=9.44) [talk about some of the different Dockerfiles involved,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=13.2) [and then look at the custom YAML file and how we can actually run it.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=15.47) [So earlier,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=22.04) [I talked about this type of environment where we have Nginx on the front end.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=22.67) [It can then route to multiple Node.js processes that could be running.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=27.24) [And then Node can integrate with MongoDB and cache some data in Redis.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=31.54) [Now obviously, in a development environment,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=36.26) [you probably don't need multiple Node instances.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=38.68) [But I'm going to show you how you could do it just so you](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=41.34) [see the setup and how it all works.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=43.24) [So let's go ahead and jump over to a code demonstration](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=46.74) [here. And what I'm going to do is,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=50.21) [rather than typing it all out, because we've already seen the YAML file,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=52.04) [we've seen Dockerfiles, I'm going to talk through the setup,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=55.49) [walk you through the basics in this particular section.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=59.23) [And then in the upcoming sections,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=62.26) [we'll look more deeply at the YAML file and then start to run it](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=63.99) [and get this environment going. And you're going to see it's](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=67.3) [actually extremely easy to get going.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=69.98) [That's what's so exciting again to me about Docker.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=72.43) [So let's jump on over here.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=75.64) [All right, so this is a project that has all these different](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=78.64) [services that I need to have in place, the Nginx,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=81.68) [the Node, the Mongo, the Redis.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=84.96) [And so what I've done here is I have a .docker folder.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=87.24) [Now this is my own name.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=91.44) [You can certainly choose whatever you want here. But](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=93.46) [inside of it, I have my custom Dockerfiles.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=96.55) [So I have one for Mongo, for instance.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=99.94) [We'll talk through the basics of this.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=102.51) [Here's Nginx.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=104.38) [Here's my Node, and then here's my Redis. Now these are pretty standard.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=105.67) [There's a few things I'll point out and call to your](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=110.46) [attention. But out of the box, I'm really just grabbing from the latest Mongo.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=112.41) [I'm running a couple custom commands.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=117.55) [It turns out that the debian:wheezy image of this is based upon,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=119.83) [didn't have a particular feature I needed,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=124.89) [at least at the time,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=127.4) [which is at the time I'm recording this, and it's called netcat. So I had to](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=128.41) [actually do an apt‑get, which is one way on a Linux machine that you can go](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=132.42) [grab different tools and download them dynamically.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=136.76) [So I'm going to do that.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=139.77) [And then I'm going to run some custom Mongo scripts and copy them in.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=141.11) [Now, in this case, when Mongo runs,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=145.04) [I need to supply some username and password‑type](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=148.73) [information. And out of the box, you don't get that.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=152.58) [You can supply some basic stuff,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=156.15) [but I need to supply obviously my admin password and username. And then](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=157.99) [the web that's going to hit it needs a web account.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=163.24) [So the Node application needs to be able to call it](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=165.69) [with a specific account as well.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=168.46) [And this is all done with some different sh or shell scripts here.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=170.54) [And so you'll notice I'm calling this run.sh. And in a nutshell,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=174.54) [what I'm doing is kicking off a little bit of scheduling for backups,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=179.14) [which, again, in the dev world you probably don't need.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=182.83) [But in this particular case, I could use this in a production mode if I wanted.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=185.32) [And then I kick off some other things, like this first run. And](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=190.04) [this is where I use environment variables.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=194.07) [And this is how, in this case, a shell script how we can get to some](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=196.39) [environment variables that are being set. Now these are going to be](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=200.68) [loaded through this mongo.development.env.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=204.28) [And so you'll notice in here, this is an environment variables file.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=208.49) [You're going to see this as we get into the Docker Compose file,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=212.61) [which is back down here.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=215.96) [But I I can supply the environment.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=217.84) [I can supply the Mongo type of functionality for the username and password.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=221.64) [And these scripts take care of applying all of this](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=226.22) [information to the actual MongoDB database.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=229.21) [So that's really what this guy does.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=233.74) [The entry point runs this custom script,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=235.66) [and that kicks off getting the username and](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=237.96) [passwords all updated in the database.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=240.18) [That way, I can truly do authenticated calls from the web app.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=243.14) [Now the Nginx also does a little bit of extra stuff.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=247.81) [First off, I have a configuration file. And if you're not familiar with Nginx,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=251.24) [it's a reverse proxy. And it's something that,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=256.44) [as was shown in the diagram earlier,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=259.62) [it could be hit first on port 80 for instance. And then it](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=261.48) [could forward dynamic calls that Node needs to handle or](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=265.36) [whatever your server is on the back end to,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=268.96) [in this case, the Node process.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=271.73) [But for the static resources, and this would be your CSS,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=273.94) [your JavaScript, your images,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=277.15) [things like that, I really don't need to hit a back‑end process for that.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=278.63) [Why not just let a really efficient server, like Nginx, serve those up?](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=282.27) [And that's what I'm going to do.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=285.98) [So this has the configuration for this proxy server,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=287.41) [and so it's actually going to configure a few things.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=291.44) [If I go into config, nginx, you'll notice in here if I scroll on down,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=294.34) [we have this little node‑upstream. And don't feel like you](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=299.02) [need to understand this if you're new to it,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=302.07) [because, quite honestly,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=303.76) [you could just go to their documentation, copy and](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=305.1) [paste some samples, and tweak them.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=307.88) [But I wanted to just point out that I actually set up a](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=309.74) [node1, node2, and node3. So when a request comes in to](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=312.68) [Nginx, if a dynamic call is required,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=317.71) [in other words it wasn't a static resource like a CSS file,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=320.74) [then it can route it into one of these Node instances. Now as mentioned earlier,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=325) [it's not like you need three Node instances in development.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=330.4) [But maybe you want to simulate a production type of](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=334.04) [scenario and do some testing.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=336.52) [Well, it's pretty easy to do that.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=337.68) [That's kind of why I set this up.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=339.3) [So that's really all I want to point out.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=341.34) [You'll see that these are running on port 8080, and these are going to be](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=342.86) [three containers that ultimately will run behind the scenes.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=346.91) [Now the rest of this,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=351.06) [if I go back to the Dockerfile for Nginx, is I actually copy the public](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=352.34) [resources. This is the static resources. If we jump over here to](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=358.47) [public, css, img, and js. So I'm actually copying that up into the](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=362.28) [container that's going to run for Nginx, and that way it can handle](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=369.89) [serving that. I do a little bit with certificates in case you want to](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=373.18) [play around with SSL.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=376.63) [These are self‑signed certificates so they wouldn't be used for](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=377.8) [production. And then I kick it off down here by running the](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=380.37) [Nginx command that you see right here.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=384.43) [So that's that Dockerfile.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=387.04) [I also have one for Node. This one's pretty basic.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=390.14) [It does a little bit of an install as far as npm install, installs something](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=392.9) [called pm2. This is a process monitor that'll monitor our server process for all](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=397.05) [the Node instances. And if the server process dies,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=403.13) [it'll restart it.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=406.49) [Or if I change the code, it can restart it.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=407.47) [And that's a real nice thing to have obviously in development mode.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=410.43) [And then finally, I have the Redis image.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=413.84) [And really all I'm doing here is copying again some configuration file info,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=415.96) [and that again is located up in this config.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=421.14) [You'll see Redis. And all I'm doing here is supplying](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=424.27) [a password for the caching server.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=427.04) [Don't use that in production, but it's not bad for dev.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=429.34) [It's just password.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=432.32) [All right,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=434.54) [so that's a quick runthrough on the services that we're going to](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=435.09) [have running and the Dockerfiles that are going to drive these](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=438.9) [images and ultimately the containers.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=441.92) [And by using these,](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=444.94) [you're going to see that we can make a Docker Compose file, and we'll be doing](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=446.57) [that in the next section here, and then get that up and running very quickly and efficiently using the Docker Compose commands.](https://app.pluralsight.com/course-player?clipId=76440868-a02a-45fd-aff0-e8795bbb271a&startTime=449.85)

### [Creating a Custom docker-compose.yml File](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff)

[Now that you've seen the custom dockerfiles that are going to](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=2.93) [drive the services that we're going to get up and running in](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=6.21) [our development environment,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=8.72) [let's jump into the docker‑compose.yml file and see how it's used](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=10.54) [and the different services that we have in it,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=15.17) [and some other features, and see how we can create that.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=17.3) [So earlier we looked at the custom dockerfiles,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=22.34) [and we saw that we had our mongo, nginx,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=25.53) [node, and redis.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=27.72) [Let's jump on down to the docker‑compose.yml file.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=29.84) [Now to start things off, you'll notice that I have the standard version up top,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=34.14) [and then I have my services.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=38.74) [So from a high level, I have my nginx, a node1,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=40.84) [2, and 3, we have mongo, and we have redis for our caching,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=44.18) [and so that's the same infrastructure that we talked about](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=50.1) [a little bit earlier in this module.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=53.08) [Now let's walk through each of these real quick and just take a look](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=55.84) [at what's going on with our individual services.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=58.5) [So first up is nginx, you can see, and it has a container\_name,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=61.35) [so there's a property that you can put in your YAML files called container\_name.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=64.79) [We've already seen the build context up to this point in the modules,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=70.34) [and we're setting the build context as this folder here,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=73.61) [the root of this folder, which is CODEWITHDANDOCKERSERVICES.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=77.04) [And then you'll notice that I'm pointing the dockerfile location to](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=81.74) [that .docker folder that we looked at earlier,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=85.35) [and of course the actual dockerfile.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=88.17) [Now, if you recall, in the config for nginx I configured node1,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=91.3) [2, and 3, and that way,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=96.62) [when a request comes in it can kind of load balance and does a](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=99.16) [round‑robin by default, and it'll call node1,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=102.79) [and the next request goes to node2, and so on,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=106.09) [and so forth.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=108.35) [So what I have here, if we go back to the docker‑compose,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=109.74) [is those actual node1, node2, node3.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=113.26) [So this is going to link up to these services here,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=116.55) [and this is kind of like an alias,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=119.17) [and then it points down to the node1 definition down here in 2 and 3.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=120.9) [So those are actually really important in this case because of](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=126.34) [the nginx acting as a type of load balance,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=129.01) [or reverse proxy actually, and it does that type of thing.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=133.23) [And I'm also exposing the ports that I want nginx to support.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=137.84) [Now, in this environment for development,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=141.44) [I'm probably just going to hit port 80,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=143.54) [but I showed earlier that in the dockerfile for nginx,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=145.15) [I actually do load up some self‑signed certificates,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=148.14) [so it would be possible with some more configuration code to](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=151.15) [get SSL going if we wanted on port 443.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=154.52) [Now, the next thing I do is I load an environment variable.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=158.74) [Now, this environment variable, it's just one, you'll see,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=162.34) [but it's in a file, this .env.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=165.31) [So let me show you what this file looks like.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=167.87) [It's very, very basic, but really, really useful.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=169.55) [So you'll see this app.development.env.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=172.48) [And all I'm doing is adding this NODE\_ENV and setting it to development.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=174.66) [Now, normally, that's used just with Node.js,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=180.18) [but I may actually want to use that particular environment](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=182.35) [variable throughout multiple containers.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=185.67) [Now in this case I'm not really using it, per se, but it would be available.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=188.24) [So what'll happen is when we build and then run this,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=193.44) [it's actually going to load that environment variable and make it available in](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=197.65) [the container so that we can work with that if we'd like.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=201.26) [Now you might wonder what this is.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=204.84) [Well,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=207.64) [I'll show a little more of this as we get into the next section](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=208.16) [and actually run the docker‑compose commands,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=211.33) [but I have a little kind of README up here of what to do to get this running.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=214.54) [So the first kind of step after you do some other changes for](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=218.25) [connection strings is I have to export app environment,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=221.57) [and I set it to the environment I want to run.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=225.84) [Now, right now I only support development.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=228.01) [You'll see I don't have an app.staging, app.production,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=230.22) [mongo.staging, mongo.production, just development.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=234.28) [But as I'm getting ready to migrate this to other environments,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=238.14) [I can certainly add those files.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=241.35) [And I just made kind of my own way of doing it,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=242.73) [a little environment variable that's local to the particular file here,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=245.4) [and it will be read dynamically.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=251.42) [So we'll run this in the console,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=253.13) [and then when we do the docker‑compose build and the docker‑compose up,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=255.12) [then it will automatically make this available.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=259.04) [So this would load app.development.env, assuming I set it to development,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=261.71) [and I'll show you this as we move into the next](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=267.53) [section with the command line stuff.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=269.72) [Alright,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=272.94) [and then the final thing is I have a custom bridge](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=273.23) [network called codewithdan‑network, and that's,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=276.05) [again,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=279.06) [going to allow all these containers to communicate in](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=279.42) [the same network on that Linux host.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=282.24) [Now, for the node it's very similar.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=286.14) [I have a container\_name, I have a build location for the dockerfile,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=287.68) [expose the ports, but here's where I actually set the volume.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=291.14) [Now this assumes we're in development mode, because you'll](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=294.63) [see that I'm pointing to the local folder,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=297.43) [which would be everything you see here.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=299.33) [And then on the actual container,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=301.14) [though, this is where we do that kind of aliasing,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=303.55) [and the volume actually is going to point to my code here.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=306.74) [So once these containers are up and running,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=310.52) [we can make our code changes. And then I showed earlier how I have,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=312.88) [it's called pm2 monitoring, and that pm2 will kind of watch for changes,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=316.5) [and if anything changes then it'll reset the server.js,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=321.87) [and that way I can just leave my containers up and running and](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=325.89) [they'll reset each other, or themselves,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=328.63) [I should say.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=331.08) [I set the working directory, and then I also load an environment file.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=332.44) [Now, this is used because this is Node, and again,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=335.68) [the environment file is specific to Node.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=338.46) [And so Node and Express, specifically Express is being used](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=341.54) [as the web kind of component of this, it knows how to read](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=345.94) [that environment variable, and it can actually tweak some settings there.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=349.79) [Now you can have multiple environment variables.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=353.54) [This is something that if I wanted I could have Env1 or Env2=foo, or whatever,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=355.87) [and just keep going, name‑value pairs.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=364.79) [And so this makes it really,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=368.04) [really easy if you have a bunch of environment variables,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=369.28) [well, I could put these right in the yml file here.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=373.14) [It's a lot easier just to put them in an environment](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=378.24) [file and then have them loaded up, and then,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=380.57) [as mentioned, if I do this export APP\_ENV=development,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=383.6) [then what'll happen when I use this with docker‑compose](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=387.34) [is this would be app.development.env.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=391.01) [Now, obviously, if I change this to production,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=393.36) [then it would be app.production.env,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=397.04) [and that would help you kind of dynamically load the](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=398.39) [different environment variables.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=401.94) [So this is the same for all the node containers,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=403.94) [and again, I put three of them,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=406.54) [mainly because you might want to simulate your production](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=408.7) [environment while you're in your dev environment,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=411.69) [and so this is just kind of allowing you to do that.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=414.65) [Now, if you only wanted one, you could certainly delete, you know, two of these.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=416.73) [Now, the mongo is actually pretty simple.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=421.24) [We have, again, the container\_name and the build.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=423.74) [Here's the ports, external, internal.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=426.48) [And then I have environment variables, and these are really important,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=428.53) [because the mongo one, this is going to be available to the container,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=432.07) [and then the shell scripts that I showed a little bit earlier,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=437.94) [they're going to read from these environment variables,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=440.78) [apply them to Mongo, so you'll see that I have my kind of root admin account,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=443.78) [and then my webrole here represents what Node would use to](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=449.67) [actually call in the mongo in that network.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=453.75) [And so what'll happen is the shell script would read these as they're](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=456.74) [passed into the container once it gets up and running.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=461.03) [And then once it's done applying those to mongo,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=464.34) [it would just erase those out of memory, because obviously,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=467.28) [once mongo is up and running and we've configured it,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=470.68) [we don't really need those or probably don't even want](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=472.82) [those hanging around in the environment.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=475.03) [So that's one way you could do it, there's certainly](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=477.42) [other ways that you could configure this,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=479.28) [but this makes it easy for a development environment.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=481.59) [Alright,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=485.74) [and moving on down, there's the environment variables being loaded.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=486.41) [Then the last one is redis, very similar procedure.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=489.22) [We have our dockerfile.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=492.24) [This is the redis port that's kind of the standard port.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=494.15) [We load that environment variable.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=496.96) [This one just loads the node, which isn't used here,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=499.54) [but I could have environment variables that are maybe specific to Redis](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=502.4) [potentially. And, again, we put it in the network.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=506) [And so there you have it, that would be the entire file we need.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=509.94) [And what I love about this is right now we have six services in](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=514.01) [here, nginx, three nodes, redis, and mongo, but if I wanted to add a](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=518.3) [seventh or an eighth or a ninth service, then I could certainly do](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=523.45) [that just by updating this file.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=527.6) [And then you've seen how easy it is to bring services up and take](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=529.84) [them back down, and that's what we're actually going to talk about in](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=533.25) [the next final part of this module here.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=535.81) [So that's an example of the custom YAML file that could be used](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=539.44) [to get our development environment up and running. And this is](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=543.66) [something we could just check into source control, every team](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=546.91) [member could pull it down,](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=549.5) [and then we would be able to do our builds and start running our containers, and that's what we'll take a look at next.](https://app.pluralsight.com/course-player?clipId=04cd5347-8d18-4a08-a068-79720c61f7ff&startTime=551.24)

### [Managing Development Environment Services](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1)

[At this point, we're all ready to go.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=1.84) [If we have that YAML file local with our source code,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=3.74) [now we can use the Docker Compose tools,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=6.92) [and that's what I'm going to walk you through here to get this](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=9.48) [development environment and all of these services up and](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=12.08) [running in just a matter of minutes,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=15.65) [especially if you already have some of the images already cached locally.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=17.59) [So let's jump in and take a look at how we can do that.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=21.24) [So I already have a Docker Console set up here ready to go.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=25.64) [And all we'd have to do as we've seen earlier is run docker‑compose build.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=29.65) [Now I already have some of this cached to kind of speed it up,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=35.23) [but this will go through and build out our different services.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=38.2) [We have six of them again.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=41.46) [And now that these are built, we can do a docker images,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=46.04) [and you can see that, here we go, I have my NGINX node1,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=50.71) [2, 3, and these are some other ones that I had.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=56.06) [But you can see here's the codewithdandockerservices\_node1, 2, 3, Redis.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=59.5) [But the reason this built pretty fast is I already](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=63.86) [had another version of this going,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=66.64) [and so I was able to leverage some of the layered file system.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=68.63) [All right, now if I run docker ps ‑a,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=72.64) [you can see that I've already tried to run some of these before.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=76.94) [And so a little trick we can do here is we could say docker rm,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=80.91) [and I'd like to go ahead and remove all these.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=86) [We're going to start kind of from scratch here.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=88.82) [And when I do a rm, I can do a ‑f to force.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=91.94) [And that way, if anything is kind of locked up at all, we can take care of it.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=96.14) [And now what I'm going to do is say docker,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=100.54) [and we're going to list all the images, ps ‑a and ‑q for quiet,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=103.08) [and this will go through and remove them.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=107.66) [So let's do docker ps ‑a, and let me do that one more time.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=109.84) [There we go.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=114.37) [Nice and clean.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=115.31) [Okay,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=116.79) [so just to kind of show that we're starting from scratch here on our containers.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=117.23) [So now it's pretty easy.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=121.24) [You already know what to do.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=123.24) [In fact, we've done this.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=124.33) [We can do docker‑compose up, and let's go ahead and run this.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=125.44) [And you can see it's now bringing up all my different services here.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=130.78) [Mongo's loading.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=135.67) [Here's some of my Node images that are loading now.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=136.65) [They're creating some routes behind the scenes to handle all that.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=139.05) [Db connection, you'll see, is opened.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=143) [If I scroll up a little bit to the Mongo section,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=145.24) [you'll notice that it's actually showing me that a root user was set](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=149.54) [called dbadmin and a root role was set as well.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=152.86) [And then we have a webrole and a database name and all that stuff.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=156.54) [And I'm just logging that out right now so we can see if it kind of worked.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=161.25) [And so you could scroll through all the logs if you want.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=164.97) [I'm in this case running in interactive mode.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=167.68) [But, of course,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=170.84) [I could have just done docker‑compose up ‑d and then run](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=171.3) [in the daemon mode that you've seen.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=175.83) [And now that this is up and running, we can come on over,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=178.74) [and I'm just going to refresh.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=181.67) [I've already run this.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=183.27) [And there we go.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=183.99) [It looks like the content's been loaded here.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=184.94) [Now I'm not seeing any data, of course, because at this point,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=187.94) [I haven't run the seeder.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=190.73) [But since we have containers, I could go on back again,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=192.76) [and we can kind of x out of here.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=197.24) [Now notice it's going to try to gently shut down our different services,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=199.27) [so we'll go ahead and let it finish.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=203.8) [All right, and let's do a docker‑compose ps,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=206.74) [and you'll notice here that they've all exited.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=210.22) [You can see that over here on the right.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=213.85) [Okay, that's fine.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=215.37) [We know how to do the up.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=216.22) [So let's go ahead and do the up again.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=217.25) [But we'll do ‑d this time.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=219.84) [All right, that'll let me get back to here.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=223.54) [Now you can see the names are actually shown right here.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=226.04) [So I just need to do a docker exec,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=229.62) [and then I can put the name of one of these containers.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=232.74) [So let's go ahead and grab this guy as an example.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=236.11) [And I can execute that node dbSeeder.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=239.14) [I showed this a little bit earlier in the course.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=244.01) [This is a file that's in the actual project that will](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=246.44) [get some fake data up into Mongo.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=249.69) [So we can try to run that.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=252.12) [It looks like it worked, so we'll exit out of there.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=253.97) [Again, do docker‑compose ps.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=256.9) [All right, it looks like everything is up and running.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=260.24) [You can see the state right there.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=263.05) [And let's refresh.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=265.24) [All right, there we go.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=267.44) [Now we're getting some data.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=268.39) [This is all from the database and this.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=269.52) [And, actually, now it just cached in Redis,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=271.66) [so this data right here is being cached because it doesn't really change much.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=274.17) [So every time I refresh, it actually is going to be pulling from Redis.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=278.44) [So we could actually do a docker‑compose logs,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=282.79) [and we can get back into the logs.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=286.78) [And you can see some of the Redis connections and things going on here.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=289.11) [So that's an example of how easy it is now to get this custom,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=293.64) [six‑service development environment up and running and allow](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=297.67) [us now to have a fully functional website.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=302.82) [I can start editing the code because of the volumes because,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=305.41) [remember, we had a volume that points to my local machine in this case.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=308.03) [And now when I'm done, I can just close up shop for the day if I want.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=311.84) [We'll get out of the log mode here and do,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=316.09) [like we saw earlier, we could do docker‑compose down. And then that,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=318.43) [of course,](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=322.64) [will stop the services and, as you saw earlier, also remove the containers.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=322.94) [So there you have it.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=328.04) [There's a walkthrough of setting up a custom development environment with](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=328.93) [six services all the way from looking at the custom Docker files, some of](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=333.57) [the configuration environment files, to the YAML file to actually running it with our docker‑compose commands.](https://app.pluralsight.com/course-player?clipId=e5e15359-372d-4e93-b410-7c68eb4a8ee1&startTime=337.7)

### [Summary](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f)

[Docker Compose provides a great way to manage the process of building](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=2.64) [services and then starting and stopping those services.](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=6.76) [And, of course,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=10.43) [we talked about how behind the scenes really a service is a running container.](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=11.2) [Now, of course, starting and stopping services by hand,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=15.94) [using just the command‑line,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=18.62) [is a little bit challenging when you get more than one or two.](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=19.89) [So we talked about there's a docker‑compose.yml file](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=22.69) [that defines all the services,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=26.05) [and it's an excellent way to manage these services.](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=27.72) [It's very easy to write,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=30.55) [allows you to define custom networks like bridge networks,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=32.33) [define ports, environment variables, and much more.](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=35.21) [And then,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=39.74) [as we talked through this module and looked at our Docker Compose files,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=40.39) [we also talked about some of the key Docker Compose commands,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=45.06) [such as build, up, and down.](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=48.82) [And then, of course, there's others like ps,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=51.43) [to view your running services, and you can call](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=52.91) [start and stop and things like that.](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=56.14) [I personally think that from a developer standpoint,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=58.64) [understanding the fundamentals of Docker Compose is really,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=61.96) [really important, especially if you want an easy way for you,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=65.25) [or maybe even a group of people on a team, to very easily have a](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=69.1) [consistent development environment that could also be deployed into](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=73.67) [staging and production environments.](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=77.85) [It provides a very productive way to do this,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=80.54) [of course, as you saw,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=82.6) [and it really takes a lot of the headache out of the picture that we've](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=84.14) [traditionally dealt with in the world of software development and all](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=88.75) [these different services that we often need.](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=92.56) [So I hope that gives you a great fill for the power of Docker,](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=94.94) [and once we combine Docker Compose with our images and containers, you really can do a lot with just a little effort.](https://app.pluralsight.com/course-player?clipId=29e0eef2-b3c6-4db6-a256-fd560a54773f&startTime=98.3)

## [Moving to Kubernetes](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284)

### [Introduction](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284)

[Up to this point in the course,](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=1.24) [you've learned about images and containers and even seeing how you can](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=2.46) [orchestra multiple containers using Docker Compose.](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=5.56) [And that works great while you're on your development machine, but what do](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=9.34) [you do when you're ready to move to another environment?](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=12.88) [Well, that's we're going to look at in this module.](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=16.04) [So we're going to look at movie from Docker Compose](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=18.15) [to something called Kubernetes.](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=20.4) [Specifically, we're going to cover the following topics.](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=22.74) [We're going to talk about how Docker Compose is great for](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=26.14) [some things, but not so great for others, and we'll talk](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=28.61) [about what's missing there.](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=31.78) [I'll introduce you to Kubernetes and give you some](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=33.84) [fundamentals on the basics of what it is.](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=36.5) [We'll then talk about how we can convert from a Docker Compose file to some](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=40.24) [files that Kubernetes can use to run your containers.](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=44.29) [We'll then look at commands you can use in Kubernetes to](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=47.94) [actually get your containers up and running and also how you](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=50.91) [can stop and remove those containers. So let's go ahead and get started.](https://app.pluralsight.com/course-player?clipId=8b5b597f-cc8e-4849-86e3-adc058866284&startTime=54.06)

### [Beyond Docker Compose](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec)

[Docker Compose provides a great way to get multiple](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=1.04) [containers up and running on your system,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=3.43) [but what do we do as we're ready to move to a different environment?](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=5.44) [For example, you might have a staging or production environment,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=9.34) [and now we want a very robust way to run our containers.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=12.63) [Well, up to this point,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=17.14) [we've seen how we could just run Docker Compose up](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=18.16) [and get different containers going, such as nginx,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=21.51) [different APIs, even databases if we wanted,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=25.13) [and something like Redis if we were using that for caching.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=28.84) [But as we move between the different environments,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=32.34) [how are we going to manage our containers? Because with Docker Compose](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=35.46) [it's going to be more manual, somebody has to run those commands or](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=39.12) [program something to run those commands, and what we do is we want to](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=43.02) [scale and do other types of things.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=47.1) [Well, Docker Compose actually does have a scaling feature,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=49.94) [but it's not designed for things like load balancing.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=53.94) [Docker Compose has a policy where you can restart containers if they fail,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=57.74) [but that's about it.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=62.14) [Anything you want that's more robust for production, you're kind of on your own.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=64.05) [In addition to gracefully handling containers that may fail, what if you](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=69.84) [want to scale and load balance your different containers?](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=73.81) [Well, Docker Compose does provide some scaling features,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=78.34) [but it doesn't provide any load balancing features.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=81.2) [So if you want to run your containers on multiple VMs and](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=83.94) [then load balance between those nodes, if you will,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=87.87) [then Docker Compose isn't going to help you there, and that might be a](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=91.24) [big deal depending on what your production needs are.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=94.57) [So wouldn't it be nice if we could do the following](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=98.74) [things across our different environments?](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=100.88) [First off,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=104.24) [package up an app, provide a manifest, and let some other tool manage that](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=105.27) [for us; not worry about the management of containers; eliminate single](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=109.3) [points of failure, and even self‑heal containers if they have a problem;](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=114.53) [have a really robust way to scale, but not only scale, also load balance](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=119.14) [across our different containers.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=124.56) [What if we could update containers without bringing down](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=127.34) [the application and even have some robust networking and](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=130.29) [persistent storage options?](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=134.17) [Well, all of these are obviously good things to have,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=136.34) [and Docker Compose does quite a bit, but again,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=138.83) [it was never really intended to be the production environment,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=142.54) [even though you absolutely could use it if somebody had set up the](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=145.82) [commands to run across your different environments.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=149.74) [So what if we could define containers we want, hand it off to a](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=153.54) [system, and basically tell that system, hey,](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=156.79) [here's what I need, now make it happen, you manage it.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=159.59) [Well, welcome to Kubernetes.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=164.34) [That's what it can do for us, and that's what we're going to start looking at next.](https://app.pluralsight.com/course-player?clipId=d5eefcea-2786-4fc2-bed3-4646630eb6ec&startTime=165.74)

### [Introduction to Kubernetes](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834)

[So what is Kubernetes?](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=0.94) [Well, that's actually a very large question to answer,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=3.14) [and that's why there's multiple courses on Pluralsight about Kubernetes.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=6.05) [The goal of this section is to gently introduce you to the basics of](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=10.9) [Kubernetes and some of the key features that it offers.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=15.4) [And then through the rest of this module,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=18.71) [I'll walk through how we can move from Docker Compose into Kubernetes.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=20.72) [So if you go to kubernetes.io, you'll see this on the website.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=26.84) ["Kubernetes is an open‑source system for automating deployment,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=31.84) [scaling, and management of containerized applications." Now the way I](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=35.14) [like to think of it is from the perspective of teams.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=40.87) [If you're into sports,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=44.54) [then you could think of each player on the team as a container,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=45.7) [and Kubernetes would then be the coach of the container team.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=49.44) [Or if you're not really into that, and let's say you like orchestras,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=53.84) [well, Kubernetes would be the conductor of a container orchestra as you see here.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=57.45) [You may look at that and go, well,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=65.24) [isn't that really what Docker Compose does? And yes,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=66.98) [but you're going to see Kubernetes offers a lot more than just being the](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=70.28) [conductor. So here's a quick overview of Kubernetes.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=75.12) [First off, it's designed for container and cluster management.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=80.84) [Now we'll talk more about clusters in just a moment.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=85.38) [It's also supported by all the major cloud platforms out there,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=89.14) [and that's a big deal if you want something that's very](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=92.96) [standardized and also very popular to work with.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=95.65) [It provides a declarative way to define a cluster state using YAML files,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=100.54) [manifest files they call them.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=105.83) [So it's very similar to Docker Compose in that regard.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=107.17) [And then, finally,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=112.54) [it provides a command line tool that you can use to interact](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=113.17) [with the Kubernetes API called kube c‑t‑l,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=116.42) [kube cuddle, however you'd like to say it.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=120.28) [I've always learned it as kube cuddle,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=123.48) [but if you prefer kube c‑t‑l that works as well,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=126.04) [and we'll be talking about this command as we move forward.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=129.1) [Now,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=132.44) [some of the key features then of Kubernetes that really set it apart from](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=132.65) [something like Docker Compose would be the following.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=136.46) [First off, it has load balancing and discovery of different services.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=140.14) [And we'll be talking about what a service is a little bit later.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=144.25) [It can orchestrate your storage,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=148.03) [handle automatic rollouts and rollbacks, and manage different workloads.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=151.24) [Really, in a nutshell, what it does is you give it a final](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=157.64) [destination that you'd like to get to,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=161.72) [and it's kind of like the mapping software that shows you how to](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=163.82) [actually reach that destination you'll see.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=166.96) [Now it has a few other things,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=170.44) [like self‑healing of containers. It can manage secrets and](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=171.6) [other configuration data. Horizontal scaling.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=175.89) [And this is not just of containers, but you can also have multiple nodes,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=179.57) [they call them, which is your virtual machines. And then we could go even deeper.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=183.22) [It has a lot of other features with networking and more.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=187.93) [So from a high level or big picture view, this is what Kubernetes looks like.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=192.74) [It's going to have a master node,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=198.14) [and the master is in charge of keeping all the children in line,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=200.85) [if you will, and we call these the worker nodes.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=205.31) [Now, the worker nodes would have something called Pods inside of them.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=209.12) [Now a node is like a VM, and a Pod is a container for containers.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=214.84) [So think of one of those shipping containers you might see on a boat,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=221.04) [or maybe you've even had one delivered to your house,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=225.22) [and you use it to move.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=227.82) [Well, you can think of that as a Pod,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=229.74) [and then you can put multiple things inside of that Pod,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=231.74) [and multiple Pods could even run on a different node.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=235.44) [Now, with multiple nodes being managed by a master, we call that a cluster.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=239.94) [So we can have a cluster of virtual machines. We can scale out. We can](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=246.14) [scale in. We can scale the individual containers out,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=249.47) [the nodes out, and even control that based on different scenarios,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=253.38) [such as, maybe the CPU load is too high; therefore,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=257.47) [we want to automate a new node being created or maybe just](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=260.99) [different containers being started or stopped.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=264.75) [So now that you've learned about the fundamentals of Kubernetes,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=268.24) [learned a little bit about the master, the worker nodes,](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=271.32) [Pods, and how containers can run in Pods, let's take a look at how we can get Kubernetes running locally on your machine.](https://app.pluralsight.com/course-player?clipId=38c593a0-391b-4569-8182-5b17bd913834&startTime=274.54)

### [Running Kubernetes Locally](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e)

[Getting Kubernetes up and running locally is actually](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=0.84) [a fairly straightforward process, and there's multiple options you can choose.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=3.33) [One option is called minikube.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=7.94) [Now this does require some setup work,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=10.2) [and you'd need to run off to the GitHub site shown here and](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=12.03) [follow those directions to get it up and running.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=15.43) [Now the other option is what I'm going to be demonstrating,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=18.34) [and that is Docker Desktop, formerly called Docker Community Edition.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=20.43) [Now Docker Desktop has Kubernetes support built in out of the box.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=25.44) [So it's going to be as simple as checking a checkbox,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=29.7) [which I'll show you in a moment,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=32.72) [and you can have Kubernetes up and running on your machine.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=33.86) [Either of these options would work,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=38.04) [and if you have the luxury of being able to run Docker Desktop,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=39.63) [that'll certainly be the easiest one.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=43.24) [But minikube might option if you need to go that route.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=45.44) [So now that we've talked about that,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=49.74) [let me jump over to the Mac side and then the Windows side,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=51.16) [and I'll show you how easy it is to enable Kubernetes support in Docker Desktop.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=54.67) [So on Mac, you can come up to the Docker whale icon,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=60.54) [and you'll see that I already have Docker Desktop and Kubernetes running.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=64.34) [But if I go to Preferences, this is where you can enable it.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=69.04) [So along the top tabs, you'll see Kubernetes.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=72.84) [And all you need to do is come on in and check the checkbox,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=75.74) [Enable Kubernetes, and then hit the Apply button.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=79) [Now I'm also going to show that there are some options available if you](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=82.54) [want to just use a Docker Compose file with Kubernetes.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=85.72) [And to simplify that, you can check this checkbox,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=88.78) [and I'll talk more about that in an upcoming section of this module.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=91.81) [Now on the Windows side, we can come down into the tray,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=97.24) [find our Docker icon, and then right‑click and go to Settings.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=100.74) [Now just like on the Mac, you're going to have a Kubernetes option.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=105.44) [You'll notice it's definitely a different arrangement, but we can click on that.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=109.54) [And the same thing goes here.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=113.44) [We can check Enable Kubernetes and then hit Apply.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=115.19) [And then, if you'd like to use Docker Compose files to run Kubernetes as well,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=118.52) [then to enable that option, check the checkbox here and hit Apply.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=123.44) [Once you enable Kubernetes,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=126.89) [it does take a little bit of time for it to fire up the first time,](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=128.52) [but then you can just leave it up as you're doing your development.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=132.55) [And now what we're going to do is talk about different options for getting from Docker Compose into Kubernetes.](https://app.pluralsight.com/course-player?clipId=d0e9fd2c-abad-4c4b-a792-e6037763d90e&startTime=136.24)

### [Key Kubernetes Concepts](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2)

[Before we officially convert between Docker Compose to Kubernetes files,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=0.84) [let's talk about a few key concepts that you need to know in Kubernetes.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=5.14) [Now, as I mentioned at the very beginning of this module,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=10.04) [Kubernetes is actually a very big topic,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=12.66) [and that's why there's full courses just on Kubernetes.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=15.03) [The goal here is really just to break you in gently,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=19.14) [if you will,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=22.47) [to some of the different concepts that you need to know](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=23.57) [so you can get up and running quickly.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=26.07) [But know that there's definitely going to be more research involved on your](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=28.17) [part if you want to use this in a real‑life scenario.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=31.42) [So the first thing I want to talk about that we're going to see](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=35.34) [coming up is something called a deployment.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=37.21) [This plays a central role in Kubernetes because it allows us to describe the](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=39.9) [desired state we're after in one of two types of files.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=45.17) [We can use a YAML file, which is the normal one, or even a JSON file.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=49.01) [So what we'll be doing as we convert from Docker Compose to Kubernetes is](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=54.94) [one option would be to basically translate the services in our Docker](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=59.57) [Compose file that define the images and the containers that should run](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=64.23) [into a Kubernetes deployment file.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=68.94) [I'm going to show you an easy way to do that to get started.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=71.94) [But really, what a deployment is all about,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=75.34) [in a nutshell anyway, is saying, hey,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=77.58) [I need these five containers up and running,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=80.39) [and I need them to be able to communicate somehow.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=83.05) [Now in addition to describing the desired state in a deployment,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=86.44) [you can also use it to replicate pods,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=90.41) [and this allows you to scale out if you'd like,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=92.72) [add more pods onto a node, for example.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=95.36) [And it even supports rolling updates and rollbacks,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=98.24) [which can be very important as you version your app into the future.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=102.24) [Now in addition to deployments,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=107.54) [we're also going to see something called a service.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=109.1) [Up to this point, we've seen that containers run in pods,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=111.94) [but pods can live and die.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=115.32) [If a container goes down,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=116.95) [that pod may be completely removed and a new pod might be brought up.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=118.34) [So they could have a very short or long lifespan.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=122.8) [It really depends.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=125.59) [So from a consumer standpoint,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=127.54) [we can't always count on the IP address of a pod and](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=129.35) [ultimately the container being there.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=133.09) [Services allow us to abstract those pod IP addresses from the consumers,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=136.34) [and I'll show you a visual of this in just a moment.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=141.24) [In a nutshell, though, that's a good thing because now,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=144.04) [if a pod dies and a new one's brought up,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=147.23) [the consumer doesn't even know anything happened.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=149.8) [Everything is good to go because the service kind of acts as the middleman,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=152.63) [if you will.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=156.92) [In cases where you have multiple pods that a service knows about](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=158.12) [it can also load balance between those pods.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=162.46) [And that could be good, as we talked about, when it comes to](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=165.44) [scaling out and those types of scenarios.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=168.16) [So here's a visual of how this all works.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=172.34) [A service is going to have an IP address,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=175.54) [but a pod is also going to have an IP address.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=178.74) [Now ultimately, a consumer of this pod wants to get to the container,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=182.74) [but if we gave them the 10.0.0.43 address,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=186.95) [well, that might go away in the next few seconds,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=192.24) [potentially if something happened to the pod.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=194.14) [So, what we'll do is instead give the consumer the reference to the 10.0.0.1 IP,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=197.24) [which is the service.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=205.19) [That way, if the pod changes,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=206.94) [or maybe even a new pod gets added with different containers,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=208.74) [the consumer just has to remember that one IP and know about it to](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=212.18) [talk to the different pods. Now behind the scenes,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=216.73) [the service is going to be in charge of knowing about the different pods.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=220.06) [If one goes down and a new one comes up and the IP address changes,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=224.42) [then the service will automatically take care of that.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=228.53) [So it's a level of abstraction to allow consumers just to](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=231.34) [have one endpoint they need to know about.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=235.51) [Now are there more files and concepts aside from just deployments and services?](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=239.34) [Yes,](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=243.65) [there are, actually. There's a whole bunch of things we could get into. But](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=244.08) [these are two of the key ones you're going to see in just a moment as we talk more about converting from Docker Compose to Kubernetes.](https://app.pluralsight.com/course-player?clipId=7d495d4f-9489-4e1c-a643-ef796f22cca2&startTime=248.14)

### [Converting from Docker Compose to Kubernetes](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f)

[We've talked about the fundamentals of Kubernetes,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=0.84) [how to get it running locally on your machine,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=3.41) [as well as some of the key concepts such as deployments and services.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=6.34) [So now it's time to actually take a Docker Compose file and](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=10.1) [either run it directly in Kubernetes or convert it into some of](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=14.35) [the files Kubernetes normally works with.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=18.39) [So there's several options when it comes to migrating](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=21.94) [from Docker Compose to Kubernetes.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=24.27) [One is just to use Docker Desktop directly.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=27.14) [It has an open‑source project built into it called Compose on Kubernetes,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=30.14) [and I'll show you this in just a moment,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=35.64) [a very easy way to get started.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=37.08) [Now there's another project called Kompose that you could also use.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=39.84) [This doesn't run directly in Docker Desktop.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=43.44) [It's a separate open‑source project,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=45.6) [but it will directly translate from a Docker Compose](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=47.41) [file to the different deployment, service,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=50.6) [and other files that Kubernetes normally needs.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=53.4) [And this is a good way to go because, as mentioned in a previous section,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=56.64) [if you're working with a DevOps team and you're just trying to get Kubernetes](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=60.21) [running locally just to make sure your app runs as expected,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=64.4) [but then you want to be able to hand them off some](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=68.14) [of the work you've already done, if they work with Kubernetes,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=70.44) [they're probably going to want the different Kubernetes files.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=73.46) [So let's take a quick look at both of these and how](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=76.35) [we would get started with them.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=79.18) [I'm going to start with Compose on Kubernetes.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=81.84) [So I've gone to the GitHub site that Docker maintains for this.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=84.94) [And as mentioned, this is actually part of Docker Desktop now.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=88.56) [So you have this already if you're running Docker Desktop.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=92.84) [Now if we scroll on down,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=96.84) [they'll give us an idea about what we're going to be doing,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=98.43) [and they call it deploying a stack.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=100.81) [When it comes to clustering and having multiple VMs or nodes out there,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=104.34) [Docker has their own solution called Docker Swarm.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=109.44) [Now they also directly support Kubernetes,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=113.34) [of course, as we've already seen,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=115.46) [but they have a docker stack command that's been in there for quite a](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=117.64) [while now if you want to get a swarm or a cluster setup.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=121.1) [Now what they've done is made it so their normal docker stack](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=125.84) [command can actually be used to deploy, but using a Docker Compose file.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=129.73) [It's actually very simple.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=134.92) [So, assuming you had a Compose file like you see here,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=136.54) [we can run a docker stack command.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=140.04) [We could deploy it using the Kubernetes orchestrator,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=143.24) [and then give the Compose file, which is docker‑compose.yml,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=147.04) [and then give the stack of name.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=150.42) [Now earlier I mentioned when you come into the Preferences](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=153.34) [on Docker Desktop and go into Kubernetes,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=156.34) [there's this checkbox, Deploy Docker Stacks to Kubernetes by default.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=158.7) [Now, if you enable that, then when you run these docker stack commands,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=163.54) [you won't have to set the orchestrator.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=167.78) [It'll just automatically do that for you.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=169.73) [So that's an option if you'd like to go that route.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=171.72) [Now if you don't want to work with Docker Compose for Kubernetes](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=175.24) [and instead just want to go 100% Kubernetes,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=178.37) [then we can go to the Kompose project.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=182.14) [Now Kompose actually translates and converts your Docker](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=185.34) [Compose files into the deployments, and services,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=189.65) [and persistent volumes,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=193.81) [and other types of files that you can have to work with Kubernetes.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=194.99) [To get started is really easy.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=198.61) [You come on into the Installation, and you can see for Linux and Mac,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=200.82) [they have some curl commands, and for Windows they have some instructions.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=205.26) [You can download a binary, and then add it to your path.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=209.3) [Now I've already installed Kompose on my Mac and run these steps here,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=213.44) [so it's ready to go, and I'm going to show you how we can use it.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=218.34) [But let's go to the get started guide.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=221.01) [So if we scroll on down a little bit,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=224.54) [you're going to see a kompose convert command.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=226.74) [And what it will do is take that docker‑compose.yml file that you'd](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=229.74) [have wherever you run this command and automatically generate the](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=233.3) [different service and deployment files for each of the services that](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=237.81) [are in your Docker Compose file.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=242.7) [So if you add four services,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=244.84) [then by default you're going to get four service Kubernetes](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=246.3) [files and four deployment Kubernetes files.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=249.56) [And you can see that kind of here.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=253.14) [Now just like Docker Compose, there's even a kompose up you can run,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=255.34) [and that will allow you to actually run directly without really](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=259.94) [having to worry about the different files.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=264.51) [I personally like to have the files because oftentimes](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=267.51) [I need to tweak them a little bit.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=270.43) [But this gives you a good starting point with a convert command to do that.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=272.24) [So let me show you that real quick.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=276.21) [So if we come back into a project,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=278.84) [I've opened up the CodeWithDanDockerServices project that](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=280.52) [you've seen several times up to this point.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=283.71) [And if I come on in and type kompose convert,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=286.34) [if I were to hit Enter,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=289.77) [that would take this Docker Compose file and convert it into](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=291.74) [the deployment and service files I mentioned.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=296.28) [Now I've actually already done that for the project.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=298.5) [You're going to find a Kubernetes folder.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=301.72) [K8s is an abbreviation for that, by the way.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=304.09) [And then here's what it generated based on what it](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=307.34) [found in this Docker Compose file.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=310.17) [So I had a mongo‑service.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=312.94) [It did all those deployments and services,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=314.5) [nginx, node, and redis because that's what we had in here.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=316.25) [Now in order to get this going, if you want to run it on your own,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=321.79) [there's a README me at the route of this project that'll help you out there.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=324.94) [But you do need to run this in production mode,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=328.37) [which means exporting or setting if you're on Windows,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=331.06) [the app environment to production, set in your DOCKER\_ACCT,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=334.35) [removing a node volume, and you'll see that right down here in my node service.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=338.84) [And then after that, you'd be ready to go.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=345.84) [You can do a docker‑compose build to get your images.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=347.87) [Now we could come in and do our kompose convert,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=351.84) [or if you just want to have one file instead of many,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=355.21) [you could say ‑‑out, and I'll just say test.yml,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=358.94) [and I'll show you the output here.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=363.04) [So now if we go to the route, it just generated this file.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=364.34) [And you'll notice that we have a lot of different YAML code in here.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=368.64) [In fact, it's pretty large, actually, with everything that we want.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=372.58) [Now I normally like to work with the individual files,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=377.74) [as I mentioned,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=380.32) [so let's talk through these just really quickly and see what a](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=381.1) [deployment and what a service actually looks like.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=383.99) [So if we go to the mongo‑deployment, if we come on in,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=387.34) [it'll say how many replicas we need.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=391.09) [Well, we just want one of these database items in this case, one container.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=393.12) [It's going to say some environment variables here,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=397.54) [some key value pairs, and if we come on down,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=400.44) [you'll notice image: danwahlin/mongo or whatever you called your image,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=403.83) [in this case.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=408.13) [Now, if I go into the mongo‑service, the important part is the ports down here.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=409.44) [Now as we talked about earlier,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=415.64) [a service provides an IP and abstracts the consumer from one](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=416.89) [or more pods running behind that service.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=421.53) [In this case, there's just one.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=423.63) [It would be for mongo.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=424.77) [But this will define how to communicate to that pod through this port.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=426.54) [We have an external and internal port.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=430.15) [Now the same goes for nginx.. It has a deployment.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=433.74) [It also has the image.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=437.84) [It has a service that has our two ports in this case.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=440.14) [And if I go down to node and the redis, you'd see the same types of things.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=443.62) [The deployments define the image to run for the container,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=447.82) [and then the service defines the ports and can have other information.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=451.34) [Now that's a really quick look at what we can do because with services,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=456.34) [there's different types of services and ways you can use them.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=459.7) [But this will be enough to help us move from our](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=463.34) [docker‑compose file here to actually Kubernetes files.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=466.63) [So now that those files are generated using the Compose open‑source tool,](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=471.44) [let's take a look at how we can get Kubernetes going and get our containers in Kubernetes.](https://app.pluralsight.com/course-player?clipId=49e9f133-a29f-4092-8d38-63f37c29b69f&startTime=476.14)

### [Running Containers in Kubernetes](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a)

[Now that we have our Kubernetes deployment and service files available,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=1.14) [it's time to actually run our containers in Kubernetes.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=5.04) [And I'm going to show you the process,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=8.28) [as well as a few key commands to make that happen.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=9.35) [So before jumping back to the command line,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=14.44) [let's talk about a few key commands that you're going to want to](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=16.85) [know if you start working with Kubernetes.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=19.28) [Now as with Docker, there are a lot of commands you use every day,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=22.54) [and there are some you just don't use that often.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=26.42) [So these are some of the commands that are very frequent,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=28.5) [and there are certainly a lot of other commands you could use as well.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=31.88) [So first off, if you just want to get the version that you're running,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=35.74) [you can run kubectl, or kubectl, however you like to say it,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=39.3) [version.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=44.46) [If you want to get information about deployments or services or Pods or nodes,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=45.74) [then you could do the get command.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=50.94) [We can also get one container up and running very quickly with a run command,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=53.94) [and this allows us to name what it is we're going to do and then pick the image.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=59.44) [If we have our deployment files and services,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=64.94) [which we have, then a very easy way to get all those going is to do an apply.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=67.13) [Now with apply, you could say ‑f and either give it a file name of,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=72.41) [for instance, a deployment, or you could just give it a folder name,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=77.4) [and all the different Kubernetes files in there would be applied.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=81.9) [I'm actually going to be using the folder name trick here in just a moment.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=85.84) [And then, finally, as you're working on your local machine,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=90.14) [you'll probably want to expose one of the Pods so](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=94.12) [that we can actually get to it.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=96.49) [So we can do that through a port‑forward command,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=98.34) [and I'm going to show that as well.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=101.27) [So now that we've seen some of the basic commands,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=104.84) [let's see how we can use a few of these to actually get some information](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=107.09) [about Kubernetes and then also go in and run our containers.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=111.03) [So coming back over to the CODEWITHDANDOCKERSERVICES project,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=116.74) [I've opened that up,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=120.44) [and I have the Kubernetes files I mentioned earlier available here.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=121.46) [So we have, again, our deployments.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=126.44) [That gets us to the desired state we want to get to for Mongo,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=127.74) [NGINX, Node, and Redis.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=131.56) [And then we have the services, which, again,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=133.96) [acts as kind of an abstraction layer for IP](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=136.91) [addresses so we can talk to those Pods.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=139.58) [All of those do much more than just that.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=143.34) [But I want to emphasize that because there's quite a bit to it,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=146.18) [but this will be enough to get us going.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=149.23) [So the first thing I'm going to do is we could come on in and](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=152.04) [just run the kubectl command for the version.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=155.01) [And this will give us some information, probably more than you want.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=158.84) [But a nice reason for running this is it lets us know that,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=162.34) [yeah, things are working correctly,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=165.34) [and the kubectl command is actually giving me back some info.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=166.87) [Now we could also come in and say, Hey, Kubernetes,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=171.64) [what deployments do you have?](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=176.14) [So we can get deployments, and right now there are none.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=177.75) [We could also run this and say, What Pods do we have?](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=182.56) [Well, likely, if we don't have any deployments,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=185.81) [we may not have any Pods, although it depends.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=187.74) [No Pods found.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=190.94) [We could even come in and say, What services do you have?](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=192.12) [Now we do have one here you'll notice.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=195.97) [This is the cluster IP address for the overall](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=197.95) [Kubernetes cluster on my local machine.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=201.84) [Now as a heads‑up when it comes to the cluster,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=204.84) [when you're working with Docker Desktop on Windows or Mac,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=208.04) [you're going to get one node in your cluster that you can use.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=211.31) [So you're not going to able to scale out the actual nodes in this environment.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=214.62) [But it's just enough that we'll be able to play with](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=218.39) [different flavors of containers, get them orchestrated,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=221.93) [and test everything out.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=225.36) [So it's very good for testing purposes to try out your app in Kubernetes.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=226.68) [Now if we wanted to just get a single container such](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=232.54) [as the NGINX Alpine up and running,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=235.91) [then we could say I'd like to run, I'm going to call it](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=237.88) [nginx‑server, and then give it the image.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=241.55) [Now, in this case,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=245.14) [I'm going to pick nginx:alpine mainly because it's](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=245.76) [pretty small and quick and easy.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=248.19) [And then when we run this, if I hit Enter right now,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=250.44) [we're probably going to get a message saying that a](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=253.88) [particular generator template is deprecated.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=256.4) [It'll tell us another command we could run.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=259.45) [Now I fully expect into the future that will probably change,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=262.74) [but as of today, that's what I've been getting.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=266.42) [So let me go ahead and run it.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=268.39) [Okay, and there's the message.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=269.67) [So right now it's using this apps.v1 generator template,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=271.44) [saying it's deprecated, and that we should instead use ‑‑generator=run‑pod/v1.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=275.63) [Now, in this case, this is good enough for our demo though.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=282.04) [If we go in and say, Let's get the deployments.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=285.54) [And as a quick little tip here,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=289.14) [you don't actually have to type it all the way out.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=290.64) [You could just say deploy for example.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=292.65) [There we go.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=295.24) [There's our NGINX server.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=295.78) [Let's clear that and let's get any Pods.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=297.92) [All right, and there is the name of our Pod.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=301.94) [Now, currently, the container inside of this Pod is running on port 80.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=304.01) [But if I run off to the browser, and let's refresh here,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=308.49) [you'll notice I can't hit anything.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=312.25) [Well, that's because it's not exposed outside of the cluster,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=314.54) [so you can think of it, it's internal to the cluster currently.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=318.18) [Well, this is where the port forwarding is useful,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=321.94) [especially for just running things locally.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=324.62) [So one more time if we run kubectl get pods, this name right here is important.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=327.84) [So I'm going to copy that.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=334.16) [And now I'm going to do the kubectl.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=335.94) [We're going to run port‑forward, give it the name of the Pod.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=338.44) [So I'm going to paste in what I just copied.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=342.83) [And then, externally, just so I can show you it's working,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=344.87) [we're going to say, externally, use 8080,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=347.55) [and forward that to 80 on this Pod because that's what NGINX is running.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=350.08) [Now this is going to lock up the console the way I've done it.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=354.82) [But that's okay.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=358.17) [You'll notice a forwarding message comes up.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=359.01) [And if we refresh this, obviously this isn't what we want.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=362.04) [We're not on 8080, but let's try out 8080.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=365.57) [And there we go.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=370.14) [Now we're able to hit our first Pod with a container inside of it,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=370.87) [which is NGINX Alpine.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=374.87) [Now I'd like to delete that, so I'm going to say kubectl delete,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=377.34) [and we have a deployment here,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=382.24) [so I'm going to say deploy or deployment if you want,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=383.63) [and then nginx‑server.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=386.85) [Now that's going to go ahead and delete that deployment.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=389.74) [So now if we say get deploy, you'll notice no resources found.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=392.47) [Now sometimes it takes a little bit of time for the Pods though.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=397.78) [So let's take a look.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=400.49) [Okay, now, that's already cleared out.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=402.74) [On occasion, you might still see the Pods,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=404.17) [but the status will be that, hey,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=406.33) [we're trying to take this down and delete it, destroy it right now.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=409.38) [Likewise, let's go back to the services,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=413.14) [and you can see we're back to just our cluster IP here.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=416.44) [Okay, so we're making some progress.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=420.04) [Now the last thing I want to show is how do we go in and apply all these files?](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=421.82) [Because I actually want to get the real thing going here.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=428.54) [Well, we can do a very similar process to what you saw already,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=431.44) [but now we're going to use a new kubectl command called apply.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=434.55) [And then I'm going to say that the file or,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=439.34) [in this case, folder I want to get to is the .k8s that I have.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=441.63) [Now what that will do is iterate through these files](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=447.64) [and apply each of the deployments, the services,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=450.97) [and I even have some environment variables here,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=453.79) [into Kubernetes.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=456.91) [Now let's go ahead and try this.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=458.84) [And there we go.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=462.44) [You can see it ran through all of those.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=463.12) [We'll give it a sec here.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=465.74) [But if I clear it and go back to kubectl get,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=466.93) [for instance, services, there we go.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=470.34) [We have quite a few now.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=473.16) [We have the Kubernetes cluster IP, but we also have Mongo,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=474.24) [NGINX, Node, and Redis.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=477.49) [So that's a good start.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=479.13) [Let's go to kubectl get pods.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=480.73) [All right, and there are our different Pods.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=484.44) [And let's do kubectl get nodes.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=487.24) [Now I mentioned you can only have one node, but I'll show it here.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=489.61) [There you go, docker‑desktop.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=492.44) [Okay, now, if I go back to the browser,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=494.84) [and we have NGINX on port 80 in this case,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=498) [but you'll notice again nothing.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=501.98) [Well, the reason for that is we, of course, don't have that port exposed.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=504.94) [So let's go back to our Pods, and let's grab our NGINX Pod name here,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=509.58) [and then we're going to do the port‑forward one more time. And now I'm](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=517.34) [going to do 8080 to 80, although I could do 80 as well.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=520.19) [Now, sometimes if you do 80, by the way,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=523.64) [you might have to run that with elevated privileges, just as a heads‑up,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=525.94) [or maybe even just doing a normal port‑forward like this,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=529.67) [you might occasionally have to run as sudo on Mac.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=533.14) [Or, if you're on Windows,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=536.84) [you might have to run in the command prompt as an elevated](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=537.75) [administrator type of command. Let's go ahead and try it.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=540.62) [All right, that looks pretty good.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=544.08) [And now let's go to 8080.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=545.83) [Let's refresh because that's cached.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=549.74) [Alright, and there we go.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=551.35) [Now the database doesn't have anything in it, so nothing is loading here.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=552.37) [But it is working.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=557.14) [We can see it forwarded to our node. The node called the database.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=558.5) [There was nothing. But if we wanted to see that or](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=561.78) [just hook into that database now,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=565.33) [we can even do a port‑forward on that if we'd like.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=567.44) [Then we could pull up a tool to update Mongo.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=570.34) [So that's an example of applying multiple deployment and service files, as](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=573.64) [well as using some of these other Kubernetes commands.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=579.78) [And this is something that, quite honestly,](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=583.44) [you just need to practice a little bit.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=585.36) [None of it's really super hard as far as the commands. I think](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=587.29) [the most challenging part is getting the YAML files correct and configured. But, as we've seen, Compose and other tools can help with that.](https://app.pluralsight.com/course-player?clipId=eed6f4fb-7c29-4747-946c-effd8a101f3a&startTime=590.85)

### [Stopping and Removing Containers in Kubernetes](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c)

[Now that you've seen how to get containers up and running on Kubernetes,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=0.74) [let's take a look at a final command on how to stop and remove containers](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=4.44) [that might be inside of Kubernetes pods.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=8.47) [Now, earlier, you saw me used the kubectl command to delete,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=12.54) [and we deleted a specific item and that particular item was a deployment.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=17.34) [Now that led to everything that the deployment created being deleted as well.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=23.14) [Well,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=28.44) [in cases where we have multiple Docker Compose services that have been](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=28.61) [converted into deployments and services for Kubernetes, we can use the same](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=33.05) [type of command, but we can use the folderName.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=37.84) [So instead of kubectl delete deployment and then the name of](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=41.14) [the deployment, we can actually say hey,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=44.68) [here's a folder, go ahead and run everything in there and undo it, delete](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=47.17) [it, and that makes it very easy to clean up everything.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=52.58) [So let's take a look at how we can do that with the existing](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=56.84) [app that we got running in Kubernetes.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=59.89) [So coming back to the console earlier where we did the port forward command,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=63.44) [we can go ahead and stop that, but doing that, of course,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=67.74) [just keeps everything running.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=71.12) [We're just not forwarding that port any longer.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=72.44) [So if we do a kubectl and we get the pods, we're going to see all the pods.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=74.54) [Now, I could delete each individual pod,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=79.35) [of course,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=81.89) [but because we already have all the manifest definitions for](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=83.14) [the deployments and the services defined,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=87.33) [we could go ahead and do a delete command that simply](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=90.44) [points to this folder as you saw.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=92.58) [So we can do a kubectl delete and then we'll give it](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=94.74) [the path to the Kubernetes folder.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=98.69) [Now doing this is going to go ahead and run everything that](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=101.74) [you see in this folder off to the left, but kind of in reverse,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=104.96) [if you will.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=108.11) [So, in essence, when we first ran this and we applied these different files,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=109.24) [we were creating the future, if you will.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=114.54) [Now we're kind of reversing time.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=117.34) [We're going back to what we originally had. So we'll give it a sec,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=119.54) [and now I'll come in and do a kubectl on the pods and you'll notice](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=123.81) [there are still a few there, some are gone,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=129.53) [but they're terminating you'll see in the status there.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=131.39) [Now if we come in and get the services,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=134.84) [everything is gone at this point, except for the cluster IP for Kubernetes.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=138.94) [All the different services we started earlier have been cleaned up.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=143.14) [Now let's go back finally to our pods and let's see where we're at here](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=145.97) [and there we go. Now everything has been cleaned up.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=150.44) [So by using the kubectl delete command with a ‑f switch, that](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=153.84) [provides a really easy way to get our containers not only](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=158.33) [stopped, but completely removed.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=161.77) [And then, of course, we also saw earlier how ‑f could be used with the apply,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=164.64) [and that makes it very easy to apply deployments or services and](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=169.54) [get our containers up and running and talking.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=173.48) [So that provides an example of some of the different kubectl](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=176.64) [commands and I hope that gets you started.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=179.93) [There is a lot more we could talk about,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=182.16) [of course,](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=184) [with Kubernetes, but the goal of this particular module was](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=184.44) [to move from Docker Compose to Kubernetes, and we've now got that process going.](https://app.pluralsight.com/course-player?clipId=e1315603-d0bb-4066-9311-0f612dbc1a7c&startTime=187.62)

### [Summary](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c)

[Throughout this module,](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=1.54) [we've taken a look at how we can move from Docker Compose to Kubernetes and saw](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=2.59) [how Kubernetes provides a robust solution for deployments,](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=7.8) [scaling, and overall management of our containers.](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=11.63) [By using some of the constructs built into Kubernetes,](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=15.84) [we can provide a way to move to the desired state,](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=18.26) [and we could do that using YAML or even JSON files to represent](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=21.44) [that desired state and that's done through our deployment](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=25.71) [services and other options available.](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=28.21) [We also talked about how nodes and pods play a](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=31.84) [really central role in Kubernetes.](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=34.15) [Now nodes were the VMS,](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=36.64) [whereas pods act as a way to group one or more containers together.](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=38.54) [We looked at a container running in a pod and saw how we can](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=44.14) [even do port forwarding to get to that,](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=47.5) [at least while we're on our local machine for testing purposes.](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=49.76) [And we looked at several different kubectl commands that could be used to](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=53.34) [do things such as run a particular container in a pod,](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=57.04) [apply different deployment services and other options available,](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=61.24) [delete, and much more. So while Kubernetes is a very big topic and I would](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=65.31) [highly encourage you to check out some of the other courses on it on](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=70.82) [Pluralsight to get the full breadth of what it offers, I hope this modules](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=74) [provided a nice starting point for you to get you started moving from Docker Compose to Kubernetes.](https://app.pluralsight.com/course-player?clipId=c04cbc80-7b86-41df-89e3-8b4759de159c&startTime=78.29)

## [Reviewing the Case for Docker](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9)

### [Course Review](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9)

[Let's wrap up by doing a final review of the case for Docker and why](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=0.74) [we want to use this in our development environment.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=5.62) [So we talked about that Docker brings many development](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=9.24) [benefits to our different team members, and even if you're just a team of one,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=12.18) [there's a lot of benefits,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=16.9) [because you could bring servers and databases and many of the things up very](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=17.96) [quickly, and then get rid of those if you're done with them.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=22.61) [So we talked about how we can bring up web servers and](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=26.04) [databases and caching servers and more,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=28.85) [and bring those up in a very consistent way across team members,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=32.24) [even in distributed locations if we needed to,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=36.35) [and then how we can even move those up into the cloud if we'd like.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=39.26) [And so there's the benefits of the consistency and the fact that how it runs in](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=43.42) [development is how it's going to run if you move those containers and images](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=47.9) [into your staging and your production environments.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=52.2) [Now, we talked about that the heart and soul of Docker is,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=56.44) [of course,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=59.31) [Docker images, and that Docker images are used to create our containers.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=59.7) [So some of the key tools that we talked about were Docker Client,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=65.04) [and this is, of course, how we can work with our images and containers.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=68.24) [We talked about Docker Machine, and how we can use](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=71.94) [that to interact with a virtual box.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=74.12) [And then Docker Compose, one of my personal favorite tools, is especially](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=76.54) [helpful as we need to work with multiple containers and get those all up and](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=80.57) [running and talking between each other. And then,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=84.9) [if you don't want to work with the command line, we](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=88.09) [also talked about Docker Kitematic,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=89.78) [and it does provide a really nice and simple way to get started with](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=91.6) [Docker if you really just want to jump in quickly and not have to](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=95.57) [learn all the commands that we talked about for Docker Client,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=99.41) [Docker Compose, and others. Now,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=102.35) [we also talked about linking our source code from a running container to a](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=105.61) [local folder that you might have on your development machine.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=110.73) [And this is a really, really important part for us as web developers,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=113.41) [because we obviously need a way to quickly and easily make changes](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=117.02) [to code, get that code running up in a container,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=121.7) [such as a Node.js or ASP.NET or PHP or whatever it may be container](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=125.05) [that is running the actual server. And we talked about how we can do](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=129.87) [that with Docker Volumes, and how a volume can point to a folder that](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=132.91) [we set up, and that makes it very easy to link our source code into a](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=137.27) [running container.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=141.9) [Now,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=143.74) [when it comes to containers, while we can pull many of the](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=143.93) [containers out there from Docker Hub,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=147.03) [we can also create our custom Docker images.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=149.54) [And we talked about how we can do Docker files and create Docker files](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=152.42) [that can be based on an image that's in Docker Hub, and then we can](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=157.12) [add our custom functionality into that.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=161.36) [Now, as mentioned,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=165.04) [one of my favorite things covered in the entire course was Docker Compose,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=165.77) [and we also talked about the Compose YAML file.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=169.82) [And this YAML file is just a great way, I think,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=173.74) [to get your development environment up and running very quickly. You](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=177.11) [could have 10 different services, if you wanted, and not have to bring](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=181.78) [those up individually using Docker Client.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=185.95) [We could get this YAML file in place,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=189.44) [and we'd be off to the races and up and running.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=191.6) [So that's a wrap on the Docker for Web Developers course,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=195.54) [and I hope that you have a really solid feel now for the role that](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=198.7) [Docker can play in your development environment.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=203.4) [I appreciate you taking the time to listen to the course,](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=206.64) [and hope you're able to apply this new knowledge into your Web development efforts.](https://app.pluralsight.com/course-player?clipId=574a9e71-a257-4949-98a1-808c8978bfc9&startTime=209.46)