## [Course Overview](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f)

### [Course Overview](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f)

[Welcome to the Building and Running Your First Docker App course.](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=5.94) [My name is Dan Wahlin, and I'm a software developer,](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=10.14) [architect, and trainer specializing in container and cloud technologies.](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=13.11) [I'm really excited to talk with you about how you can get started](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=17.73) [using Docker containers in your applications.](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=21.77) [Docker is a really powerful technology that can be used to package up,](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=24.74) [deploy, and run your applications anywhere, from your](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=28.75) [machine to a company server to cloud services.](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=31.92) [So is it worth your time to learn this technology?](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=35.94) [Well, in my experience, absolutely.](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=38.5) [This course is designed to provide a quick introduction to using](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=41.62) [Docker containers in your development workflow,](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=44.9) [and will provide the key fundamentals that you need to get started.](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=47.74) [Some of the major topics that we'll cover include why you would want to](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=51.92) [run your apps using containers in the first place,](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=55.29) [building custom app images and pushing them to a](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=58.14) [registry, running your app containers,](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=60.57) [communicating between containers, and even orchestrating container](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=63.16) [builds and runs using a tool called Docker Compose.](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=67.07) [By the end of the course, you'll have a solid foundation to get started building,](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=71.24) [running, and deploying your apps in containers. Now to](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=75.28) [get the most out of this course,](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=79.01) [you'll need a basic understanding of Docker concepts and](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=80.57) [prior experience developing applications.](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=83.78) [So with that,](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=86.44) [let's jump right in and get started learning more about building and running your first Docker app.](https://app.pluralsight.com/course-player?clipId=4e49c9e0-0f77-42e9-9a17-a23dc407545f&startTime=87.83)

## [Setting up Your Development Environment](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b)

### [Course Agenda](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b)

[Welcome to the Building and Running Your First Docker App course.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=0.94) [I'm Dan Wahlin,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=4.25) [and I'm really excited to walk you through what we're going to](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=5.35) [be discussing with Docker containers and how you can actually](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=8.23) [containerize your first application.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=11.75) [Now in this module,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=15.24) [we're going to focus on setting up your development environment.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=16.26) [But before I dive into that, I'm going to give you a quick course overview,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=19.14) [talk about some prereqs, and where you can go to get the code.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=23.11) [So what are we going to cover throughout this course?](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=27.94) [Well, a lot of fun stuff to help you get started containerizing your first app.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=30.47) [We're going to kick things off with, as mentioned,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=36.24) [the setting up your development environment.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=38.41) [And I am going to do a quick overview of what Docker images](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=40.39) [and containers are just in case you didn't watch the earlier](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=44.48) [course in this learning path.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=48.32) [From there,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=51.04) [we're going to dive into how do you create a custom application image?](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=51.43) [So if you are writing an application and you're writing the code,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=56.24) [what do we need to do next to actually get that so we can run it as a container?](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=60.34) [Well, the first thing we have to do is build an application image,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=66.16) [and I'll walk you through that process.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=69.58) [You'll learn about Dockerfiles and a lot of other fun stuff along the way.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=71.42) [Now from there,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=76.44) [what I'm going to do is show you how we can take that image and get a](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=77.07) [running application container going for your app.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=80.77) [So I'll show you the Docker commands to make that possible,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=84.34) [how we can check on the container, and things along those lines.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=87.02) [Next up is going to be talking between containers.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=90.94) [A lot of times you might containerize your application,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=94.64) [but you might even put your database or APIs or other](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=97.58) [types of things into a container as well.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=101.36) [How do we talk between these containers?](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=104.34) [I'm going to show you some different techniques we can do for that.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=106.6) [In the final module, we're going to introduce a tool called Docker Compose,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=110.54) [which is one of my favorite tools of all when it comes to Docker because it'll](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=114.21) [orchestrate running multiple containers, but it will also let you build](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=118.84) [multiple images that can be used for those containers.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=124.04) [So it's a big, big timesaver as you're working in the development environment.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=127.04) [So that's what we're going to be covering throughout the course.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=132.84) [Now as far as the target audience, this is, of course, aimed at developers.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=135.22) [So if you're looking to learn more about how to run your application in Docker,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=139.51) [then you're in the right spot.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=143.69) [Even if you're not a developer, if you just want to see the process,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=145.34) [then you can certainly go through this as well though.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=148.49) [For prereqs,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=151.09) [the first thing you need is a basic understanding of Docker concepts.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=153.04) [Now if you did skip the earlier course in this learning path, don't worry.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=156.48) [I'm going to have a quick overview of images and containers and](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=161.06) [what Docker is all about in this first module.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=164.03) [You also need to be comfortable using command line tools because,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=168.04) [after all, we are going to be running Docker commands on the command line.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=170.74) [And then finally, you need some experience building applications.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=174.94) [It really doesn't matter though what framework or what language.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=178.47) [I am going to have to choose one to walk you through,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=183.04) [and we'll talk more about that a little later.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=185.7) [But the concepts that we're going to learn throughout this course can be](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=188.24) [applied to virtually any framework and any language out there.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=191.36) [Now the code samples that I'm going to be using through this particular](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=195.84) [example are going to be based on Node.js and MongoDB.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=199.11) [Again,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=202.66) [the technology doesn't really matter because the concepts we're](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=203.22) [going to be covering apply to everything.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=206.68) [But this is where you're going to be able to get what I'm](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=209.34) [going to be talking through in this course.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=211.42) [So you can go to github.com/danwahlin,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=213.39) [and you can go to this NodeExpressMongoDBDockerApp URL.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=215.21) [You can then clone it, download the zip,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=221.23) [whatever you prefer,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=224.13) [and then you'll have all the code that we're going to be talking through.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=225.32) [Now when you're done with this course, my main goal is that,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=228.36) [first off, you understand why you would want to do this,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=232.34) [where it could be used,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=235.88) [and really why it's so exciting to know this because you truly](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=237.22) [will gain the freedom to run your apps anywhere,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=241.3) [on your machine, on your friend's machine,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=243.98) [up in different clouds.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=246.5) [It really doesn't matter.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=247.75) [If Docker is supported in some way, shape,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=249.37) [or form, then you would be able to run your app there.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=251.49) [I think it's super exciting because I use Docker in](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=254.44) [everything I do application‑wise.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=257.76) [And once you learn it, it's just a really, really powerful concept.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=259.73) [Now after hearing this, if you say, hey,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=264.64) [I just want to dive in even deeper,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=266.77) [then what I'd recommend is either jump ahead to this learning path,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=269.04) [or you can check out my Docker for Web Developers course,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=272.78) [which will go much,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=275.95) [much deeper into these different concepts and give you kind of that](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=277.01) [end‑to‑end app development and containerization experience.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=280.82) [So now that we've gone through the course overview,](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=284.94) [the prereqs, where you can get the code, and those types of things, let's go ahead and introduce this first module.](https://app.pluralsight.com/course-player?clipId=b46af966-70e6-4684-90f6-8472e6923f8b&startTime=287.01)

### [Module Overview](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5)

[In this first module on setting up your development environment,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=1.74) [we're going to start things off by reviewing the case for Docker.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=4.79) [Not every technology out there needs to be used in every situation, of course.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=9.14) [And really, Docker is no exception, although I'm a big fan of it in most cases.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=13.97) [So we're going to review what exactly is Docker and](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=19.24) [what are some of the key concepts?](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=22.87) [And then we're also going to talk about the key benefits,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=24.94) [especially as a developer using Docker.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=28.18) [But this applies to even folks that are working in DevOps, for example.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=30.61) [Maybe they're just a cloud engineer, and they want to learn Docker.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=34.88) [There's a lot of benefits,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=39.24) [and knowing about those are really key because there's multiple ways that](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=40.59) [Docker can add value to not only your development workflow,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=45.18) [but also the process of your deployment workflow.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=49.13) [Now from there,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=52.94) [we're going to review what you need to install from a software](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=53.42) [perspective to get Docker up and running on your machine.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=56.27) [Now I'm going to focus on Mac and Windows in this particular](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=60.14) [course, but just know that if you are on Linux,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=63.71) [you can run the Docker Engine directly,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=66.62) [and I'll show you the web page where you can go to.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=69.36) [And if you are on Linux, there'll be a download there for you.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=71.62) [But for the rest of us that are on either Mac or Windows,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=74.88) [we're going to be running something called Docker Desktop.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=78.14) [So I'll talk about where you can get that,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=81.44) [how you can install it,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=83.51) [and we're also going to explore some of the preferences that](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=84.85) [you can set up so that you have a little more control over what](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=87.32) [Docker is doing behind the scenes.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=91.11) [And then finally,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=93.24) [we're going to explore the application that's going to be used](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=94.22) [throughout this course and the one that I mentioned earlier when I](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=96.61) [introduced the course and showed the GitHub link.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=100.38) [This is a Node.js MongoDB app,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=103.54) [and I want to emphasize one more time that technology is not going to](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=106.33) [matter as much though. What we're going to cover is kind of](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=110.02) [technology‑agnostic, but I had to pick something,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=112.96) [so this is what we're going to go with.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=116.16) [But if you're using Java, .NET, Python, something else,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=118.44) [then the same concepts are going to apply. And that's what's so great about](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=121.96) [Docker is it works in so many different scenarios. So we'll examine the app,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=125.41) [I'll walk you through the different parts of it,](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=129.93) [and then we'll move on from there. So let's go ahead and jump right in then to the case for Docker.](https://app.pluralsight.com/course-player?clipId=55006ce2-d0a2-4e9a-8a54-2515268d4de5&startTime=132.27)

### [The Case for Docker](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2)

[Before I dive into any technology,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=1.04) [I always evaluate is this something that the crowd is just saying I should use,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=3.11) [or should I really use it?](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=7.98) [Because there's too many technologies out there that are very](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=9.84) [niche and you just don't maybe need them,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=12.87) [even though everybody's saying you do.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=15.91) [So what I'm going to do here is walk you through the case for Docker because I](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=17.87) [do think it's important before we dive in and spend a lot of time learning that](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=22.64) [we really take a step back and try to understand,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=27.15) [why would we care about this?](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=29.99) [And is it actually applicable to me and my business scenarios?](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=31.78) [So a lot of us have a shipping process,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=35.76) [maybe still even today that feels like this.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=38.94) [You put your code in the boat,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=42.54) [you ship it over to the land of staging or production,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=44.84) [and you hope it doesn't sink before it gets over there.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=47.91) [Some of us may still have FTP processes that are very manual.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=51.54) [We may copy and paste code.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=56.34) [And even if you do that, you can get it working, of course.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=58.09) [But where the challenge, at least that I've found,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=61.17) [comes into play is once you do ship it over,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=63.98) [what happens if the server is a slightly different version?](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=68.34) [Or maybe the security is slightly different?](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=71.74) [Or we're missing environment variables that we needed?](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=74.48) [We had those on our machine, but not in production.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=78.14) [Well, shipping applications the traditional way works.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=81.34) [I've done it for years.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=84.15) [But Docker provides a much more predictable way to ship applications,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=85.64) [and let me walk you through that.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=90.87) [So let's imagine that every container on the ship](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=93.14) [that you see here is a Docker image.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=96.53) [Now an image, as you're going to learn in just a moment,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=100.14) [is everything you need to be successful to run a part of your application.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=102.34) [So, for example, you might have a front‑end app.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=107.24) [You might have APIs.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=109.74) [You might even have a database because you can](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=111.74) [containerize databases if you'd like.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=113.87) [Well, to run the front‑end app, let's say we want to use Nginx as the server.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=116.31) [Everything I need would be in that shipping container right there.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=122.24) [It would be in something called an image.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=126.29) [So think of it as like the list of all the stuff I](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=128.84) [need to run that front‑end app, including the server,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=132) [any security patches, any environment variables,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=135) [my code, of course, and anything else you need to run that successfully.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=138.36) [Same for the APIs.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=142.67) [Same for the database.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=144.31) [So now if I move the image that, let's say,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=146.34) [you created over to my machine, I can run some Docker commands,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=149.68) [fire that up, and get a container,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=154.04) [and I know it's going to run exactly the same as it ran on your](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=155.82) [machine because all the ingredients are there.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=160.3) [In fact, if it ran Nginx, I don't even install Nginx on my laptop.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=163.39) [I just have to have Docker and the ability to run these containers.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=168.44) [If we break it down and talk a little bit more about](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=172.19) [so what is the case for Docker, especially as a developer,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=175.73) [why would I care,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=178.89) [one would be accelerate developer onboarding and](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=180.11) [just consistency across developers.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=183.58) [You know, how many times have you said it works on my machine.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=186.14) [With Docker, it truly does.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=189.34) [So if you had a new hire, instead of potentially](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=191.15) [spending days to get everything installed,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=193.62) [with Docker, I can give you a couple commands,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=196.34) [and you can get an entire environment, APIs,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=198.95) [front end, back end, everything,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=201.55) [up and running in literally a matter of minutes in most cases.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=203.32) [Another one, eliminate app conflicts.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=207.84) [If you've ever had to run a different version of your app and even different](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=209.85) [version of the framework you use at the same time on a server,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=213.15) [sometimes that can be problematic.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=217.84) [We might have v1 for some older customers and v2 for](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=220.64) [new customers for whatever reason.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=224.7) [Well, with Docker, that's just two containers.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=227.24) [Likewise, environment consistency,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=230.44) [and I kind of gave this away a little bit earlier.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=232.4) [If you've ever had that problem where you move something to dev and then](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=235.39) [maybe staging or QA and then ultimately production,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=238.83) [and there was just slight differences on the servers between those environments,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=242.24) [you know how it's very frustrating.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=246.8) [With Docker, we can get those containers running in all of our environments,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=249.4) [on anyone's machine, on any cloud, and they will run exactly the same.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=254.4) [And ultimately, that leads us to we ship software faster.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=259.33) [I mean that's what this is all about.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=262.8) [Having gone through the case for Docker,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=265.34) [let's review really quick some of the things you probably covered](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=267.14) [in the earlier course in this learning path.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=270.07) [But just in case you didn't, I'm going to walk you through images and containers.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=272.22) [So an image is kind of like the recipe for the cake that we want to create.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=275.96) [An image is going to have everything we need to run that front‑end](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=281.36) [app defined in something called a Dockerfile,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=285.7) [and then we can take that and build it into an image.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=288.94) [So think of an image as kind of a bunch of stuff stacked up like books almost.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=292.32) [We call it a layered file system.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=297.02) [And some of those books are your code.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=298.86) [Some of those books are the server code,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=301.51) [environment variables, service patches, security tweaks,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=303.92) [whatever it may be,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=308.44) [everything you need for that front‑end or API is in that image.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=309.6) [Now if I move that image to your machine,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=314.64) [cloud, or wherever you move it,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=317.24) [I can then take that and run it as a container because it has everything we](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=319.44) [need to now get this server and your code up and running,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=325.3) [and I'm going to be showing the different commands as we move](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=329.24) [along to build the image and run the container.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=331.46) [Now if we break it down then, an image is really just a read‑only template.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=335.64) [It has everything we need to run the front end,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=339.41) [the API, the database, whatever it may be that your containerizing.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=341.88) [And it has this layered file system, again kind of like a stack of](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=346.34) [books, where every book is a different part of the story that you](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=349.81) [need to run that particular part of the app.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=354.35) [Once an image is moved to a machine and we can actually](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=357.44) [pull an image from various areas, then we can use that image to run a container,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=361.42) [and the container is actually the runtime version.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=368.64) [So the container itself is what is started and stopped,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=371.61) [and you can pause them and inspect the logs, and this is the runtime](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=375.62) [version of what we're going to be working with.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=379.53) [So now that we've gone through and reviewed kind of the old way to deploy,](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=382.24) [the new way, a few different cases for using Docker and then images and](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=385.89) [containers, let's go ahead and jump forward here to the software installation to get Docker running on your machine.](https://app.pluralsight.com/course-player?clipId=99adeaa8-ac00-47b0-96f2-78bc3c2184a2&startTime=390.52)

### [Software Installation](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4)

[Let's take a quick look at the software you'd need to](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=1.04) [get Docker running on your machine.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=3.68) [Throughout this course, I'm going to be using something called Docker Desktop.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=6.34) [Now this will run natively on Windows or Mac.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=10.18) [You will need Windows 10 or higher, though,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=13.52) [and a newer version of the macOS software.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=15.95) [But assuming you have that, you can run Docker Desktop.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=19.24) [Now this is going to provide the image and container tools](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=22.74) [that we need to build custom images and run containers and](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=25.87) [stop them and those types of things.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=29.57) [What's nice about it is once it's installed you can pretty](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=31.57) [much do everything you need with Docker.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=34.85) [Now some of you may be on Linux and going, so am I left out in the dark?](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=38.14) [And the answer is no because Docker is actually a Linux technology.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=42.23) [There's a little magic that's going to go on with Windows or Mac.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=46.94) [Windows can use Hyper‑V with WSL, Windows Subsystem for Linux,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=50.75) [or just Hyper‑V alone.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=55.46) [Mac uses Hyper Kit.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=57.14) [But Linux can actually run it natively because it's based on Linux technologies.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=59.44) [So if you are on Linux, although we're not going to focus on that in this course,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=65.04) [I will show you where you can go to get the Docker Engine installed.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=68.87) [The website that you can go to first is docker.com/get‑started,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=72.84) [as you'll see here in the lower‑right corner.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=78.03) [So let me jump on over on my Mac first, show you a few things there,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=80.24) [and then I'll show you on Windows as well.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=85.09) [So on Mac, when you go to this URL, you'll see Download for Mac right here.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=88.14) [And once you've downloaded the file,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=94.24) [you can simply run through the installation process like normal,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=95.65) [and you will see this little Docker whale up in your menu bar.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=98.89) [So if I click on this, you'll notice it says I have Docker Desktop running.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=103.54) [I can get to Documentation, go to the Quick Start Guide,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=107.94) [something called Docker Hub, which we'll talk about a little bit later.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=111.46) [I can check for updates.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=114.94) [But I want to show you Preferences real quick.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=116.55) [Now the preferences are where you can tweak a few things.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=120.34) [So for example, do I want Docker Desktop to start right when I log in?](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=123.84) [Now I do because I use it a lot,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=127.69) [but maybe you don't want your resources taken up on your machine,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=129.7) [and you just want to manually start it.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=133.19) [Then you could uncheck that of course.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=134.87) [I can also come in to Resources, Docker Engine,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=137.14) [Experimental Features, and there's various settings there.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=140.46) [Normally you don't need to mess with these,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=143.98) [but feel free to check those out if you'd like.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=146.34) [And then Kubernetes is outside the scope of this course,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=149.64) [but think of it as a way to run many containers in an](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=152.17) [engine that's designed for that.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=156.11) [And if you're interested, you can check out my Kubernetes for Developers course.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=157.76) [It's called Kubernetes for Developers: Core Concepts.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=161.83) [And then there's some other courses after that, if you'd like.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=164.82) [So that's what it looks like on Mac.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=167.64) [Now, if I go into the Windows side, you'll notice I can download for Windows.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=170.14) [I'd get that executable, and I can get the same Docker whale icon.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=174.92) [So if I go to our taskbar here, I'll go up to my tray,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=180.24) [and you'll notice the Docker icon.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=184.96) [If I right‑click on it, I can get to the same type of settings.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=186.78) [So notice I can get to Settings, not Preferences in this case.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=191.34) [Now, I'm using something called Windows Subsystem for Linux.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=194.97) [So, yours might look slightly different than mine on Windows.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=198.88) [It really depends on how you decide to set yours up.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=202.2) [But you'll notice I have the Start Docker Desktop when I log in.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=205.14) [And then I'm using this WSL 2 engine.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=208.74) [So, I'm actually running Linux, Linux Subsystem it's called.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=211.31) [And Docker is running inside of that.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=215.64) [You'll notice there's a Learn more if you'd like to learn more about that.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=217.87) [And just like on Mac, you'll see Resources,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=221.44) [Docker Engine, and Experimental Features,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=223.7) [and then there's also Kubernetes.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=226.14) [Now what's also nice about this is I could come on in,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=228.94) [and just to get started, if I go back to the tray and I right‑click,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=232.68) [I can go to Dashboard.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=237.76) [And this works on Mac or Windows.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=239) [And notice the dashboard says no containers are running.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=241.44) [However, I can copy this command right here,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=244.46) [and if you'd like to see if Docker is running properly](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=248.32) [you can just open up a command prompt.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=251.54) [And then I'm just going to paste this command into,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=253.74) [in this case it's PowerShell.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=257.19) [We're going to do a docker run.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=259.04) [Now we haven't covered this command yet,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=261.54) [but we're going to be talking about this.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=263.09) [You'll see a few command line switches,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=264.9) [you'll see this is the image we're going to run,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=267.34) [and I'm just going to hit Enter.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=269.99) [Now what this will do is it's going to look locally and say,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=272.64) [hey do you have the recipe, the image?](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=276.32) [And I don't, so notice it's downloading it.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=279.24) [It's pulling it.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=281.54) [And then it just tried to start this container.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=283.34) [So it downloaded everything it needed,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=286.01) [and now it's going to try to run it on my machine.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=288.17) [Now if I run a command, which is docker ps ‑a, this is list all my containers.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=291.14) [We'll be talking more about that in a later module,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=297.04) [but we'll jump ahead real quick here.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=299.51) [You'll notice I actually have a running container here.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=302.14) [It's been up for 19 seconds.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=305.58) [I can actually go to the browser and hit it on localhost if I'd like.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=307.74) [So let me come on up here real quick.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=311.04) [We'll just go to localhost, and there we go.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=313.54) [It's now actually running against that container that's on my machine.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=318.04) [And notice I have an entire application I can go through here.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=322.36) [I can click on just like a normal website.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=325.31) [Once I'm done, I can come back to the command prompt,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=328.54) [and I can go ahead and say docker stop.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=331.84) [And then notice this ID over here.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=335.44) [So I'm going to type 10, just the first part of it, and stop it.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=337.5) [And then I'm going to go ahead and say, hey I'm done with this.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=342.64) [I'm never probably going to use it again,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=344.45) [so we'll remove the first part of the ID.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=346.23) [And now if I run docker ps ‑a nothing is there.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=349.44) [So this is kind of our Hello World to make sure that](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=354.14) [Docker is running properly on your system.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=357.08) [And this command I just ran is going to run on Linux, Windows, or Mac.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=360.14) [Now, let me go back over to the Get Started page.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=364.44) [And I mentioned that if you're on Linux you can run Docker Engine.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=368.54) [So, if you click here, you can go to View Linux Engine.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=371.75) [And this will walk you through what you'll need to run that.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=375.64) [There's a couple options you'll notice, Fedora, CentOS, and more.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=378.7) [So, that is something I won't be going into here,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=383.14) [but you can absolutely run these same types of commands on Linux,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=385.67) [Mac, or Windows.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=390.07) [So now that we've covered the software installation,](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=392.34) [let's move forward and take a look at the app that we're going to be covering throughout this course.](https://app.pluralsight.com/course-player?clipId=45e79eb4-341e-4bc5-9494-e45c66e83aa4&startTime=394.43)

### [Examine the Application](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c)

[Before we dive in to creating custom images and running containers,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=1.04) [let's examine the application that we're going to use](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=5.22) [throughout this course so you have a little better feel](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=7.45) [for what's in it and how it works.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=9.96) [The application that you see here is built with Node.js and MongoDB.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=12.19) [It's a very simple app, all it does is display some Docker](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=16.94) [commands and what you can do with them,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=20.12) [but it should provide a really nice starting point.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=22.28) [And I want to emphasize again that even if you do nothing](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=24.93) [with Node or Mongo or the technologies here,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=28.53) [the concepts we're going to learn are going to apply](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=31.84) [to every other framework out there.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=34.34) [And that's what's really important about this particular course.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=36.28) [Now to start things off, just to show you where things live,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=40.24) [you'll notice server.js.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=43.05) [This is kind of our web server, the code that's going to run in it.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=44.64) [It uses Express.js.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=47.94) [And then we have in our lib folder some code for the](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=50.44) [database interaction with MongoDB.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=55.27) [And this is going to use an npm package called](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=58.13) [Mongoose to actually connect to that.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=60.67) [Now knowing the code isn't going to be required though.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=63.14) [Really,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=65.54) [we're going to focus just on the steps from a Docker perspective](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=66.07) [that you need to know to build custom images,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=70.28) [run custom containers, talk between containers,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=72.68) [and things like that.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=75.73) [So to wrap this up, what I'm going to do is run through these steps really quick,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=77.34) [starting with the docker‑compose build.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=81.18) [Now this is an orchestration tool that we'll talk](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=83.94) [about towards the end of the course,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=86.05) [but learning the commands upfront or just at least](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=87.78) [seeing them is good for repetition.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=89.92) [So I'm going to run you through the basics.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=91.51) [So let me go ahead and build.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=93.16) [Now I'm going to run docker‑compose up.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=97.74) [And what this is going to do is start up two containers.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=101.14) [You'll see we have a Node app and a MongoDB app running now.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=104.19) [Now this particular instance of the run shows all the logs,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=108.94) [you'll notice, for MongoDB and for the Node app.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=112.54) [You'll see the DB connection is open, for example.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=116.19) [You can also run it in a mode where it just goes](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=119.04) [away and you get back the console.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=121.93) [And we'll talk about how to do that a little later,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=123.71) [but we're going to leave that for now.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=125.62) [Now, I'm going to run over to the browser,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=127.74) [and I'm going to run to localhost:3000,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=129.99) [which is what this is listening on for the actual port.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=132.48) [You'll see I have Docker Commands, but there's nothing listed,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=136.44) [and that's because the database is empty up to this point.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=139.33) [So let's go on back.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=143.14) [And what I'm going to do is come on in and start up a new terminal.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=144.35) [And once this terminal fires up, we're going to run the next command.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=148.6) [We're going to do docker ps ‑a, and it's going to list our containers.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=152.1) [Notice we have a Node container and a Mongo container.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=156.71) [Now, I'm going to note the ID here of the Node container.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=160.94) [So, I'm going to go ahead and copy that.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=165.37) [And we're going to run the next step 6 here.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=168.44) [And this is going to shell into the container with that particular ID.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=171.24) [And we're going to shell in using an sh type shell.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=176.74) [All right, so now I'm actually in the container.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=179.84) [And now I'm going to run a little dbSeeder script,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=182.94) [which is just a fake, quick way to get some data in the database.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=185.46) [All right, there we go, we're initialized.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=189.03) [So, I'm going to do Ctrl+C to stop that.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=190.85) [I'm going to type exit.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=193.47) [And then we're back to our command prompt here.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=195.64) [Now let's go back to the browser.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=198.02) [And there we go.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=200.84) [Now you can see some Docker commands are listed,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=201.84) [and it's actually calling MongoDB.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=204.78) [The point, though,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=207.34) [is we actually have two containers that we're going to be](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=208.19) [talking about as we go through the course.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=210.65) [To finish this up,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=214.04) [let's go ahead and run docker‑compose down to stop our containers.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=214.98) [So now that we've examined the app a little bit,](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=219.54) [let's go ahead and do a final summary, and then we'll start jumping into all the fun.](https://app.pluralsight.com/course-player?clipId=83d472c4-c60b-48b5-aa31-b2184340003c&startTime=221.95)

### [Summary](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3)

[In this first module on setting up your development environment,](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=1.24) [we talked about the case for Docker, some of the benefits it can provide,](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=4.04) [and how we can get it up and running on our system.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=7.72) [So as a quick review, Docker has a lot of different benefits](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=10.84) [we can take advantage of from a development workflow or](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=14.16) [deployment workflow standpoint.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=17.42) [Maybe you're onboarding new employees and you need them getting](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=19.74) [up and running with this project very quickly.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=23.47) [They need to be able to run the app locally on their laptop or other](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=25.94) [machine. Well Docker can make that much easier because you can run the](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=29) [different parts of the app in containers on their machine.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=33.09) [We also get environment consistency.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=36.84) [It's so nice to be able to run something on your machine and then move it](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=39.05) [between your different environments at work and have things run consistently and](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=42.49) [avoid some of those surprises where a different security setting was tweaked on](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=47.62) [a server or a service pack wasn't available.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=52.18) [And then, finally,](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=55.74) [by using Docker we can ship software faster as well. We saw](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=56.68) [that Docker Desktop can run on Windows or Mac,](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=61.32) [but if you're on Linux you can run the Docker Engine.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=63.93) [And because Docker is a native Linux technology, it runs great.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=67.28) [In fact,](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=70.97) [that's what Mac and Windows use by default is actually Linux under the covers.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=71.42) [It is important to note that Windows does have a](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=76.84) [Windows container option as well.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=79.83) [And the reason I mention that is because Docker can work with many](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=81.93) [frameworks and languages. Although this course is going to focus on a](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=85.59) [Node.js and Mongo DB type scenario, if you're doing .NET or Java or](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=88.87) [Python or PHP or something else you're going to be able to run it](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=93.69) [either on Linux directly,](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=97.7) [depending on your framework of course, but if it only runs](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=99.17) [in Windows, Windows Server for example,](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=102.4) [then Windows containers might be an option.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=105.13) [So now that we've talked about setting up your development](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=107.54) [environment and some of the benefits of Docker,](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=109.82) [let's jump into what's next. And we're going to talk about how you can build custom images for applications.](https://app.pluralsight.com/course-player?clipId=c57e3096-2999-40cf-92ad-0f0c641306e3&startTime=112)

## [Create an Application Image](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b)

### [Module Overview](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b)

[Now it's time to jump into the fun,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=0.94) [and I do think learning all this is a lot of fun,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=2.97) [because once you learn the fundamentals of creating an image](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=6.17) [and then using that to run a container,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=9.77) [it really opens up a lot of possibilities.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=11.63) [So in this module we're going to start off by talking](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=14.74) [about something called a Dockerfile,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=17) [and we're going to learn about some key instructions and core concepts you](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=19.22) [can use to define what I like to call the recipe for all the ingredients](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=22.79) [that are needed to ultimately run a container.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=28.31) [Then we're going to create a custom Dockerfile,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=32.44) [so you can see that process,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=34.94) [and although our Docker file will be related to Node.js,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=36.19) [the concepts we're going to go through could be used with Java,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=40.01) [.NET, and many other libraries and frameworks out there.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=43.33) [Once we have a Dockerfile available, we need to convert it into a Docker image,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=47.24) [and we're going to learn about some Docker commands](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=52.01) [we can use to make that happen.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=53.81) [We'll also learn about something called tagging images along the way.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=55.81) [Now once you have an image, that's great.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=60.04) [You can run the container locally.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=61.96) [But how do we actually get it out there where somebody could pull it](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=64.23) [down to a cloud server or use it on their machine,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=68.38) [whatever it may be?](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=72.06) [Well, we'll learn about something called Docker Hub.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=73.6) [This is a registry.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=76.18) [There's many of these out there, AWS, Azure,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=77.34) [Google Cloud, have these registries where you can actually store your images.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=81.06) [We're going to talk about a free option that's part of Docker and explain](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=86.05) [how you can get your image up into this Docker Hub.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=90.59) [Then we're going to wrap up with a really nice VS Code extension.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=94.24) [It's related to Docker,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=98.07) [and it's something that'll simplify some of the tasks that you](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=99.81) [would normally do through the command line.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=102.62) [Now, I'm going to focus mostly on what you can do from the command line,](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=105.34) [because I do think it's important to learn the commands first and then](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=109.96) [learn about other tools that might simplify your life a little bit and](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=114.32) [maybe make you more productive in some scenarios. So let's get things started by talking about Dockerfiles.](https://app.pluralsight.com/course-player?clipId=1cc7eb16-700e-4b2b-9292-2c075a02561b&startTime=117.61)

### [Understand Dockerfiles](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff)

[In the previous module,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=1.24) [we did a quick test to see if Docker Desktop was running](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=2.31) [properly by running a getting started Docker image,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=5.21) [and somebody from Docker would've had to create a Dockerfile in](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=8.41) [order for that image to be created as well.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=12.46) [So in this section, we're going to talk about what is a Dockerfile,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=15.34) [how does it work, and what's in it?](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=18.67) [So before we jump into Dockerfiles,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=21.84) [let's go through a scenario that most of us as developers are going](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=23.68) [to be pretty familiar with and comfortable with,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=26.66) [and that is taking code, running it through a compiler,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=29.44) [and then generating a binary.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=33.84) [So if you've worked with C++ or C# or Java,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=36.14) [or even if you haven't,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=39.76) [you've probably heard of a compiler and heard about](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=41.34) [this process where we write some text, that's our code,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=43.86) [we run it through the compiler, and we get a binary.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=47.6) [Well, that's much how Dockerfiles work, actually.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=51.24) [Here's the definition of what a Dockerfile is.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=54.11) [A Dockerfile is a text document that contains all the commands a user](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=57.02) [could call on the command line to assemble an image.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=60.71) [So unlike writing, say, C++ or Java code,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=65.04) [we're actually going to write commands,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=69.02) [we officially refer to them as instructions,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=71.07) [but they don't look anything like a programming language.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=73.61) [They're just text.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=76.14) [They're very easy to understand and very easy to work with, you'll see.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=77.32) [So here's what it looks like if we convert from our compiling](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=81.24) [code scenario to building Dockerfile scenario.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=84.32) [We're going to write a Dockerfile that has instructions in it.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=88.18) [We'll talk about some of those instructions momentarily.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=91.53) [We're then going to run that through a Docker build process,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=94.84) [and that's going to generate an image.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=98.19) [Now that image is going to have everything we need,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=101.04) [again, environment variables, the server,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=103.51) [security settings, your code.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=106.62) [But in order to make that image, we have to make a Dockerfile,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=108.89) [and we have to define these instructions.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=112.99) [You can think of a Dockerfile as a layered cake.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=115.54) [It's officially a layered file system,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=118.75) [but if you think of a chocolate layered cake where each](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=120.77) [layer is a different instruction, that's how Dockerfiles work.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=124.43) [The base layer, and the first thing you always define,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=128.84) [is the FROM instruction, FROM, in this case,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=132.25) [node:alpine, or FROM an ASP.NET Core, or Java,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=136.01) [or Python image, whatever it is you work with,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=140.47) [that could go here.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=143.44) [Now you can go to hub.docker.com to look up the different options.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=145.54) [There's a lot of them out there.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=149.04) [But in this case, I'm going to say node:alpine, or I could just use Node.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=150.61) [And I could even put the version of Node,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=155.48) [the version of Alpine, that I want to use,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=158.02) [and for production that would be recommended,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=160.24) [but we're going to keep it simple here.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=161.83) [Now the next thing you'll often see is metadata about the Dockerfile,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=163.96) [such as a label for who is the author.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=168.33) [Author is the key, in this case, Dan Wahlin is the value,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=172.24) [LABEL is the instruction.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=176.33) [We can also have another layer, a label,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=178.34) [that has our creation date or last updated date or](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=181.82) [those types of things as well.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=185.3) [You can also define environment variables using the](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=187.54) [ENV instruction. In this case, NODE\_ENV=production.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=190.28) [That now becomes part of the image, and once we run the container,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=193.33) [that environment variable will be part of it.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=198.29) [Next up is the working directory.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=201.34) [When you're running a base image like Node or ASP.NET Core or Java,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=203.94) [there's going to be a lot of directories,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=208.21) [of course, in the container once it's running.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=209.89) [Well, what's the directory that you care about?](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=212.32) [What's the directory where, for example,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=215.06) [your web server code lives that starts things off?](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=216.91) [In this case, we're going to say /var/www,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=220.4) [and in custom scenarios,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=223.56) [you can kind of make up whatever directory you want here.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=225.98) [But this is kind of the starting point of "you are here." You are in](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=229.24) [the /var/www once that container starts running.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=232.96) [Now the next command is really important because a lot of times you need](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=236.76) [to copy in configuration files or settings or code.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=240.56) [Could be binaries, compiled code,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=244.99) [or it could be a scripted language like JavaScript,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=247.51) [whatever maybe you're working with.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=250.02) [The COPY instruction has a where am I starting from, that's the dot on the left.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=251.72) [Now that would mean it's going to copy from the folder where this](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=256.95) [Dockerfile lives and anything else in that folder is going to get](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=261.08) [copied into what's on the right.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=264.83) [So what's that dot on the right represent?](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=267.3) [Well, remember the working directory /var/www.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=270.14) [I could have typed that right there.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=273.73) [It would have been fine.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=275.12) [But we save duplication here.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=276.08) [So the one on the left is the source we want to copy from,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=278.2) [and the one on the right is where are we copying to,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=281.78) [in this case, /var/www.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=285.02) [We can also run different commands.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=288.94) [In this case, it's a Node app,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=290.75) [so we need to have our npm packages installed as part of the](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=292.07) [image so that it runs consistently everywhere,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=295.72) [so we're doing an npm install.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=298.23) [Anything you want to run as a command, you could do that here,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=300.62) [and you could use the run instruction.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=304.95) [I'm going to expose port 3000.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=307.14) [That's going to be what this container will be listening on, is 3000.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=309.26) [That could be whatever your web server, in this case,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=313.64) [is going to be listening on.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=316.77) [And then finally we have the ENTRYPOINT.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=318.84) [What's the first command that we're going to run to start this up?](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=320.9) [In this case, we're going to run node, server.js.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=324.82) [But if you're using Java or .NET,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=328.54) [you'd use the appropriate command‑line tool to fire up your executable,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=330.78) [if you will, your starting point.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=335.26) [Now, where do you get information on all this,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=337.44) [because now we're looking at quite a few instructions,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=339.31) [and you may say, well, hey,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=341.73) [I want to know more about the label or the environment](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=343.43) [variables or something like that.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=346.49) [Well, fortunately, in the Docker documentation site,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=348.64) [you can get information on all these commands.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=351.41) [This link here will take you right to that.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=353.58) [And then from there you can drill into every instruction](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=356.44) [and get more information about it.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=359.8) [But this is a quick overview to get you thinking about what is a Dockerfile.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=361.94) [So now what we're going to do is switch gears to the app,](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=366.54) [and we're going to look at a custom Dockerfile for that app. And then a little bit later, we'll talk about how we can build it into an image.](https://app.pluralsight.com/course-player?clipId=906b4c0e-4a3b-4f90-a8cf-e5294f4b6cff&startTime=369.92)

### [Create a Custom Application Dockerfile](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a)

[All right, well, now that we've talked about Dockerfiles,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=0.94) [let's look at how we can create our own custom application Dockerfile.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=3.5) [So coming into the application,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=8.34) [you'll notice I have a file in here called node.dockerfile.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=10.15) [Now you could just name this dockerfile with no extension,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=14.14) [but I generally prefer to be a little more specific,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=17.28) [because in many applications, I'll have multiple Dockerfiles.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=20.26) [Now keep in mind, I have this at the root.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=24.44) [If you wanted to move it to a different folder, you could do that as well.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=26.42) [There would just be some relative paths that you may have to change,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=30) [and I'll show you that coming up.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=33.94) [So what I'm going to do is open up this file and I'm going to](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=36.14) [delete everything that's in here to start us off.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=38.98) [Now the first thing we want to do is give it the base recipe,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=42.06) [I'm going to call it, the base image, and I'm going to use node:alpine,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=45.8) [in this case.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=49.86) [If I run on over to a site called hub.docker.com,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=51.51) [which you'll see here, and search for the Node image,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=56.3) [which I've already done,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=59.68) [then you can find more information about the version](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=61.34) [of the image that's available.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=64.21) [Now I did node:alpine, so if we scroll on down,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=65.9) [you'll notice 15.9.0 looks to be the latest version,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=69.48) [so we could be very explicit and say 15.9.0‑alpine or just 15.9‑alpine,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=74.36) [or we could even do current‑alpine.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=80.03) [If you do what I'm doing here, it'll grab the most current version,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=83.04) [which on the surface probably sounds like a great idea](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=87.35) [because you're always up to date.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=90.14) [Actually, it's not a great idea,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=91.64) [and the reason is that as you build into the future,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=94.44) [there may be changes to this image which could affect your application.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=97.23) [So be really, really careful that you're more explicit.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=101.82) [Now I'm going to go ahead and leave it,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=105.94) [but we could certainly come in and do 15.9.0‑alpine like that,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=107.5) [and that would actually allow me to be very explicit about](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=114.34) [the base image that I want to base mine on.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=118.53) [I normally do that, especially when I'm not just doing a demo or playing around.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=121.34) [If it's for production, you would probably want to do that,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=125.99) [so keep that in mind.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=128.61) [Now I'm going to go ahead and leave it as current, though, for this demo.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=130.34) [Now the next thing I'm going to add into here is optional,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=134.04) [but I would highly recommend it, and it's a label.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=136.32) [So I'm going to put LABEL, and I'm going to hit Tab here.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=139.62) [Now this one is going to be author,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=143.34) [and then you can put whoever the author of this initial Dockerfile.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=145.04) [A couple of ways to think of this, one,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=149.07) [you know who to blame if something goes wrong,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=151.41) [not a good reason.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=153.92) [Number two, though, and more seriously is,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=155.3) [at work, if you open a Dockerfile,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=157.93) [you can find out maybe who on your team initially created it.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=160.17) [But this is a nice way to have it right in the Dockerfile.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=164.51) [Now, you can put really any key/value pair you want here.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=167.94) [We could add another label for the date this was created,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=171.54) [for example, or something like that.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=174.07) [Now, the next thing I'm going to add is instructions for environment variables.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=176.74) [Just about every framework out there has some type of](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=181.14) [environment variable that you can set for,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=184.53) [is this development or production,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=186.33) [or you might define a version of the app or framework,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=188.51) [things like that.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=191.55) [So I'm going to go ahead and just paste these in to save on typing.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=193.14) [And we're going to say that this is going to be our production](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=196.31) [version of our Node image, so NODE\_ENV=production,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=199.2) [and I'm going to define the port here through using an environment variable.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=202.12) [All the ingredients I need, including environment variables,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=207.92) [can be supplied in this image.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=211.66) [Now coming on down, we're going to work with a directory,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=214.34) [and this directory is going to be /var/www.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=217.74) [Now, this is something I came up with, it's pretty common,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=221.64) [actually, but this is the directory inside of the running container.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=224.28) [In this case,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=229.34) [it's the directory in the Linux container that'll run this node:alpine image.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=230.42) [So what I'm going to do is say this is my working folder so that moving forward,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=236.14) [we don't have to keep typing the path to everything we want to do.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=240.94) [We can just type it once.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=245.14) [Now when Docker does its thing, it knows that that is the working directory,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=246.94) [and then it figures everything out for us.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=251.34) [Now, the next thing I'm going to do is copy in some files.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=254.34) [You'll notice that on the left here we have our](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=257.34) [package.json and our package‑lock.json.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=259.47) [Now not only do I need those in the image,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=263.54) [but I need them because we need to run npm install.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=265.83) [So I'm going to go ahead and do a run command here,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=269.1) [and we'll go ahead and just delete that,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=272.54) [tab on over, and I'm going to do npm install,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=274.72) [and you might even have other flags you want to add to](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=278.28) [that such as no optional dependencies, for example.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=280.25) [You may wonder why we're copying in just the package.json and the](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=284.34) [package‑lock.json and then doing the npm install.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=288.03) [And the answer is because Docker works with layers,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=291.06) [and this keeps the layer focused just on the package.json files.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=293.81) [And now if we have other source code changes,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=298.84) [that would update a separate layer if we rebuild this,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=301.36) [but it won't affect the npm install part.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=304.52) [Now, I am going to need to copy all the source code in, though, of course.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=307.64) [So I'm going to do a COPY command here,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=311.51) [and we're going to copy in from the current folder to our working directory.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=315.24) [Now, I could just do that, but to be really explicit,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=321.22) [let me go ahead and show you, it could be that as well.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=324.2) [Now, that would be kind of redundant, though.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=327.47) [So a lot of times you'll just see something like this because we](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=331.24) [already said /var/www is my working directory.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=334.49) [This first one says copy this code from my local file system.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=339.24) [The second one then says into /var/www.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=343.45) [That's what we'll be doing there.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=348.44) [We have a port up here.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=350.74) [I'm going to go ahead and say that this image and the](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=352.31) [container, ultimately, is going to expose a port.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=355.21) [But I don't want to hardcode 3000 there because,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=359.74) [who knows, maybe I want to use this in multiple places.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=362.56) [In this case,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=365.21) [it's just once. So the way we can get to an environment variable is like this.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=365.72) [We could put a dollar sign and then put the key that we](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=370.64) [have for our environment variable.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=374.25) [So if I wanted to get to NODE\_ENV, down here we could](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=376.24) [put a dollar sign in front of it,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=379.91) [and then it would substitute it as it does the Docker build. Finally,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=381.42) [I want to say what to run when this starts up, our entrypoint.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=385.82) [So I'm going to go ahead and say that there's an npm start command.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=390.54) [Of course, that's going to be in our package.json file.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=393.71) [Or if you're using other package‑type managers for your framework,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=396.73) [you could have that initial command here.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=400.71) [Something really, really important I want to point out. In this kind of demo app,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=403.44) [it's not as big of a deal, but in larger apps, it's a big deal.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=407.23) [A lot of times, once you do a build, and we'll look at that coming up shortly,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=410.45) [you'll find that it takes forever sometimes to start the build. And you'll](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=414.84) [sit there and look at the console and go what is going on?](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=418.97) [And when we do a command like this, it copies everything in, which,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=423.24) [in this case,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=427.38) [I want just about everything, but I definitely don't want my local node modules.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=427.8) [We're going to do that right here.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=433.64) [So how do we ignore those so they don't get copied in? Because](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=436.34) [that could take a long time, in some cases. Well,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=439.27) [notice at the root I have this .dockerignore,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=442.97) [which has Node modules. That will stop Node modules from being copied in.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=446.71) [It's much like a gitignore that you'll see here,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=451.87) [which has some other things, like Node modules.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=455.39) [So keep that in mind that files you don't want, just add a dockerignore.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=458.34) [And then when you do the build, you, first off, won't be slowed down.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=463.48) [But second off,](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=467.09) [your images will be smaller because you won't be copying unnecessary things.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=468.24) [So that's a look at how we can create a custom application Dockerfile. So the next thing we're going to do is take this and build it.](https://app.pluralsight.com/course-player?clipId=060518f4-d42b-46db-a3fc-cc0f62be5a3a&startTime=472.84)

### [Using docker build](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217)

[Once you've added all your instructions to your Dockerfile,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=1.04) [you need to run it through the docker build process,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=4.03) [and fortunately doing that's very straightforward.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=6.07) [So in this section,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=9.04) [we're going to take a look at what the docker build](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=9.74) [command looks like and how you can use it.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=11.89) [So to get started, the simplest way to build an image would be the following.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=14.64) [You'll type docker build ‑t, that stands for tag,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=18.84) [or you can do ‑‑tag if you prefer,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=23.86) [and then you can give it the image name. And the](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=26.74) [image name could be very obvious, like customersapp,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=29.6) [nodeapp, javaapp, whatever you want to call it, normally you'll be very,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=32.8) [very specific on that name.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=36.67) [And then the final thing you'll do is give it the build context.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=38.94) [Where is the Dockerfile relative to where you're running this command?](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=42.14) [In this example,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=46.88) [I'm saying that it's in the same exact directory where I'm running this command,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=47.88) [that's the dot.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=51.65) [If it was at a higher level, I might put ../ some parent folder.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=53.14) [If it was a lower level, I might put ./ some sub folder.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=58.78) [So that's something you can control,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=63.14) [but normally you just go right where the Dockerfile is,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=64.66) [and then you can run the build command, and just put a dot.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=68.04) [Now here's an example of putting that into action then.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=70.69) [We have docker build ‑t,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=73.18) [and the name of the image in this example is nodeapp,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=75.83) [and then there's our build context.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=78.97) [While this type of approach works fine,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=81.44) [at some point you're going to want to push your image up to a registry.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=83.42) [That's a place where you can store images.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=87.87) [Now this could be a registry that set up within your company, it could be](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=90.44) [Docker Hub, that's the hub.docker.com we've seen before, it could be up on](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=93.9) [AWS, or Azure, or Google Cloud, or some other cloud.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=99.18) [That depends on you, your company, and where you're storing your Docker images.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=103.64) [So when you do that, normally what'll happen is you'll go](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=108.57) [set up a registry username, you'll then use that username](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=111.93) [as part of your tag process.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=116.51) [So let's walk through this here.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=118.94) [We're still going to say docker build ‑t, that stays the same,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=120.74) [but now we're going to put our Docker registry name. For me, up in Docker Hub,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=124.84) [it's danwahlin, that's how I registered it.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=130.16) [But again,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=133.44) [yours could be your company name, your department name, your team](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=133.92) [name, it really depends on who set up the registry.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=137.69) [So if you go to hub.docker.com, and you register as yourself,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=141.07) [then you'd probably pick, you know, your name,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=144.93) [your first/last name, maybe, let's say,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=147.07) [and that's what would go here, and I'll show you an](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=149.44) [example of that in just a moment.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=151.45) [Now you put a slash after that,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=154.24) [and then you put the image name, like we already talked about.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=156.21) [Now there's one more really important piece though,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=159.64) [and this is the actual tag part of the tag.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=162.39) [You can do tag here, and you're going to see in a moment](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=165.62) [this is normally the version of the image.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=168.95) [Why is that important?](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=172.04) [Well, we just saw earlier that with node and other images out there,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=174.04) [they're always updating the images, and they tag them with a specific version.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=178.28) [That way, when you pull down an image, you can pull down a very specific version,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=184.34) [not just the most current version.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=189.48) [So, for example,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=191.74) [I might want to do the following then, I might want to docker](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=193) [build ‑t, danwahlin, in my case, is my Docker Hub registry name,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=195.79) [nodeapp would be the image name, and then I'm putting a colon 1.0,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=201.57) [1.0 represents the version.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=206.86) [Now let's say we do some changes to the code, and now we want to update this.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=209.94) [We do another docker build ‑t danwahlin/nodeapp:1., let's say, 1, or 2.0,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=214.06) [or whatever it is you do for your versioning at work. So you can see that](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=220.4) [running the docker build command is very straightforward. There are some](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=226.41) [other command line switches,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=229.6) [but this is really all you need to know to get started, and we're](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=230.88) [going to use this in just a moment. Now before we do, and we](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=234.32) [actually build our Dockerfile from the app, let me show you a few](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=237.9) [other commands I'll be demo‑ing here.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=241.52) [You might have seen these before,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=243.58) [but docker images is important because sometimes we just want to list](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=245.01) [what Docker images do we have available, and then docker remove image,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=249.15) [rmi, and then you give it an imageId afterwards,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=254.1) [and that's how you can basically remove or delete an image.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=258.21) [So now that we've seen some of these different commands,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=261.68) [especially the docker build command,](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=264.09) [let's jump over to the app real quick, and we'll go ahead and build that Dockerfile.](https://app.pluralsight.com/course-player?clipId=487f02e6-94f3-4d90-a3d5-56bfe613e217&startTime=266.14)

### [Build a Custom Application Image](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c)

[So here's the Dockerfile that was created earlier.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=1.74) [Now to build this, we could do docker build ‑t,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=4.34) [give it a name, I'll just say nodeapp to keep it simple,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=8.66) [and hit dot, you would think, but notice what happens here.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=11.75) [I get an error, and the error is because it can't find the Dockerfile.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=16.94) [Now you're going to look over to our files and go,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=22.34) [it's right there, why is it missing it?](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=24.58) [Well, if I were to rename this to just dockerfile,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=26.64) [a lot of times you'll see it like this, then this would work actually.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=31.04) [In fact, let me go ahead and do that,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=34.8) [and you can see it's actually doing the build right now,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=37.74) [and it's done.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=41.34) [So if we clear this out and say docker images,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=42.94) [I have quite a few in here, but there is nodeapp right there.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=46.86) [I didn't tag it with a version, so it's marked as Latest,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=51.34) [and then here's the IMAGE ID.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=54.3) [Now c34, let's remember that because I'm going to go ahead and remove it,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=56.44) [c34, and there we go.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=61.39) [Now it's deleted, and if we did docker images again, then it would be gone.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=65.15) [Now that's great, but that's not how I named mine, right?](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=69.74) [I named mine node.dockerfile.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=72.68) [Well, fortunately, it's pretty easy to get some help.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=76.44) [We could run off to the docs, or we could just do this,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=78.78) [we could say docker build ‑‑help,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=81.3) [and you're going to see there's a ‑f switch we can use,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=84.26) [file, Name of the Dockerfile.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=88.15) [So the default is whatever path you're on,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=90.56) [Dockerfile, as you just saw, but in our case,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=93.41) [we're going to have to be a little more explicit about](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=97.17) [where the Dockerfile is as far as the name.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=99.17) [So we're going to do docker build ‑t. Now in this case,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=101.5) [instead of just saying nodeapp and then hitting a dot,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=105.77) [I'm going to do ‑f, and I'm going to say node.dockerfile like this.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=109.75) [Now let's hit Enter, and now notice it says it requires exactly one argument.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=115.71) [What am I missing here?](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=121.04) [The dot.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=122.74) [This is the most easy thing to miss.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=123.74) [Nowadays, I'm pretty used to it, but it used to be when I was new,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=126.1) [I would stare at that error and go, why isn't this working?](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=129.27) [Well,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=131.83) [I'm just going to add a dot because we're in the](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=132.23) [folder where everything is located, where node.dockerfile is located.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=134.66) [So I'm going to hit that, do Enter, there we go.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=138.7) [Now this built really, really fast because it was already cached. In fact,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=141.77) [that shows off some of the cached layers you'll see right there,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=145.07) [but if we do docker images, scroll to the top here,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=148.83) [there we go, there's our nodeapp right there.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=153.65) [Now let's delete it again, 837 is the IMAGE ID.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=156.74) [And let's finish this off by doing a little more formal way of defining this.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=161.74) [So I'm going to go back, and this time I'm going to put my Docker Hub username.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=166.94) [So I'm going to put danwahlin, that's my registry name,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=171.87) [nodeapp, and let's go ahead and say this is version 1.0.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=174.89) [All right, let's hit Enter, super fast again,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=180.14) [and now watch what happens though when I do docker images.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=184.12) [Scroll up, there we go, danwahlin/nodeapp 1.0.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=188.76) [I could rebuild again, let's do that.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=193.34) [Let's say we changed a file or two, and we could do 2.0.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=199.04) [All right, that's done, and now let's do docker images,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=203.01) [and now we have two of them.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=208.15) [Now these happen to be identical, of course, because I didn't change anything.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=209.69) [You'll notice the size over here.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=212.93) [But that's how easy it is to tag.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=214.51) [So the question comes up a lot, well, how do I update my image?](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=216.66) [The answer is you don't.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=221.04) [Images are immutable.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=222.46) [You make a new image, and you tag it.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=224.24) [So that's an example of using the docker build command in a few different ways.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=226.74) [You saw the ‑ f switch, but you also saw that the dot really matters,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=230.53) [the name of the file can matter, and the tags really matter,](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=234.9) [especially as you're building images out into the future. You want to version those.](https://app.pluralsight.com/course-player?clipId=65a10dc6-391d-4777-94cc-2e81f008da6c&startTime=239.55)

### [Deploy an Application Image to a Registry](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12)

[Once you've created and built an image, you need to deploy it to a registry.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=1.14) [Now a registry could be local within your company,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=5.54) [but oftentimes they'll be up in the cloud somewhere,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=8.72) [such as Docker Hub, which is what we're going to look at here.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=11.28) [So the process of pushing an image up to a registry such as Docker Hub,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=15.14) [or really any other, is very, very simple.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=19.26) [You could do docker push, and then give it your username,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=21.85) [if that's what you're working with,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=25.24) [followed by the image and the tag, like we saw earlier.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=27.15) [Now that's all we would have to do. For Docker Hub, this](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=30.51) [would be your Docker Hub username, of course,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=34.11) [your image name, and then the tag that we just talked about.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=36.38) [Now what that will do is push that up to Docker Hub by](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=40.34) [default, it'll be publicly available,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=43.86) [but there's even behavior there that you can change up in Docker Hub](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=46.3) [if you want to make it so it's private to just you,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=50.03) [so that nobody else can get to it.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=52.68) [So let's go ahead and jump into an example of actually using the](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=55.44) [command to push the image that we have up to Docker Hub.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=58.26) [Here's the dockerfile that we looked at earlier.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=62.44) [I'm going to go ahead and do one more build,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=64.56) [so we know it's kind of a fresh copy of the image. Notice I have my](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=66.33) [docker build ‑t. Danwahlin is my Docker Hub registry name, nodeapp is my](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=69.26) [image name, and I'm going to tag it with version 1.0. And then because](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=75.48) [my dockerfile is named differently,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=79.82) [it's not just named dockerfile, it's node.dockerfile, you'll notice](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=81.81) [I'm using the ‑f switch, and then I'm giving the context of where is](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=85.84) [this dockerfile. And we're all done.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=89.96) [So now if we go back to docker images, and there we go, danwahlin/nodeapp 1.0,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=93.74) [and you'll notice the image version that was just created.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=100.2) [So now what I want to do is get this up to Docker Hub.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=103.74) [The first thing you'll have to do is a docker login.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=106.87) [Now, I've already logged in,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=110.74) [so I'm not going to do that process here, but as a heads‑up,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=112.19) [if you have two‑factor authentication enabled,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=116.24) [you'll have to create an access token, and that's something you](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=119.01) [can do if you go to hub.docker.com. Now I've already done that](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=122.03) [because I do have two‑factor enabled.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=125.63) [If you just have username and password,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=127.92) [you can log in like normal. Now from there we can go ahead and say,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=129.85) [I want to push this to danwahlin. Now because there's no other domain](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=134.2) [in front of that, there's no IP address, there's no domain, it's just](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=140.35) [danwahlin, it defaults to Docker Hub.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=144.37) [Now that's overridable, but that's what you're going to get out of the](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=147.82) [box with Docker Desktop. So we'll go ahead and put that, and then we have](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=150.82) [nodeapp:1.0, and that's all we need to do.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=155.18) [So I'm going to go ahead and push this, and notice it's pushing every](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=159) [single layer that's part of this image up to Docker Hub,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=164.69) [and then we'll go ahead and look at Docker Hub in just a moment.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=168.22) [Alright, so let's jump over to the browser real quick,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=171.94) [and we'll take a look at what's this look like once it gets up to](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=174.34) [Docker Hub. And here we go. Notice I have my danwahlin account, and](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=177.31) [there's my danwahlin / nodeapp. We can go ahead and click on this,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=183.22) [and we can get some information.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=187.94) [It looks like I only have one version up here, it's for](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=189.5) [Linux, and it was just uploaded or pushed.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=192.26) [And then here's how we could actually do the push if we want to do it again.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=195.79) [So if I want to update with a new tag name,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=199.59) [we could do another docker build, give it a tag of,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=202.14) [say, 1.1, and then I would have two of these up there.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=204.73) [So, as I mentioned earlier, images are always immutable.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=208.24) [You're never changing the image,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=211.14) [you're always moving forward, and you'll just simply](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=212.8) [tag it with a different version.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=214.85) [So that's all we have to do to push an image.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=217.14) [Now, of course, from here we can go on back.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=219.91) [Now if I wanted to pull this to another machine,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=223.62) [I would do docker pull, like we saw earlier, danwahlin, and then we give](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=226.02) [nodeapp 1.0. And then that would pull it to my machine, I already have](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=230.94) [it, so I don't need to do it. Now from here,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=235.39) [we could go ahead and run it.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=237.93) [That's actually going to be coming up in the next module.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=239.3) [So now that we've looked at the push process,](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=242.04) [I'm going to show you a really nice extension for VS Code that can save you some time with all of this.](https://app.pluralsight.com/course-player?clipId=f495584f-6c04-4d7d-af14-8b3d9e8f0b12&startTime=244.07)

### [Use the VS Code Docker Extension](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5)

[Up to this point, we've been using the Docker command](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=1.14) [line tools to build our images, push them,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=3.46) [pull them, things along those lines.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=6.57) [I personally feel you need to learn the CLI commands first,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=9.17) [the command line interface commands, but once you know those,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=12.97) [there's nothing wrong with using other tools that might increase your](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=16.6) [productivity, of course. One of those is the VS Code Docker extension,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=18.87) [and I'm going to show you a quick look at a few of the things it can do.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=23.88) [So, as mentioned in this module, we focus exclusively on the CLI.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=28.24) [We've jumped down to the command prompt and run docker build,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=32.68) [docker push, docker pull, and other commands.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=35.51) [There is another way, and that is the VS Code Docker](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=38.74) [extension, and it's a really nice extension.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=41.99) [You might have noticed that first off,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=45.94) [I've got some nice code syntax highlighting here going on in my](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=47.96) [dockerfiles. If I hit Tab on a few things, so for example,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=52.32) [if I come on in and do FROM, notice that I get some help over here](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=56.87) [and I can get to the online docs. If I hit Tab,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=61.52) [I can do that.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=64.48) [And then if I type my image, if I do node:alpine,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=65.35) [it will actually go out and show me the different versions that are available.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=69.64) [Now you might notice over here I have a little Docker whale,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=73.94) [and if I click on that, I could get to my images,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=76.84) [such as, there's my nodeapp, there's my 1.0 that we did.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=79.29) [I can get to any running containers, registries, so I can actually](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=83.84) [connect two different registries, Azure, Docker Hub,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=87.73) [some generic one at work, GitLab, and you can add others.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=91.03) [And then I can even go down and get other information.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=94.74) [Now, to get started with this,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=98.24) [you can come into your VS Code extensions, and if you just type](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=99.85) [docker, and you'll see this docker extension here. And this is](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=103.14) [actually published by Microsoft. You'll notice it's downloaded a](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=107.9) [lot, gets high reviews, and this extension does all kinds of things.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=111.95) [As I mentioned, it will help you out with your Dockerfiles,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=116.47) [but it also has a lot of built‑in commands. And I'll let you](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=119.58) [look through this if you'd like more details,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=122.88) [but I'm going to show you a few of these in action.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=125.02) [So if you install this extension,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=127.64) [you're going to get some nice options, and let me show you a few of those.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=130.04) [First off, I can right‑click on any dockerfile, and towards the](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=133.46) [bottom you'll notice I can Build Image right to Azure, Azure](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=138.46) [Container Registry, or I could just say Build Image.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=141.97) [Now let me go ahead and do that. Notice it pops up what it thinks I might want.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=145.33) [Well, I don't want that.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=150.58) [I'm going to do danwhalin/nodeapp,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=151.76) [and let's say 2.0, and now I'll hit Enter. Now watch](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=154.54) [in the command problem down here.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=158) [Ah,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=160.94) [look at that, it's actually making sure that we're pulling everything](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=161.33) [we need, and then it's doing a build, and there's our tagging that](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=164.23) [we've already seen up to this point, it's just doing it for me. Now,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=168.37) [we'll let this go ahead and build.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=172.36) [It looks like it's all done, so it says Press any key to](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=174.36) [close. We'll go ahead and do that.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=176.72) [Now I can click on the Docker whale,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=178.64) [come on up, and we should have 2.0, there we go. So you](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=181.74) [don't even have to type docker build if you don't want, you](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=186.83) [can let this do the build for you.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=190.78) [I do that actually quite often to be honest. I know the command well,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=192.94) [but especially in cases where your file is not just called dockerfile,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=196.81) [you know, like mine is node.dockerfile.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=200.41) [It's a lot easier to just right‑click and say Build Image,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=202.74) [and so I'll often go that route.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=206.01) [There's a lot of other things you can do with this,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=208.64) [but for our build module, those are the main things you can do.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=210.83) [So to give you some syntax highlighting, help you with your image versions,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=215.36) [help you with your docker commands as you're typing, plus,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=219.61) [you can right‑click on your dockerfiles and go in](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=223.87) [and do things like Build Image.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=226.78) [Very nice.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=228.64) [Now, there's a lot more than that, though.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=229.45) [I'm going to show you one more, because it segues nicely](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=231.52) [into what we're going to cover next.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=234.47) [If I go back to here,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=236.34) [let's say we want to come to the 2.0, I can right‑click and look at that.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=238.24) [I can run it, I can tag it even, so if I want to come in and tag](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=242.73) [this with a different version, 3.0 or something,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=247.38) [I could do that very easily.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=250.28) [And I can do other things such as inspect it,](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=252.44) [and this will actually show me a JSON‑type data file of all](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=255.24) [the information about that particular image.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=259.9) [And then I can even push and pull right here.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=263.44) [So we just did a push in the previous section.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=266.25) [I could go ahead and do a push now. It gets it ready, there](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=268.54) [it is, I can hit Enter. And there we go.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=272.86) [Now it's pushing up my 2.0 image up to Docker Hub for me](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=276.71) [and I didn't have to type anything.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=281.17) [So that's an introductory look at the VS Code Docker extension.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=282.94) [We focused on building images in this particular module, and you've seen that](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=286.54) [and how to push them, but it can do other things as well. Very nice to know about.](https://app.pluralsight.com/course-player?clipId=319c8d44-e744-401e-9d36-93d636d513e5&startTime=290.5)

### [Summary](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04)

[We've focused pretty exclusively on creating a Dockerfile,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=0.94) [building the Dockerfile, and then pushing that image up to](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=4.52) [a registry, in this particular module.](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=8.87) [I hope that gives you a really good idea about that](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=11.2) [process and some of the commands.](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=13.53) [As a quick review, we talked about how Dockerfiles provide instructions,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=15.84) [and they describe the layers that ultimately are going to](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=20.16) [be part of the image that you create.](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=23.52) [They can have simple things like metadata, they could have](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=26.14) [tasks that should be run, define ports,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=29.72) [and there's a lot of other instructions that are available.](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=32.16) [Once we have a Dockerfile,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=35.44) [we can run the docker build command. That can be used along](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=36.85) [with the name of the image, and oftentimes,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=40.66) [in more real‑life scenarios, you'll define your registry name,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=43.27) [whether it's your username, your department,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=46.97) [your company account,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=49.38) [whatever that may be, along with the image and the tag. Tagging, I](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=50.41) [mentioned, is a very important aspect of this, because while you could](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=55.22) [just make every image you build the latest, latest can get you in](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=59.11) [trouble because there might be some new features that your app just](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=63.19) [wasn't planning for in that image.](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=66.6) [So by always tagging an image with a version,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=68.94) [you'll always know what you're running exactly, and it's a lot safer way to go,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=71.83) [especially when you get a lot of images out there and a lot of](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=76.96) [applications and containers out there. When it comes to pushing your](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=80.5) [images, Docker Hub provides free storage that you can use,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=84.58) [but there are other registries out there. You might use Azure, AWS,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=87.84) [Google Cloud, your company may even use a product where you](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=91.59) [push an image to that particular registry.](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=95.48) [And then the VS Code Docker extension really simplifies several](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=98.94) [tasks, and although, I mentioned earlier,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=102.28) [I highly recommend you learn the Docker commands first and run them](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=104.77) [from the command line, once you know them, as I said,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=108.1) [there's nothing wrong with being productive, in fact,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=111.47) [I'm all for it,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=113.32) [and this can help you be really productive when it comes to building,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=114.16) [tagging, running, pushing,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=117.37) [pulling, all those types of things, so it's nice to know about, and](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=119.64) [something that's very easy to get installed in VS Code.](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=123.68) [So now that we've talked about Dockerfiles and the build process for images,](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=127.34) [it is time to move on to how do we run these images as containers, and that's what we're going to look at in the next module.](https://app.pluralsight.com/course-player?clipId=5ddc0b97-bfe6-4037-8e91-27dec2881f04&startTime=131.66)

## [Run an Application Container](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8)

### [Module Overview](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8)

[You've seen how to build a custom image,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=1.14) [so now it's time to move on and learn how to run that image as a container,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=2.74) [really anywhere you'd like to run it. It could be on your machine,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=7.57) [could be on a server at work, could be up in the cloud.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=10.95) [So let's take a look at how we can get started here](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=14.11) [and what we're going to cover.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=16.39) [First,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=18.14) [we're going to review how we can use docker pull to](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=18.51) [retrieve a custom image from a registry.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=21) [If you recall in the previous module,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=23.34) [we looked at building a custom image and then pushing that up to a registry.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=25.65) [So we're going to pull one down, make sure we have it on our machine.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=30.64) [From there,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=34.74) [we're going to talk about the docker run command and how you](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=35.22) [can use it to get a running container going.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=38.24) [Very important, obviously, because that's really what this is all about.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=41.54) [So we'll talk about different command line switches you can use there,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=45.84) [and we're going to talk about once a container is](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=49.06) [running or even if it's stopped,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=51.25) [how can you access log information about that container?](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=53.47) [Every now and then a container may crash,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=58.44) [or maybe it's running and you just want to see the](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=60.56) [status of something in the logs.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=63.04) [There's a command we can use called docker logs that will let us do that,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=65.13) [and I'll explain how that works.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=68.81) [Finally,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=71.04) [we're going to look at how we can store data more](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=71.77) [persistently using something called volumes.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=73.38) [Normally, when a container writes data to a file,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=76.54) [it stores that in the container.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=79.09) [But what if the container goes down or is just deleted, removed?](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=80.77) [That would be a problem.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=84.65) [So we're going to look at how we can store data outside of a](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=85.62) [container while that container is running,](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=87.98) [but yet still be able to access that data in the](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=90.69) [container while it's up and running as well.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=93.72) [Let's go ahead and jump in to a look at how we can get started running an application container.](https://app.pluralsight.com/course-player?clipId=88a0a6c1-f503-4ceb-ad63-9135746788b8&startTime=96.24)

### [Run an Application Container](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4)

[Once you have an image on your machine,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=1.04) [you can use a docker run command to get that running as a container.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=2.83) [So what we're going to do is review how to get an image](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=6.84) [and what an image is composed of, and then we'll look at that command in action.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=9.05) [So earlier I mentioned that images are really like a layered cake.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=13.94) [They're a layered file system, and each layer has a different instruction.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=18.02) [It could be your code, could be an environment variable,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=22.88) [it could be the base image that you're running,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=26.15) [like a server, or whatever it may be.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=28.55) [Now each layer then builds on top of each other,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=31.64) [and it actually gets an ID. Looks like this.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=34.8) [So if we had an image that runs on Ubuntu,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=38.04) [that image then would have different layers to it.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=40.69) [So each layer gets assigned an ID, as I mentioned,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=44.94) [but these are all read‑only layers.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=48.54) [Once you put these layers in place, they're fixed,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=51.44) [they're immutable,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=53.98) [and if you want to make a new image, then you build a](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=54.91) [new image and you tag it differently, as we talked about earlier.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=57.89) [So where does a container fit into this?](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=61.24) [When you do docker run,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=64.24) [how does it take that image and make it into a container magically?](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=65.98) [Well, the answer is, if you think of this as the base of the cake,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=70.24) [we need some frosting on top.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=73.2) [From a container standpoint, the frosting, if you will,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=75.44) [is this then readable/writable layer.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=78.84) [So really a container, it is the instructions and the layers of the image,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=81.84) [but then it adds this extra readable/writable layer on top.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=86.71) [Now the good news is you don't even have to know that,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=91.74) [you just have to know the commands,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=94.2) [but this is what's really going on behind the scenes when you run a container.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=95.67) [So the first thing we'd have to do to run a container is, of course, pull it.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=100.64) [We've already seen this.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=104.07) [You would say docker pull, give it the name of the image.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=105.23) [Now once we have the image on our system,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=109.14) [we can then use the docker run command.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=111.35) [I'm going to show you a basic example of getting started here,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=113.94) [and then we'll jump over to some demos.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=116.86) [So, one of the first things you'll have to do is define ports.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=119.44) [You will use the ‑p flag, so docker run ‑p,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=123.04) [and then you define an external port.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=127.28) [What's the port people would hit from outside of](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=129.84) [your container to interact with it?](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=132.98) [So, for example, if you pull up a browser and type localhost:8080,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=135.64) [then the external port would be 8080.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=139.97) [Now what's the internal port?](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=142.84) [Well, remember earlier in Dockerfiles, you can expose a port.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=145.24) [That would be the internal port.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=149.82) [That's the port that the container and whatever's](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=151.39) [running in the container is listening on.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=154.02) [So external is what external users or systems would call. That then forwards](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=156.94) [it to the internal port inside of the running container.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=162.87) [And then finally,](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=166.74) [just like with a docker pull you have to put the](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=167.89) [imageName, you would do the same thing here.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=170.38) [You would say docker run. At the very end, you'd put the imageName. So let's take a look at an example of how we can use the docker run command.](https://app.pluralsight.com/course-player?clipId=32a15ad0-1f8a-416a-9c1a-14d187b7e0b4&startTime=172.78)

### [Using docker run](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e)

[The first image we're going to get running as a](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=1.24) [container is something called Nginx.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=3.04) [This is a very high‑performance server that can serve up static](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=6.04) [content and do a lot of other things as well,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=9.35) [but it's very easy to get going and a great way to learn about docker run.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=11.89) [If we go to hub.docker.com, you can search for nginx,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=17.54) [and then if we scroll on down, you'll see the different tags it has.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=21.79) [I'm going to pull the nginx alpine version that you'll see down here,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=25.54) [mainly because it's a lot smaller and it's very easy to pull that way.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=29.94) [So let me jump over to a command prompt, and we'll do](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=33.78) [the pull, and then we'll run it.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=36.24) [So the first thing I would do is type docker pull, and then nginx alpine.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=38.24) [Go ahead and hit Enter. This will now pull that image down to my machine.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=43.84) [Now, before we run this as a container,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=49.94) [let me show you how we can get help on docker run.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=52.02) [So if we type docker run ‑‑help,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=54.11) [then we can get some information about the different commands as we run](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=57.74) [this. So you can see there's a bunch of commands on this,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=61.78) [and the good news is, you only need to know a handful of these.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=65.63) [The main one we're going to focus on now is going to be ports,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=69.34) [and this will define what we're going to publish to as far as ports go.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=73.54) [So we'll talk about that in just a moment, but you'll see there's a](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=78.14) [lot of command line switches that you can do.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=81.38) [I'm going to go ahead and clear that, and let's go ahead now and run docker](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=85.24) [images, and you'll notice that I now have an nginx alpine.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=89.94) [It's about 22MB, and it was created about 2 days ago, so we have a very](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=94.72) [up‑to‑date version it looks like. So how do we run this,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=99.41) [then?](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=103.02) [Well,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=104.14) [if we go to the Docker Hub nginx docs, you could actually learn how to](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=104.33) [do it right there, but let me just show you how it would work here. Let](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=108.85) [me clear this, and we're going to do docker run ‑p. Now we need to](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=112.65) [decide what is our external port.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=118.06) [If we do localhost for this machine, how are we going to get to that?](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=120.24) [I'm going to say it's 8080. Now, internally,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=124.84) [if you go look at the nginx image, it actually runs on 80.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=128.46) [So we would call 8080.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=133.94) [It'll forward it inside of the container to 80.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=136.02) [The last piece we have to do just to get this up and](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=140.24) [running very quickly is put the name of the image, so](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=142.47) [we'll go ahead and do nginx alpine.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=145.46) [Now if I hit Enter right here,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=149.04) [it'll lock up my console. So I'm going to show you another little command](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=151.33) [line switch called detached that's nice to know about.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=155.36) [So if I add a ‑d, what'll happen is it'll run the container,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=159.22) [but it won't lock up the console and write out all the container logs.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=163.83) [Instead, it will just run it, it'll give me the ID of the running container,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=168.04) [and then it'll just give me back the console, so now I could do](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=172.19) [other commands. Whether or not you use this depends, because by](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=174.8) [putting ‑d I'm not going to see the logs,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=178.39) [but we're going to cover that later.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=180.4) [I'll show you how we can get the logs another way.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=181.71) [So let's go ahead and start this up, there we go,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=184.64) [it gave me back a container ID.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=186.91) [Now I can do docker ps ‑a, and it shows that, yep, I have nginx alpine.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=189.24) [There is the status, it's been up 5 seconds, there's the port](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=196.54) [forwarding, and then it came up with an interesting name](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=200.36) [because I didn't give it a name.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=204.04) [Now we could have also come in and done this.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=206.04) [We could have said that the name is my‑container, or something](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=209.14) [like that, and that would have worked as well.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=215.05) [So just keep in mind there's a lot of command line switches you can do.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=218.14) [In this case, I don't really care about the name, I'm okay with it,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=221.33) [but any time you want to look them up,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=224.74) [just run that ‑‑help. Let me show you the name real quick, so let's go up](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=226.44) [to the n section here. And there we go, there's ‑‑name that I showed you,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=230.09) [and it assigns a name to a container if you don't want it to make up a](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=234.44) [name. How do we verify this is running?](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=238.23) [Well, let's go to the browser.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=241.84) [I'm going to open up another tab. We'll run off to localhost 8080,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=243.64) [and there we go, there is our nginx container.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=249) [Now if I go back to the command prompt,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=252.92) [we can go ahead and stop this container. So I can say docker ps,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=255.24) [and ps will just list the running containers, okay, mine is](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=259.76) [running right now, ‑a lists all of them.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=263.19) [So if I want to stop this,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=266.24) [I can say docker stop and then give it the first part of the ID, ce4, in](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=267.24) [this case. Ce would be enough, it looks like it stopped it.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=272.02) [Now I want to completely get rid of it.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=276.24) [If we go back to docker ps, notice first off it doesn't list it.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=278.13) [It's still hanging around, it's just not running.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=282.04) [Let's do a ‑a, there it is, notice it's exited 17 seconds ago.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=284.55) [So to remove it,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=289.68) [I can do a docker remove, rm, and put a ce. There we go, now](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=290.98) [let's do docker ps ‑a, and we have nothing.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=296.37) [It's as if it never existed.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=299.36) [Now the image is still there.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=301.34) [If we go docker images, there's our image,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=302.78) [so I haven't deleted that. We could do the docker rmi command,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=305.87) [though,](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=309.41) [to delete the image based on the ID if we wanted. So that's how we can get a container up and running.](https://app.pluralsight.com/course-player?clipId=5fab0ce2-32b4-4bcb-8b4e-029e9ede3f7e&startTime=309.91)

### [View Container Logs](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05)

[Docker makes it really easy to view the logs for a running](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=1.14) [container, and this is super useful anytime you're trying to](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=4.05) [troubleshoot or you just want to find out additional details about](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=7.05) [what's happening inside of a container.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=10.74) [So we're going to take a look at a quick command called docker logs,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=13.14) [and then I'm going to show you how to use it with our application container.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=16.19) [We'll get that running, and then we're going to view the logs for it.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=19.46) [So docker logs is very simple to use. You simply type docker](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=23.04) [logs and then give it the containerId.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=26.51) [Now, to get the containerId again, you can do docker ps or docker ps ‑a,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=29.16) [and that will allow us to then get that ID,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=33.67) [pass it the logs, and then it will stream those to our console.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=37.45) [So let's take a look at how that works.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=41.74) [So in the previous module,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=44.04) [I created a danwahlin/nodeapp, and we had two tag versions,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=45.37) [2.0 and 1.0.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=49.11) [So what I'm going to do is get that running now.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=50.84) [So let's go to VS Code.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=53.02) [So the first thing I'll do is make sure I have the latest version of that image,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=55.64) [so I'm going to grab the 2.0.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=59.45) [This should be cached on my machine already and should be pretty quick.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=62.24) [All right, so it looks like the image is up to date.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=66.14) [We're good to go there.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=68.17) [Now, let's go ahead and run it, but before we do,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=69.11) [I want to call out that this image makes a database call,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=72.44) [and we don't have that container running,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=75.78) [so I do expect some errors here.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=77.61) [Now, if you recall, in the dockerfile, we exposed port 3000.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=80.34) [You'll see that right up there.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=86.12) [So now, we're going to do the same type of thing.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=88.14) [We can do docker run ‑p,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=90.14) [and then I could do 3000 on the external or I can change it.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=92.74) [I could do, maybe I want to go 8080 to 3000.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=96.72) [This is totally up to you, what you'd like to do here.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=100.94) [Now let's say we'd like to leave it as 3000 external,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=103.94) [and then we know it runs on 3000 internal,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=106.95) [and then I'm going to run this as ‑d, detached,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=110.04) [and then we'll go ahead and put the name of it.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=113.03) [All right, so let's go ahead and start that up.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=116.14) [Now it looks great, right?](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=117.9) [We got back an ID. Everything's probably fine.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=119.11) [Or is it?](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=122.34) [Let's go ahead and check.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=123.44) [So if we do docker ps ‑a, to show all,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=124.56) [including any containers that aren't running,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=128.7) [you'll notice it's been up 12 seconds.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=131.24) [Okay, well that looks good, so let's see what happened then.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=133.73) [Let's jump back to the browser.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=137.49) [So I'll go ahead and open a new tab, and we'll go to localhost 3000.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=139.54) [All right.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=145.14) [And it couldn't go to the page here,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=145.58) [so it looks like something's not quite right.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=147.26) [Now this is where docker logs can be really useful.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=150.34) [So let's go on back to VS Code to the command prompt](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=152.98) [there and see what we can find out.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=155.6) [So I'm going to go ahead and we'll make our console a little bigger.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=158.54) [Let's clear it.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=161.4) [Let's go back to docker ps ‑a again.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=162.74) [All right, now you'll notice it says exited 36 seconds ago,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=166.14) [so something definitely happened that wasn't good.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=169.52) [And I'll give you a hint, I've already mentioned it.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=172.53) [We don't have a database right now.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=174.69) [But if you look at it right now, you're kind of stuck, right?](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=176.64) [You're going, what do I do?](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=180.01) [Well, this is where docker logs come in.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=181.59) [So if we did docker logs, then I'll give it the ID 58.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=184.04) [Let's see what we get here.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=188.44) [All right, so if we come on in, oh, there we go.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=190.14) [We've got an issue.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=193.23) [Looks like there was a Mongoose issue, and Mongoose is a](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=194.31) [Node.js package that can hit MongoDB.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=197.19) [And it looks like it could not connect to MongoDB](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=200.44) [there, that getaddrinfo mongodb.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=203.47) [So we definitely have a problem.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=207.14) [And of course,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=208.83) [I could scroll through, and it looks like the error](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=209.33) [tried a couple times to connect, and it wasn't able to connect,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=211.72) [so it tried again, and then it failed.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=215.46) [Had you not known about docker logs, you'd really be up a creek though.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=218.24) [What do you do when you don't know?](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=222.58) [Now, to show you, we could have done this.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=225.34) [We could have come in, let's go ps ‑a again,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=229.14) [and let's remove this, so we'll say remove 58.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=231.96) [All right, now it should be gone.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=235.84) [Perfect.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=239.04) [Now let me go back to where I ran it, and let's take out the ‑d.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=239.51) [Now this would actually stream the logs right to the console here,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=244.06) [which you normally don't want because it ties up your console.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=249.34) [But in this case, it would have been helpful.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=252.56) [So let me just hit Enter here and we'll let it run.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=254.27) [All right, now that's what's actually happening behind the scenes.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=257.94) [That's the logs.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=260.71) [And now if we try to hit it, we're going to get an error,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=262.44) [and obviously, it's not going to work.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=265.36) [In fact, we should see an error here in just a moment anyway.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=267.12) [But let's go ahead, we'll officially try to hit it.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=270.14) [Let's go back to the browser, and we'll go ahead and just](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=272.02) [refresh this. Should get an error again.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=274.75) [And at this point, the container might have already crashed.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=278.94) [Hard to say, but, yeah, definitely isn't working.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=281.37) [So let's go back now to the console.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=283.56) [All right.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=285.55) [And yeah, you can see the container crashed.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=286.54) [Our logs actually took us to the very end, and it exited.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=288.95) [That's why down here at the bottom we're no longer seeing logs.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=293.54) [Normally, when you're going to run a container then,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=297.04) [you're probably not going to want to see the logs.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=300.34) [Instead, you can do ‑d, and that just gives you the ID back,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=303.64) [but if something goes wrong, now you know you can use docker logs to get that,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=307.51) [even on a stopped container.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=311.85) [So, one more time we can now use this one, 86, and there we go.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=313.39) [We get the same type of errors again.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=319.19) [But docker logs are one of the most useful commands.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=321.4) [I use it all the time in Docker.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=324.96) [I use it sometimes in even Kubernetes scenarios,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=327.36) [which is a way to run multiple Docker containers.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=330.25) [So it's a very good command to know about,](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=333.08) [and that is how you can get to your container's logs, whether it's running or if it's been stopped.](https://app.pluralsight.com/course-player?clipId=f4bf79fd-1ec4-4a63-8854-a3f423511f05&startTime=335.54)

### [Using Container Volumes](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293)

[As you work with containers,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=0.94) [there's going to be times where you write files or you have database files](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=2.3) [or others that need to be saved outside of the container.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=6.03) [That way, if the container is removed, you don't lose your files.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=10.11) [Well, that's what volumes can help us with.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=13.84) [So if you had a container that writes out logs,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=16.44) [instead of storing those in the container,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=19.84) [you could actually use volumes to store it outside of the container.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=22.74) [You can store it actually in many places.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=26.7) [The default that we're going to talk about is on the Docker host,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=29.17) [wherever your containers are running on.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=32.49) [So it looks like this.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=35.34) [If you have a container that has a var/www/logs folder,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=36.35) [and let's say your Node.js app, or .NET Core,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=41.34) [or Java app, or Python, whatever it is is writing to that logs,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=45.02) [would you want to store the file in the container?](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=49.81) [Well, you could, but again, if the container dies or gets removed,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=53.94) [you would lose that file because everything associated](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=58.09) [with that container would be gone.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=60.65) [Well, in Docker, we could create a volume mount.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=62.94) [And it creates this mnt kind of mount type of directory on the Docker host,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=66.24) [and now, if your application writes to var/www/logs,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=72.18) [as you see on the left there,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=77.1) [it would automatically write it to the mount directory location.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=79.04) [Now, if your container goes away, gets removed, for example, you're okay.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=83.14) [Your files would still be there.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=88.64) [And let's assume you're appending two log files. Well, now if a new](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=90.94) [container comes up that writes to var/www/logs,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=94.31) [then it would just append to the existing log files that would be](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=98.74) [over on the Docker host in the mount directory.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=102.01) [Now the way this works is when you do a docker run](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=105.84) [command that we've already seen, you define your ports and the image to run,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=108.78) [you can also use a ‑v switch that you see here,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=112.64) [and this is going to say, hey, Docker, I have a var/www/logs folder.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=117.14) [Would you please take anything that's written to that folder](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=123.54) [and actually write it over to the host?](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=126.87) [And it will create the directory structure that you would need on the host,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=130.24) [by the way, you don't have to worry about that,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=133.38) [although I'm going to show you how you can override that if you want.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=135.67) [So in this case, any time the app, in our case a Node.js app,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=138.44) [writes to that logs directory,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=141.91) [it's actually going to be writing to some directory](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=144.87) [that Docker manages on the host.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=148.12) [Now if we take down this Docker container, no big deal.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=151.04) [That log file would still be available, and we could get to it.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=154.82) [Now what if you want to control the folder location where it writes to?](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=158.54) [Maybe there's a specific directory you're running the docker run](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=163.04) [from and you want it to go in that directory.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=166.34) [Well, you'll notice a syntax here, pwd, print working directory.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=170.04) [Now this is for Mac or Linux.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=174.94) [If you're on Windows, it's a slightly different syntax with,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=176.28) [for instance, PowerShell, but I'll show you that in a moment.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=178.77) [But what this does is the value on the left is where you](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=181.64) [would like to write to on the host.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=185.51) [In this case, if I was in a folder called temp,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=187.74) [and that's where I ran docker run from, then pwd would be temp,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=190.82) [and it would actually write all those log entries to the temp folder.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=196.44) [So you kind of get the idea.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=200.84) [Now the one on the right is the container directory or folder.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=201.92) [And now, anytime, again, something's written to var/www/logs,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=206.74) [it'll actually be written to whatever the pwd is.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=211.23) [This provides a really easy way to do a couple things.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=215.74) [First off, in production scenarios,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=218.87) [it would allow the log files to stick around even if the container's removed.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=221.86) [But as you're going to see in a demo coming up in the next section,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=225.74) [you can also use this for coding type of scenarios as well.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=229.14) [Now what's this look like on the Windows side?](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=233.24) [Let's say you're using PowerShell.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=235.19) [It just changes a little bit.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=237.44) [Notice it changes to kind of curly braces instead of parentheses,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=239.22) [and you put PWD, like you see here,](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=243.14) [and that's what you can do if you're running on Windows within PowerShell.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=246.44) [So now that we've taken a look at what volumes are for and how they](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=250.64) [can be used to store data outside of a container, let's look at an example of using volumes.](https://app.pluralsight.com/course-player?clipId=85981582-c00b-460a-860d-22b92b7f6293&startTime=253.87)

### [Create a Container Volume](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e)

[Let's take a look at container volumes in action.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=1.04) [So the first example I'm going to show you goes back to our nginx](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=4.14) [example that I talked about a little earlier.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=7.09) [We can run an nginx server using the docker run,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=9.84) [and then we'll give it nginx:alpine.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=13.34) [Now as I start this up,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=17.24) [I didn't do the detach mode, so you're going to see](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=18.49) [the logs are going to stream here, which is fine.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=20.81) [Now let me run over to the browser.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=23.09) [I'll go to localhost:8080, and you can see we have nginx as expected.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=25.74) [Let's refresh, make sure it's not cached.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=30.66) [Everything's good.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=32.72) [What if I want to change the page, though?](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=34.24) [Well,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=37.44) [we could make our own image, and so we could copy in our own](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=37.72) [index.html file and change that home page.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=41.42) [But we can also use volumes to develop live against nginx. So coming on back,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=44.55) [let me go ahead and I'll do Ctrl+C here to stop it. We'll clear](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=51.15) [that, and then I'm going to go ahead and do a docker ps. And notice](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=55.74) [that it's gone, and that's because it's not in detach mode, and](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=59.86) [that server shut itself down.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=63.06) [Let's go ahead and do ‑a though, and it's still there.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=64.63) [It's just exited.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=67.79) [So let's go ahead and remove it, Alright, it's all gone.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=69.34) [Now, what I'd like to do is actually have a folder,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=73.14) [and I'm just going to make one in here.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=76.93) [Let's just call this nginx, and then I'm going to cd the into that folder.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=79.44) [And now what I want to do is in the nginx folder, I'm going to](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=84.64) [add an index.html file. And now in VS Code,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=87.89) [I can just type html tab.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=92.69) [We'll do body tab, and then let me just do an h1, and we'll just say](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=95) [Hello from my custom page. Now nginx actually has that default home](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=100.45) [page in the container, so it's part of its image, and you can look up](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=107.87) [in the docs what that folder path is.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=112.41) [Well, what if we use the volume to say, don't go to that path in the container,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=115.34) [go to our nginx folder, our pwd, if you will,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=119.69) [because I'm currently in that folder here. Very easy to do.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=124.09) [We can do the following, so we can come back to our docker run,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=127.79) [but what I'm going to do is add a ‑v. Now I'm on Mac in this case,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=131.12) [so I'm going to do pwd like this, colon,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=137.01) [and then I'm going to paste in the path that they use. And](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=140.86) [you'll see it's this /usr/share/nginx/html.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=144.63) [Now that is the folder that normally has that default home](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=148.84) [page that you've already seen for nginx.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=152.11) [What I'm now telling it to do is don't go to the containers folder.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=154.64) [Instead, alias that or point it to my working directory,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=158.56) [which in this case, is going to be my nginx folder.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=164.44) [Alright, so let's go ahead and run this now.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=168.34) [Now let me run back to the browser.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=171.44) [So I'm going to go ahead and refresh, and we should see my magical,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=173.13) [phenomenal home page.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=176.63) [There we go. Now it's not much to look at, but that's pretty neat.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=179.02) [And this is live.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=183.31) [I'm actually doing this without even building a custom image.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=184.77) [Let me go back.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=188.23) [Let's change this to page with, I don't know, a bunch of exclamations.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=190.04) [We'll go ahead and save it.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=193.81) [Let's go back to the browser, hit refresh, and there we go.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=194.92) [Now this works with anything. You could be running a .NET Core](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=198.14) [server that points to where your C# build is located.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=202.11) [You could be running Java.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=206.64) [You could be running Python.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=208.15) [Node.js is what we're going to look at next, but a different scenario.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=209.76) [But that's more of a development scenario for working with volumes.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=213.64) [Then we switch over to my Windows machine, and what I'm](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=218.24) [going to do is run our nodeapp custom image,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=220.85) [convert that into a running container, but I want to use a volume.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=223.71) [This is going to be for more of a production‑type scenario.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=228.24) [You'll notice here in the server.js file that I have some code](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=231.64) [that tries to create this access log stream, and it's going to](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=235.81) [store in /logs/access.log. That will write out all the browser](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=239.86) [requests and things like that.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=245.27) [Now I'm just going to use a kind of default express‑type package called](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=247.64) [morgan to do that. It doesn't really matter what it is,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=251.11) [but the point is, it's going to write it to this logs folder,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=253.77) [which is actually empty right now.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=257.62) [It has a .gitkeep just for source control,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=259.39) [but it definitely doesn't have a log file. In order to write](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=261.65) [it outside of the container, I'm going to use our ‑v syntax.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=265.32) [Notice, I'm using PWD again.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=269.92) [This is the PowerShell syntax, though, with the curly braces.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=272.91) [And then I have var/www/logs,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=276.34) [which is where it would try to write to from a code standpoint.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=280) [So it will try to write to the container, but I want it to,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=283.81) [in essence, redirect it to my current working directory here,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=287.32) [which would be my host machine, in this case,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=292.11) [my Windows machine.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=294.64) [Now that would write it to the root of this project.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=296.24) [That's not where I want it.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=298.96) [I want it to go to the logs folder,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=300.42) [so let me go ahead and fix that by saying /logs. So PWD](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=302) [will get me to the folder on my host machine, but then](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=307.89) [/logs will get me to a sub folder.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=311.6) [I currently don't have a database running.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=315.04) [We'll get to that, again, in the next module,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=317.01) [so this is going to error out, but it should try to create the access log file.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=319.36) [So let's go ahead and try it out.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=324.34) [So I'm going to hit Enter.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=326.34) [We'll let this fire up the container, and now keep your eye on logs.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=328.14) [There we go, access.log just showed up.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=331.67) [It's not going to have anything in it because I'm not able to hit it yet.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=334.54) [But once we hook this up to a database shortly,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=338.04) [then every request that's made to a browser will show](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=341.1) [up in an Apache type of log format, and it will show up in that file.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=344.56) [That's a great example of more of a production scenario](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=349.84) [where your app needs to write to some directory, but we want](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=352.97) [that to be stored somewhere else.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=357.2) [That's how we can do it.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=359.74) [We can use volumes. Now I want to emphasize that I'm using a host volume here.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=360.81) [Okay, the virtual machine or, in my case,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=366.33) [the Windows machine that's running, it is actually the](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=368.39) [host for these containers, therefore, the logs are written to that host.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=371.88) [What if the host goes down and is not recoverable for some reason?](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=376.14) [Well, you hope you have backups,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=379.94) [but I want to emphasize that there are other types of Docker](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=381.35) [volumes that can get more sophisticated so that you can](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=385.02) [write to other network locations, for example,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=387.96) [if you want it. Normally, this is a great way to start,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=390.76) [though, and then, if you want to take it to the next level,](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=394.08) [go check out the Docker documentation on that.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=396.92) [So that's an example of a development scenario using volumes and now](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=400.14) [more of a production‑type scenario using volumes. So let's finalize this module and do a quick review.](https://app.pluralsight.com/course-player?clipId=66fa9ca9-f008-4160-8b88-5c943e86d37e&startTime=404.23)

### [Summary](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6)

[This module's been all about containers and how you can get them to run.](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=1.14) [So the first thing we reviewed was using docker pull to pull from a](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=4.53) [registry down to your machine or to another server.](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=8.59) [From there, we looked at the docker run command,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=12.04) [how to define things like ports, and the image that you want to use.](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=14.52) [And once a container's running,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=18.77) [we saw how we can access container logs using the docker logs command,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=20.14) [and then you can provide the name of the container or the container ID.](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=24.69) [From there, we talked about more persistent storage.](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=28.54) [What if you have log files, database files,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=31.31) [and things of that nature that if a container goes down or is stopped,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=33.85) [you don't want to lose those, you want to store them somewhere else,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=38.64) [such as the host machine? Volumes allow us to do that,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=41.28) [and we saw how we can use the ‑v syntax in the docker run command so](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=45.27) [that we can define either a volume that docker manages,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=50.57) [or, in our case, we used the pwd syntax,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=53.68) [so we defined where that directory was on the host system.](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=57.28) [Now that we've seen how to run a container,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=61.54) [let's talk about how multiple containers can be run](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=63.84) [and communicate with each other,](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=66.85) [because at this point we have a Node app that still needs to talk to a database. So let's take a look at how we can make that happen.](https://app.pluralsight.com/course-player?clipId=94e64f44-b06d-4161-969c-3ea7a55f63a6&startTime=68.49)

## [Communicate between Multiple Containers](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38)

### [Module Overview](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38)

[In this module,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=1.04) [we're going to talk about how we can communicate between multiple containers.](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=1.88) [We've seen how to get a single container running,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=5.36) [but you're probably going to have others.](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=7.43) [You might have APIs, possibly a database,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=9.38) [really depends on your setup, but in that scenario,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=12.87) [what do you do to talk between these different containers?](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=16.2) [So in this module, we're going to focus on a few things here.](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=20.04) [First off, discuss what are the options for container communication?](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=23.34) [Then we're going to discuss one called a bridge network,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=27.94) [and we're going to see how to run multiple containers in](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=30.62) [the network so that they can talk,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=33.56) [but containers outside of that network wouldn't be able to talk to the others.](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=35.48) [From there, we're also going to look at a bonus troubleshooting feature,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=40.34) [which is how to shell into a container.](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=43.45) [This can be useful when you have a container up and running,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=46.24) [you need to get inside of it and maybe run a command for whatever reason,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=49.11) [and I'll show you the reason we're going to do it for our sample app.](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=53.05) [And then finally,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=56.63) [we're going to introduce another tool in the Docker](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=57.66) [toolbelt called Docker Compose.](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=59.81) [This is an orchestration engine that you can use to](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=62.44) [not only run multiple containers,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=65.31) [but you can also use it to build multiple images.](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=66.97) [A very powerful tool to know about,](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=70.44) [and we'll introduce that tool at the end of this module.](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=72.23) [So let's jump right in and talk about what are the options for container communication.](https://app.pluralsight.com/course-player?clipId=3e2edb9c-220d-47e7-935a-3e389a427d38&startTime=75.74)

### [Create a Bridge Network](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79)

[When you have multiple containers that need to talk to each other,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=1.14) [they can talk over a network.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=3.99) [Now in this case, we're not talking about a network between machines,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=6.34) [although there are different types available.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=9.78) [We're going to talk specifically about a bridge network,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=11.96) [and this is a way on the same machine to allow specific](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=15.78) [containers within a network to talk to each other.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=19.45) [But as I mentioned in the introduction, if they're outside of that network,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=22.44) [they won't be able to talk to each other.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=26.23) [So let's say that you have an application that maybe has some front‑end code.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=28.64) [It also has some back‑end APIs.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=33.44) [Those back‑end APIs then talk over to a database.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=35.7) [And for the sake of argument,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=40.14) [we're going to say that everything you see here is running in a container,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=41.36) [including the database.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=45.12) [So now we need a way to run the app in its own container.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=46.84) [We have three containers for the APIs.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=50.14) [We have a database container, and, of course, you might have others.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=52.68) [You could have a caching server, and the list goes on, and on, and on.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=55.47) [So how do we communicate between all these containers? We know how to run them.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=58.94) [That's not a problem,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=62.93) [but how do we make it so they can actually talk to each other?](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=64.08) [The way we're going to do it coming up is to use something](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=68.46) [called a bridge network that I mentioned.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=72.15) [Now a bridge network is a way to, as you see here,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=74.54) [create a bridge so that data can then flow between the containers.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=78.11) [They can actually talk to each other and talk back and forth.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=82.88) [As long as they have access to that bridge, they can talk.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=86.23) [Now this is the easiest type of network to get going in Docker.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=90.94) [There are others if you check out the documentation.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=94.2) [But when you're on a machine that has containers running,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=97) [this one is actually very simple to get started with,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=100.34) [as you're going to see, momentarily.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=103.03) [So let's look at the command we can run to create a bridge network.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=105.24) [So in addition to the docker build and the docker run commands,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=108.84) [there's also a docker network command, and it has a create.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=112.18) [So the first thing you'll do, though, is define docker network create,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=116.34) [then you're going to need to say what type of driver are we going to use?](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=119.89) [Now there's many types of drivers out there.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=125.14) [You can actually do a true network where you can go across multiple machines.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=127.83) [But a bridge, in this case, is what we're going to do,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=132.36) [so we can communicate between containers on the same machine.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=134.78) [Then finally, you're going to say, well, what's my network name?](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=139.14) [What are we going to call this network?](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=142.1) [Now I doubt you're going to call it isolated\_network.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=144.53) [That's the name I gave it here.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=146.81) [I put that, though,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=148.91) [because I want to be really clear on what this type of network does.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=149.68) [A bridge network, again, is for containers that you want to talk to each other.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=153.94) [Let's say you have five containers that all need to talk.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=158.74) [Well, they would need to specify isolated\_network, in this case.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=161.7) [What if you have a sixth, seventh,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=165.74) [and eighth container that shouldn't be able to talk to the first five?](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=167.13) [They wouldn't be in isolated\_network,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=171.24) [and I'm going to show you how we add them to the](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=173.64) [network in just a second as well.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=175.19) [In addition to network create, there's other commands you can run, too.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=177.44) [These are very simple commands you can run, and there's a few others.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=181.84) [But to get started, you have docker network create,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=184.53) [which we just looked at, and then you'll have to give it the command line flags.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=187.26) [There's also a docker network ls command.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=191.34) [We can list the networks.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=193.91) [And so if you've created some, and I don't know,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=195.88) [maybe you forgot the name of a network or something like](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=198.05) [that, this would let you get that name.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=200.23) [And then finally, if you want to remove a network,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=203.24) [you could say docker network rm, very similar to how you remove a container.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=205.42) [And then you can give it the network name, and there's](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=210.2) [a couple options you can do there.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=211.96) [So now that we've seen that, let's go ahead and jump over to the editor,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=214.24) [and the first thing we're going to do is get a network set up.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=217.97) [So coming back into the project code, we have our node.dockerfile.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=221.44) [We've seen that quite a bit up to this point. At the top,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=224.49) [though, I have some comments here.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=227.44) [And I just want to point out, I do list two options.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=228.92) [The second one I don't recommend, but you may come across it,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=231.4) [which is why I want to mention it.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=234.35) [The first one is what we're going to do.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=236.24) [We're going to do what you see right here,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=237.99) [which we just looked at a little bit earlier in the slides.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=239.98) [Then we'll go ahead a little later, and we're going to add](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=243.04) [containers into this network called isolated\_network.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=245.63) [Now there is an older way.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=249.94) [It's called legacy linking, and you might see this ‑‑link command. This](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=251.43) [isn't recommended anymore, but you may come across it,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=257.04) [which is the only reason this is in here,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=260.1) [So we're not going to go into that because it's the legacy way, but I](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=262.18) [do want you to be aware that if you see ‑‑link,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=265.65) [that's kind of the old way of doing it.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=268.37) [So the first thing we're going to do, as I showed, there's a docker network](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=270.84) [ls command, and we can actually list our networks. Now, these were created](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=275.14) [by Docker. I didn't have to do these myself.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=280.1) [But what we need is a custom one because we want to run our](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=283.24) [app container, and we have a database, which we haven't](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=286.97) [looked at yet, but we're going to.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=289.82) [So what I'm going to do is just grab this top command](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=292.34) [here, and we're going to create a network,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=295.24) [and it's going to be that simple.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=298.07) [We're going to say the driver is a bridge, and we're going to call](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=299.23) [it isolated\_network, again, give it a better name than that, but](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=302.24) [this will be very clear that it is isolated only to the containers](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=306.01) [that are part of the network.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=309.69) [So let me go ahead and do that.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=310.82) [Alright, there we go.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=312.74) [Now, let's back up to our doctor network ls, and I now have a](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=313.63) [isolated network, and it's a bridge network.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=318.39) [So now on the same machine, we can have different containers running.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=321.44) [Now that's how easy it is to get started creating a bridge network,](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=326.14) [but we obviously need to get the containers into it, so we're going to look at that in the next few sections.](https://app.pluralsight.com/course-player?clipId=1c6cb2cc-8138-4cb0-accf-fe0761202e79&startTime=329.55)

### [Run a Database Container in a Network](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407)

[In our sample app,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=1.04) [we have a database container that we need to get up and running,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=1.88) [but if I don't put it in a network, then my app container,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=4.86) [which is Node.js, wouldn't be able to call it in the first place,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=8.22) [so it wouldn't really do much.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=11.21) [So let's take a look at how we can do that using the docker run command.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=13.04) [So we've seen docker run many times up to this point,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=16.74) [‑d will run it in detached type mode,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=19.64) [but then we need to add some extra information to run the](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=22.31) [container and the specific image we're going to list in this](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=25.75) [isolated network that we looked at earlier.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=29.31) [So what we can do is add a ‑‑net flag and then there's that network,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=32.24) [isolated\_network.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=37.95) [Now, the rest of this would be normal, you can define ports,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=40.44) [but in this case we're going to give it a name,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=43.83) [which we've looked at earlier as well.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=46.06) [Now that name is going to be important,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=47.67) [and we'll look at that as we talk about connection strings,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=49.39) [and we actually run the app that calls this particular](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=52.31) [container that has this database.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=55.66) [And then finally, we're going to have the name of the image,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=57.33) [which is going to be mongo in this case.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=60.27) [Now you may be wondering why I don't list any ports there,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=62.64) [and that's because in this case we're going to default to](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=65.11) [whatever is exposed by the container itself.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=67.83) [Mongo has a very specific port it runs on,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=71.14) [and we're just going to leave that as the default.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=73.48) [So let's switch back over the editor and we'll get this one up and running.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=76.04) [So first off, let me clear my console.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=79.64) [We know we have our network, it's available.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=81.54) [So coming back into our steps,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=83.89) [the next thing I'm going to do is run the command that you just saw.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=85.8) [So we'll go ahead and start this mongo image and run it as a container.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=88.95) [Now normally with databases,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=93.94) [there's going to be quite a bit more you'll likely do.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=95.66) [This is something that if you work with a DBA, you'd have to talk with them.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=98.25) [Some companies choose to run their databases and containers,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=102) [others still leave them outside of containers.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=104.73) [So it would completely depend on your organization,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=107.19) [but it is absolutely possible, I do it, I've done it for many years now,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=109.86) [and it's actually worked out really well because I can update the](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=114.48) [database simply by getting a new container up and running.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=116.87) [Now what we're going to do with Mongo then is run it.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=120.64) [If the image doesn't exist on your machine already,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=123.54) [then of course it's going to pull down the layers to your machine,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=126.03) [I already have it.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=128.41) [It looks like it gave us back a container ID, so let's see the status of it.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=129.87) [We'll do docker ps, which is only running containers.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=134.64) [And there we go.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=137.42) [So it gives the command docker‑entrypoint.sh.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=139.34) [We have the status, it's been up for a little while now.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=143.6) [And there's the port I was talking about, 27017,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=146.55) [that's kind of the default for Mongo.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=148.83) [And then notice the name,](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=151.27) [that's going to be important in the next section as we](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=152.94) [start talking about the database.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=156.1) [Now that's how easy it is to get this up and running in that network.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=158.14) [We put isolated\_network with a ‑‑net flag and we're ready to go.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=161.95) [So now that we have this database up and running, let's go ahead and switch to the container for the application.](https://app.pluralsight.com/course-player?clipId=3c79f726-a1e2-4b36-9368-30a405a12407&startTime=167.24)

### [Run an Application Container in a Network](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0)

[Running the application container in the network is going to be](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=1.04) [identical to running the database in the network.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=3.57) [So let's take a look at that command again.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=6.54) [We're going to do docker run ‑d. There's the ports](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=8.84) [we're going to use in this case, 3000 on external and internal.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=11.55) [And then, just like you saw earlier with the database,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=15.93) [we're going to put it in the same network, isolated\_network, in this case.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=18.77) [Now from there, we're going to have the name again.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=24.04) [Name, in this case, would be optional, but it's going to be nice to have.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=27.24) [And then finally, we would have whatever our image name is.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=31.74) [You can see it's very simple once you know some of these different flags.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=35.34) [So let's switch back to the editor again,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=39.03) [and we'll take a look at getting this container up and](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=41.22) [running and hopefully talking to the database.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=43.39) [So let me clear my console again, and we're going to do the same type of process.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=46.34) [Now you'll notice here, it's a little bit longer,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=51.24) [but I'm going to go ahead and paste this in. So we have the detached.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=53.59) [There's the key part, at least for this module, our isolated\_network.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=58.34) [We give it the name,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=63.34) [there's our ports, and then we have the volume that we looked](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=64.94) [at earlier for logging and things like that.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=68.01) [Now I'm going to run danwahlin/nodeapp,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=71.04) [and I'm going to run the 2.0 tag of that because I](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=73.54) [don't have a latest on the machine.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=76.88) [All my images are tagged with versions. So I'm going to go ahead and hit Enter,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=78.74) [and there's our ID.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=84.44) [Now let's check it out.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=86.24) [We'll do docker ps, and looking good so far. We now have two containers running.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=87.27) [So we have our nodeapp, and you can take a look at the names over here,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=93.82) [and then we have our mongodb.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=97.64) [Now, before we go to the browser and actually try this,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=99.94) [I want to circle back to the name that I mentioned was so important,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=102.55) [at least for the mongodb name.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=106.21) [If I open up the app's config folder and I go into config.development,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=108.74) [which is what we're running right now,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=113.93) [look at the name of the host that's configured, and then,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=116.34) [of course, we have the database. But the host, that](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=118.97) [name, matches up with this name. Very,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=122.07) [very important. Because the way we're running containers right now,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=125.84) [we don't control the networking, IP addresses, things like that,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=129.29) [but we can control the name.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=133.64) [Now localhost wouldn't work in this case because that would assume my machine,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=136.14) [not the container.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=140.77) [So by putting mongodb as the host,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=142.44) [the app itself, when it uses the connection string, and you can find that](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=145.15) [in the lib folder, go into database, and there we go.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=149.09) [We get the connection string right there.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=153.54) [Notice it's mongodb.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=156.14) [There's the protocol.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=157.64) [Config.host is what I just showed you, mongodb, and then](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=158.79) [config.database, that's our funWithDocker.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=162.6) [So it's actually using this name that we defined for the Mongo container, and](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=167.04) [that's why I emphasized it's so important. Now did it work?](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=172.82) [Well, let's open up a browser and try it out.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=176.7) [So I've navigated to localhost:3000.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=179.54) [This is looking pretty good.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=182.32) [It's kind of hard to tell, though, because guess what?](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=184.07) [We don't have any data in the database.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=186.84) [We're going to fix that in the next section,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=188.48) [but at this point, it's looking good.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=190.39) [How do we know for sure?](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=192.42) [Well,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=193.86) [let's go back to the logs, and we can see if this is actually up and running](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=194.09) [and is it actually connecting to the database? In an earlier module, I showed](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=198.53) [you how you can get to the logs of a container,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=203.23) [and this is a really important troubleshooting‑type task or,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=205.14) [just in this case, informational‑type task.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=208.5) [The first thing we can do is let's clear and let's do docker ps](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=211.3) [again and see did the container crash? Because it could've. Nope,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=214.75) [looks like it's been up for 3 minutes.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=220.02) [That's good news.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=221.98) [Now I'm going to take the ID.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=223.54) [Looks like aef would be enough, so we'll say docker logs aef. Alright,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=225.37) [and let's go ahead and move this up, and look at that.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=231.98) [That's good news, db connection is open.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=235.12) [Don't have any errors like we had before,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=238.54) [so it successfully connected to the MongoDB database.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=241) [Very nice.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=244.53) [Now we have two containers running in our network.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=245.68) [If we go back to docker network ls, there it is.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=250.34) [And then just to show you some other commands,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=254.44) [if we do just docker network and hit Enter, notice we can](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=256.25) [also inspect. So let's go to our isolated network, b87, and](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=260.22) [we'll do docker network inspect,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=265.94) [and then we're going to do b87. Now this is going to be a big dump of](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=269.68) [all the data, but look right here at the bottom.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=275.11) [There's our containers in the network.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=277.94) [There's our nodeapp, there's our mongodb.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=279.53) [So it looks like we're in good shape.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=282.13) [They can talk to each other,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=284.14) [but containers outside of this network would not be able to talk to each other.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=285.5) [Now everything is looking good at this point, but we didn't have any data.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=289.44) [So, in the next section,](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=292.8) [I'm going to show you how you can shell into a container if you ever want to run a custom command.](https://app.pluralsight.com/course-player?clipId=58ef2a2c-1d31-40ab-8b58-864621e521b0&startTime=294.32)

### [Shell into a Container](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1)

[Another test that you may need to run from time to](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=1.04) [time is shelling into a container.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=3.09) [We're used to running different types of commands on our system,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=5.75) [but how do you run commands in a container?](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=8.83) [So to shell into a container,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=11.94) [you can use the docker exec command as you see here.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=13.93) [You have to add a command line switch, ‑it,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=17.84) [and this stands for an interactive tty, basically an interactive terminal.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=21.14) [And then you're going to give it either the container name](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=26.64) [or the container ID. And then finally, you can give it the sh shell.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=29.17) [So if we break that down again,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=34.31) [we have an interactive tty it's called. It's kind of](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=35.98) [an old term that goes way back.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=38.96) [We're going to go ahead and give it the shell to use here at the end,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=41.24) [which is sh in this case, but the type of shell you use depends on the container.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=45.29) [In the Linux world, it may be sh, could be Bash, could be something else.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=50.6) [In Windows, it may be PowerShell.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=55.49) [So you'll have to look at what your container supports there when you do this.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=58.34) [And then, of course,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=62.84) [the container we go into is the container ID or the](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=63.46) [container name that you see there.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=66.4) [So let's look at an example of how we can use this command.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=68.54) [I've started up the node container, and I've started up the database container.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=72.06) [I'm going to come down to the browser again.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=76.72) [Let's go ahead and go back to our localhost 3000, and there we go.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=79.44) [Now we didn't get any commands though.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=84) [So the problem is there's no data in the database.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=86.24) [So let's go ahead and fix that by shelling into the container and](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=89.94) [running a dbSeeder that I have in the project.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=93.47) [So coming back in,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=97.34) [you'll notice that in this case we have our danwahlin/nodeapp:2.0.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=98.42) [We have an ID of 114 there.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=101.6) [We have a name of nodeapp.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=105.09) [Now you can also get to the information about the running containers by using](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=107.1) [the Docker extension that we looked at in a previous module.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=111.16) [I can come on down and I can even drill into this right here,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=114.32) [and now I'm into the file system of that container.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=118.64) [Now that's kind of the easy way to shell into a container, or get inside of it,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=122.54) [is to go and use the Docker extension.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=127.7) [Now I'm going to show you how to do it for real though on our own.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=130.71) [So let's just come on back to the file system.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=134.24) [And I want to point out that there's a little dbSeeder right here,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=136.36) [and all it does is seeds the database with some data.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=140.94) [So it jumps into the lib folder and it runs a dataSeeder.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=145.14) [And the dataSeeder just adds some of these Docker commands that we're learning,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=150.24) [like docker run and the imageName shows an example,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=153.48) [and some others, and it adds that into the MongoDB database.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=157.09) [Now we need to run that, but I can't run that from here.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=162.24) [I can't run node dbSeeder.js from here because that's on my](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=164.96) [system, and this is actually running in containers.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=170.6) [In fact, we have two containers, as you'll see, one for Mongo and one for Node.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=174.05) [So what we're going to have to do is shell into the container.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=179.24) [So we can do docker exec.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=181.78) [We're going to do ‑ interactive tty, interactive terminal you can think of it as,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=184.14) [and then we could either give it the container ID,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=189.61) [114 in this case, or I could say nodeapp.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=192.08) [And now I can give it what shell do I want.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=196.84) [Now there's a lot of shells out there,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=200.34) [and it really depends on what your container uses,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=202.14) [but a lot of times you'll go with an sh shell.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=204.77) [And this is a Linux concept, in this case, that you can use.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=208.24) [So I'm going to hit Enter, and now notice I am in the working directory.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=211.32) [If we look back at our dockerfile, our working directory was /var/www.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=217.24) [All right, well that's where it put me.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=223.51) [So I'm going to do an ls command, and there's my files.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=225.06) [Now these are the files again that were in the image](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=230.04) [and now in the running container.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=232.5) [And you'll notice that one of the files here is the dbSeeder,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=235.04) [right down here in the left corner.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=238.86) [So what I'm going to do now is run node dbSeeder.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=241.24) [Now I'm in Linux at this point, so it's very,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=245.49) [very case sensitive, as a heads up.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=248.39) [So we'll go ahead and do that, and there we go.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=250.84) [It connected to the database, and it looks like it seeded it.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=252.87) [So I'm going to do Ctrl+C to stop this.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=256.94) [Now I'm back here, still in the container.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=260.44) [Now we could actually hop around this container.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=263.13) [If I want to move up a folder, I could do cd.., do an ls here.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=265.12) [There's what folders we have.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=270.2) [I could cd back into the www.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=271.66) [There we go.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=274.64) [And I could even cd down into my other folders,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=276.43) [like public or whatever you'd like to do.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=279.15) [So it's a great way to be able to navigate around,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=281.84) [and you can even edit files here.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=284.52) [I could use vi, or nano, or some different editors,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=286.09) [whatever your container has available.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=288.99) [So now that we've seen that, let's get out of the shell.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=292.14) [We'll type exit.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=294.7) [Now we're back to our local system, and we're good to go.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=296.64) [Just let me clear this.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=300.06) [Now let's go back to the browser and we'll hopefully see that seeded data.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=301.38) [So let's hit Refresh, and there we go.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=306.54) [We have our run command, we have our ps command in this case,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=309.77) [and we could even come in and add commands if we'd like.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=313.54) [So that's an example of using docker exec.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=317.14) [Very useful any time you need to get into the container](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=320.54) [and then interact with the folders,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=324.96) [the files. Maybe you just want to open a log that's not part of the Docker log,](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=326.99) [it's a different log, for example.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=330.72) [Maybe you want to edit a code file.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=332.48) [Now normally you're not doing that in production, as a heads up.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=334.55) [That would typically be a development‑type exercise, but it's a good command to know about.](https://app.pluralsight.com/course-player?clipId=06c8341b-3d5b-4c4d-9c7e-33b426c889e1&startTime=337.84)

### [Building and Running Multiple Containers with Docker Compose](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad)

[So we've now seen how to run multiple containers in an isolated network,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=1.14) [a bridge network,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=5.04) [but you saw that you have to run several different commands to](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=6.5) [make that happen and get it all working.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=9.86) [What happens if you do have 5 or 10 or more containers running?](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=12.44) [That's a lot of commands.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=16.5) [Sure, you can batch them all up, but what if there's another way?](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=18.01) [So in this section,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=22.44) [we're going to take a real quick look at another tool](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=23.56) [available with Docker called Docker Compose.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=25.98) [If I had to pick my favorite tool in Docker,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=29.74) [it would probably be Docker Compose.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=32.16) [Now, obviously,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=33.82) [you need just the core Docker functionality for](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=34.5) [building images and running containers, but once you get all that,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=37.01) [as a developer, or even in other scenarios as an admin,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=41.44) [you may need to bring multiple containers up simultaneously.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=45.11) [You might want to build multiple images and do those types of tasks.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=49.54) [So Docker Compose can do those things.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=53.82) [It's like juggling, like the octopus here,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=56.23) [multiple containers or multiple builds.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=58.47) [So let's walk through a few of the key features.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=61.18) [First off,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=63.37) [Docker Compose defines something called services using YAML configuration files,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=64.49) [and if you're not familiar with what YAML looks like,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=69.5) [we'll take a quick look at that.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=71.82) [A service really equates to a container at runtime.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=73.84) [You can also use Docker Compose to build one or more images,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=78.44) [your services will define that.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=82.16) [You can start and stop one or more services using Docker Compose commands.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=84.27) [You can view the status of running services,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=88.75) [and you can even stream the log output of running services.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=91.17) [Recall earlier the docker logs command.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=94.94) [Well, this can do the same thing,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=97.01) [but with multiple containers streaming the logs out to you in the console.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=98.6) [The way it works from a workflow standpoint is you](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=103.3) [can build services with a command,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=106.02) [you can start up services with a single command,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=108.21) [and you can tear down and basically remove the services with a single command.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=111.46) [And once again, services are really containers in this case,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=116.84) [but they call them services in the Docker Compose world.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=120.24) [So the way it works is you will create a docker‑compose.yml file,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=123.94) [like you see here.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=128.17) [In this YAML file,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=129.75) [the first thing that you'll normally see at the top is the version,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=131.57) [and there are different versions, they change over time,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=135.34) [of course.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=137.52) [But the way this works is you put a property name on the left,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=138.23) [you separate that with a colon, and then you put the value on the right.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=142.34) [It kind of looks like JSON, JavaScript Object Notation,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=146.54) [if you've seen that,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=149.05) [but you're going to see there are no curly braces or anything.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=150.02) [In fact, this is really a higher level form of JSON, technically.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=152.52) [Then you're going to have your services container.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=156.71) [In this case, services, and we're going to come back to that,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=159.59) [but you can also define networks.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=163.31) [Earlier we talked about how a bridge network could be used to run multiple](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=166.24) [containers in that network and then have them communicate.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=169.86) [We're defining that we're going to have a single](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=173.54) [network, it's called nodeapp‑network,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=174.96) [and it's going to have a driver of type bridge.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=177.94) [So we're basically creating a bridge network.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=181) [Now what containers are going to go in this network?](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=183.54) [Well, those go under the services property.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=186.34) [I have one called app, and then I have one called db,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=189.34) [and it's also in the same network.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=194.02) [Now where you see the ellipses there, that would be additional properties,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=196.74) [you could specify things like where is the image that would be used to run this,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=200.54) [and there's a bunch of other settings you can define.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=204.96) [So now we have the same setup as before,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=208.34) [but instead of doing it imperatively on the command line,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=210.55) [we're doing it declaratively in YAML.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=214.19) [And then I'm going to show you some commands you can run to](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=218.04) [basically bring this YAML to life and either build your](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=220.18) [images or run your containers.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=223.2) [Now, one thing I want to point out here before we move on is that with YAML,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=226.24) [the indentation absolutely matters.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=229.85) [You'll notice that I have app in two spaces here.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=233.34) [I have db that matches that level.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=236.03) [Notice networks is the same level as services and version.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=238.41) [That all matters with YAML, and when you're really new to this,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=242.74) [that's a little bit painful, I'll admit,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=246.27) [at first.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=248.17) [To be honest, it's like anything in programming,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=248.92) [though,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=251.1) [it just grows on you over time and you kind of learn](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=251.35) [what to do and what not to do.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=253.67) [It takes a little bit of practice.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=255.31) [Now obviously, this file on its own is pretty useless,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=256.72) [so we need some commands in order to do things.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=259.68) [The key commands we're going to be looking at coming](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=262.34) [up in the demo here are, first off, docker‑compose build.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=264.53) [That will take your Docker Compose YAML file,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=268.26) [and based on the services defined there,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=271.3) [in our case we had two, let's say that only the app,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=273.87) [though, had a custom build.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=277.4) [Let's say the database is from Docker Hub,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=279.19) [that image, such as MongoDB, and we don't have to build it,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=281.4) [it's just used.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=284.91) [Well, then this would build our single image.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=286.54) [You can build many images, though, using this command.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=289.62) [Now we don't have to do a docker build command like](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=293.34) [we learned earlier in the course.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=295.78) [We can just do one command to kind of rule them all.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=297.04) [Now the next one is, once you have the images available,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=300.64) [you can, of course, run your containers,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=303.38) [or, in our case, run your services.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=305.22) [We had two services earlier.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=308.14) [We had the app and the database service.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=309.83) [To run those two containers and bring them up, we can do docker‑compose up.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=312.3) [And then finally, when we're done,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=317.45) [we can bring everything down and delete the containers with one single command,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=319.98) [docker‑compose down.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=324.64) [So you might wonder, okay, what should I do then?](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=327.04) [Do I do docker build and docker run commands,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=329.81) [or do I use these types of commands?](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=332.18) [Well, for me personally, based on my previous experience,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=333.95) [once I learned those commands, you still need to learn them and know them,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=337.9) [but I almost always would use docker‑compose.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=341.58) [Why would you want to run docker build five times if you have](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=345.14) [five different images to build when you can make a YAML file](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=348.1) [once and then run docker‑compose build?](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=351.22) [It's much easier.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=353.99) [So now that we've talked about some of the basics of Docker Compose,](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=355.74) [let's go ahead and dive into a demo and I'll show you some of these different commands in action.](https://app.pluralsight.com/course-player?clipId=b8fd3a0e-c5ae-4411-8f15-9a941c2e8bad&startTime=359.37)

### [Using Docker Compose Commands](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e)

[At the very beginning of this course,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=1.24) [I showed a quick demonstration of how to get the sample app up and running,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=2.58) [and showed some Docker Compose commands.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=6.36) [Now in the last section, we talked about some of those commands.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=8.94) [What I'm going to do now is walk you through a little more detail on the YAML,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=11.74) [how that all works,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=15.42) [and then we'll go ahead and use those commands that we saw at the](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=16.72) [very beginning to wrap this course up. Coming back into the sample](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=19.05) [app, I have a docker‑compose.yml file.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=23.77) [You're going to recognize what we just covered in the](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=28.24) [previous section here. We have a version,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=30.18) [there's our services, and then we have networks with a](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=33.44) [bridge network called nodeapp‑network.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=36.7) [The content of the services property is where all the important things happen.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=40.15) [So we have two services, we have a node service and we have a mongodb service.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=44.54) [Now notice we have a container name, and container\_name is](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=50.04) [actually a property of the YAML for Docker Compose.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=54.18) [This is something you can look up in the docs.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=57.24) [We have an image,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=59.94) [and that's going to be the image name, nodeapp. And](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=61.45) [then we have a build context.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=64.98) [Now, what this is doing is instead of having to do a docker build command,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=67.84) [you can just run the docker‑compose build. That will look in this file,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=73.13) [look in the current folder, so we're in the root of the folder here](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=78.34) [with the dot, and then it will find the node.dockerfile that we've been](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=81.82) [working with pretty much the entire course.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=85.66) [So when you run docker‑compose build, which I'm going to do in a moment,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=88.14) [it will actually use that and build this particular image.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=91.54) [Now, of course, once that image is built,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=95.94) [you could retag it, rename it, those type of things,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=97.93) [but it will make it really easy to build an image, and, of course,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=101.28) [you could have many of these in a Docker Compose file.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=104.72) [So with one command,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=108.14) [you could build pretty much as many as your system can handle images.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=109.82) [Now moving on down, notice we have the ports. We have, just like](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=113.83) [we've done before with docker run, we have the external port of 3000](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=117.24) [and the internal port of 3000.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=121.69) [Here's the network. That'll make sure that we're part of that](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=124.24) [bridge network. And then it depends on mongodb. Now that name](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=126.74) [matches with this property here.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=132.43) [What depends\_on will do is it'll ensure that MongoDB starts first,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=135.84) [but it won't make sure it's ready.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=139.87) [So an important thing you'll have to do with your apps is if you have,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=141.35) [for example, a web app that's going to call into a database,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=145.78) [you'll have to make sure the database is available.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=149.64) [If you get an error,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=151.92) [you'll have to retry if that web app tries to hit it right at the beginning.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=152.88) [So that's important to note, that depends\_on will ensure that the](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=157.34) [MongoDB database starts first in the container,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=160.75) [but it won't make sure that it's ready to accept connections. That'll be on](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=163.43) [whoever develops the app container to add code to handle that.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=168.33) [Now,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=173.04) [notice that the mongodb container itself just has a](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=173.21) [container\_name, mongodb, and an image,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=176) [but it doesn't have the build with the context and the dockerfile.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=178.86) [So what's going to happen is it will look locally for an image called mongo.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=183.04) [If it can't find it,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=186.86) [it'll go to whatever's registered as the default on your machine for a registry.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=188.14) [In our case, it's going to be Docker Hub.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=193.94) [And then finally,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=196.74) [we see it's in the same network as the application service, node, up here. Now,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=197.43) [just like I said earlier, where the name mattered,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=203.2) [the name right here really matters.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=205.98) [The service name ultimately will become a network addressable name so](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=208.66) [that the connection string will work. And recall earlier that I showed](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=213.28) [you config.development, and that had the host of mongodb, and we can](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=216.76) [also open up the production,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=221.11) [which looks the same in this case. That's going to be](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=222.54) [the name that you see right here.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=225.42) [So if you want to change that name,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=226.93) [you'd have to change the connection string. There's a lot](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=228.25) [more you can do with Docker Compose.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=231.37) [You can certainly bring up many other services if you want, and I'd](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=233.44) [recommend checking out the next course in this learning path,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=238.2) [which is going to be on Docker Compose, and provide more detail](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=241) [if you'd like to dive in deeper. With that,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=243.69) [I'm going to go ahead and just right‑click, open a terminal.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=247.12) [And the first thing I want to show you is if you type](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=250.54) [docker‑compose, and you could just hit Enter,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=252.48) [but I'll type ‑‑help, there's several different commands you can run,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=254.81) [you'll notice here.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=259.05) [And we're going to focus just on the main three, but there's](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=260.34) [also a bunch of command line switches,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=262.79) [and what I want to point out is ‑f. If the name of your docker‑compose file is a](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=264.84) [different name than docker‑compose.yml, then you could actually put](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=270.87) [docker‑compose ‑f, give it that file name, and then say build. That way you can](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=275.65) [actually change up the file names if you'd like,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=281.27) [because who knows, you might have a development version,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=283.03) [a production version, things like that.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=285.24) [Now for this demo we named it the same as it expects.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=287.82) [So we'll say docker‑compose build. Now this'll kick off](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=291.54) [the build process for our node service, but not our mongodb,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=295.1) [because mongodb doesn't require a custom build.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=298.94) [So let's go ahead and do that.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=302.34) [And there we go, most of the layers were already cached,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=304.34) [so we're kind of good to go there. So that's the first step.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=306.84) [Now if I want to run this and get the network set up,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=310.64) [the two containers running, and all of that, then we can do](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=313.54) [docker‑compose up. This will now look at the services, there](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=317.1) [we go, our mongo came up first.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=322.13) [Now our node is trying to connect, and it's now listening on this port,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=324.09) [and it actually looks like it all came up very fast.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=328.08) [So let's go ahead and run to the browser.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=331.04) [We'll go to localhost 3000, because that was the external port, and there we go.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=333.24) [Our app is running, again, we don't have any data in the database because we](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=337.11) [just started it up, but we could either integrate the dbSeeder script into the](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=340.35) [startup of the app or we could shell in as I showed earlier and we could run](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=345.28) [the dbSeeder script. Now going on back,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=350.04) [let me open another console, and I want to show you that](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=353.19) [under the covers it's just regular Docker.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=355.69) [They're just hiding some of the complexity.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=357.92) [If we do docker ps, there's my two containers.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=359.98) [So what do we do from here?](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=364.84) [Well, the last command is down, so let's go ahead and do docker‑compose down.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=366.74) [Alright, everything is now gone.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=373.24) [Kind of prove that by doing docker ps. Okay,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=375.44) [nothing there that's running, but is there anything behind the](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=379.35) [scenes stopped. Docker ps ‑a, nothing. So you can see how easy it](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=381.74) [is to not only build from our dockerfiles,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=387.63) [but also run our containers,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=391.04) [create the network, and then take everything down, and](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=393.28) [really all you have to know is three commands. Now from](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=396.25) [here there's a docker‑compose logs.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=399.57) [If you want to stream the logs, you could do that.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=401.66) [Take a look at the help there that I showed earlier if you want](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=404.34) [more information. Now the final thing I want to show you is we](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=407.02) [can actually right‑click on this.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=411.84) [If I scroll down to the bottom, notice there's a Compose](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=415.04) [Down, Restart, Up, and Up ‑ Select Services.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=417.79) [Now I'm going to go ahead and do Compose Up, and let's watch what happens here.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=422.34) [And there we go, look at that, it rebuilt all the images that need it, and](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=429.03) [then it started up our containers here. And then it says this terminal is](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=433.84) [going to be reused by tasks, press any key to close it,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=437.75) [so we'll close it.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=440.11) [Let's do docker ps ‑a. There we go, everything's been up,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=441.54) [and we should still be able to hit it in the browser. Now from](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=445.82) [here, let's right click on it, come on down, and we can say](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=449.13) [Compose Down. That will issue the command.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=453.23) [There's that ‑f switch, by the way,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=455.99) [right there. And we're all done, we'll hit any key, let's](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=457.88) [do docker ps ‑a, everything's gone.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=463.12) [So if you want,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=466.34) [you can also use the Docker extension for VS Code that I](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=467.2) [discussed earlier in the course, and you can do some pretty cool](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=470.08) [things there as well when it comes to the build and the up, and](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=472.61) [then taking those containers down.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=476.51) [So that's a look at Docker Compose.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=478.94) [Now I want to emphasize that there's a lot more you](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=480.77) [can go into with Docker Compose, so, like I said earlier,](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=482.76) [check out the next course that'll be in this learning](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=485.78) [path if you'd like more details. So with that, let's go ahead and do a wrap‑up for this module.](https://app.pluralsight.com/course-player?clipId=08973d9a-dbc7-41ed-bf9c-ab0b581f564e&startTime=488.19)

### [Summary](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38)

[In this module, we talked about bridge networks,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=0.94) [how we can set those up for containers so they can communicate,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=3.78) [and we also talked about Docker Compose.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=6.91) [So as a quick review,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=9.33) [we started off talking about what a bridge network is](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=10.79) [and how on a given Docker machine,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=13.9) [it will allow us to communicate between containers that are in the same network.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=16.5) [We use the docker network create command to do that,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=21.34) [we specify the type of the driver, which is bridge,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=24.44) [and then we can give that network a name.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=27.25) [Once we have the network,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=29.74) [we can use the doctor run command along with a ‑‑net switch to define the](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=31.01) [name of the network that that container should run in.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=35.94) [We saw how you can bring up a Node app container that way,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=39.14) [as well as a MongoDB container that way.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=41.65) [Finally,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=44.54) [we took a look at Docker Compose and saw how it's an orchestration](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=45.24) [engine and that we can use it to not only build our different images](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=48.81) [we need, but also to run containers.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=53.05) [This is all done in the YAML file, docker‑compose.yml,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=56.44) [and that's where we can define our different services,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=60.57) [and if our service, which ultimately becomes a container at runtime,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=63.05) [needs to be built as an image,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=67.36) [we can define all that type of data in the Docker Compose.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=69.15) [Now it's super easy.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=73.84) [We can do docker compose build, docker compose up,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=75.14) [docker compose down, and other types of Docker Compose commands.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=78.11) [So that wraps up our discussion of building and running your first Docker app.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=82.64) [We've now looked at all the core concepts you need to know to get started.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=86.54) [Are there more?](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=90.17) [There's always more.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=91.52) [The learning never ends, but you now know the core things you need to know.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=92.57) [You know how to build images, you know how to push those to a registry,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=98.17) [pull them, run them as containers, communicate between containers,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=102.39) [and even orchestrate containers using Docker Compose.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=107.53) [So I'd encourage you to go through the rest of this learning path.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=111.14) [You can also check out my Docker for Web Developers if you'd like this](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=114.66) [type of information but in a more detailed format.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=118.81) [So with that, thank you so much for joining me.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=122.14) [I hope you've enjoyed the content, I know I enjoyed putting it together for you,](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=124.73) [and I wish you the best in your journey working with Docker. It's a lot of fun to work with and a great technology to know.](https://app.pluralsight.com/course-player?clipId=675fa9c5-e075-4af2-8a9e-26fecabfdd38&startTime=128.49)