

# Docker In Action

Learn how to deploy and test Linux-based Docker containers with the help of real-world use cases

**Key Features** Understand how to make a deployment workflow run smoothly with Docker containers

Learn Docker and DevOps concepts such as continuous integration and continuous deployment (CI/CD)

Gain insights into using various Docker tools and libraries

**Book Description** Docker is the de facto standard for containerizing apps, and with an increasing number of software projects migrating to containers, it is crucial for engineers and DevOps teams to understand how to build, deploy, and secure Docker environments effectively. Docker for Developers will help you understand Docker containers from scratch while taking you through best practices and showing you how to address security concerns. Starting with an introduction to Docker, you'll learn how to use containers and VirtualBox for development. You'll explore how containers work and develop projects within them after you've explored different ways to deploy and run containers. The book will also show you how to use Docker containers in production in both single-host set-ups and in clusters and deploy them using Jenkins, Kubernetes, and Spinnaker. As you advance, you'll get to grips with monitoring, securing, and scaling Docker using tools such as Prometheus and Grafana. Later, you'll be able to deploy Docker containers to a variety of environments, including the cloud-native Amazon Elastic Kubernetes Service (Amazon EKS), before finally delving

into Docker security concepts and best practices. By the end of the Docker book, you'll be able to not only work in a container-driven environment confidently but also use Docker for both new and existing projects. What you will learn

- Get up to speed with creating containers and understand how they work
- Package and deploy your containers to a variety of platforms
- Work with containers in the cloud and on the Kubernetes platform
- Deploy and then monitor the health and logs of running containers
- Explore best practices for working with containers from a security perspective
- Become familiar with scanning containers and using third-party security tools and libraries

Who this book is for

If you're a software engineer new to containerization or a DevOps engineer responsible for deploying Docker containers in the cloud and building DevOps pipelines for container-based projects, you'll find this book useful. This Docker containers book is also a handy reference guide for anyone working with a Docker-based DevOps ecosystem or interested in understanding the security implications and best practices for working in container-driven environments.

Even small applications have dozens of components. Large applications may have thousands, which makes them challenging to install, maintain, and remove. Docker bundles all application components into a package called a container that keeps things tidy and helps manage any dependencies on other applications or infrastructure. Docker in Action, Second Edition teaches you the skills and knowledge you need to create, deploy, and manage applications hosted in

Docker containers. This bestseller has been fully updated with new examples, best practices, and entirely new chapters. You'll start with a clear explanation of the Docker model and learn how to package applications in containers, including techniques for testing and distributing applications. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Docker in ActionManning Publications

"A complete guide to the challenges and solutions in securing microservices architectures." —Massimo Siani, FinDynamic Key Features Secure microservices infrastructure and code Monitoring, access control, and microservice-to-microservice communications Deploy securely using Kubernetes, Docker, and the Istio service mesh. Hands-on examples and exercises using Java and Spring Boot Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. Microservices Security in Action teaches you how to address microservices-specific security challenges throughout the system. This practical guide includes plentiful hands-on exercises using industry-leading open-source tools and examples using Java and Spring Boot. About The Book Design and implement security into your microservices from the start. Microservices Security in Action teaches you to assess and address security challenges at every level of a Microservices application, from APIs to infrastructure. You'll find effective solutions to common security problems, including throttling and monitoring, access control at the API gateway, and microservice-to-

microservice communication. Detailed Java code samples, exercises, and real-world business use cases ensure you can put what you've learned into action immediately. What You Will Learn Microservice security concepts Edge services with an API gateway Deployments with Docker, Kubernetes, and Istio Security testing at the code level Communications with HTTP, gRPC, and Kafka This Book Is Written For For experienced microservices developers with intermediate Java skills. About The Author Prabath Siriwardena is the vice president of security architecture at WSO2. Nuwan Dias is the director of API architecture at WSO2. They have designed secure systems for many Fortune 500 companies. Table of Contents PART 1 OVERVIEW 1 Microservices security landscape 2 First steps in securing microservices PART 2 EDGE SECURITY 3 Securing north/south traffic with an API gateway 4 Accessing a secured microservice via a single-page application 5 Engaging throttling, monitoring, and access control PART 3 SERVICE-TO-SERVICE COMMUNICATIONS 6 Securing east/west traffic with certificates 7 Securing east/west traffic with JWT 8 Securing east/west traffic over gRPC 9 Securing reactive microservices PART 4 SECURE DEPLOYMENT 10 Conquering container security with Docker 11 Securing microservices on Kubernetes 12 Securing microservices with Istio service mesh PART 5 SECURE DEVELOPMENT 13 Secure coding practices and automation

To facilitate scalability and resilience, many organizations now run applications in cloud native

environments using containers and orchestration. But how do you know if the deployment is secure? This practical book examines key underlying technologies to help developers, operators, and security professionals assess security risks and determine appropriate solutions. Author Liz Rice, Chief Open Source Officer at Isovalent, looks at how the building blocks commonly used in container-based systems are constructed in Linux. You'll understand what's happening when you deploy containers and learn how to assess potential security risks that could affect your deployments. If you run container applications with kubectl or docker and use Linux command-line tools such as ps and grep, you're ready to get started. Explore attack vectors that affect container deployments Dive into the Linux constructs that underpin containers Examine measures for hardening containers Understand how misconfigurations can compromise container isolation Learn best practices for building container images Identify container images that have known software vulnerabilities Leverage secure connections between containers Use security tooling to prevent attacks on your deployment Apply Kubernetes beyond the basics of Kubernetes clusters by implementing IAM using OIDC and Active Directory, Layer 4 load balancing using MetalLB, advanced service integration, security, auditing, and CI/CD Key Features Find out how to add enterprise features to a Kubernetes cluster with theory and exercises to guide you Understand advanced topics including load balancing, externalDNS, IDP integration, security, auditing, backup, and CI/CD Create

development clusters for unique testing requirements, including running multiple clusters on a single server to simulate an enterprise environment

Book Description

Containerization has changed the DevOps game completely, with Docker and Kubernetes playing important roles in altering the flow of app creation and deployment. This book will help you acquire the knowledge and tools required to integrate Kubernetes clusters in an enterprise environment. The book begins by introducing you to Docker and Kubernetes fundamentals, including a review of basic Kubernetes objects. You'll then get to grips with containerization and understand its core functionalities, including how to create ephemeral multinode clusters using kind. As you make progress, you'll learn about cluster architecture, Kubernetes cluster deployment, and cluster management, and get started with application deployment. Moving on, you'll find out how to integrate your container to a cloud platform and integrate tools including MetalLB, externalDNS, OpenID connect (OIDC), pod security policies (PSPs), Open Policy Agent (OPA), Falco, and Velero. Finally, you will discover how to deploy an entire platform to the cloud using continuous integration and continuous delivery (CI/CD). By the end of this Kubernetes book, you will have learned how to create development clusters for testing applications and Kubernetes components, and be able to secure and audit a cluster by implementing various open-source solutions including OpenUnison, OPA, Falco, Kibana, and Velero. What you will learn

Create a multinode Kubernetes cluster using kind

Implement

Ingress, MetalLB, and ExternalDNS Configure a cluster  
OIDC using impersonation Map enterprise authorization  
to Kubernetes Secure clusters using PSPs and OPA  
Enhance auditing using Falco and EFK Back up your  
workload for disaster recovery and cluster migration  
Deploy to a platform using Tekton, GitLab, and ArgoCD  
Who this book is for This book is for anyone interested in  
DevOps, containerization, and going beyond basic  
Kubernetes cluster deployments. DevOps engineers,  
developers, and system administrators looking to  
enhance their IT career paths will also find this book  
helpful. Although some prior experience with Docker and  
Kubernetes is recommended, this book includes a  
Kubernetes bootcamp that provides a description of  
Kubernetes objects to help you if you are new to the  
topic or need a refresher.

Summary The Spark distributed data processing platform  
provides an easy-to-implement tool for ingesting,  
streaming, and processing data from any source. In  
Spark in Action, Second Edition, you'll learn to take  
advantage of Spark's core features and incredible  
processing speed, with applications including real-time  
computation, delayed evaluation, and machine learning.  
Spark skills are a hot commodity in enterprises  
worldwide, and with Spark's powerful and flexible Java  
APIs, you can reap all the benefits without first learning  
Scala or Hadoop. Purchase of the print book includes a  
free eBook in PDF, Kindle, and ePub formats from  
Manning Publications. About the technology Analyzing  
enterprise data starts by reading, filtering, and merging  
files and streams from many sources. The Spark data

processing engine handles this varied volume like a champ, delivering speeds 100 times faster than Hadoop systems. Thanks to SQL support, an intuitive interface, and a straightforward multilanguage API, you can use Spark without learning a complex new ecosystem. About the book *Spark in Action, Second Edition*, teaches you to create end-to-end analytics applications. In this entirely new book, you'll learn from interesting Java-based examples, including a complete data pipeline for processing NASA satellite data. And you'll discover Java, Python, and Scala code samples hosted on GitHub that you can explore and adapt, plus appendixes that give you a cheat sheet for installing tools and understanding Spark-specific terms. What's inside

Writing Spark applications in Java Spark application architecture Ingestion through files, databases, streaming, and Elasticsearch Querying distributed datasets with Spark SQL About the reader This book does not assume previous experience with Spark, Scala, or Hadoop. About the author Jean-Georges Perrin is an experienced data and software architect. He is France's first IBM Champion and has been honored for 12 consecutive years. Table of Contents PART 1 - THE THEORY CRIPPLED BY AWESOME EXAMPLES 1 So, what is Spark, anyway? 2 Architecture and flow 3 The majestic role of the dataframe 4 Fundamentally lazy 5 Building a simple app for deployment 6 Deploying your simple app PART 2 - INGESTION 7 Ingestion from files 8 Ingestion from databases 9 Advanced ingestion: finding data sources and building your own 10 Ingestion through structured streaming PART 3 -



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full data pipelines 18 Exploring deployment

Summary Linux in Action is a task-based tutorial that will give you the skills and deep understanding you need to administer a Linux-based system. This hands-on book guides you through 12 real-world projects so you can practice as you learn. Each chapter ends with a review of best practices, new terms, and exercises. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology You can't learn anything without getting your hands dirty— including Linux. Skills like securing files, folders, and servers, safely installing patches and applications, and managing a network are required for any serious user, including developers, administrators, and DevOps professionals. With this hands-on tutorial, you'll roll up your sleeves and learn Linux project by project. About the Book Linux in Action guides you through 12 real-world projects, including automating a backup-and-restore system, setting up a private Dropbox-style file cloud, and building your own MediaWiki server. You'll try out interesting examples as you lock in core practices like virtualization, disaster recovery, security, backup, DevOps, and system troubleshooting. Each chapter ends with a review of best practices, new terms, and exercises. What's inside Setting up a safe Linux

environment Managing secure remote connectivity  
Building a system recovery device Patching and upgrading your system About the Reader No prior Linux admin experience is required. About the Author David Clinton is a certified Linux Server Professional, seasoned instructor, and author of Manning's bestselling Learn Amazon Web Services in a Month of Lunches. Table of Contents Welcome to Linux Linux virtualization: Building a Linux working environment Remote connectivity: Safely accessing networked machines Archive management: Backing up or copying entire file systems Automated administration: Configuring automated offsite backups Emergency tools: Building a system recovery device Web servers: Building a MediaWiki server Networked file sharing: Building a Nextcloud file-sharing server Securing your web server Securing network connections: Creating a VPN or DMZ System monitoring: Working with log files Sharing data over a private network Troubleshooting system performance issues Troubleshooting network issues Troubleshooting peripheral devices DevOps tools: Deploying a scripted server environment using Ansible Summary Docker in Action teaches readers how to create, deploy, and manage applications hosted in Docker containers. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The idea behind Docker is simple. Create a tiny virtual environment, called a container, that holds just your application and its dependencies.

The Docker engine uses the host operating system to build and account for these containers. They are easy to install, manage, and remove. Applications running inside containers share resources, making their footprints small. About the Book Docker in Action teaches readers how to create, deploy, and manage applications hosted in Docker containers. After starting with a clear explanation of the Docker model, you will learn how to package applications in containers, including techniques for testing and distributing applications. You will also learn how to run programs securely and how to manage shared resources. Using carefully designed examples, the book teaches you how to orchestrate containers and applications from installation to removal. Along the way, you'll discover techniques for using Docker on systems ranging from dev-and-test machines to full-scale cloud deployments. What's Inside Packaging containers for deployment Installing, managing, and removing containers Working with Docker images Distributing with DockerHub About the Reader Readers need only have a working knowledge of the Linux OS. No prior knowledge of Docker is assumed. About the Author Jeff Nickoloff, a software engineer, has presented Docker and its applications to hundreds of developers and administrators at Desert Code Camp, Amazon.com, and technology meetups. Table of Contents PART 1 KEEPING A TIDY COMPUTER Welcome to Docker Running software

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PART 3 MULTI-CONTAINER AND MULTI-HOST  
ENVIRONMENTS Declarative environments with  
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As enterprise applications become larger and more  
distributed, new architectural approaches like  
reactive designs, microservices, and event streams  
are required knowledge. Vert.x in Action teaches you  
to build highly-scalable reactive enterprise  
applications using the mature, rock-solid Vert.x  
framework. Vert.x in Action gets you up to speed in  
the basics of asynchronous programming as you  
learn to design and code reactive applications. Using  
the Vert.x asynchronous APIs, you'll build services  
including web stack, messaging, authentication, and  
access control. You'll also dive into deployment of  
container-native components with Docker,  
Kubernetes, and OpenShift. Along the way, you'll  
check your app's health and learn to test its  
resilience to external service failures. Purchase of  
the print book includes a free eBook in PDF, Kindle,  
and ePub formats from Manning Publications.  
Summary Docker in Practice, Second Edition

presents over 100 practical techniques, hand-picked to help you get the most out of Docker. Following a Problem/Solution/Discussion format, you'll walk through specific examples that you can use immediately, and you'll get expert guidance on techniques that you can apply to a whole range of scenarios. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Docker's simple idea-wrapping an application and its dependencies into a single deployable container-created a buzz in the software industry. Now, containers are essential to enterprise infrastructure, and Docker is the undisputed industry standard. So what do you do after you've mastered the basics? To really streamline your applications and transform your dev process, you need relevant examples and experts who can walk you through them. You need this book. About the Book Docker in Practice, Second Edition teaches you rock-solid, tested Docker techniques, such as replacing VMs, enabling microservices architecture, efficient network modeling, offline productivity, and establishing a container-driven continuous delivery process. Following a cookbook-style problem/solution format, you'll explore real-world use cases and learn how to apply the lessons to your own dev projects. What's inside Continuous integration and delivery The Kubernetes orchestration tool Streamlining your

cloud workflow Docker in swarm mode Emerging best practices and techniques About the Reader Written for developers and engineers using Docker in production. About the Author Ian Miell and Aidan Hobson Sayers are seasoned infrastructure architects working in the UK. Together, they used Docker to transform DevOps at one of the UK's largest gaming companies. Table of Contents PART 1 - DOCKER FUNDAMENTALS Discovering Docker Understanding Docker: Inside the engine room PART 2 - DOCKER AND DEVELOPMENT Using Docker as a lightweight virtual machine Building images Running containers Day-to-day Docker Configuration management: Getting your house in order PART 3 - DOCKER AND DEVOPS Continuous integration: Speeding up your development pipeline Continuous delivery: A perfect fit for Docker principles Network simulation: Realistic environment testing without the pain PART 4 - ORCHESTRATION FROM A SINGLE MACHINE TO THE CLOUD A primer on container orchestration The data center as an OS with Docker Docker platforms PART 5 - DOCKER IN PRODUCTION Docker and security Plain sailing: Running Docker in production Docker in production: Dealing with challenges

Summary Microservices in Action is a practical book about building and deploying microservice-based applications. Written for developers and architects

with a solid grasp of service-oriented development, it tackles the challenge of putting microservices into production. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Invest your time in designing great applications, improving infrastructure, and making the most out of your dev teams. Microservices are easier to write, scale, and maintain than traditional enterprise applications because they're built as a system of independent components. Master a few important new patterns and processes, and you'll be ready to develop, deploy, and run production-quality microservices. About the Book Microservices in Action teaches you how to write and maintain microservice-based applications. Created with day-to-day development in mind, this informative guide immerses you in real-world use cases from design to deployment. You'll discover how microservices enable an efficient continuous delivery pipeline, and explore examples using Kubernetes, Docker, and Google Container Engine. What's inside An overview of microservice architecture Building a delivery pipeline Best practices for designing multi-service transactions and queries Deploying with containers Monitoring your microservices About the Reader Written for intermediate developers familiar with enterprise architecture and cloud platforms like AWS and GCP. About the Author Morgan Bruce and Paulo A.

Pereira are experienced engineering leaders. They work daily with microservices in a production environment, using the techniques detailed in this book.

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Summary

Go from zero to production readiness with Docker in 22 bite-sized lessons!

Learn Docker in a Month of Lunches is an accessible task-focused guide to Docker on Linux, Windows, or Mac systems. In it, you'll learn practical Docker skills to help you tackle the challenges of modern IT, from cloud migration and microservices to handling legacy systems. There's no excessive theory or niche-use cases—just a quick-and-easy guide to the essentials of Docker you'll use every day. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

About the technology

The idea behind Docker is simple:



package applications in lightweight virtual containers that can be easily installed. The results of this simple idea are huge! Docker makes it possible to manage applications without creating custom infrastructures. Free, open source, and battle-tested, Docker has quickly become must-know technology for developers and administrators. About the book *Learn Docker in a Month of Lunches* introduces Docker concepts through a series of brief hands-on lessons. Following a learning path perfected by author Elton Stoneman, you'll run containers by chapter 2 and package applications by chapter 3. Each lesson teaches a practical skill you can practice on Windows, macOS, and Linux systems. By the end of the month you'll know how to containerize and run any kind of application with Docker. What's inside

- Package applications to run in containers
- Put containers into production
- Build optimized Docker images
- Run containerized apps at scale

About the reader For IT professionals. No previous Docker experience required. About the author Elton Stoneman is a consultant, a former architect at Docker, a Microsoft MVP, and a Pluralsight author.

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Transition to Microservices and DevOps to Transform Your Software Development Effectiveness Thanks to the tech sector's latest

game-changing innovations—the Internet of Things (IoT), software-enabled networking, and software as a service (SaaS), to name a few—there is now a seemingly insatiable demand for platforms and architectures that can improve the process of application development and deployment. In *Microservices and Containers*, longtime systems architect and engineering team leader Parminder Kocher analyzes two of the hottest new technology trends: microservices and containers. Together, as Kocher demonstrates, microservices and Docker containers can bring unprecedented agility and scalability to application development and deployment, especially in large, complex projects where speed is crucial but small errors can be disastrous. Learn how to leverage microservices and Docker to drive modular architectural design, on-demand scalability, application performance and reliability, time-to-market, code reuse, and exponential improvements in DevOps effectiveness. Kocher offers detailed guidance and a complete roadmap for transitioning from monolithic architectures, as well as an in-depth case study that walks the reader through the migration of an enterprise-class SOA system. Understand how microservices enable you to organize applications into standalone components that are easier to manage, update, and scale. Decide whether microservices and containers are worth your

investment, and manage the organizational learning curve associated with them Apply best practices for interprocess communication among microservices Migrate monolithic systems in an orderly fashion Understand Docker containers, installation, and interfaces Network, orchestrate, and manage Docker containers effectively Use Docker to maximize scalability in microservices-based applications Apply your learning with an in-depth, hands-on case study Whether you are a software architect/developer or systems professional looking to move on from older approaches or a manager trying to maximize the business value of these technologies, Microservices and Containers will be an invaluable addition to your library. Register your product at [informit.com/register](http://informit.com/register) for convenient access to downloads, updates, and/or corrections as they become available.

Cloud Native Spring in Action teaches you effective Spring and Kubernetes cloud development techniques that you can immediately apply to enterprise-grade applications. To really benefit from the reliability and scalability you get with cloud platforms, your applications need to be designed for that environment. Cloud Native Spring in Action is a practical guide for planning, designing, and building your first cloud native apps using the powerful, industry-standard Spring framework Cloud Native Spring in Action teaches you effective Spring and Kubernetes cloud development techniques that you

can immediately apply to enterprise-grade applications. As you develop an online bookshop, you'll learn how to build and test a cloud native app with Spring, containerize it with Docker, and deploy it to the public cloud with Kubernetes. Including coverage of security, continuous delivery, and configuration, this hands-on guide is the perfect primer for navigating the increasingly complex cloud landscape. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Summary Web Components are a standardized way to build reusable custom elements for web pages and applications using HTML, CSS, and JavaScript. A Web Component is well-encapsulated, keeping its internal structure separate from other page elements so they don't collide with the rest of your code. In *Web Components in Action* you'll learn to design, build, and deploy reusable Web Components from scratch. Foreword by Gray Norton. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The right UI can set your sites and web applications apart from the ordinary. Using the Web Components API, you can build Custom Elements and then add them to your pages with just a simple HTML tag. This standards-based design approach gives you complete control over the style and behavior of your components and makes them

radically easier to build, share, and reuse between projects. About the Book Web Components in Action teaches you to build and use Web Components from the ground up. You'll start with simple components and component-based applications, using JavaScript, HTML, and CSS. Then, you'll customize them and apply best design practices to maximize reusability. Through hands-on projects, you'll learn to build production-ready Web Components for any project, including color pickers, advanced applications using 3D models, mixed reality, and machine learning. What's inside Creating reusable Custom Elements without a framework Using the Shadow DOM for ultimate component encapsulation Leveraging newer JS features to organize and reuse code Fallback strategies for using Web Components on older browsers About the Reader Written for web developers experienced with HTML, CSS, and JavaScript. About the Author Ben Farrell is a Senior Experience Developer at Adobe working on the Adobe Design Prototyping Team. Table of Contents PART 1 - FIRST STEPS The framework without a framework Your first Web Component Making your component reuseable The component lifecycle Instrumenting a better web app through modules PART 2 - WAYS TO IMPROVE YOUR COMPONENT WORKFLOW Markup Managed Templating your content with HTML The Shadow DOM Shadow CSS Shadow CSS rough edges

### PART 3 - PUTTING YOUR COMPONENTS

TOGETHER A real-world UI component Building and supporting older browsers Component testing Events and application data flow Hiding your complexities

Docker is rapidly changing the way organizations deploy software at scale. However, understanding how Linux containers fit into your workflow—and getting the integration details right—is not a trivial task. With the updated edition of this practical guide, you'll learn how to use Docker to package your applications with all of their dependencies and then test, ship, scale, and support your containers in production. This edition includes significant updates to the examples and explanations that reflect the substantial changes that have occurred over the past couple of years. Sean Kane and Karl Matthias have added a complete chapter on Docker Compose, deeper coverage of Docker Swarm mode, introductions to both Kubernetes and AWS Fargate, examples on how to optimize your Docker images, and much more. Learn how Docker simplifies dependency management and deployment workflow for your applications Start working with Docker images, containers, and command line tools Use practical techniques to deploy and test Docker containers in production Debug containers by understanding their composition and internal processes Deploy production containers at scale

inside your data center or cloud environment Explore advanced Docker topics, including deployment tools, networking, orchestration, security, and configuration With the help of top-notch examples and activities, this workshop helps you to get practical with Docker containers. You'll learn its usage, advantages, and best practices to make the software deployment process smoother.

Summary OpenShift in Action is a full reference to Red Hat OpenShift that breaks down this robust container platform so you can use it day-to-day. Combining Docker and Kubernetes, OpenShift is a powerful platform for cluster management, scaling, and upgrading your enterprise apps. It doesn't matter why you use OpenShift—by the end of this book you'll be able to handle every aspect of it, inside and out! Foreword by Jim Whitehurst, Red Hat. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Containers let you package everything into one neat place, and with Red Hat OpenShift you can build, deploy, and run those packages all in one place! Combining Docker and Kubernetes, OpenShift is a powerful platform for cluster management, scaling, and upgrading your enterprise apps. About the Book OpenShift in Action is a full reference to Red Hat OpenShift that breaks down this robust container platform so you can use it day-to-day. Starting with how to deploy and run your



first application, you'll go deep into OpenShift. You'll discover crystal-clear explanations of namespaces, cgroups, and SELinux, learn to prepare a cluster, and even tackle advanced details like software-defined networks and security, with real-world examples you can take to your own work. It doesn't matter why you use OpenShift—by the end of this book you'll be able to handle every aspect of it, inside and out! What's Inside Written by lead OpenShift architects Rock-solid fundamentals of Docker and Kubernetes Keep mission-critical applications up and running Manage persistent storage About the Reader For DevOps engineers and administrators working in a Linux-based distributed environment. About the Authors Jamie Duncan is a cloud solutions architect for Red Hat, focusing on large-scale OpenShift deployments. John Osborne is a principal OpenShift architect for Red Hat. Table of Contents PART 1 - FUNDAMENTALS Getting to know OpenShift Getting started Containers are Linux PART 2 - CLOUD-NATIVE APPLICATIONS Working with services Autoscaling with metrics Continuous integration and continuous deployment PART 3 - STATEFUL APPLICATIONS Creating and managing persistent storage Stateful applications PART 4 - OPERATIONS AND SECURITY Authentication and resource access Networking Security Learn the key differences between containers and

virtual machines. Adopting a project based approach, this book introduces you to a simple Python application to be developed and containerized with Docker. After an introduction to Containers and Docker you'll be guided through Docker installation and configuration. You'll also learn basic functions and commands used in Docker by running a simple container using Docker commands. The book then moves on to developing a Python based Messaging Bot using required libraries and virtual environment where you'll add Docker Volumes to your project, ensuring your container data is safe. You'll create a database container and link your project to it and finally, bring up the Bot-associated database all at once with Docker Compose. What You'll Learn Build, run, and distribute Docker containers Develop a Python App and containerize it Use Dockerfile to run the Python App Define and run multi-container applications with Docker Compose Work with persisting data generated by and used by Docker containers Who This Book Is For Intermediate developers/DevOps practitioners who are looking to improve their build and release workflow by containerizing applications Run Docker on AWS and build real-world, secure, and scalable container platforms on cloud Key Features Configure Docker for the ECS environment Integrate Docker with different AWS tools Implement container networking and deployment at scale Book

Description Over the last few years, Docker has been the gold standard for building and distributing container applications. Amazon Web Services (AWS) is a leader in public cloud computing, and was the first to offer a managed container platform in the form of the Elastic Container Service (ECS). Docker on Amazon Web Services starts with the basics of containers, Docker, and AWS, before teaching you how to install Docker on your local machine and establish access to your AWS account. You'll then dig deeper into the ECS, a native container management platform provided by AWS that simplifies management and operation of your Docker clusters and applications for no additional cost. Once you have got to grips with the basics, you'll solve key operational challenges, including secrets management and auto-scaling your infrastructure and applications. You'll explore alternative strategies for deploying and running your Docker applications on AWS, including Fargate and ECS Service Discovery, Elastic Beanstalk, Docker Swarm and Elastic Kubernetes Service (EKS). In addition to this, there will be a strong focus on adopting an Infrastructure as Code (IaC) approach using AWS CloudFormation. By the end of this book, you'll not only understand how to run Docker on AWS, but also be able to build real-world, secure, and scalable container platforms in the cloud. What you will learn Build, deploy, and operate Docker

applications using AWS Solve key operational challenges, such as secrets management Exploit the powerful capabilities and tight integration of other AWS services Design and operate Docker applications running on ECS Deploy Docker applications quickly, consistently, and reliably using IaC Manage and operate Docker clusters and applications for no additional cost Who this book is for Docker on Amazon Web Services is for you if you want to build, deploy, and operate applications using the power of containers, Docker, and Amazon Web Services. Basic understanding of containers and Amazon Web Services or any other cloud provider will be helpful, although no previous experience of working with these is required.

Whether you're deploying applications on-premise or in the cloud, this cookbook is for developers, operators, and IT professionals who need practical solutions for using Docker. The recipes in this book will help developers go from zero knowledge to distributed applications packaged and deployed within a couple of chapters. IT professionals will be able to use this cookbook to solve everyday problems, as well as create, run, share, and deploy Docker images quickly. Operators will learn and understand what developers are excited about and start to adopt the tools that will change the way they work.--

Summary Camel in Action, Second Edition is the

most complete Camel book on the market. Written by core developers of Camel and the authors of the highly acclaimed first edition, this book distills their experience and practical insights so that you can tackle integration tasks like a pro. Forewords by James Strachan and Dr. Mark Little Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Apache Camel is a Java framework that implements enterprise integration patterns (EIPs) and comes with over 200 adapters to third-party systems. A concise DSL lets you build integration logic into your app with just a few lines of Java or XML. By using Camel, you benefit from the testing and experience of a large and vibrant open source community. About the Book Camel in Action, Second Edition is the definitive guide to the Camel framework. It starts with core concepts like sending, receiving, routing, and transforming data. It then goes in depth on many topics such as how to develop, debug, test, deal with errors, secure, scale, cluster, deploy, and monitor your Camel applications. The book also discusses how to run Camel with microservices, reactive systems, containers, and in the cloud. What's Inside Coverage of all relevant EIPs Camel microservices with Spring Boot Camel on Docker and Kubernetes Error handling, testing, security, clustering, monitoring, and deployment Hundreds of examples in Java and

XML About the Reader Readers should be familiar with Java. This book is accessible to beginners and invaluable to experts. About the Author Claus Ibsen is a senior principal engineer working for Red Hat specializing in cloud and integration. He has worked on Apache Camel for the last nine years where he heads the project. Claus lives in Denmark. Jonathan Anstey is an engineering manager at Red Hat and a core Camel contributor. He lives in Newfoundland, Canada. Table of Contents Part 1 - First steps Meeting Camel Routing with Camel Part 2 - Core Camel Transforming data with Camel Using beans with Camel Enterprise integration patterns Using components Part 3 - Developing and testing Microservices Developing Camel projects Testing RESTful web services Part 4 - Going further with Camel Error handling Transactions and idempotency Parallel processing Securing Camel Part 5 - Running and managing Camel Running and deploying Camel Management and monitoring Part 6 - Out in the wild Clustering Microservices with Docker and Kubernetes Camel tooling Bonus online chapters Available at <https://www.manning.com/books/camel-in-?action=second-edition> and in electronic versions of this book: Reactive Camel Camel and the IoT by Henryk Konsek

Summary CoreOS in Action is a clear tutorial for deploying container-based systems on CoreOS Container Linux. Purchase of the print book includes

a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Traditional Linux server distributions include every component required for anything you might be hosting, most of which you don't need if you've containerized your apps and services. CoreOS Container Linux is a bare-bones distro with only the essential bits needed to run containers like Docker. Container Linux is a fast, secure base layer for any container-centric distributed application, including microservices. And say goodbye to patch scheduling; when Container Linux needs an update, you just hot-swap the whole OS. About the Book CoreOS in Action is a clear tutorial for deploying container-based systems on CoreOS Container Linux. Inside, you'll follow along with examples that teach you to set up CoreOS on both private and cloud systems, and to practice common sense monitoring and upgrade techniques with real code. You'll also explore important container-aware application designs, including microservices, web, and Big Data examples with real-world use cases to put your learning into perspective. Summary Handling scaling and failures gracefully Container-driven application designs Cloud, on-premises, and hybrid deployment Smart logging and backup practices About the Reader Written for readers familiar with Linux and the basics of Docker. About the Author Matt Bailey is currently a technical lead at

ZeniMax. He has worked in higher education and with scientific computing, medical, and networking technology companies, as well as a few startups. You can find him online via <https://mdb.io>. Table of Contents PART 1 - GETTING TO KNOW COREOS Introduction to the CoreOS family Getting started on your workstation Expecting failure: fault tolerance in CoreOS PART 2 - APPLICATION ARCHITECTURE CoreOS in production Application architecture and workflow Web stack application example Big Data stack PART 3 - COREOS IN PRODUCTION CoreOS on AWS Bringing it together: deployment System administration

Summary Kubernetes in Action is a comprehensive guide to effectively developing and running applications in a Kubernetes environment. Before diving into Kubernetes, the book gives an overview of container technologies like Docker, including how to build containers, so that even readers who haven't used these technologies before can get up and running. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Kubernetes is Greek for "helmsman," your guide through unknown waters. The Kubernetes container orchestration system safely manages the structure and flow of a distributed application, organizing containers and services for maximum efficiency. Kubernetes serves as an operating system for your clusters, eliminating the need to factor the underlying network and server infrastructure into your designs.



About the Book Kubernetes in Action teaches you to use Kubernetes to deploy container-based distributed applications. You'll start with an overview of Docker and Kubernetes before building your first Kubernetes cluster. You'll gradually expand your initial application, adding features and deepening your knowledge of Kubernetes architecture and operation. As you navigate this comprehensive guide, you'll explore high-value topics like monitoring, tuning, and scaling. What's Inside

- Kubernetes' internals
- Deploying containers across a cluster
- Securing clusters
- Updating applications with zero downtime

About the Reader Written for intermediate software developers with little or no familiarity with Docker or container orchestration systems.

About the Author Marko Luksa is an engineer at Red Hat working on Kubernetes and OpenShift.

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for developing apps Extending Kubernetes  
Docker containers offer simpler, faster, and more robust methods for developing, distributing, and running software than previously available. With this hands-on guide, you'll learn why containers are so important, what you'll gain by adopting Docker, and how to make it part of your development process. Ideal for developers, operations engineers, and system administrators—especially those keen to embrace a DevOps approach—Using Docker will take you from Docker and container basics to running dozens of containers on a multi-host system with networking and scheduling. The core of the book walks you through the steps needed to develop, test, and deploy a web application with Docker. Get started with Docker by building and deploying a simple web application Use Continuous Deployment techniques to push your application to production multiple times a day Learn various options and techniques for logging and monitoring multiple containers Examine networking and service discovery: how do containers find each other and how do you connect them? Orchestrate and cluster containers to address load-balancing, scaling, failover, and scheduling Secure your system by following the principles of defense-in-depth and least privilege Change the way your organization deploys software at scale with this fast-paced guide to the world of Docker About This Book Cut through the noise and in simple terms learn to package your applications and test, ship, and scale your containers Find and build images and successfully run your programs within containers Build,

deploy, and test your Docker containers and put them to work in production

**Who This Book Is For** This book is for IT professionals, system administrators, and DevOps professionals or anyone looking to quickly develop and deploy software to production at scale. If you are interested in Docker, DevOps, or containers in general, don't look any further.

**What You Will Learn**

- Understand Docker's architecture
- Build, ship, and run distributed applications
- Deploy, automate, and manage the execution of applications within Docker
- Scale and virtualize images and containers
- Utilize the networking features that Docker offers
- Use repositories to store and retrieve images

**In Detail** This fast-paced practical guide will get you up and running with Docker. Using Docker, you will be able to build, ship, and run many distributed applications in real time. You will start with quickly installing Docker and start working with images and containers. We will present different types of containers and their applications, and show you how to find and build images. You will learn how you can contribute to the image repository by publishing different images. This will familiarize you with the image building process and you will be able to successfully run your programs within containers. By finishing this book, you will be well equipped in deploying your applications using Docker and will have a clear understanding of concepts, techniques, and practical methods to get it running in production systems.

**Style and approach** This book takes a fast-paced practical approach that quickly gets you up and running with Docker so that you spend less time learning and more time deploying Docker containers

effectively. This book contains a mix of concepts, practical examples, techniques, and the most up-to-date content to run things effectively in production. We'll show you the easiest way to speed up your development and deployment with Docker.

**Summary** An open source container system, Docker makes deploying applications painless and flexible. Docker is powerful and simple to use, and it makes life easier for developers and administrators alike providing shorter build times, fewer production bugs, and effortless application roll-out. **About the Book** Docker in Practice is a hands-on guide that covers 101 specific techniques you can use to get the most out of Docker. Following a cookbook-style Problem/Solution/Discussion format, this practical handbook gives you instantly useful solutions for important problems like effortless server maintenance and configuration, deploying microservices, creating safe environments for experimentation, and much more. As you move through this book, you'll advance from basics to Docker best practices like using it with your Continuous Integration process, automating complex container creation with Chef, and orchestration with Kubernetes. **What's Inside** Speeding up your DevOps pipeline Cheaply replacing VMs Streamlining your cloud workflow Using the Docker Hub Navigating the Docker ecosystem **About the Reader** For anyone interested in real-world Docker. **About the Authors** Ian Miell and Aidan Hobson Sayers have contributed to Docker and have extensive experience building and maintaining commercial Docker-based infrastructures in large-scale environments. **Table of Contents** PART 1: DOCKER

FUNDAMENTALS DISCOVERING DOCKER  
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DEALING WITH CHALLENGES

Updated for Docker Community Edition v18.09! Docker book designed for SysAdmins, SREs, Operations staff, Developers and DevOps who are interested in deploying the open source container service Docker. In this book, we'll walk you through installing, deploying, managing, and extending Docker. We're going to do that by first introducing you to the basics of Docker and its components. Then we'll start to use Docker to build containers and services to perform a variety of tasks. We're going to take you through the development lifecycle, from testing to production, and see where Docker fits in and how it can make your life easier. We'll make use of Docker to build test environments for new

projects, demonstrate how to integrate Docker with continuous integration workflow, and then how to build application services and platforms. Finally, we'll show you how to use Docker's API and how to extend Docker yourself. We'll teach you how to:

- \* Install Docker.
- \* Take your first steps with a Docker container.
- \* Build Docker images.
- \* Manage and share Docker images.
- \* Run and manage more complex Docker containers.
- \* Deploy Docker containers as part of your testing pipeline.
- \* Build multi-container applications and environments.
- \* Learn about orchestration using Compose and Swarm for the orchestration of Docker containers and Consul for service discovery.
- \* Explore the Docker API.
- \* Getting Help and Extending Docker.

Develop and build your Docker images and deploy your Docker containers securely. Key Features Learn Docker installation on different types of OS Get started with developing Docker images Use Docker with your Jenkins CI/CD system Book Description Docker is an open source software platform that helps you with creating, deploying, and running your applications using containers. This book is your ideal introduction to Docker and containerization. You will learn how to set up a Docker development environment on a Linux, Mac, or Windows workstation, and learn your way around all the commands to run and manage your Docker images and containers. You will explore the Dockerfile and learn how to build your own enterprise-grade Docker images. Then you will learn about Docker networks, Docker swarm, and Docker volumes, and how to use these features with Docker stacks in order to define, deploy, and maintain

highly-scalable, fault-tolerant multi-container applications. Finally, you will learn how to leverage Docker with Jenkins to automate the building of Docker images and the deployment of Docker containers. By the end of this book, you will be well prepared when it comes to using Docker for your next project. What you will learn

- Set up your Docker workstation on various platforms
- Utilize a number of Docker commands with parameters
- Create Docker images using Dockerfiles
- Learn how to create and use Docker volumes
- Deploy multi-node Docker swarm infrastructure
- Create and use Docker local and remote networks
- Deploy multi-container applications that are HA and FT
- Use Jenkins to build and deploy Docker images

Who this book is for This guide is for anyone who needs to make a quick decision about using Docker for their next project. It is for developers who want to get started using Docker right away.

Learn how to run new and old Windows applications in Docker containers. About This Book Package traditional .NET Frameworks apps and new .NET Core apps as Docker images, and run them in containers for increased efficiency, portability, and security

Design and implement distributed applications that run across connected containers, using enterprise-grade open source software from public Docker images

Build a full Continuous Deployment pipeline for a .NET Framework application, and deploy it to a highly-available Docker swarm running in the cloud

Who This Book Is For If you want to modernize an old monolithic application without rewriting it, smooth the deployment to production, or move to DevOps or the cloud, then Docker is the enabler for you.

This book gives you a solid grounding in Docker so you can confidently approach all of these scenarios. What You Will Learn Comprehend key Docker concepts: images, containers, registries, and swarms Run Docker on Windows 10, Windows Server 2016, and in the cloud Deploy and monitor distributed solutions across multiple Docker containers Run containers with high availability and fail-over with Docker Swarm Master security in-depth with the Docker platform, making your apps more secure Build a Continuous Deployment pipeline by running Jenkins in Docker Debug applications running in Docker containers using Visual Studio Plan the adoption of Docker in your own organization In Detail Docker is a platform for running server applications in lightweight units called containers. You can run Docker on Windows Server 2016 and Windows 10, and run your existing apps in containers to get significant improvements in efficiency, security, and portability. This book teaches you all you need to know about Docker on Windows, from 101 to deploying highly-available workloads in production. This book takes you on a Docker journey, starting with the key concepts and simple examples of how to run .NET Framework and .NET Core apps in Windows Docker containers. Then it moves on to more complex examples—using Docker to modernize the architecture and development of traditional ASP.NET and SQL Server apps. The examples show you how to break up monoliths into distributed apps and deploy them to a clustered environment in the cloud, using the exact same artifacts you use to run them locally. To help you move confidently to production, it then explains



Docker security, and the management and support options. The book finishes with guidance on getting started with Docker in your own projects, together with some real-world case studies for Docker implementations, from small-scale on-premises apps to very large-scale apps running on Azure. Style and approach Using a step-by-step approach, this book shows you how to use Docker on Windows. It includes practical examples and real-world technical and business scenarios that will help you effectively implement Docker in your environment. There are over 50 examples of Dockerized applications, using C# .NET projects as the source and packaging them into Docker images.

Summary The best way to learn microservices development is to build something! Bootstrapping Microservices with Docker, Kubernetes, and Terraform guides you from zero through to a complete microservices project, including fast prototyping, development, and deployment. You'll get your feet wet using industry-standard tools as you learn and practice the practical skills you'll use for every microservices application. Following a true bootstrapping approach, you'll begin with a simple, familiar application and build up your knowledge and skills as you create and deploy a real microservices project. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Taking microservices from proof of concept to production is a complex, multi-step operation relying on tools like Docker, Terraform, and Kubernetes for packaging and deployment. The best way to learn the process is to build

a project from the ground up, and that's exactly what you'll do with this book! About the book *In Bootstrapping Microservices with Docker, Kubernetes, and Terraform*, author Ashley Davis lays out a comprehensive approach to building microservices. You'll start with a simple design and work layer-by-layer until you've created your own video streaming application. As you go, you'll learn to configure cloud infrastructure with Terraform, package microservices using Docker, and deploy your finished project to a Kubernetes cluster. What's inside

- Developing and testing microservices applications
- Working with cloud providers
- Applying automated testing
- Implementing infrastructure as code and setting up a continuous delivery pipeline
- Monitoring, managing, and troubleshooting

About the reader Examples are in JavaScript. No experience with microservices, Kubernetes, Terraform, or Docker required. About the author Ashley Davis is a software developer, entrepreneur, stock trader, and the author of Manning's *Data Wrangling with JavaScript*. Table of Contents

- 1 Why microservices?
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Summary *Kafka Streams in Action* teaches you everything you need to know to implement stream processing on data flowing into your Kafka platform, allowing you to focus on getting more from your data without sacrificing time or effort.

Foreword by Neha Narkhede, Cocreator of Apache Kafka  
Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Not all stream-based applications require a dedicated processing cluster. The lightweight Kafka Streams library provides exactly the power and simplicity you need for message handling in microservices and real-time event processing. With the Kafka Streams API, you filter and transform data streams with just Kafka and your application. About the Book Kafka Streams in Action teaches you to implement stream processing within the Kafka platform. In this easy-to-follow book, you'll explore real-world examples to collect, transform, and aggregate data, work with multiple processors, and handle real-time events. You'll even dive into streaming SQL with KSQL! Practical to the very end, it finishes with testing and operational aspects, such as monitoring and debugging. What's inside Using the KStreams API Filtering, transforming, and splitting data Working with the Processor API Integrating with external systems About the Reader Assumes some experience with distributed systems. No knowledge of Kafka or streaming applications required. About the Author Bill Bejeck is a Kafka Streams contributor and Confluent engineer with over 15 years of software development experience. Table of Contents PART 1 - GETTING STARTED WITH KAFKA STREAMS Welcome to Kafka Streams Kafka quicklyPART 2 - KAFKA STREAMS DEVELOPMENT Developing Kafka Streams Streams and state The KTable API The Processor APIPART 3 - ADMINISTERING KAFKA STREAMS Monitoring and performance Testing a Kafka Streams applicationPART 4 - ADVANCED CONCEPTS WITH KAFKA STREAMS Advanced applications with Kafka StreamsAPPENDIXES Appendix A - Additional configuration information Appendix B - Exactly once semantics

Summary Spark in Action teaches you the theory and skills you need to effectively handle batch and streaming data using Spark. Fully updated for Spark 2.0. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Big data systems distribute datasets across clusters of machines, making it a challenge to efficiently query, stream, and interpret them. Spark can help. It is a processing system designed specifically for distributed data. It provides easy-to-use interfaces, along with the performance you need for production-quality analytics and machine learning. Spark 2 also adds improved programming APIs, better performance, and countless other upgrades. About the Book Spark in Action teaches you the theory and skills you need to effectively handle batch and streaming data using Spark. You'll get comfortable with the Spark CLI as you work through a few introductory examples. Then, you'll start programming Spark using its core APIs. Along the way, you'll work with structured data using Spark SQL, process near-real-time streaming data, apply machine learning algorithms, and munge graph data using Spark GraphX. For a zero-effort startup, you can download the preconfigured virtual machine ready for you to try the book's code. What's Inside Updated for Spark 2.0 Real-life case studies Spark DevOps with Docker Examples in Scala, and online in Java and Python About the Reader Written for experienced programmers with some background in big data or machine learning. About the Authors Petar Zečević and Marko Bonacci are seasoned developers heavily involved in the Spark community. Table of Contents PART 1 - FIRST STEPS Introduction to Apache Spark Spark fundamentals Writing Spark applications The Spark API in depth PART 2 - MEET THE SPARK FAMILY Sparkling queries with Spark SQL Ingesting data with Spark Streaming Getting smart with MLlib ML: classification and

clustering Connecting the dots with GraphX PART 3 - SPARK OPS Running Spark Running on a Spark standalone cluster Running on YARN and Mesos PART 4 - BRINGING IT TOGETHER Case study: real-time dashboard Deep learning on Spark with H2O

Docker in Action, Second Edition teaches you to create, deploy, and manage applications hosted in Docker containers running on Linux. Fully updated, with four new chapters and revised best practices and examples, this second edition begins with a clear explanation of the Docker model. Then, you go hands-on with packaging applications, testing, installing, running programs securely, and deploying them across a cluster of hosts. With examples showing how Docker benefits the whole dev lifecycle, you'll discover techniques for everything from dev-and-test machines to full-scale cloud deployments.

Giving you the confidence you need to take on Docker in the real world, this guide is the ultimate book for learning Docker, brought to you by Docker Captain and leading educator in the container ecosystem. --

Kubernetes radically changes the way applications are built and deployed in the cloud. Since its introduction in 2014, this container orchestrator has become one of the largest and most popular open source projects in the world. The updated edition of this practical book shows developers and ops personnel how Kubernetes and container technology can help you achieve new levels of velocity, agility, reliability, and efficiency. Kelsey Hightower, Brendan Burns, and Joe Beda—who've worked on Kubernetes at Google and beyond—explain how this system fits into the lifecycle of a distributed application. You'll learn how to use tools and APIs to automate scalable distributed systems, whether it's for online services, machine learning applications, or a cluster of Raspberry Pi computers. Create a simple cluster to learn how

Kubernetes works Dive into the details of deploying an application using Kubernetes Learn specialized objects in Kubernetes, such as DaemonSets, jobs, ConfigMaps, and secrets Explore deployments that tie together the lifecycle of a complete application Get practical examples of how to develop and deploy real-world applications in Kubernetes Learn Kubernetes in a Month of Lunches is your guide to getting up and running with Kubernetes. Summary In Learn Kubernetes in a Month of Lunches you'll go from "what's a Pod?" to automatically scaling clusters of containers and components in just 22 hands-on lessons, each short enough to fit into a lunch break. Every lesson is task-focused and covers an essential skill on the road to Kubernetes mastery. You'll learn how to smooth container management with Kubernetes, including securing your clusters, and upgrades and rollbacks with zero downtime. No development stack, platform, or background is assumed. Author Elton Stoneman describes all patterns generically, so you can easily apply them to your applications and port them to other projects! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Create apps that perform identically on your laptop, data center, and cloud! Kubernetes provides a consistent method for deploying applications on any platform, making it easy to grow. By efficiently orchestrating Docker containers, Kubernetes simplifies tasks like rolling upgrades, scaling, and self-healing. About the book Learn Kubernetes in a Month of Lunches is your guide to getting up and running with Kubernetes. You'll progress from Kubernetes basics to essential skills, learning to model, deploy, and manage applications in production. Exercises demonstrate how Kubernetes works with multiple languages and frameworks. You'll also practice with new apps, legacy code, and serverless functions. What's inside Deploying applications on

Kubernetes clusters Understanding the Kubernetes app lifecycle, from packaging to rollbacks Self-healing and scalable apps Using Kubernetes as a platform for new technologies About the reader For readers familiar with Docker and containerization. About the author Elton Stoneman is a Docker Captain, a 11-time Microsoft MVP, and the author of Learn Docker in a Month of Lunches. Table of Contents PART 1 - FAST TRACK TO KUBERNETES 1 Before you begin 2 Running containers in Kubernetes with Pods and Deployments 3 Connecting Pods over the network with Services 4 Configuring applications with ConfigMaps and Secrets 5 Storing data with volumes, mounts, and claims 6 Scaling applications across multiple Pods with controllers PART 2 - KUBERNETES IN THE REAL WORLD 7 Extending applications with multicontainer Pods 8 Running data-heavy apps with StatefulSets and Jobs 9 Managing app releases with rollouts and rollbacks 10 Packaging and managing apps with Helm 11 App development—Developer workflows and CI/CD PART 3 - PREPARING FOR PRODUCTION 12 Empowering self-healing apps 13 Centralizing logs with Fluentd and Elasticsearch 14 Monitoring applications with Kubernetes with Prometheus 15 Managing incoming traffic with Ingress 16 Securing applications with policies, contexts, and admission control PART 4 - PURE AND APPLIED KUBERNETES 17 Securing resources with role-based access control 18 Deploying Kubernetes: Multinode and multiarchitecture clusters 19 Controlling workload placement and automatic scaling 20 Extending Kubernetes with custom resources and Operators 21 Running serverless functions in Kubernetes 22 Never the end Simplify your DevOps roles with DevOps tools and techniques Key Features Learn to utilize business resources effectively to increase productivity and collaboration Leverage the ultimate open source DevOps tools to achieve continuous

integration and continuous delivery (CI/CD) Ensure faster time-to-market by reducing overall lead time and deployment downtime

**Book Description** The implementation of DevOps processes requires the efficient use of various tools, and the choice of these tools is crucial for the sustainability of projects and collaboration between development (Dev) and operations (Ops). This book presents the different patterns and tools that you can use to provision and configure an infrastructure in the cloud. You'll begin by understanding DevOps culture, the application of DevOps in cloud infrastructure, provisioning with Terraform, configuration with Ansible, and image building with Packer. You'll then be taken through source code versioning with Git and the construction of a DevOps CI/CD pipeline using Jenkins, GitLab CI, and Azure Pipelines. This DevOps handbook will also guide you in containerizing and deploying your applications with Docker and Kubernetes. You'll learn how to reduce deployment downtime with blue-green deployment and the feature flags technique, and study DevOps practices for open source projects. Finally, you'll grasp some best practices for reducing the overall application lead time to ensure faster time to market. By the end of this book, you'll have built a solid foundation in DevOps, and developed the skills necessary to enhance a traditional software delivery process using modern software delivery tools and techniques

**What you will learn**

- Become well versed with DevOps culture and its practices
- Use Terraform and Packer for cloud infrastructure provisioning
- Implement Ansible for infrastructure configuration
- Use basic Git commands and understand the Git flow process
- Build a DevOps pipeline with Jenkins, Azure Pipelines, and GitLab CI
- Containerize your applications with Docker and Kubernetes
- Check application quality with SonarQube and Postman
- Protect DevOps processes and applications using DevSecOps tools

**Who this book is for** If you are a developer



## File Type PDF Docker In Action

or a system administrator interested in understanding continuous integration, continuous delivery, and containerization with DevOps tools and techniques, this book is for you.

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