From 101 To Production With Docker On Windows

Docker has revolutionized the way developers build, package, and deploy their applications. It provides a lightweight and portable environment, allowing developers to seamlessly move their applications across different operating systems and infrastructure. In this article, we will explore the journey from learning the basics of Docker to deploying applications at a production level on Windows.

Understanding Docker

Docker is an open-source platform that allows developers to automate the deployment of applications inside containers. Containers are lightweight, isolated environments that package the application along with its dependencies and runtime. This helps in ensuring consistent and reliable deployments regardless of the underlying infrastructure.

The first step towards mastering Docker is to understand its core concepts. These include images, containers, and Dockerfile. Images act as blueprints for containers, defining the application, its dependencies, and any required configurations. Containers are instances of these images, running in isolation with their own filesystem, network, and processes. Dockerfile, on the other hand, is a text file that contains a set of instructions for building a Docker image.
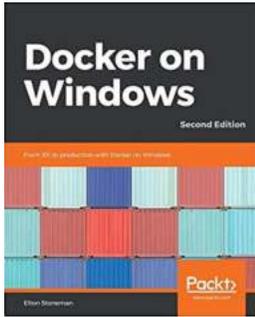
Docker on Windows: From 101 to Production with Docker on Windows by Elton Stoneman (Kindle Edition)

⭐⭐⭐⭐☆ 4.2 out of 5

Language	: English
File size	: 15528 KB
Text-to-Speech	: Enabled

Screen Reader	: Supported
Enhanced typesetting	: Enabled
Print length	: 358 pages

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Getting Started with Docker on Windows

Docker provides different editions for Windows users, including Docker Desktop for Windows and Docker Toolbox. Docker Desktop for Windows is recommended for newer systems as it leverages the Hyper-V virtualization technology. Docker Toolbox, on the other hand, is suitable for older systems that lack Hyper-V support.

Once installed, Docker can be accessed using the Docker command-line interface (CLI), which provides a set of commands for managing Docker containers and images. It also provides a graphical user interface (GUI) to simplify the container management process.

Building and Running Docker Containers

Building a Docker container involves creating a Dockerfile that defines the instructions for building the image. This file specifies the base image, installs any required dependencies, copies the application code, and configures the necessary settings. With the Docker CLI, you can build the image using the docker build command and then run it using the docker run command.

Docker also supports Docker Compose, a tool for defining and running multi-container Docker applications. Compose files are written in YAML syntax and allow you to define the services, networks, volumes, and other configurations required for your application. Running a compose file starts all the defined services simultaneously.

Deploying Docker Containers in Production

Deploying Docker containers in a production environment requires additional considerations. You need to ensure the availability, scalability, and security of your application. There are various strategies and tools available to achieve these goals.

One common approach is to use orchestration tools like Docker Swarm or Kubernetes. These tools help in managing a cluster of Docker hosts, providing features like service discovery, load balancing, and scaling. They also ensure high availability by automatically restarting failed containers and routing traffic to healthy ones.

Monitoring and Troubleshooting

Monitoring and troubleshooting are essential aspects of managing Docker containers in production. Docker provides various built-in monitoring tools like Docker Stats and Container Logs. These tools allow you to track resource usage, monitor container health, and debug container issues.

Additionally, there are external monitoring tools available that provide advanced analytics, alerting, and visualization. These tools integrate with Docker to provide a comprehensive monitoring solution for your containerized applications.

Docker has become an integral part of modern software development workflows, providing developers with a consistent and portable environment. From learning the basics to deploying applications at a production level, Docker on Windows offers numerous possibilities. Whether you are a beginner or an experienced developer, mastering Docker opens up new avenues for efficient application development and deployment.
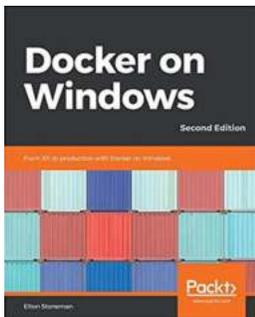
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Learn how to run new and old Windows applications in Docker containers.

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.


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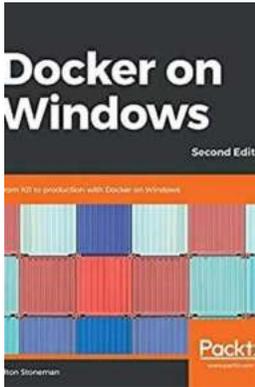
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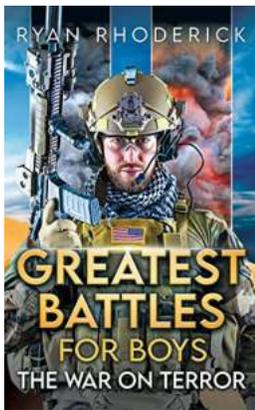
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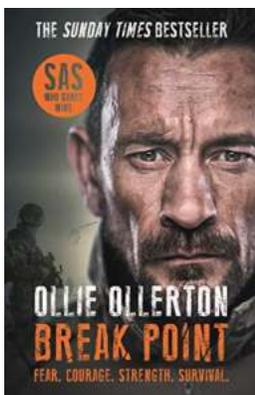
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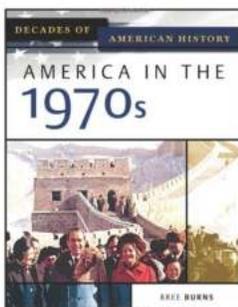
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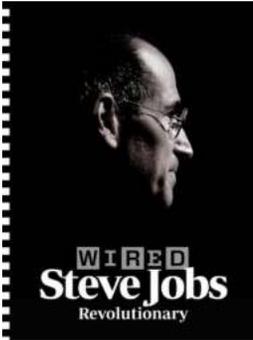
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