

## The Terraform Book

Simplify your DevOps roles with DevOps tools and techniques Key FeaturesLearn to utilize business resources effectively to increase productivity and collaborationLeverage 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 downtimeBook 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 learnBecome well versed with DevOps culture and its practicesUse Terraform and Packer for cloud infrastructure provisioningImplement Ansible for infrastructure configurationUse basic Git commands and understand the Git flow processBuild a DevOps pipeline with Jenkins, Azure Pipelines, and GitLab CIContainerize your applications with Docker and KubernetesCheck application quality with SonarQube and PostmanProtect DevOps processes and applications using DevSecOps toolsWho this book is for If you are a developer or a system administrator interested in understanding continuous integration, continuous delivery, and containerization with DevOps tools and techniques, this book is for you.

Terraform in Action shows you how to automate and scale infrastructure programmatically using the Terraform toolkit. Summary In Terraform in Action you will learn: Cloud architecture with Terraform Terraform module sharing and the private module registry Terraform security in a multitenant environment Strategies for performing blue/green deployments Refactoring for code maintenance and reusability Running Terraform at scale Creating your own Terraform provider Using Terraform as a continuous development/continuous delivery platform Terraform in Action introduces the infrastructure-as-code (IaC) model that lets you instantaneously create new components and respond efficiently to changes in demand. You'll use the Terraform automation tool to design and manage servers that can be provisioned, shared, changed, tested, and deployed with a single command. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Provision, deploy, scale, and clone your entire stack to the cloud at the touch of a button. In Terraform, you create a collection of simple declarative scripts that define and manage application infrastructure. This powerful infrastructure-as-code approach automates key tasks like versioning and testing for everything from low-level networking to cloud services. About the book Terraform in Action shows you how to automate and scale infrastructure programmatically using the Terraform toolkit. Using practical, relevant examples, you'll use Terraform to provision a Kubernetes cluster, deploy a multiplayer game, and configure other hands-on projects. As you progress to advanced techniques like zero-downtime deployments, you'll discover how to think in Terraform rather than just copying and pasting scripts. What's inside Cloud architecture with Terraform Terraform module sharing and the private module registry Terraform security in a multitenant environment Strategies for performing blue/green deployments About the reader For readers experienced with a major cloud platform such as AWS. Examples in JavaScript and Golang. About the author Scott Winkler is a DevOps engineer and a distinguished Terraform expert. He has spoken multiple times at HashiTalks and HashiConf, and was selected as a HashiCorp Ambassador and Core Contributor in 2020. Table of Contents PART 1 TERRAFORM BOOTCAMP 1 Getting started with Terraform 2 Life cycle of a Terraform resource 3 Functional programming 4 Deploying a multi-tiered web application in AWS PART 2 TERRAFORM IN THE WILD 5 Serverless made easy 6 Terraform with friends 7 CI/CD pipelines as code 8 A multi-cloud MMORPG PART 3 MASTERING TERRAFORM 9 Zero-downtime deployments 10 Testing and refactoring 11 Extending Terraform by writing a custom provider 12 Automating Terraform 13 Security and secrets management

Virtualization, cloud, containers, server automation, and software-defined networking are meant to simplify IT operations. But many organizations adopting these technologies have found that it only leads to a faster-growing sprawl of unmanageable systems. This is where infrastructure as code can help. With this practical guide, author Kief Morris of ThoughtWorks shows you how to effectively use principles, practices, and patterns pioneered through the DevOps movement to manage cloud age infrastructure. Ideal for system administrators, infrastructure engineers, team leads, and architects, this book demonstrates various tools, techniques, and patterns you can use to implement infrastructure as code. In three parts, you'll learn about the platforms and tooling involved in creating and configuring infrastructure elements, patterns for using these tools, and practices for making infrastructure as code work in your environment. Examine the pitfalls that organizations fall into when adopting the new generation of infrastructure technologies Understand the capabilities and service models of dynamic infrastructure platforms Learn about tools that provide, provision, and configure core infrastructure resources Explore services and tools for managing a dynamic infrastructure Learn specific patterns and practices for provisioning servers, building server templates, and updating running servers

Terraform has become a key player in the DevOps world for defining, launching, and managing infrastructure as code (IaC) across a variety of cloud and virtualization platforms, including AWS, Google Cloud, Azure, and more. This hands-on second edition, expanded and thoroughly updated for Terraform version 0.12 and beyond, shows you the fastest way to get up and running. Gruntwork cofounder Yevgeniy (Jim) Brikman walks you through code examples that demonstrate Terraform's simple, declarative programming language for deploying and managing infrastructure with a few commands. Veteran sysadmins, DevOps engineers, and novice developers will quickly go from Terraform basics to running a full stack that can support a massive amount of traffic and a large team of developers. Explore changes from Terraform 0.9 through 0.12, including backends, workspaces, and first-class expressions Learn how to write production-grade Terraform modules Dive into manual and automated testing for Terraform code Compare Terraform to Chef, Puppet, Ansible, CloudFormation, and Salt Stack Deploy server clusters, load balancers, and databases Use Terraform to manage the state of your infrastructure Create reusable infrastructure with Terraform modules Use advanced Terraform syntax to achieve zero-downtime deployment

Terraform Cookbook

Watch/Worlds/Burn

Python for DevOps

Beginning HCL Programming

Terraform: Up & Running

Terraform in Action

The Art of Monitoring

***Build, Manage and Improve your infrastructure effortlessly. About This Book An up-to-date and comprehensive resource on Terraform that lets you quickly and efficiently launch your infrastructure Learn how to implement your infrastructure as code and make secure, effective changes to your infrastructure Learn to build multi-cloud fault-tolerant systems and simplify the management and orchestration of even the largest scale and most complex cloud infrastructures Who This Book Is For This book is for developers and operators who already have some exposure to working with infrastructure but want to improve their workflow and introduce infrastructure as a code practice. Knowledge of essential Amazon Web Services components (EC2, VPC, IAM) would help contextualize the examples provided. Basic understanding of Jenkins and Shell scripts will be helpful for the chapters on the production usage of Terraform. What You Will Learn Understand what Infrastructure as Code (IaC) means and why it matters Install, configure, and deploy Terraform Take full control of your infrastructure in the form of code Manage complete infrastructure, starting with a single server and scaling beyond any limits Discover a great set of production-ready practices to manage infrastructure Set up CI/CD pipelines to test and deliver Terraform stacks Construct templates to simplify more complex provisioning tasks In Detail Terraform is a tool used to efficiently build, configure, and improve the production infrastructure. It can manage the existing infrastructure as well as create custom in-house solutions. This book shows you when and how to implement infrastructure as a code practices with Terraform. It covers everything necessary to set up the complete management of infrastructure with Terraform, starting with the basics of using providers and resources. It is a comprehensive guide that begins with very small infrastructure templates and takes you all the way to managing complex systems, all using concrete examples that evolve over the course of the book. The book ends with the complete workflow of managing a production infrastructure as code—this is achieved with the help of version control and continuous integration. The readers will also learn how to combine multiple providers in a single template and manage different code bases with many complex modules. It focuses on how to set up continuous integration for the infrastructure code. The readers will be able to use Terraform to build, change, and combine infrastructure safely and efficiently. Style and approach This book will help and guide you to implement Terraform in your infrastructure. The readers will start by working on very small infrastructure templates and then slowly move on to manage complex systems, all by using concrete examples that will evolve during the course of the book.***

***This book is the "Hello, World" tutorial for building products, technologies, and teams in a startup environment. It's based on the experiences of the author, Yevgeniy (Jim) Brikman, as well as interviews with programmers from some of the most successful startups of the last decade, including Google, Facebook, LinkedIn, Twitter, GitHub, Stripe, Instagram, AdMob, Pinterest, and many others. Hello, Startup is a practical, how-to guide that consists of three parts: Products, Technologies, and Teams. Although at its core, this is a book for programmers, by programmers, only Part II (Technologies) is significantly technical, while the rest should be accessible to technical and non-technical audiences alike. If you're at all interested in startups—whether you're a programmer at the beginning of your career, a seasoned developer bored with large company politics, or a manager looking to motivate your engineers—this book is for you.***

***Start thinking about your development pipeline as a mission-critical application. Discover techniques for implementing code-driven infrastructure and CI/CD workflows using Jenkins, Docker, Terraform, and cloud-native services. In Pipeline as Code, you will master: Building and deploying a Jenkins cluster from scratch Writing pipeline as code for cloud-native applications Automating the deployment of Dockerized and Serverless applications Containerizing applications with Docker and Kubernetes Deploying Jenkins on AWS, GCP and Azure Managing, securing and monitoring a Jenkins cluster in production Key principles for a successful DevOps culture Pipeline as Code is a practical guide to automating your development pipeline in a cloud-native, service-driven world. You'll use the latest infrastructure-as-code tools like Packer and Terraform to develop reliable CI/CD pipelines for numerous cloud-native applications. Follow this book's insightful best practices, and you'll soon be delivering software that's quicker to market, faster to deploy, and with less last-minute production bugs. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Treat your CI/CD pipeline like the real application it is. With the Pipeline as Code approach, you create a collection of scripts that replace the tedious web UI wrapped around most CI/CD systems. Code-driven pipelines are easy to use, modify, and maintain, and your entire CI pipeline becomes more efficient because you directly interact with core components like Jenkins, Terraform, and Docker. About the book In Pipeline as Code you'll learn to build reliable CI/CD pipelines for cloud-native applications. With Jenkins as the backbone, you'll programmatically control all the pieces of your pipeline via modern APIs. Hands-on examples include building CI/CD workflows for distributed Kubernetes applications, and serverless functions. By the time you're finished, you'll be able to swap manual UI-based adjustments with a fully automated approach! What's inside Build and deploy a Jenkins cluster on scale Write pipeline as code for cloud-native applications Automate the deployment of Dockerized and serverless applications Deploy Jenkins on AWS, GCP, and Azure Grasp key principles of a successful DevOps culture About the reader For developers familiar with Jenkins and Docker. Examples in Go. About the author Mohamed Labourdy is the CTO and co-founder of Crew.work, a Jenkins contributor, and a DevSecOps evangelist. Table of Contents PART 1 GETTING STARTED WITH JENKINS 1 What's CI/CD? 2 Pipeline as code with Jenkins PART 2 OPERATING A SELF-HEALING JENKINS CLUSTER 3 Defining Jenkins architecture 4 Baking machine images with Packer 5 Discovering Jenkins as code with Terraform 6 Deploying HA Jenkins on multiple cloud providers PART 3 HANDS-ON CI/CD PIPELINES 7 Defining a pipeline as code for microservices 8 Running automated tests with Jenkins 9 Building Docker images within a CI pipeline 10 Cloud-native applications on Docker Swarm 11 Dockerized microservices on K8s 12 Lambda-based serverless functions PART 4 MANAGING, SCALING, AND MONITORING JENKINS 13 Collecting continuous delivery metrics 14 Jenkins administration and best practices***

***Get started with programming and using the Hashicorp Language (HCL). This book introduces you to the HCL syntax and its ecosystem then it shows you how to integrate it as part of an overall DevOps approach. Next, you'll learn how to implement infrastructure as code, specifically, using the Terraform template, a set of cloud infrastructure automation tools. As part of this discussion, you'll cover Consul, a service mesh solution providing a full-featured control plane with service discovery, configuration, and segmentation functionality. You'll integrate these with Vault to build HCL-based infrastructure as code solutions. Finally, you'll use Jenkins and HCL to provision and maintain the infrastructure as code system. After reading and using Beginning HCL Programming, you'll have the know-how and source code to get started with flexible HCL for all your cloud and DevOps needs. What You Will Learn Get started with programming and using HCL Use Vault, Consul, and Terraform Apply HCL to infrastructure as code Define the Terraform template with HCL Configure Consul using HCL Use HCL to configure Vault Provision and maintain infrastructure as code using Jenkins and HCL Who This Book Is For Anyone new to HCL but who does have at least some prior programming experience as well as knowledge of DevOps in general.***

***Terraforming Earth***

***Building a Better World***

***Terra Forma***

***Terraform***

***First Edition***

***Terra Formars, Vol. 9***

Discover how to manage and scale your infrastructure using Infrastructure as Code (IaC) with Terraform Key Features Get up and running with the latest version of Terraform, v0.13 Design and manage infrastructure that can be shared, tested, modified, provisioned, and deployed Work through practical recipes to achieve zero-downtime deployment and scale your infrastructure effectively Book Description HashiCorp Configuration Language (HCL) has changed how we define and provision a data center infrastructure with the launch of Terraform—one of the most popular and powerful products for building Infrastructure as Code. This practical guide will show you how to leverage HashiCorp's Terraform tool to manage a complex infrastructure with ease. Starting with recipes for setting up the environment, this book will gradually guide you in configuring, provisioning, collaborating, and building a multi-environment architecture. Unlike other books, you'll also be able to explore recipes with real-world examples to provision your Azure infrastructure with Terraform. Once you've covered topics such as Azure Template, Azure CLI, Terraform configuration, and Terragrunt, you'll delve into manual and automated testing with Terraform configurations. The next set of chapters will show you how to manage a balanced and efficient infrastructure and create reusable infrastructure with Terraform modules. Finally, you'll explore the latest DevOps trends such as continuous integration and continuous delivery (CI/CD) and zero-downtime deployments. By the end of this book, you'll have developed the skills you need to get the most value out of Terraform and manage your infrastructure effectively. What you will learn Understand how to install Terraform for local development Get to grips with writing Terraform configuration for infrastructure provisioning Use Terraform for advanced infrastructure use cases Understand how to write and use Terraform modules Discover how to use Terraform for Azure infrastructure provisioning Become well-versed in testing Terraform configuration Execute Terraform configuration in CI/CD pipelines Explore how to use Terraform Cloud Who this book is for This book is for developers, operators, and DevOps engineers looking to improve their workflow and use Infrastructure as Code. Experience with Microsoft Azure, Jenkins, shell scripting, and DevOps practices is required to get the most out of this Terraform book.

Six years ago, Infrastructure as Code was a new concept. Today, as even banks and other conservative organizations plan moves to the cloud, development teams for companies worldwide are attempting to build large infrastructure codebases. With this practical book, Kief Morris of ThoughtWorks shows you how to effectively use principles, practices, and patterns pioneered by DevOps teams to manage cloud-age infrastructure. Ideal for system administrators, infrastructure engineers, software developers, team leads, and architects, this updated edition demonstrates how you can exploit cloud and automation technology to make changes easily, safely, quickly, and responsibly. You'll learn how to define everything as code and apply software design and engineering practices to build your system from small, loosely coupled pieces. This book covers: Foundations: Use Infrastructure as Code to drive continuous change and raise the bar of operational quality, using tools and technologies to build cloud-based platforms Working with infrastructure stacks: Learn how to define, provision, test, and continuously deliver changes to infrastructure resources Working with servers and other platforms: Use patterns to design provisioning and configuration of servers and clusters Working with large systems and teams: Learn workflows, governance, and architectural patterns to create and manage infrastructure elements TERRAFORMING MARS This book provides a thorough scientific review of how Mars might eventually be colonized, industrialized, and transformed into a world better suited to human habitation. The idea of terraforming Mars has, in recent times, become a topic of intense scientific interest and great public debate. Stimulated in part by the contemporary imperative to begin geoengineering Earth, as a means to combat global climate change, the terraforming of Mars will work to make its presently hostile environment more suitable to life—especially human life. Geoengineering and terraforming, at their core, have the same goal—that is to enhance (or revive) the ability of a specific environment to support human life, society, and industry. The chapters in this text, written by experts in their respective fields, are accordingly in resonance with the important, and ongoing discussions concerning the human stewardship of global climate systems. In this sense, the text is both timely and relevant and will cover issues relating to topics that will only grow in their relevance in future decades. The notion of terraforming Mars is not a new

**one, as such, and it has long played as the background narrative in many science fiction novels. This book, however, deals exclusively with what is physically possible, and what might conceivably be put into actual practice within the next several human generations. Audience Researchers in planetary science, astronomy, astrobiology, space engineering, architecture, ethics, as well as members of the space industry.**

**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.**

**Efficiently define, launch, and manage Infrastructure as Code across various cloud platforms**

**Continuous Delivery with Jenkins, Kubernetes, and Terraform**

**Bootstrapping Microservices with Docker, Kubernetes, and Terraform**

**Terraforming Mars**

**A project-based guide**

**Using Hashicorp Language for Automation and Configuration**

**With Packer, Terraform, Ansible, and Vagrant**

A hands-on, introductory book about managing infrastructure with Terraform. Start small and then build on what you learn to scale up to complex infrastructure. Written for both developers and sysadmins. Focuses on how to build infrastructure and applications with Terraform. The book contains: Chapter 1: An Introduction to Terraform Chapter 2: Installing Terraform Chapter 3: Building our first application Chapter 4: Provisioning and Terraform Chapter 5: Collaborating with Terraform Chapter 6: Building a multi-environment architecture Chapter 7: Infrastructure testing Updated for Terraform 0.12!

Deploy a SharePoint farm in a repeatable, predictable, and reliable fashion using Infrastructure as Code (IaC) techniques to automate provisioning. Savvy IT pros will learn how to use DevOps practices and open source tools to greatly reduce costs, and streamline management operations for SharePoint farms deployed via Amazon Web Services (AWS), Azure, or on premise. DevOps for SharePoint will help you navigate the complex challenges of deploying and managing SharePoint Server farms. You will learn how to reduce time-consuming tasks and errors when generating development, testing, or production environments. And you will benefit from learning proven methods to apply Microsoft updates with minimal downtime and productivity loss. Whether you are a SharePoint architect, IT pro, or developer helping customers with the SharePoint platform, this book will teach you the most useful DevOps practices to tackle those issues and broaden your skill set. What You'll Learn Understand the basics of the most popular open source tools—Vagrant, Packer, Terraform, and Ansible—and how to use them in the context of deploying and scaling a SharePoint farm Use Vagrant to build SharePoint development environments in less than an hour, and add automated testing Use Packer to create a "golden image" with preconfigured settings, and then use it as the base image in your Terraform configuration for both AWS and Azure farms Use Terraform to scale your SharePoint farm topology Use Red Hat's Ansible Playbooks to perform configuration management on your farmUse Terraform to deploy immutable infrastructure environments using IaC (Infrastructure as Code)Use InSpec 2.0 to stay in compliance by testing your cloud infrastructureUse Ansible to apply Microsoft updates and patches Who This Book Is For IT pros and developers who are looking to expand their knowledge and take a modern approach by using open source technologies to work with Microsoft products. Experience installing SharePoint, and a basic understanding of either Azure or AWS, is helpful.

Mars is the new frontier for humanity, as we launch an epic saga of inspiring planetary exploration set in the award-winning Terraforming Mars boardgame Mars, 2316. The recently created Terraforming Committee arbitrates the dramatic development of Mars by powerful rival corporations. When a rogue asteroid crashes into a research center and kills its lone technician, the fragile balance between corporations is shattered. The World Government's investigation into the accident reveals a multitude of motives, while a corporation insider stumbles on a dark conspiracy. Two Martians with very different agendas must navigate a trail of destruction and treachery to uncover the truth and expose those responsible, before Mars falls to Earth's corruption. As lines blur between progress and humanity, Mars itself remains the biggest adversary of all.

The overwhelming majority of a software system's lifespan is spent in use, not in design or implementation. So, why does conventional wisdom insist that software engineers focus primarily on the design and development of large-scale computing systems? In this collection of essays and articles, key members of Google's Site Reliability Team explain how and why their commitment to the entire lifecycle has enabled the company to successfully build, deploy, monitor, and maintain some of the largest software systems in the world. You'll learn the principles and practices that enable Google engineers to make systems more scalable, reliable, and efficient—lessons directly applicable to your organization. This book is divided into four sections: Introduction—Learn what site reliability engineering is and why it differs from conventional IT industry practices

Principles—Examine the patterns, behaviors, and areas of concern that influence the work of a site reliability engineer (SRE) Practices—Understand the theory and practice of an SRE's day-to-day work: building and operating large distributed computing systems Management—Explore Google's best practices for training, communication, and meetings that your organization can use

Pass the Terraform Associate exam and manage IaC to scale across AWS, Azure, and Google Cloud

Terra Formars, Vol. 15

Deep-Dive Terraform on Azure

The DevOps Handbook

Hello, Startup

Infrastructure as Code (IAC) Cookbook

Enterprise Cloud Security and Governance

Build a resilient cloud architecture to tackle data disasters with ease About This Book Gain a firm grasp of Cloud data security and governance, irrespective of your Cloud platform Practical examples to ensure you secure your Cloud environment efficiently A step-by-step guide that will teach you the unique techniques and methodologies of Cloud data governance Who This Book Is For If you are a cloud security professional who wants to ensure cloud security and data governance no matter the environment, then this book is for you. A basic understanding of working on any cloud platform would be beneficial. What You Will Learn Configure your firewall and Network ACL Prot your system against DDOS and application-level attacks Explore cryptography and data security for your cloud Get to grips with configuration management tools to automate your security tasks Perform vulnerability scanning with the help of the standard tools in the industry Learn about central log management In Detail Modern day businesses and enterprises are moving to the Cloud, to improve efficiency and speed, achieve flexibility and cost effectiveness, and for on-demand Cloud services. However, enterprise Cloud security remains a major concern because migrating to the public Cloud requires transferring some control over organizational assets to the Cloud provider. There are chances these assets can be mismanaged and therefore, as a Cloud security professional, you need to be armed with techniques to help businesses minimize the risks and misuse of business data. The book starts with the basics of Cloud security and offers an understanding of various policies, governance, and compliance challenges in Cloud. This helps you build a strong foundation before you dive deep into understanding what it takes to design a secured network infrastructure and a well-architected application using various security services in the Cloud environment. Automating security tasks, such as Server Hardening with Ansible, and other automation services, such as Monit, will monitor other security daemons and take the necessary action in case these security daemons are stopped maliciously. In short, this book has everything you need to secure your Cloud environment with. It is your ticket to obtain industry-adopted best practices for developing a secure, highly available and fault-tolerant architecture for organizations. Style and approach This book follows a step-by-step, practical approach to secure your applications and data when they are located remotely.

Over 90 practical, actionable recipes to automate, test, and manage your infrastructure quickly and effectively About This Book Bring down your delivery timeline from days to hours by treating your server configurations and VMs as code, just like you would with software code. Take your existing knowledge and skill set with your existing tools (Puppet, Chef, or Docker) to the next level and solve IT infrastructure challenges. Use practical recipes to use code to provision and deploy servers and applications and have greater control of your infrastructure. Who This Book Is For This book is for DevOps engineers and developers working in cross-functional teams or operations a would now switch to IAC to manage complex infrastructures. What You Will Learn Provision local and remote development environments with Vagrant Automate production infrastructures with Terraform, Ansible and Cloud-init on AWS, OpenStack, Google Cloud, Digital Ocean, and more Manage and test automated systems using Chef and Puppet Build, ship, and debug optimized Docker containers Explore the best practices to automate and test everything from cloud infrastructures to operating system configuration In Detail Infrastructure as Code (IAC) is a key aspect of the DevOps movement, and this book will show you how to transform the way you work with your infrastructure—by treating it as software. This book is dedicated to helping you discover the essentials of infrastructure automation and its related practices; the over 90 organized practical solutions will demonstrate how to work with some of the very best tools and cloud solutions. You will learn how to deploy repeatable infrastructure services on AWS, OpenStack, Google Cloud, and Digital Ocean. You will see both Ansible and Terraform in action, manipulate the best bits from cloud-init to easily bootstrap instances, and simulate consistent environments locally or remotely using Vagrant. You will discover how to automate and test a range of system tasks using Chef or Puppet. You will also build, test, and debug various Docker containers having developers' interests in mind. This book will help you to use the right tools, techniques, and approaches to deliver working solutions for today's modern infrastructure challenges. Style and approach This is a recipe-based book that allows you to venture into some of the most cutting-edge practices and techniques about IAC and solve immediate problems when trying to implement them.

Learn Pester, the unit testing framework for PowerShell! Now bundled with the Windows operating system, Pester is an open-source framework for building automated tests for your PowerShell code. PowerShell MVPs Don Jones and Adam Bertram combine deep expertise and production experience to cover not only Pester's syntax, but numerous walkthroughs and case studies. This concise, yet in-depth guide will have you "up and testing" in no time.

In this debut collection of essays and poetry, musician, speaker, and activist Propaganda inspires us to create a better, more equitable world. "If we get to make the very cultures that shape who we are, then let us remake them in the best way possible." In this deep, challenging, and thoughtful book, Propaganda looks at the ways in which world is broken. Using the metaphor of terraforming—creating a livable world out of an inhospitable one—he shows how we can begin to reshape our homes, friendships, communities, and politics. In this transformative time—when we are redefining what a truly just and equitable world looks like, and reflecting on the work that needs to be done both in our spiritual and secular lives—Propaganda rallies readers to create that just world. He sheds light on how nefarious origin stories have skewed our views of ourselves and others and allowed gross injustices, and demonstrates how great storytelling and excellent art can create and shape new perspectives of the world and make our lives us better.

Writing Infrastructure as Code

Getting Started with Terraform

Site Reliability Engineering

Automated Delivery and Deployment of Azure Solutions

In the Shadow of Deimos

Learn Ruthlessly Effective Automation

The Packer Book

An anthology of near future science fiction from VICE's acclaimed, innovative digital speculative story destination, Terraform—in print for the first time. Terraform hones the predictive capacity of science fiction and seeks new, vivid, and visceral ways to depict the future we're hurtling toward, translating the decay and anxiety that surround us into something else, something unexpected, something that burns like a beacon and upends the conventional ideas of where we'll end up next. Section by section—Watch/Worlds/Burn—the book takes on surveillance, artificial intelligence, and climate collapse. With a potent roster of established names and rising talents—from Bruce Sterling, Ellen Ullman, Cory Doctorow, Jeff VanderMeer, and Omar El Akkad, to E. Lily Yu, Elvia Wilk, Fernando Flores, Tochi Onyebuchi, and Gus Moreno—it confronts the issues that orbit our everyday existence, and takes them to unsettling dimensions.

Since the beginning of human history Mars has been an alluring dream; the stuff of legends, gods, and mystery. The planet most like ours, it has still been thought impossible to reach, let alone explore and inhabit. Now with the advent of a revolutionary new plan, all this has changed. Leading space exploration authority Robert Zubrin has crafted a daring new blueprint, Mars Direct, presented here with illustrations, photographs, and engaging anecdotes. The Case for Mars is not a vision for the far future or one that will cost us impossible billions. It explains step-by-step how we can use present-day technology to send humans to Mars within ten years; actually produce fuel and oxygen on the planet's surface with Martian natural resources; how we can build bases and settlements; and how we can one day "terraform" Mars; a process that can alter the atmosphere of planets and pave the way for sustainable life.

Pursued by Division 4, Akari and Michelle encounter a Terraformer with bullet ant characteristics. Realizing this creature has stolen her deceased father's strength, Michelle stands her ground alongside Akari. The two will be pushed beyond their limits in this fight, but even more formidable opponents are lining up to fight them, and their human enemies are still out there as well... -- VIZ Media

Charting the exploration of an unknown world—our own—with a new cartography of living things rather than space available for conquest or colonization. This book charts the exploration of an unknown world: our own. Just as Renaissance travelers set out to map the terra incognita of the New World, the mapmakers of Terra Forma have set out to rediscover the world that we think we know. They do this with a new kind of cartography that maps living things rather than space emptied of life and available to be conquered or colonized. The maps in Terra Forma lead us inward, not off into the distance, moving from the horizon line of conventional cartography to the thickness of the ground, from the global to the local. Each map in Terra Forma is based on a specific territory or territories, and each tool, or model, creates a new focal point through which the territory is redrawn. The maps are “living maps,” always under construction, spaces where stories and situations unfold. They may map the Earth's underside rather than its surface, suggest turning the layers of the Earth inside out, link the biological physiology of living inhabitants and the physiology of the land, or trace a journey oriented not by the Euclidean space of GPS but by points of life. These speculative visualizations can constitute the foundation for a new kind of atlas.

Learning DevOps

A Book of Speculative Maps

Introducing Azure Kubernetes Service

A Programmer's Guide to Building Products, Technologies, and Teams

Modern DevOps Practices

Infrastructure-as-Code Automation Using Terraform, Packer, Vault, Nomad and Consul

The Logstash Book

*Introductory book designed for SysAdmins, Operations staff, Developers and DevOps who are interested in building images using the open source tool Packer.*

*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? 2 Creating your first microservice 3 Publishing your first microservice 4 Data management for microservices 5 Communication between microservices 6 Creating your production environment 7 Getting to continuous delivery 8 Automated testing for microservices 9 Exploring Flickr 10 Healthy microservices 11 Pathways to scalability*

*Get started with the foundations of Infrastructure as Code and learn how Terraform can automate the deployment and management of resources on Azure. This book covers all of the software engineering practices related to Terraform and Infrastructure as Code with Azure as a cloud provider. The book starts with an introduction to Infrastructure as Code and covers basic concepts, principles, and tools, followed by an overview of Azure and Terraform that shows you how Terraform can be used to provision and manage Azure resources. You will get started writing multiple Terraform scripts and explore its various concepts. Author Ritesh Modi takes a deep dive into Terraform and teaches you about deployment and multiple resource creation using loops. Writing a reusable script using modules is discussed as well as management and administration of secrets, sensitive data, and passwords within Terraform code. You will learn to store and version Terraform scripts and know how Terraform is used in Azure DevOps pipelines. And you will write unit and integration tests for Terraform and learn its best practices. The book also highlights and walks through the Terraform Azure Provider and shows you a simple way to create a new Terraform provider. After reading this book, you will be able to write quality Terraform scripts that are secure by design, modular, and reusable in Azure. What Will You Learn Understand implementation within infrastructure and application deployments Provision resources in Azure using Terraform Use unit and integration testing Explore concepts such as local vs remote, importing state, workspaces, and backends Who This Book Is For Software engineers, DevOps professionals, and technology architects*

*When a giant meteor crashes into the earth and destroys all life, the small group of human survivors manage to leave the barren planet and establish a new home on the moon. From Tycho Base, men and woman are able to observe the devastated planet and wait for a time when return will become possible. Generations pass. Cloned children have had children of their own, and their eyes are raised toward the giant planet in the sky which long ago was the cradle of humanity. Finally, after millennia of waiting, the descendants of the original refugees travel back to a planet they've never known, to try and rebuild a civilization of which they've never been a part. The fate of the earth lies in the success of their return, but after so much time, the question is not whether they can rebuild an old destroyed home, but whether they can learn to inhabit an alien new world--Earth. At the Publisher's request, this title is being sold without Digital Rights Management Software (DRM) applied.*

*How to Create World-Class Agility, Reliability, and Security in Technology Organizations*

*DevOps for SharePoint*

*Hands-on Deployment, Configuration, and Best Practices*

*The Terraform Book*

*A Practical Guide to Container Orchestration*

*A Terraforming Mars Novel*

*HashiCorp Infrastructure Automation Certification Guide*

**Much has changed in technology over the past decade. Data is hot, the cloud is ubiquitous, and many organizations need some form of automation. Throughout these transformations, Python has become one of the most popular languages in the world. This practical resource shows you how to use Python for everyday Linux systems administration tasks with today's most useful DevOps tools, including Docker, Kubernetes, and Terraform. Learning how to interact and automate with Linux is essential for millions of professionals. Python makes it much easier. With this book, you'll learn how to develop software and solve problems using containers, as well as how to monitor, instrument, load-test, and operationalize your software. Looking for effective ways to "get stuff done" in Python? This is your guide. Python foundations, including a brief introduction to the language How to automate text, write command-line tools, and automate the filesystem Linux utilities, package management, build systems, monitoring and instrumentation, and automated testing Cloud computing, infrastructure as code, Kubernetes, and serverless Machine learning operations and data engineering from a DevOps perspective Building, deploying, and operationalizing a machine learning project**

**Akari and Eva have gathered a handful of survivors to stand against the swarm of approaching Terraformars and the Kuzuryu's attacks from the sky! The crew of the shattered Annex expedition have only one chance to reach the rendezvous point on the coast and a potential rescue, but who is there waiting to pick them up? -- VIZ Media**  
**A new book designed for SysAdmins, Operations staff, Developers and DevOps who are interested in deploying a log management solution using the open source tool Logstash. In this book we will walk you through installing, deploying, managing and extending Logstash. We'll teach you how to: \* Install and deploy Logstash. \* Ship events from a Logstash Shipper to a central Logstash server. \* Filter incoming events using a variety of techniques. \* Output those events to a selection of useful destinations. \* Use Logstash's awesome web interface Kibana. \* Scale out your Logstash implementation as your environment grows. \* Quickly and easily extend Logstash to deliver additional functionality you might need. By the end of the book you should have a functional and effective log management solution that you can deploy into your own environment.**

**Enhance DevOps workflows by integrating the functionalities of Docker, Kubernetes, Spinnaker, Ansible, Terraform, Flux CD, CaaS, and more with the help of practical examples and expert tips Key FeaturesGet up and running with containerization-as-a-service and infrastructure automation in the public cloudLearn container security techniques and secret management with Cloud KMS, Anchore Grype, and Grafeas KritisLeverage the combination of DevOps, GitOps, and automation to continuously ship a package of softwareBook Description Containers have entirely changed how developers and end-users see applications as a whole. With this book, you'll learn all about containers, their architecture and benefits, and how to implement them within your development lifecycle. You'll discover how you can transition from the traditional world of virtual machines and adopt modern ways of using DevOps to ship a package of software continuously. Starting with a quick refresher on the core concepts of containers, you'll move on to study the architectural concepts to implement modern ways of application development. You'll cover topics around Docker, Kubernetes, Ansible, Terraform, Packer, and other similar tools that will help you to build a base. As you advance, the book covers the core elements of cloud integration (AWS ECS, GKE, and other CaaS services), continuous integration, and continuous delivery (GitHub actions, Jenkins, and Spinnaker) to help you understand the essence of container management and delivery. The later sections of the book will take you through container pipeline security and GitOps (Flux CD and Terraform). By the end of this DevOps book, you'll have learned best practices for automating your development lifecycle and making the most of containers, infrastructure automation, and CaaS, and be ready to develop applications using modern tools and techniques. What you will learnBecome well-versed with AWS ECS, Google Cloud Run, and KnativeDiscover how to build and manage secure Docker images efficientlyUnderstand continuous integration with Jenkins on Kubernetes and GitHub actionsGet to grips with using Spinnaker for continuous deployment/deliveryManage immutable infrastructure on the cloud with Packer, Terraform, and AnsibleExplore the world of GitOps with GitHub actions, Terraform, and Flux CDWho this book is for If you are a software engineer, system administrator, or operations engineer looking to step into the world of DevOps within public cloud platforms, this book is for you. Existing DevOps engineers will also find this book useful as it covers best practices, tips, and tricks to implement DevOps with a cloud-native mindset. Although no containerization experience is necessary, a basic understanding of the software development life cycle and delivery will help you get the most out of the book.**

**Running HashiCorp Vault in Production**

**Efficiently set data protection and privacy principles**

**Terra Formars, Vol. 16**

**The complete guide to accelerate collaboration with Jenkins, Kubernetes, Terraform and Azure DevOps**

**How Google Runs Production Systems**

**Implement and secure DevOps in the public cloud with cutting-edge tools, tips, tricks, and techniques**

**The Pester Book**

**Flexibility and security. Two characteristics that cannot be compromised in the age of multi-cloud and DevOps, yet most secrets management tools were designed around the idea that both cannot be achieved together. Enter HashiCorp Vault, built around the philosophy that securing secrets is more effective when the interaction of a secrets management service aligns with other DevOps tools available today. Vault has quickly become the de-facto solution in secrets management over recent years, finding its way into many Global 2000 companies. This book will cover multiple aspects of Vault, from planning the service, architectural design, and deployment of Vault, to managing the service once it is up and running. With a combined 40 years of experience working in technology and more than three years working specifically with Vault, Bryan and Dan walk users through the process of designing and building a production-ready Vault service.**

**The Frontier Spirit, a rescue ship from Earth, has finally arrived and the search team sets about trying to pick up survivors from the Annex expedition. Yet even now, secret agendas come into play and there seems to be no end to the treachery. When the truth comes out, two comrades will have to face it and each other for survival! -- VIZ Media**

**Increase profitability, elevate work culture, and exceed productivity goals through DevOps practices. More than ever, the effective management of technology is critical for business competitiveness. For decades, technology leaders have struggled to balance agility, reliability, and security. The consequences of failure have never been greater—whether it's the healthcare.gov debacle, cardholder data breaches, or missing the boat with Big Data in the cloud. And yet, high performers using DevOps principles, such as Google, Amazon, Facebook, Etsy, and Netflix, are routinely and reliably deploying code into production hundreds, or even thousands, of times per day. Following in the footsteps of The Phoenix Project, The DevOps Handbook shows leaders how to replicate these incredible outcomes, by showing how to integrate Product Management, Development, QA, IT Operations, and Information Security to elevate your company and win in the marketplace.**

**Discover the methodologies and best practices for getting started with HashiCorp tools, including Terraform, Vault, and Packer. The book begins with an introduction to the infrastructure-as-code concept while establishing the need for automation and management technologies. You'll go over hands-on deployment, configuration, and best practices for Terraform, Packer, Vault, Nomad, and Consul. You'll then delve deeper into developing automation code using Terraform for automating AWS/Azure/GCP public cloud tasks; advanced topics include leveraging Vault for secrets management and Packer for image management. Along the way you will also look at Nomad and Consul for managing application orchestration along with network interconnectivity. In each chapter you will cover automated infrastructure and application deployment on the VM/container base ecosystem. The book provides sample code and best-practice guidance for developers and architects to look at infrastructure-as-code adoption from a holistic viewpoint. All the code presented in the book is available in the form of scripts, which allow you to try out the examples and extend them in interesting ways. What You Will Learn Get an overview of the architecture of Terraform, Vault, Packer, Nomad, and Consul Follow hands-on steps for enabling Terraform, Vault, Packer, Nomad, and Consul Automate various services on the public cloud, including AWS, Azure, and GCP Who This Book Is For Developers, architects, and administrators who want to learn about infrastructure-as-code automation.**

**Containerization Is the New Virtualization**

**The Docker Book**

**Managing Servers in the Cloud**

**The Case For Mars**

**Pipeline as Code**

**Infrastructure as Code**

**Go from zero to sixty deploying and running a Kubernetes cluster on Microsoft Azure! This hands-on practical guide to Microsoft's Azure Kubernetes Service (AKS), a managed container orchestration platform, arms you with the tools and knowledge you need to easily deploy and operate on this complex platform. Take a journey inside Docker containers, container registries, Kubernetes architecture, Kubernetes components, and core Kubectl commands. Drawing on hard-earned experience in the field, the authors provide just enough theory to help you grasp important concepts, teaching the practical straightforward knowledge you need to start running your own AKS cluster. You will dive into topics related to the deployment and operation of AKS, including Rancher for management, security, networking, storage, monitoring, backup, scaling, identity, package management with HELM, and AKS in CI/CD. What You Will Learn Develop core knowledge of Docker containers, registries, and KubernetesGain AKS skills for Microsoft's fastest growing services in the cloud Understand the pros and cons of deploying and operating AKSDeploy and manage applications on the AKS platform Use AKS within a DevOps CI/CD process Who This Book Is For IT professionals who work with DevOps, the cloud, Docker, networking, storage, Linux, or Windows. Experience with cloud, DevOps, Docker, or application development is helpful.**

**Leverage Terraform's capabilities to reuse code, write modules, automate deployments, and manage infrastructure state Key FeaturesPerform complex enterprise-grade infrastructure deployments using Terraform v1.0, the latest version of TerraformLearn to scale your infrastructure without introducing added deployment complexitiesUnderstand how to overcome infrastructure deployment challengesBook Description Terraform is a highly sought-after technology for orchestrating infrastructure provisioning. This book is a complete reference guide to enhancing your infrastructure automation skills, offering up-to-date coverage of the HashiCorp infrastructure automation certification exam. This book is written in a clear and practical way with self-assessment questions and mock exams that will help you from a HashiCorp infrastructure automation certification exam perspective. This book covers end-to-end activities with Terraform, such as installation, writing its configuration file, Terraform modules, backend configurations, data sources, and infrastructure provisioning. You'll also get to grips with complex enterprise infrastructures and discover how to create thousands of resources with a single click. As you advance, you'll get a clear understanding of maintaining infrastructure as code (IaC) in Repo/GitHub, along with learning how to create, modify, and remove infrastructure resources as and when needed. Finally, you'll learn about Terraform Cloud and Enterprise and their enhanced features. By the end of this book, you'll have a handy, up-to-date desktop reference guide along with everything you need to pass the HashiCorp Certified: Terraform Associate exam with confidence. What you will learnEffectively maintain the life cycle of your infrastructure using Terraform 1.0Reuse Terraform code to provision any cloud infrastructureWrite Terraform modules on multiple cloud providersUse Terraform workflows with the Azure DevOps pipelineWrite Terraform configuration files for AWS, Azure, and Google CloudDiscover ways to securely store Terraform state filesUnderstand Policy as Code using Terraform SentinelGain an overview of Terraform Cloud and Terraform EnterpriseWho this book is for This book is for experienced cloud engineers, DevOps engineers, system administrators, and solution architects interested in developing industry-grade skills with Terraform. You will also find this book useful if you want to pass the HashiCorp Certified: Terraform Associate exam. Basic command-line skills and prior knowledge of cloud environments and their services are required before getting started with this book.**

**A hands-on and introductory guide to the art of modern application and infrastructure monitoring and metrics. We start small and then build on what you learn to scale out to multi-site, multi-tier applications. The book is written for both developers and sysadmins. We focus on building monitored and measurable applications. We also use tools that are designed to handle the challenges of managing Cloud, containerised and distributed applications and infrastructure. In the book we'll deliver: \* An introduction to monitoring, metrics and measurement. \* A scalable framework for monitoring hosts (including Docker and containers), services and applications built on top of the Riemann event stream processor. \* Graphing and metric storage using Graphite and Grafana. \* Logging with Logstash. \* A framework for high quality and useful notifications \* Techniques for developing and building monitorable applications \* A capstone that puts all the pieces together to monitor a multi-tier application.**