

Terraform Training

Level - Advance



June 1, 2022

Cotocus Ltd.

Bangalore, India

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| Training Dates | TBD |
| Time | TBD |
| Trainer Name | Rajesh Kumar |

Agenda

Day 1

* What is DevOps Vs DevSecOps Vs SRE? – Intro Level
* Tool sets in DevOps Vs DevSecOps Vs SRE? – Intro Level
* Overview of infrastructure during SDLC?
* Problems with many infrastructure tools?
* Introducing Infrastructure as Code
* Declarative vs. Imperative
* Introduction of Terraform
* Advantage & Disadvantage of Terraform
* How Terraform works for Infrastructure as Code?
* Alternative of Terraform
* Terraform Use cases
* How to install Terraform?
  + Introductions of Terraform Components?
  + - Terraform Providers
  + - Terraform Registry
  + - Terraform Resources
  + - Terraform Resources Argument Reference
* Deploying Your First Terraform Configuration
* Terraform Basics Workflow using Terraform CLI

- terraform validate

- terraform init

- terraform plan

- terraform apply

- terraform show

- terraform detroy

* Updating Your Configuration with More Resources
* Configuring a Resource After Creation
* Adding a New Provider to Your Configuration
* Undertanding Terraform state file
* Terraform Resource Behavior & Lifecycle

Day 2

* Understanding Terraform HCL syntax & Style
  + Terraform Resources Meta-Argument
  + - depends\_on
  + - count
  + - for\_each
  + - provider
  + - lifecycle
* Using Terraform for Create Cloud Provider Compute Resources
* Introduction of Terraform Variables & Values
* - Input Variables
* - Output Values
* - Local Values
* Where to declare a Terraform Input Variables?
* Deep dive into Types of Terraform Input Variables
  + - string
  + - number
  + - bool
  + - list
  + - set
  + - map
  + - object
  + - tuple
* How to access Terraform Input Variables value?
* Terraform Input Variables precedence & Scope
* Working with Terraform Output Values
* Working with Terraform Local Values
* Introduction of Terraform Data sources?
* Accessing Terraform Data sources?
* Working with Terraform HCL Operators
* Overview of Terraform Functions

Day 3

* Working with Terraform Functions
  + - Numeric Functions
  + - String Functions
  + - Collection Functions
  + - Encoding Functions
  + - Filesystem Functions
  + - Date and Time Functions
  + - Hash and Crypto Functions
  + - IP Network Functions
  + - Type Conversion Functions
  + Introducing Terraform Provisioners
  + Working with Terraform Provisioners
  + - file
  + - local-exec
  + - remote-exec
* Using Terraform for Create Cloud Provider Storage & Networking Resources
* Working with Terraform Templates
* Working with Workspaces for multiple environments
* Working with Remote Backend for managing State file for team
  + - artifactory
  + - s3
  + - azurerm
  + - gcs
* Understanding Terraform State locking
* Terraform Troubleshooting using logs & common errors
* Introducing Terraform Module
* Using with Terraform Module from Registry
* Developing Custom Terraform Module
* Publishing Modules on the Terraform Registry
* Introducing Terraform Console
* Introducing Terraform Tags
* Introducing Terraform Cloud
* Using Terraform for use Multiple providers for CI/CD

Day 4

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Day 5

* Collaborate on version-controlled configuration using Terraform Cloud. Follow this track to build, change, and destroy infrastructure using remote runs and state.
* TERRAFORM CLOUD: Sign up for Terraform Cloud
* Sign up for Terraform Cloud, which provides free remote state storage, a stable run environment, version control system (VCS).
* TERRAFORM CLOUD: Create a Workspace
* Create a Terraform Cloud workspace. Fork a demonstration GitHub repo containing Terraform configuration
* TERRAFORM CLOUD: Create Infrastructure
* Configure a Terraform Cloud workspace with Cloud credentials by setting environment variables. Set DynamoDB read and write.
* TERRAFORM CLOUD: Change Infrastructure
* Queue a speculative plan by opening a pull request. Inspect the plan and merge the PR to automatically queue a Terraform Cloud.
* TERRAFORM CLOUD: Destroy Resources and Workspaces
* Destroy the resources in a Terraform Cloud workspace, and delete the workspace via the web UI.
* TEAM & GOVERNANCE: Enforce a Policy
* Create a version-controlled policy to check the Terraform version using Sentinel, a policy-as-code platform. Fork a demo repo.
* TEAM & GOVERNANCE: Control Costs with Policies
* Turn on cost estimation in your Terraform Cloud organization. Write a soft-mandatory policy against example infrastructure to.
* TERRAFORM ENTERPRISE:
  + - Architecture
  + - Pre-Install Checklist
  + - Install and Configure
  + - Basic worlflow of Terraform Enterprise
  + - User Management
  + - Troubleshooting & Logging & Monitoring
  + - General & System Settings
  + - Backups and Restores
  + - Getting strated with Terraform Enterprise Dashboard
* Introducing Terraform Cloud
* Using Terraform for use Multiple providers for CI/CD

**LAB TOPICS**

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