

TRF-103: Terraform with AWS

Course Description:

Structure: 50% theory 50% hands on lab exercises.

Target audience: developers, system administrators and devops professionals who want to learn the concepts and usage of Terraform in AWS cloud environments.

Prerequisites: Basic AWS cloud knowledge

Duration: 3 days

Detailed Course Outline:

Module 1: Overview

- What is Terraform, and why not XYZ?
- The good and bad parts
- What is Idempotence?
- Download and Install Terraform
- Get to know providers

Module 2: First steps and fundamentals

- Pre-reqs, AWS-Account, Credentials
- Basic-File structure (Best Practice from Projects incl. .gitignore)
- Write Code for your first AWS-Ressource (simple EC2 Instance)
- Make the fundamental loop of creating, update and delete of resources
- Add some more Attributes to the resource (like Labels)
- How to manage config-drift with Terraform

Module 3: Advanced the terraform development

- What is a State-File?
- Working with Remote-State-Files
- Get more than 1 Instance or Ressource (using Count)
- Create dynamic terraform deployments with essential Variables
- Variables-Types (Environment, Files, Commandline)
- Get to know the fundamental types
 - Number
 - string
 - Boolean
- More advanced structures:
 - List
 - Maps
 - Objects
 - Tuples
- Input and Output Variables

Module 4: Manage Dev/Stage/Prod with Terraform

- Introduction in Workspaces
- Create and use a Dev/Prod-Workspace with different values but one source

Module 5: The Power of Modules

- Why Modules?
- Modul Inputs
- Handling of Modul Outputs
- Child Module
- Remote Module

Module 6: Work with Terraform and AWS-Cloud

- Using State files in a Remote-Bucket (S3)

Module 7: Create Resources - S3 Buckets

- Create S3 Buckets
- Host static websites with S3

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Module 10: Manage DNS with Route 53

- Create new DNS Entries
- Chain your static website hosting with a friendly DNS Name

Module 11: Working with EC2-Instances

- Create an EC2-Instance
- Work with EIP's
- Get to know Attributes
- Create Security Groups
- Create Security Groups with dynamic Blocks

Module 12: Databases with RDS

- General prereqs. like what do we need for a DB in AWS (SG, Types, VPC)
- Create an RDS-Instance

Module 13: Manage Containers with Terraform

- General prereqs. like How EKS is working in AWS, plan a deployment, etc., fully managed Kubernetes or self-managed Cluster
- Create an EKS-Instance
- Deploy Workload to the EKS Instance

Module 14: Create IAM Users and Roles

- How to manage IAM-Policies and Users