

Terragrunt training

2 days (14 hours)

Presentation

Terragrunt is the tool you need to harness the full power of Terraform. Terragrunt provides additional functions to keep your configurations DRY ("Don't Repeat Yourself"), work with multiple Terraform modules and manage status remotely.

Terragrunt automates numerous corrections to reduce the risks associated with versions and security standards. Only Terragrunt offers such a rich feature set:

- Easily share your status with explicit dependencies
- Reduce recurring tasks with Atlantis automatic configuration generation
- Delete Terraforms with "Generate blocks".
- Reduce complex coding with the variable support environment
- Apply metadata universally with automatic resource tagging

Our Terragrunt training course will show you how to install and configure the program, all the best practices for making your components DRY and important features like inputs, local, auto-init...

As with all our training courses, this Terragrunt course will introduce you to the latest version, [Terragrunt 0.33](#).

Objectives

- Understanding the limitations of Terraform and the solutions offered by Terragrunt
- Structuring and organizing complex Terraform projects with Terragrunt
- Implement the DRY (Don't Repeat Yourself) principle in their configurations
- Manage dependencies between modules and environments
- Automate multi-environment deployments
- Apply good security and governance practices

Target audience

- Developers
- Infrastructure engineer
- System administrators
- DevOps

Prerequisites

- Terraform: Mastery of basic concepts (providers, resources, data sources, variables, outputs)
- Terraform: Hands-on experience with Terraform modules
- Infrastructure as Code: Understanding IaC principles
- Cloud: Knowledge of at least one cloud provider (AWS, Azure, GCP)
- Command line: Terminal/CLI proficiency
- Git : Versioning and collaboration

Terragrunt training program

DAY 1 - Fundamentals and Configuration

Introduction to Terragrunt

- Terraform's limitations in complex projects
- Introducing Terragrunt and its benefits
- Architecture and key concepts
- Comparison with other tools (Atlantis, Spacelift)
- Installation and initial configuration
- First simple project: converting an existing Terraform project

Configuration and Structure

- terragrunt.hcl file: syntax and structure
- Remote backend configuration
- Variables and interpolations
- Directory organization (recommended structure)
- Provider configuration
- Creation of a multi-environment project structure
- Configuring the S3/Azure Storage backend
- Installation of the first terragrunt.hcl files

Modules and DRY management

- Reusing Terraform modules with Terragrunt
- Centralized vs. distributed configuration
- Module version management
- Parameterization and customization by environment
- Configuration inheritance

- Creating reusable modules
- Deploying the same module on multiple environments
- Using Terragrunt functions

Environment Management

- Multi-environment organization strategies
- Terraform status separation
- Variable management by environment
- Configuring access and permissions
- Best naming practices
- Setting up dev/staging/prod environments
- Environment-specific configuration
- Test deployment on multiple environments

DAY 2 - Advanced features and Automation

Dependencies and Orchestration

- Dependency management with dependency
- Execution order and orchestration
- Data transfer between modules
- Managing dependency errors
- Mock outputs for testing
- Creating a chain of dependencies (VPC ? Subnets ? EC2)
- Using outputs as inputs
- Circular dependency management

Hooks and Automation

- Before and after hooks
- Validation and quality control
- Integration with external tools
- Customized scripts
- Hook error handling
- Setting up validation hooks
- Integration with security tools (tfsec, checkov)
- Post-deployment task automation

CLI and Advanced Controls

- Run-all commands and mass operations
- Debugging and troubleshooting options
- Filtering and module selection
- Integration into CI/CD pipelines
- Managing locks and conflicts
- Simultaneous deployment of multiple modules

- Solving common problems
- CI/CD pipeline simulation

Safety and Good Practices

- Secure management of secrets and sensitive variables
- Integration with safes (AWS Secrets Manager, Azure Key Vault)
- Access control and permissions
- Audit and logging
- Backup and recovery strategies
- Good development practices
- Secret management configuration
- Implementation of safety controls
- Creation of a best practice guide for the team

DAY 3 (Optional module) - Advanced Topics and Use Cases Advanced

CI/CD Integration

- Integration with GitLab CI, GitHub Actions, Azure DevOps
- Deployment strategies (Blue/Green, Canary)
- Approval and gate management
- Automated infrastructure testing
- Rollback and failure management
- Creating a complete pipeline
- Setting up infrastructure tests
- Rollback simulation

Advanced Patterns and Architecture

- Terragrunt with microservices and distributed architectures
- Multi-cloud and multi-region management
- Resilience and high availability patterns
- Integration with Kubernetes and containers
- Infrastructure migration management
- Multi-region deployment
- Resilient architecture with Terragrunt
- Migration of existing infrastructure

Monitoring and Observability

- Deployment monitoring
- Metrics and alerting
- Performance optimization
- Analysis of infrastructure costs
- Dashboards and reporting
- Setting up monitoring systems

- Dashboard creation
- Performance analysis

Troubleshooting and Maintenance

- Diagnosis and resolution of common problems
- Maintenance and configuration updates
- Versioning and migration
- Documentation and knowledge management
- Team training
- Case studies
- Setting up a maintenance strategy
- Documentation creation

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives with regard to the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.

[Training Program Web page](#) - Appendix 1 - Training sheet

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