# Working with GitLab and Terraform - TTDV7559

Collaborate like a pro by integrating GitLab and Terraform, fostering team coordination, environment management, and smooth deployments

**Duration:** 2 Days
**Skill Level:** Intermediate
**Available Format:** Instructor-Led Online ; On Public Schedule

**Working with GitLab and Terraform** is a hands-on 2-day training course designed for experienced Git users eager to explore Terraform. Guided by an industry expert, you'll delve into topics such as GitLab Workflow Management, Terraform Basics, Collaborative Development, and Advanced Infrastructure Management.

# What You'll Learn

## Overview

In the fast-paced world of DevOps and Infrastructure as Code (IaC), GitLab and Terraform are instrumental tools for modern collaboration and efficient infrastructure management. Learning to navigate these tools can help streamline the development and deployment process, enabling a consistent and repeatable workflow. This agility not only helps individual professionals but also empowers organizations to be more responsive to industry demands.

**Working with GitLab and Terraform** is a hands-on 2-day training course designed for experienced Git users eager to explore Terraform. Guided by an industry expert, you'll delve into topics such as GitLab Workflow Management, Terraform Basics, Collaborative Development, and Advanced Infrastructure Management. With 50% hands-on labs, you'll implement project automation, deploy multi-tier applications, and manage complex infrastructure settings using open-source tools like GitLab, Terraform, VirtualBox, and Postman.

Through engaging discussions, group activities, and real-world projects, you'll discover how to apply your newfound skills directly to your job. You'll write Terraform scripts to deploy virtual machines, manage merge requests in GitLab, and complete a collaborative project using GitLab and Terraform. These hands-on experiences are tailored to mirror the projects you may encounter in your organization, reinforcing your skills in a practical and engaging way.

**By the conclusion of this immersive 2-day course**, you'll possess a comprehensive understanding of how GitLab and Terraform can be integrated and applied within various organizational contexts. Whether managing project collaboration, automating workflows, or testing complex infrastructure setups, you'll leave equipped with valuable tools and knowledge to make a tangible impact in your day-to-day tasks and contribute to the broader success of your enterprise.

## Objectives

This course combines engaging instructor-led presentations and useful demonstrations with valuable hands-on labs and engaging group activities. Throughout the course you'll learn:

- **Master GitLab Workflow Management:** Get comfortable with managing Git branches, merge requests, and continuous integration within GitLab. You'll learn how to collaborate with team members more effectively and streamline your development processes.
- **Get Hands-on with Terraform Basics:** Dive into the fundamentals of Terraform, from writing basic scripts to deploying virtual machines. You'll get to play with real configurations and see firsthand how Infrastructure as Code can simplify your life.
- **Explore Collaborative Development with GitLab and Terraform:** Discover how to make GitLab and Terraform work together in harmony. You'll learn to manage environments, monitor deployments, and foster a collaborative coding culture within your team.
- **Implement Advanced Infrastructure Management with Terraform:** Take your Terraform skills up a notch by learning advanced techniques like state locking, error handling, and testing. It's all about fine-tuning your ability to manage complex infrastructure setups with confidence.
- **Complete a Real-world Project from Start to Finish:** Put everything you've learned into practice by completing a collaborative project that mirrors real-world scenarios.

You'll plan, develop, and deploy infrastructure using GitLab and Terraform, all under the watchful eye of an industry expert.

- **Adopt Best Practices for Security and Compliance:** Learn how to keep your projects secure and compliant with industry standards. By understanding how to implement security measures within GitLab and Terraform, you'll ensure that your projects not only perform well but also meet all necessary guidelines.

If your team requires different topics, additional skills or a custom approach, our team will collaborate with you to adjust the course to focus on your specific learning objectives and goals.

## Audience

This intermediate level course is geared for experienced Git users who are looking to expand their skills into the world of Terraform and modern infrastructure management. This course is particularly well-suited for DevOps Engineers, System Administrators, Cloud Architects, and other technical professionals involved in continuous integration, infrastructure automation, and collaborative development. Whether working in small start-ups or large enterprises, attendees looking to streamline development workflows, manage complex infrastructure settings, and foster collaboration among team members will find immense value in this hands-on training experience.

## Pre-Requisites

To ensure a smooth learning experience and maximize the benefits of attending this course, you should have the following prerequisite skills:

- **Understanding of Git Version Control System:** Attendees should have a solid understanding of Git and have hands-on experience with version control concepts such as branching, merging, and cloning repositories.
- **Basic Familiarity with Command Line Interface (CLI):** Knowing how to navigate the command line is essential, as many tasks with GitLab and Terraform will involve using terminal or command prompt.
- **Experience with Software Development or Scripting:** A fundamental understanding of programming or scripting concepts would be beneficial, as Terraform uses its declarative HashiCorp Configuration Language (HCL).
- **General Knowledge of Infrastructure Concepts:** Familiarity with concepts like virtual machines, networking, and cloud services would set a helpful foundation, as Terraform

is used to define and provide a data center's infrastructure.

**Take Before:**
- **TTDV7553** Introduction to GitLab

TTDV7553          Introduction to GitLab

# Agenda

*Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We'll work with you to tune this course and level of coverage to target the skills you need most. Topics, agenda and labs are subject to change, and may adjust during live delivery based on audience skill level, interests and participation.*

## Day One

### Introduction to GitLab and Terraform Integration
- Understand the basic integration of GitLab with Terraform for efficient collaboration.
- Overview of GitLab
- Overview of Terraform
- Importance of Infrastructure as Code (IaC)
- Benefits of GitLab and Terraform Integration
- Real-world Use Cases
- Lab

### GitLab Workflow Management
- Manage Git branches and merge requests efficiently in GitLab.
- Git branching strategies
- Merge requests in GitLab
- Collaboration with team members
- Continuous Integration (CI) with GitLab CI/CD
- Managing pipelines and monitoring
- Lab

## Terraform Basics

- Understand the fundamental concepts of Terraform for Infrastructure Management.
- Terraform Syntax and Configuration
- Managing Providers and Resources
- State Management
- Data Sources
- Modules
- Lab

## Intermediate GitLab Practices

- Implement intermediate-level practices within GitLab.
- Project and group management
- Permissions and roles
- Issue tracking and milestones
- Automation using webhooks and triggers
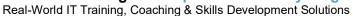- Security and compliance
- Lab

# Day 2

## Infrastructure Deployment using Terraform

- Deploy and manage consistent infrastructure across multiple services using Terraform.
- Terraform Cloud and Enterprise
- Infrastructure Automation using Terraform
- Reusable Terraform Modules
- Terraform Workspaces
- Secrets Management
- Lab

## Collaborative Development with GitLab and Terraform

- Utilize GitLab and Terraform for team collaboration in a real-world scenario.
- Collaborative coding practices

- Terraform collaboration using GitLab
- Managing Terraform environments
- Monitoring and logging
- Continuous Deployment (CD) with Terraform
- Lab

### Advanced Infrastructure Management with Terraform

- Learn advanced Terraform techniques for complex infrastructure management.
- Terraform State Locking
- Error Handling and Debugging
- Infrastructure Testing
- Managing Dependencies
- Terraform Best Practices
- Lab

### Final Project and Wrap-up

- Apply learned concepts in a comprehensive project mimicking real-world scenarios.
- Planning the project
- Collaborative development using GitLab
- Infrastructure deployment using Terraform
- Monitoring and troubleshooting
- Reflection and feedback

## Related Courses

TTDV7551        Introduction to GitHub for Developers
TTDV7553        Introduction to GitLab

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels and rich extended learning and post training resources are provided for you in our "easy access, no install required" online **Learning Experience Platform (LXP),** remote lab and content environment. Access periods vary by course. We'll collaborate with you to ensure your team is set up and ready to go well in advance of the class. Please inquire about set up details and options for your specific course of interest.

# For More Information

Please contact us or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.