



# Dev(Sec)Ops Engineering Training Program

by Daniel AG

## Course Description

Our Dev(Sec)Ops Engineering training program will provide you with in-depth knowledge of various Dev(Sec)Ops Engineering tools, including Git, Jenkins, Docker, Ansible, Terraform, Kubernetes, and Nagios. This Dev(Sec)Ops Engineering course is entirely hands-on and designed in a way to help you become a practitioner through best practices in Continuous Development, Configuration Management, and Continuous Integration, and finally, Continuous Monitoring of software throughout its development life cycle. This live instructor-led training program helps you work on LIVE projects.

## Course Information

### Course Modules

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| ■ Introduction to Dev(Sec)Ops     | ■ Jenkins – Continuous Integration |
| ■ Linux Administration            | ■ Docker– Containers Introduction  |
| ■ Introduction to Cloud computing | ■ Docker– Architecture             |
| ■ GIT: Version Control            | ■ Docker– Installation             |
| ■ Installing Git                  | ■ Docker– Provisioning             |
| ■ Git Essentials                  | ■ Docker– Custom images            |



- Docker– Networking
- Kubernetes
- Terraform

- Ansible
- Azure DevOps

### With the Course Students Get:

- Comprehensive Course Materials
- Recorded Video of Each Class
- Reading Materials
- Lab Exercises
- Research Papers
- Interview Questions
- Resume Preparation
- Placement Assistance
- On the Job Support Assistance

## Course Contents

<https://empiredatasystems.com/devops-engineering.html>

### Module 1: Introduction to Dev(Sec)Ops

#### Lessons

- Define Dev(Sec)Ops
- What is Dev(Sec)Ops
- SDLC Models, Lean, Agile
- Why Dev(Sec)Ops?
- History of Dev(Sec)Ops
- Dev(Sec)Ops Stakeholders
- Dev(Sec)Ops Goals
- Important terminology
- Dev(Sec)Ops perspective
- Dev(Sec)Ops and Agile
- Dev(Sec)Ops Tools
- Configuration management
- Continuous Integration, Continuous Deployment and Continuous Delivery

- Variables – User Defined
- Globbing and Quoting
- The Linux File System
- Absolute and Relative Paths
- Creating, Moving and Deleting Files
- Files and Directories
- Archives, Compression
- Searching and Extracting Data from Files
- I/O Redirection
- Regular Expressions
- Exercise: Practicing with Pipes and Grep
- Turning Commands into a Script
- Basic Text Editing
- Basic Shell Scripting
- Basic Shell Scripting, Continued
- Exercise: Using the vi Text Editor
- /lib, /usr/lib, /etc, /var/log
- Network Configuration
- Security and File Permissions
- Basic Security and Identifying User Types
- Root and Standard Users
- System Users
- Creating Users and Groups
- User IDs
- User Commands
- Group Commands
- Exercise: Managing User Accounts
- Exercise: Creating User Groups

### Module 2: Linux Administration

#### Lessons

- A Linux Introduction
- Open Source Philosophy
- Distributions
- Command Line Basics
- Basic Shell
- Command Line Syntax – Basic Commands
- Shell Configuration Files
- Variables – Environment / System Variables



# Program Curriculum

Dev(Sec)Ops Engineering (Git, Jenkins, Docker, Ansible, Terraform, Kubernetes)

- Managing File Permissions and Ownership
- File/Directory Permissions and Owners
- Special Directories and Files
- Symbolic Links
- System files, Special Files, and Sticky Bits

## Module 3: Introduction to Cloud computing

### Lessons

- What is cloud computing
- Characteristics of cloud computing
- Cloud implementation models
- Cloud service models
- Advantages of cloud computing
- Concerns of cloud computing
- Basic overview of core azure services

## Module 4: GIT: Version Control

### Lessons

- Version control systems
- Local, Centralized and distributed

## Module 5: Installing Git

### Lessons

- Installing on Linux
- Installing on Windows
- Initial setup

## Module 6: Git Essentials

### Lessons

- Creating repository
- Cloning, check-in and committing
- Fetch pull and remote
- Branching

## Module 7: Jenkins – Continuous Integration

### Lessons

- Introduction to Jenkins
- CI/CD Concepts
- Continuous Integration and Continuous Delivery

- Installing and Configuring Jenkins
- The Dashboard
- User Management and Security
- Adding a Jenkins Slave
- Setting Up GitHub
- Plugin Manager
- Exercise: Install a Jenkins Master and Prerequisites
- Exercise: Configuring Matrix-Based Security
- Exercise: Add a Jenkins Slave
- Exercise: Working with the Plugin Manager
- Projects
- Freestyle Project Configuration
- Parameterized Projects
- Upstream/Downstream Projects and the Parameterized Trigger Plugin
- Folders
- Views
- Exercise: Configure a Parameterized Freestyle Project?
- Hands-on Labs: Configure a Jenkins Freestyle Project
- Hands-on Labs: Jenkins Upstream and Downstream Projects with the Parameterized Trigger Plugin
- Pipelines
- Our Java Pipeline Project
- Docker Install
- Installing and Configuring Ant
- The Jenkinsfile
- Configuring and Running a Pipeline
- Artifacts and Fingerprints
- Exercise: Build a Simple Pipeline Without SCM
- Hands-on Labs: Configure a Jenkins Pipeline
- Testing With Jenkins
- About Testing
- Unit Testing with JUnit and Ant
- Deploying to Apache
- Functional Testing
- Pipeline Enhancements



# Program Curriculum

Dev(Sec)Ops Engineering (Git, Jenkins, Docker, Ansible, Terraform, Kubernetes)

- Multibranch Pipelines and Code Promotion
- Tagging
- Notifications
- Shared Pipeline Libraries
- Exercise: Configure Notifications in a Pipeline
- Hands-on Labs: Configure a Jenkins Multibranch Pipeline

## Module 8: Docker– Containers Introduction

### Lessons

- What is a Docker
- Use case of Docker
- Platforms for Docker
- Dockers vs Virtualization

## Module 9: Docker Architecture

### Lessons

- Docker Architecture
- Important Docker components
- Understanding the Docker components

## Module 10: Docker Installation

### Lessons

- Installing Docker on Linux
- Understanding Installation of Docker on Windows
- Some Docker commands

## Module 11: Docker Provisioning

### Lessons

- Docker Hub
- Downloading Docker images
- Running Docker images
- Running commands in container Running commands in container
- Running multiple containers

## Module 12: Docker Custom images

### Lessons

- Creating a custom image
- Running a container from the custom image
- Publishing the custom image

## Module 13: Docker Networking

### Lessons

- Accessing containers
- Linking containers
- Exposing container ports
- Container Routing

## Module 14: Kubernetes

### Lessons

- Need of an container orchestrator
- Kubernetes architecture and installation
- Kubernetes objects : Pods ,deployments ,service ,replica set
- Kubernetes volumes
- Kubernetes scaling
- Kubernetes networking

## Module 15: Terraform

### Lessons

- Intro to IAC
- Terraform installation
- Terraform workflow
- Terraform commands
- Terraform state management
- Creating infra with Terraform
- Security on terraform

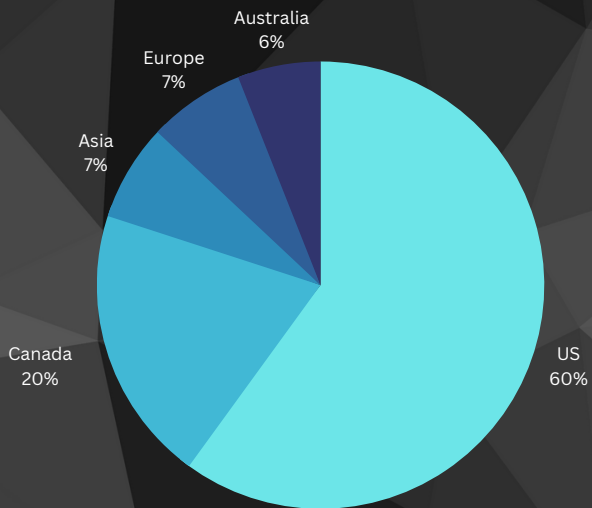
## Module 16: Ansible

### Lessons

- Introduction to Ansible
- Ansible Agentless Architecture
- Installation
- Ansible Inventories
- Ansible Modules
- Ansible Playbooks



## Our Student Demographic



## Other Courses We Offer

- ✓ SQL Server Database Administration
- ✓ SQL Server Performance Tuning
- ✓ SQL Server Business Intelligence
- ✓ SQL Programming
- ✓ Microsoft Azure Administration
- ✓ Microsoft Azure Data Engineering
- ✓ Dev(Sec)Ops Engineering
- ✓ AWS Solutions Architect
- ✓ AWS Dev(Sec)Ops

## Our Students Feedback



Please check the below link to see our student's feedback. These feedbacks are an excellent motivator for our trainers to improve in course delivery and engage more in students' training needs and career goals.

[www.empiredatasystems.com/students-feedback.html](http://www.empiredatasystems.com/students-feedback.html)

## Our Training Statistics



16 Years of  
Experience



3671  
Gratified  
Students



112  
Training  
Batches



9634  
Training  
Hours



+1 267 718 1533



ag.daniel@empiredatasystems.com



www.empiredatasystems.com



## Contact Us

### Daniel AG

Empire Data Systems LLC,  
256 Eagleview Blvd #387  
Exton, PA 19341, USA

 +1 267 718 1533

 [ag.daniel@empiredatasystems.com](mailto:ag.daniel@empiredatasystems.com)



 +1 267 718 1533



[ag.daniel@empiredatasystems.com](mailto:ag.daniel@empiredatasystems.com)



[www.empiredatasystems.com](http://www.empiredatasystems.com)