

DevOps Tools Engineer (Exam 701)

This intermediate DevOps Tools Engineer (Exam 701) training prepares DevOps engineers to design and implement automated DevOps pipelines, orchestrate containerized applications, and manage infrastructure as code using modern tools and best practices in DevOps engineering.

[CBT Nuggets course material](#) →

WEEK 1

Get Started Using Git

Install Git and VS Code

Initialize a Repo

Stage and Commit

Explore Commit History

Git Diff

CHALLENGE

Utilize Advanced Git Operations

Take Your Git Skills to the Next Level

Reverting to Old Versions

Repository Designs

Branches

Merge Branches

Handle Merge Conflicts

Git Checkout

CHALLENGE

Get Started with Github

Introducing Github

Explore Github

Understand Push and Pull

Work with Branches and Pull Requests

Work with Forks and Pull Requests

Issues

Gists

Working with Private Repos

WEEK 2

CHALLENGE

Understand the Core DevOps Concepts

Introducing DevOps and CI/CD

The Point of DevOps

The Point of CI/CD

Where Source Control Fits In

DevOps Management Methodologies

How the Cloud and Virtualization Made DevOps Possible

CHALLENGE

Get Familiar with Docker

Introducing Containers

The Problem that Containers Solve

How Containers Work

Install Docker Desktop and Work with the CLI

CHALLENGE

Create and Orchestrate Container Images

Digging Deeper into Docker

Handling Web Services

Define a Dockerfile

Build Your Custom Image

WEEK 3

Orchestrate with Docker Compose

CHALLENGE

Getting Started with Jenkins

Introducing Jenkins

Why Learn Jenkins

Install Jenkins

Navigate and Manage Jenkins

A Primer on Stages

Creating a Basic Pipeline

CHALLENGE

Jenkins - The Build Stage

Introducing Continuous Integration with Jenkins

Prepping a Reverse Proxy with SSL for Jenkins

Create a Github App for Jenkins to Authenticate As

Create a Private Repo and Push the Project

A Word about Manual Webhooks

Run the Pipeline - Fix the Webhooks First

Run the Pipeline - Fix Docker

CHALLENGE

Implement Tests in Your Jenkins Pipeline

Introducing the Test Stage

Prep Your App

WEEK 4

Build the Test

Create a Jest Config

Prep Dockerfile and Jenkinsfile

Run the Pipeline and View Published Test Results

CHALLENGE

Get Primed with Kubernetes (K8s)

Introducing Kubernetes

K8s Architecture

Install and Configure Microk8s

A Basic Deployment to Tease What is to Come

Pods, Deployments, and Services... oh my!

Define a Pod in YAML

Define a Deployment in YAML

Define a Service in YAML

CHALLENGE

Continuous Delivery with Jenkins, Github, and K8s

Introducing Continuous Delivery

Install kubectl in Jenkins

Utilize Kubeconfig for Auth

Prep Your Docker Hub Creds

Push to Dockerhub

Create a Deployment Manifest in Your Repo

Run the Pipeline and Expose a Service

A Note About This Content and CHALLENGE

Vagrant for Development Environments

Introducing Vagrant

How Vagrant Works

Install Virtualbox and Vagrant

Or Use VMWare Fusion if on Apple Silicon

Install Vagrant Plugins and Utilities

Create a Basic Vagrantfile

Deploy and Manage the VM

Install Dependencies in the VM

Connect VS Code to the Remote VM

CHALLENGE

Automate VM Deployments with Cloud-init

Introducing Cloud-init

How Cloud-init works

Create a VM Template for Cloud-init

Create a Basic User Configuration

Create a Network Configuration

Create a Complex Configuration

CHALLENGE

Create VM Base Images with Packer

Introducing Packer

Understand Where Packer Fits In

Install Packer

Begin an HCL Template

Plugins and Cloud-Init Config

The Build Stage

Build the Image and Monitor

CHALLENGE

Infrastructure as Code with Ansible Basics

Introducing Ansible

The Pieces of Ansible

WEEK 5

WEEK 6

Prep Your Infrastructure
Install Ansible
Prep a Folder, Config, and Inventory
Prep Vars
Create the Playbook
Run the Playbook
CHALLENGE

Ansible Facts, Loops, and More

Introducing Complex Playbooks
Working with Facts and Debug
Filter and Print Strings with Facts
Run Conditional Tasks Based on Facts
Loop Concepts
Looping in a Playbook
Clean Up the Playbook by Using group_vars
CHALLENGE

Ansible Templates with Jinja

Introducing Templates in Ansible
The Concept of Templates
A Basic Template Play
Setup Vars and the Playbook
Create the J2 File
Configure the SSH Daemon
CHALLENGE

Ansible Notifiers and Handlers

Introducing Handlers
What is a Handler?
Operate Nginx

WEEK 7

Operate Ufw
Handle Service Changes
Introducing Ansible Vault
Encrypt Files with Secrets
Run Playbooks with Secrets
Edit Encrypted Files
CHALLENGE

Ansible Roles

Introducing Roles and Ansible Galaxy
What are roles?
Initialize a Role
Prep the Playbook and Inventory
Create Role Files and Tasks
Prep Ansible Galaxy Metadata
Prep Ansible Galaxy and Github for Publishing
Publish and Test the Role
Understand Defaults and Vars
Publish New Versions of Your Role
CHALLENGE

Monitoring Apps and Infra with Prometheus

Introducing Prometheus

Understand Prometheus

Understand the Prometheus Metric Format

Install and Configure Node Exporter

Install and Configure Prometheus

Install and Configure Grafana

BONUS

BONUS

CHALLENGE

Deploy the Elastic Stack

Introducing the Elastic Stack

Understand the Stack

Deploy with docker compose

WEEK 8

Add Kibana

Add Metricbeat

Add Filebeat

Add Logstash

CHALLENGE

Utilize the Elastic Stack for Monitoring

Introducing Configuring the Elastic Stack

Recap the Elastic Stack Deployment

Monitor the Stack with Metricbeat

Monitor logs with Filebeat

Monitor a Fleet with... Fleets

CHALLENGE