

KOENIG SOLUTIONS · COURSE OUTLINE

Building CI/CD Pipelines in Azure DevOps from YAML

Learn to build YAML-based CI/CD pipelines in Azure DevOps, integrating SAST scanning and deploying .NET apps to IIS servers.

2 Days

DURATION

5

MODULES

23

TOPICS

9

HANDS-ON ACTIVITIES

COURSE OVERVIEW

This course covers the structure and syntax of YAML-based Azure DevOps pipelines, including key properties such as triggers, pools, jobs, variables, steps, conditions and timeouts. It then addresses integrating Azure DevOps agents with Active Directory service accounts for secure authentication. The course continues with building a CI pipeline that incorporates Static Application Security Testing and configuring failure conditions based on scan results. Finally, it covers deploying a .NET Web App to multiple Windows servers running IIS, including pipeline configuration, parallel deployment jobs and rollback strategies.

WHO THIS COURSE IS FOR

DevOps Engineers

CI/CD Engineers

Software Developers with DevOps experience

PREREQUISITES

- Familiarity with Azure DevOps
- Basic knowledge of YAML syntax
- General CI/CD concepts
- Knowledge of .NET and IIS will be helpful

LEARNING OBJECTIVES

- Explain the structure and syntax of Azure DevOps YAML pipelines
- Configure key YAML properties such as triggers, pools and variables
- Apply conditions and timeouts to control job and step execution
- Configure Azure DevOps agents to authenticate with Active Directory
- Integrate a SAST tool such as SonarCloud into a CI pipeline
- Configure pipeline failure conditions based on SAST results
- Deploy a .NET Web App to multiple Windows servers using IIS
- Plan rollback strategies for failed IIS deployments

5 Modules, 23 Topics

DAY 1

Introduction to Azure DevOps YAML Pipelines & Concepts

01

1 hour

Hands-on Lab

Introduction to YAML-based Pipelines

Objective: Understand the structure and key components of a YAML-based Azure DevOps pipeline.

TOPICS

- What is YAML in the context of Azure DevOps?
- Key components of an Azure DevOps YAML pipeline:
- YAML Syntax Overview (Lists, Key-Value pairs)
- Basic Azure DevOps Pipeline Structure

02

1.5 hours

Hands-on Lab

Important YAML Properties in Azure DevOps Pipelines

Objective: Deep dive into important YAML properties for Azure DevOps pipeline configuration.

TOPICS

- **trigger:** Define triggers (e.g., on push to branch)
- **pool:** Define the agent pool to use (default and custom)
- **jobs:** How to define multiple jobs (and parallel execution)
- **variables:** Using pipeline variables to store values
- **steps:** Different types of steps (script, task, etc.)
- **condition:** Controlling when a step/job runs
- **timeout:** Configuring timeouts for jobs and steps

03

1 hour

Hands-on Lab

Integrating Azure DevOps Agents with Active Directory Service Accounts

Objective: Learn how to integrate Azure DevOps agents with Active Directory service accounts for secure authentication and authorization.

TOPICS

- Overview of Azure DevOps Agents and their role in pipelines
- Introduction to Service Accounts in Active Directory
- Configuring an Azure DevOps agent to authenticate with Active Directory

04

2 hours

2 Hands-on Labs

Building a CI Pipeline with Static Application Security Testing (SAST) Integration

Objective: Learn how to integrate SAST tools into a CI pipeline and handle failure conditions for security vulnerabilities.

TOPICS

- Overview of Static Application Security Testing (SAST)
- Popular SAST tools and integrations in Azure DevOps (e.g., SonarCloud)
- Configure failure conditions for pipeline steps when a SAST tool fails

05

2 hours

4 Hands-on Labs

Deploying a .NET Web APP to Multiple Windows Servers with IIS

Objective: Learn how to deploy a .NET Web APP to multiple Windows servers using IIS through an Azure DevOps pipeline.

TOPICS

- Preparing IIS on target Windows servers for .NET hosting
- Creating a pipeline to build and deploy a .NET Web APP application
- Defining IIS web app configuration within the pipeline
- Using Azure DevOps tasks for IIS deployment (e.g., IIS Web App Deployment)
- Automating the deployment to multiple IIS instances using parallel jobs
- Rollback strategies in case of failed deployment

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
01	Introduction to YAML-based Pipelines	Create a basic pipeline YAML file with one job and one step that runs a simple script (e.g., echo "Hello, World")
02	Important YAML Properties in Azure DevOps Pipelines	Create a YAML file with triggers for different branches, variable definitions, and jobs with conditional execution
03	Integrating Azure DevOps Agents with Active Directory Service Accounts	Configure a Windows-based agent in Azure DevOps to authenticate using an Active Directory service account
04	Building a CI Pipeline with Static Application Security Testing (SAST) Integration	■ Integrate SonarCloud into a CI pipeline for static code analysis ■ Configure the pipeline to fail when certain issues are detected and also generate a report as an artifact

#	MODULE	ACTIVITY
05	Deploying a .NET Web APP to Multiple Windows Servers with IIS	■ Build a CI/CD pipeline to deploy a .NET Web APP to IIS on two different Windows Servers ■ Step 1: Build the Web APP project ■ Step 2: Deploy the application to multiple IIS servers ■ Step 3: Implement rollback strategy if deployment fails on one server

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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