

GitHub Actions Tutorial: AWS & Azure Infrastructure Deployment

Unlock the power of GitHub Actions in this intermediate course, where you'll learn to automate services in AWS and Azure. Designed for developers, cloud engineers, and DevOps professionals, this course covers real-world tasks like interacting with Amazon S3, EC2, and Azure containers. Perfect for onboarding new cloud engineers, team training, or as a GitHub reference resource.

[CBT Nuggets course material](#) →

WEEK 1

Setting Up GitHub Actions Connectivity to Amazon Web Services (AWS) 61 min.

Intro to GitHub Actions and AWS Integration	7
Create GitHub Actions Workflow for Static AWS Credentials	9
Configure AWS Credentials as GitHub Secrets	6
Explore OIDC Integration for GitHub and AWS	8
Configure GitHub Actions Workflow to Use OIDC	8
Use AWS IAM Roles from Multiple GitHub Repositories	8

Configure a GitHub Actions Workflow for AWS CloudFormation Deployment

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Set up AWS Credentials in GitHub Actions	9
Add an AWS CloudFormation Template to GitHub Repository	8
Call PowerShell Deployment Script from GitHub Actions	13
Modify PowerShell Script to Support AWS CloudFormation Updates	13

Configure Automated AWS Account Cleanup with GitHub Actions

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Set up AWS IAM Authentication from GitHub Actions	1
Create AWS IAM Policy with Limited Cleanup Access	1
Write a Cleanup Script for AWS Step Functions	1
Update GitHub Actions Workflow to Trigger Cleanup Script	1

Add AWS Cleanup Job for Amazon EC2 Instances	1
Clean up AWS Resources Across Multiple Regions	1

Automate Amazon S3 Data Migrations with GitHub Actions

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Intro to Amazon S3 Migration with GitHub Actions	9
Set up GitHub Secrets for S3 Cloud Storage	10
Install and Configure Rclone in GitHub Actions	11
Use Jinja2 Custom Action to Generate Rclone Config	10
Add Rclone Sync to GitHub Actions Workflow	11

WEEK 2

Manage Amazon EC2 Instances with Ansible and GitHub Actions 156 min.

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Prepare GitHub Actions Workflow for Ansible Inventory	7
Configure Dynamic EC2 Inventory with Ansible	16
Build Ansible Playbook into GitHub Actions Workflow	14
Ansible Automation Solution Testing and Review	5

Connect GitHub Actions to Amazon VPC with ZeroTier

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Create GitHub Actions Workflow with ZeroTier	15
Set Up Amazon VPC and ZeroTier Router	11
Add Ping Tests to Amazon VPC and Route 53	9

Provision Amazon Route 53 Resolver Inbound Endpoint	7
Create Private Amazon RDS Instance and Test Connectivity	8

Deploy Terraform Templates with GitHub Actions

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Develop Simple Terraform Template for AWS	8
Configure GitHub Actions Workflow for Terraform Plan	10

WEEK 3

147 min.

Run Terraform Apply and Manage State with GitHub Actions	17
Alter Terraform Template and Validate Changes in AWS	12

Connect GitHub Actions to Microsoft Azure

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Register Azure Active Directory Application with Secret	12
Create GitHub Actions Workflow with Azure CLI Login	13
Configure Azure Authentication with OpenID Connect	14
Create Azure Resource Group with OIDC Authentication	7

Deploy to Microsoft Azure Container Instances from GitHub Actions

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Create Microsoft Azure Service Principal and GitHub Actions Workflow	11
Automate Microsoft Azure Container Registry Creation	9
Dockerize Web Server Application and Push to ACR	10
Automate Microsoft Azure Container Group Deployment	15
Test Auto-Deploy Application Changes in GitHub	7