

[AZURE ADMIN WITH AZURE DEVOPS](#)

[Microsoft Azure Administrator \(AZ-104\)](#)

Introduction to Microsoft Azure:

- Introduction to Cloud computing
- Cloud service models (IAAS, PAAS & SAAS)
- Cloud deployment models
- Introduction to Azure
- Azure PowerShell and CLI
- Azure Resource Manager (ARM)
- ASM vs ARM Deployment model
- Creation of Azure free trial subscription

Governance and Compliance:

- Azure Hierarchy
- Azure RBAC (Role-Based Access Control)
- Users and Groups
- Azure Policies
- Azure subscription cost management
- Azure Defender

Azure Virtual Machines and Scale set:

- Virtual Machine Planning
- Creating Windows and Linux Virtual Machines
- Virtual Machine Availability
- Virtual Machine Extensions
- Managed and Unmanaged disk
- Virtual machine troubleshooting
- Additional Data disk
- Virtual Machine Scale sets

Azure Storage:

- Azure Storage Accounts types
- Azure Storage service types
- Azure Blobs
- Azure Files
- Azure Queues
- Azure Table
- Storage Security
- Azure Storage explorer
- AzCopy
- Azure CDN (Content Delivery Network)

Virtual Networking:

- Basic Networking
- Azure Virtual Networks (VNET)
- Azure Subnets
- Service Endpoint and Private Endpoint
- IP Addressing and Endpoints
- Azure DNS
- Network Security Groups and NIC
- CIDR calculation
- Public IP and Private IP

Intersite Connectivity:

- VNet Peering
- VNet-to-VNet Connections
- ExpressRoute Connections
- Site to site connections
- Point to site connection

Monitoring:

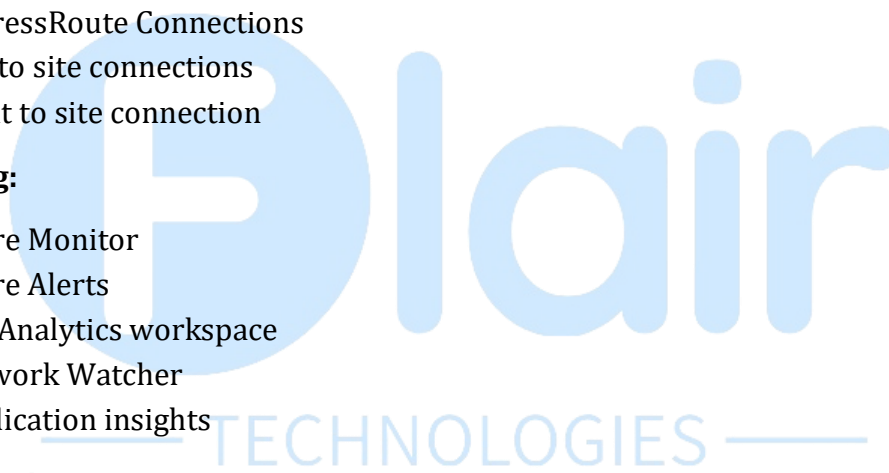
- Azure Monitor
- Azure Alerts
- Log Analytics workspace
- Network Watcher
- Application insights

Data Protection:

- Data Replication
- File and Folder Backups
- Virtual Machine Backups
- SQL DB in azure VM Backup
- Azure File share Backup

Network Traffic Management:

- Network Routing
- Azure Load Balancer
- Application Gateway
- Azure Traffic Manager
- Azure front door



Azure Active Directory:

- Azure Active Directory
- Azure AD user management
- Azure AD group management
- Multi-Factor Authentication (MFA)
- Azure AD Identity Protection
- Self-Service Password Reset (SSPR)
- App registrations
- Enterprise applications
- SSO (Single sign on)
- Azure AD Connect (Migrate Onprem AD users to Azure AD)

Azure App Service (Web Apps):

- App Service Environments (ASE)
- App Service Plans
- Virtual Network Integrations
- Hybrid connections
- Creating App Service Web App

Authentication and Data Security:

- Managed Identity (MI)
- System managed identity vs User managed identity
- Key Vault
- Azure Disk Encryption

Azure Automation:

- Automation Account
- RunBooks
- Update Management
- Scheduling patching

Azure Site Recovery:

- Business Continuity and Disaster Recovery (BCDR)
- Replication of Azure VMs to different Regions
- Failover of Azure VMs
- Disaster Recovery for Apps

Migration (using ASR and Azure migrate):

- Onprem physical VM migration to Azure
- Onprem Hyper-V VM migration to Azure
- AWS to Azure

ARM Template (IaC in Azure):

- JSON Basics
- How to write JSON file
- ARM Templates (Azure Resource Manager) , what and why
- What is Infrastructure as Code (IaC) and why it important for you as infrastructure engineer?
- Some other IaC examples other than arm template.
- When to use arm template and when it is good to rely on other infra as code options.
- Arm template structure and schema
- Arm template structure in detail
- Arm template parameters and variables, when to use what?
- Arm template parameter file.
- How to start writing arm template from scratch
- Debugging and troubleshooting arm template
- What are the tools and tips to get started from beginner to intermediate level arm template editing
- Arm template architectural considerations when designing arm template for complex infrastructure.
- Deployment options for arm template. (PowerShell in detail, other options introduction and basic.)
- How to deploy multiple resources on Azure using ARM Templates

Terraform (IAC Azure):

- Introduction to Terraform
- Download, Install and Configure Terraform
- Terraform Constructs and Execution
- Terraform commands /workflow
- Terraform file structure
- Terraform providers (Azure, AWS, GCP)
- Authenticating Terraform with Azure
- Deploy an Azure VM with Terraform
- Terraform Backend state
- Terraform data sources
- Terraform variable types
- Terraform multiple resource deployment
- Terraform Modules
- Multiple Azure Services Deployment
- Deploy the terraform files to azure using azure pipelines
- Terraform target
- Terraform Provisions

Azure DevOps Services (VSTS):

- Is it a tool for DevOps?
- What is Azure DevOps services?
- Why you should know CI CD as an infrastructure engineer/developer
- Services in Azure DevOps services.
- Azure DevOps organization settings in detail.
- Free MS agents, Private agents, Agent Pools in Azure DevOps,
- Create an agent pool and private agent.
- What should you know before creating a Project
- Create a project in Azure DevOps.
- How to create Azure wiki

Azure Boards:

- What is Azure Board?
- Introduction to Agile.
- Following agile in Azure DevOps.
- Quick Start creating Iteration, Sprint, User Stories and Task.
- How Azure board help your agile team.
- Some basic integrations with Azure Board and other Azure DevOps services

Azure Repos:

- What is a version control and why use it?
- What type of version control repository supported in Azure Repos?
- Most common is git, some basic things you should know about git.
- Create a git repo in Azure Repos.
- Git basic commands
- Git branching strategy, a practical approach towards Gitflow
- What is pull request
- What are the different merge options
- What is git cherry-pick

Azure Pipeline:

- What is build?
- What is Azure Pipelines
- What is CI(Continuous integration) CD(Continuous deployment)
- What is build and release pipeline and why I should know it as infrastructure engineer
- Creating build definition from Visual editor and YML. What are task in build definitions
- Build Agent, Variables, Task groups and other settings in Pipeline.
- Release tasks creating a release pipeline, what are stages and how to use it in release pipeline.

- Build and release pipeline variables
- Service endpoints, Azure DevOps extension market place and other integrations.
- Create a basic build and release pipeline with a Infra as code example (ARM templates and terraform)
- Azure Pipeline service connection
- Deploy ARM Templates using classic editor pipeline
- Deploy Terraform templates using classic editor pipeline
- How to setup CI & CD pipeline for JAVA application using Classic editor pipeline
- How to setup CI & CD pipeline for .NET application using Classic editor pipeline
- YAML Basics
- How to convert classic editor pipeline to YAML pipeline
- Azure Pipeline Library
- Azure Pipeline deployment groups

Docker:

- Introduction to Containers
- Introduction to Docker
- Downloading and Installing Docker
- Docker Essential Commands
- Docker Engine
- Understanding Docker Images
- Building Docker Images
- Storing and Retrieving Docker Images from Docker Hub
- Private Registry
- Building Containers from Images
- Understand Storage Methods
- How to push the Docker image to ACR (Azure container registry)
- How to Create the ACI (Azure Container Instance) to run the container application

AKS (Azure Kubernetes Service):

- Overview of Container Orchestration
- Introduction to Kubernetes
- Kubernetes Architecture
- Creating POD's and managing them
- Managing Namespaces
- Overview of Deployment
- Managing Deployment
- Kubernetes Authentication
- Understand how to Monitor Applications
- Manage Cluster Components Logs
- Manage Application Logs
- How to deploy container application to AKS using Azure Pipelines (CI & CD)