

# AZ-104: Microsoft Azure

## Administrator

Days: 4



**Prerequisites:** Successful Azure Administrators start this role with experience on operating systems, virtualization, cloud infrastructure, storage structures, and networking.

- Understanding of on-premises virtualization technologies, including: VMs, virtual networking, and virtual hard disks.
- Understanding of network configuration, including TCP/IP, Domain Name System (DNS), virtual private networks (VPNs), firewalls, and encryption technologies.
- Understanding of Active Directory concepts, including domains, forests, domain controllers, replication, Kerberos protocol, and Lightweight Directory Access Protocol (LDAP).
- Understanding of resilience and disaster recovery, including backup and restore operations.

**Audience:** This course is for Azure Administrators. The Azure Administrator implements, manages, and monitors identity, governance, storage, compute, and virtual networks in a cloud environment. The Azure Administrator will provision, size, monitor, and adjust resources as appropriate.

**Description:** This course teaches IT Professionals how to manage their Azure subscriptions, secure identities, administer the infrastructure, configure virtual networking, connect Azure and on-premises sites, manage network traffic, implement storage solutions, create and scale virtual machines, implement web apps and containers, back up and share data, and monitor your solution.

### OUTLINE:

#### MODULE 1: IDENTITY

In this module, you will learn how to secure identities with Azure Active Directory, and implement users and groups.

##### Lessons

- Azure Active Directory
- Users and Groups

Lab: Manage Azure Active Directory Identities

After completing this module, students should be able to:

- Secure and manage identities with Azure Active Directory.
- Implement and manage users and groups.

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### MODULE 2: GOVERNANCE AND COMPLIANCE

In this module, you will learn about managing your subscriptions and accounts, implementing Azure policies, and using Role-Based Access Control.

#### Lessons

- Subscriptions and Accounts
- Azure Policy
- Role-based Access Control (RBAC)

Lab: Manage Subscriptions and RBAC

After completing this module, students should be able to:

- Implement and manage Azure subscriptions and accounts.
- Implement Azure Policy, including custom policies.
- Use RBAC to assign permissions.

### MODULE 3: AZURE ADMINISTRATION

In this module, you will learn about the tools an Azure Administrator uses to manage their infrastructure. This includes the Azure Portal, Cloud Shell, Azure PowerShell, CLI, and Resource Manager Templates. This module includes:

#### Lessons

- Azure Resource Manager
- Azure Portal and Cloud Shell
- Azure PowerShell and CLI
- ARM Templates

Lab: Manage Azure resources by Using the Azure Portal

Lab: Manage Azure resources by Using ARM Templates

Lab: Manage Azure resources by Using the Azure PowerShell

Lab: Manage Azure resources by Using the Azure CLI

After completing this module, students should be able to:

- Leverage Azure Resource Manager to organize resources.
- Use the Azure Portal and Cloud Shell.
- Use Azure PowerShell and CLI.
- Use ARM Templates to deploy resources.

### MODULE 4: VIRTUAL NETWORKING

In this module, you will learn about basic virtual networking concepts like virtual networks and subnetting, IP addressing, network security groups, Azure Firewall, and Azure DNS.

#### Lessons

- Virtual Networks
- IP Addressing
- Network Security groups
- Azure Firewall
- Azure DNS

Lab: Implement Virtual Networking

After completing this module, students should be able to:

- Implement virtual networks and subnets.
- Configure public and private IP addressing.
- Configure network security groups.
- Configure Azure Firewall.
- Configure private and public DNS zones.

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### MODULE 5: INTERSITE CONNECTIVITY

In this module, you will learn about intersite connectivity features including VNet Peering, Virtual Network Gateways, and Site-to-Site Connections.

#### Lessons

- VNet Peering
- VPN Gateway Connections
- ExpressRoute and Virtual WAN

#### Lab: Implement Intersite Connectivity

After completing this module, students should be able to:

- Configure VNet Peering.
- Configure VPN gateways.
- Choose the appropriate intersite connectivity solution.

### MODULE 6: NETWORK TRAFFIC MANAGEMENT

In this module, you will learn about network traffic strategies including network routing and service endpoints, Azure Load Balancer, Azure Application Gateway, and Traffic Manager.

#### Lessons

- Network Routing and Endpoints
- Azure Load Balancer
- Azure Application Gateway
- Traffic Manager

#### Lab: Implement Traffic Management

After completing this module, students should be able to:

- Configure network routing including custom routes and service endpoints.
- Configure an Azure Load Balancer.
- Configure and Azure Application Gateway.
- Choose the appropriate network traffic solution.

### MODULE 7: AZURE STORAGE

In this module, you will learn about basic storage features including storage accounts, blob storage, Azure files and File Sync, storage security, and storage tools.

#### Lessons

- Storage Accounts
- Blob Storage
- Storage Security
- Azure Files and File Sync
- Managing Storage

#### Lab: Manage Azure storage

After completing this module, students should be able to:

- Create Azure storage accounts.
- Configure blob containers.
- Secure Azure storage.
- Configure Azure files shares and file sync.
- Manage storage with tools such as Storage Explorer.

### MODULE 8: AZURE VIRTUAL MACHINES

In this module, you will learn about Azure virtual machines including planning, creating, availability and extensions.

#### Lessons

- Virtual Machine Planning
- Creating Virtual Machines
- Virtual Machine Availability
- Virtual Machine Extensions

#### Lab: Manage virtual machines

After completing this module, students should be able to:

- Plan for virtual machine implementations.
- Create virtual machines.
- Configure virtual machine availability, including scale sets.
- Use virtual machine extensions.

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### MODULE 9: SERVERLESS COMPUTING

In this module, you will learn administer serverless computing features like Azure App Service, Azure Container Instances, and Kubernetes.

#### Lessons

- Azure App Service Plans
- Azure App Service
- Container Services
- Azure Kubernetes Service

Lab: Implement Web Apps

Lab: Implement Azure Container Instances

Lab: Implement Azure Kubernetes Service

After completing this module, students should be able to:

- Create an app service plan.
- Create a web app.
- Implement Azure Container Instances.
- Implement Azure Kubernetes Service.

### MODULE 10: DATA PROTECTION

In this module, you will learn about backing up files and folders, and virtual machine backups.

#### Lessons

- File and Folder Backups
- Virtual Machine Backups

Lab: Implement Data Protection

After completing this module, students should be able to:

- Backup and restore file and folders.
- Backup and restore virtual machines.

### MODULE 11: MONITORING

In this module, you will learn about monitoring your Azure infrastructure including Azure Monitor, alerting, and log analytics.

#### Lessons

- Azure Monitor
- Azure Alerts
- Log Analytics
- Network Watcher

Lab: Implement Monitoring

After completing this module, students should be able to:

- Use Azure Monitor.
- Create Azure alerts.
- Query using Log Analytics.
- Use Network Watcher.