

AZ-100: MS Azure Infrastructure and Deployment

Course Summary

Description

This course teaches IT Professionals how to implement Azure storage solutions for a variety of scenarios. Students learn about the different storage accounts and services as well as basic data replication concepts and available replication schemes. Students are also introduced to Storage Explorer as a convenient way to work with Azure storage data. Students also learn the types of storage and how to work with managed and custom disks.

Students learn how to manage their Azure subscriptions, including access, policies, and compliance, as well as how to track and estimate service usage and related costs. Students also learn how cloud resources are managed in Azure through user and group accounts. Students learn how to grant appropriate access to Azure AD users, groups, and services through Role-based access control (RBAC). Students also discover the core monitoring tools and capabilities provided by Azure, including Azure Alerts and Activity Log. Students are then introduced to Log Analytics as a broad data analytics solution, and use this service to query and analyze operational data. Students then learn about the Azure Resource Manager deployment model, and how to work with resources, resource groups and ARM templates.

Students will understand how to create and manage virtual machines as part of an Infrastructure as a Service (IaaS for virtual machine readiness in preparation for moving resources to the cloud, including sizing, pricing, and design considerations) computing infrastructure. Students learn how to assess their on-premises environment. They will also learn to configure and manage Azure virtual networks (VNETs). The benefits of moving an infrastructure to the cloud, removing the need to maintain expensive datacenters are an appealing proposition for many small and medium-sized companies. Regardless, once resources are moved to Azure, they require the same networking functionality as an on-premises deployment, and this course deals with the basic network configuration tasks.

Finally, students will learn how to use Azure Active Directory (AD) to provide employees and customers with a multi-tenant cloud-based directory and identity management system. Students will learn the differences between Azure AD and Active Directory Domain Services (AD DS), as well the differences in functionality offered by the different editions of Azure AD. Students also learn how to configure self-service password reset, or to use the option of password writeback to reset user passwords regardless of their location. Students are then introduced to Azure AD Identity Protection and learn how they can use it to protect their organizations from compromised accounts, identity attacks, and configuration issues. Students also learn how to integrate Azure AD with the many Software as a Service (SaaS) applications that are used, in order to secure user access to those applications.

Topics

- Overview of Azure Storage
- Storage Services
- Securing and Managing Storage
- Monitoring Storage
- Storing and Accessing Data
- Managing Azure Subscriptions
- Access Management for Cloud Resources
- Monitoring and Diagnostics
- Log Analytics
- Azure Resource Manager
- Azure Tips, Tricks, and Tools
- Overview of Azure Machines
- Creating Virtual Machines
- Deploying Virtual Machine Images
- Configuring Virtual Machines
- Configuring Availability and Extensibility
- Managing and Monitoring Virtual Machines
- Azure Virtual Networks
- Azure DNS
- Securing Virtual Network Resources
- Connecting Virtual Networks
- Managing Azure Active Directory
- Managing Azure Active Directory Objects
- Implementing and Managing Hybrid Identities

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Course Summary (cont'd)

Audience

This course is for Azure Administrators. Azure Administrators manage the cloud services that span storage, networking, and compute cloud capabilities, with a deep understanding of each service across the full IT lifecycle.

Prerequisite

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

Duration

Five days

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I. Overview of Azure Storage

In this module, you'll learn about storage accounts – Standard and Premium – as well as storage endpoints and how to configure custom domain accounts. You'll have an opportunity to practice creating and managing storage accounts. The module also covers data replication and provides a comparison of the different available replication schemes. You'll be introduced to Azure Storage Explorer, a utility that lets you easily work with and manipulate Azure Storage data.

- A. Azure storage accounts
- B. Data replication
- C. Azure Storage Explorer

II. Storage Services

In this module, you'll learn about the disks component of Azure Storage as it relates to virtual machines. Disks are how virtual machines store their VHD files. You will learn about the types of disks and storage and how Azure simplifies IaaS disk management by creating and managing the storage accounts associated with the virtual machine disks. You will also learn about how Azure blob storage stores unstructured data in the cloud as objects, or blobs (BLOB = binary large object). And you'll explore Azure Files, which offers fully managed file shares in the cloud that are accessible via the Server Message Block (SMB) protocol. The other file storage options covered in the module are Tables and Queues for structured storage.

- A. Virtual machine storage
- B. Blob storage
- C. Azure files
- D. Structured storage

III. Securing and Managing Storage

In this module, discover how a shared access signature (SAS) can be used to provide delegated access to resources in storage accounts, allowing clients access to those resources with sharing the storage account keys. You'll also learn how to use Azure backup as a cloud-based solution for an existing on-premises or off-site backup and data protection

solution. This module also covers Azure File Sync as a way to centralize an organization's file shares in Azure Files, and using Windows Server to cache the Azure file share locally, thus enabling scenarios such as "lift and shift," backup and disaster recovery, and file archiving.

- A. Shared access keys
- B. Azure backup
- C. Azure File Sync

IV. Storing and Accessing Data

In this module, you'll learn about using a content delivery network (CDN) to deliver cached content that is stored on a distributed network of edge servers closer to end-users. You'll also learn how to transfer large amount of data to and from the cloud using the Azure Import/Export service.

- A. Azure Content Delivery Network
- B. Import and Export service

V. Monitoring Storage

In this module, you will learn techniques for monitoring the health of Azure storage. With metrics and alerts you can check a variety of performance metrics and send notifications to your system administrator team. With the Activity Log you can search and query for specific events, even across subscriptions.

- A. Metrics and Alerts
- B. Activity Log

VI. Managing Azure Subscriptions

In this module, you'll learn about the components that make up an Azure subscription and how management groups are used to organize subscriptions into containers to allow you to control organizational governance and policy management across subscriptions. As well as learning about the different available types of subscription, you'll see how to apply tags to your Azure resources to logically organize them by categories.

- A. Overview of Azure Subscriptions
- B. Billing
- C. Azure Policy

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Course Summary (cont'd)

VII. *Access Management for Cloud Resources*

In this module you will learn the basics of role-based access control as it applies to users and groups. Focus on the administrator role and how it used in Azure.

- A. Azure Users and Groups
- B. Role-based Access Control

VIII. *Monitoring and Diagnostics*

In this module, you learn about the Azure Monitor and the many capabilities to ensure your Azure architecture is working correctly. Monitoring skills are explained in this first course and then demonstrated in the following courses. The two main elements explained in this module are Azure Alerts and Azure Activity Log.

- A. Exploring Monitoring Capabilities in Azure
- B. Azure Alerts
- C. Azure Activity Log

IX. *Log Analytics*

In this module, you will focus on Log Analytics. Log Analytics provides a way for you to collect, analyze, and query all types of connected data. It is a very powerful tool.

- A. Introduction to Log Analytics
- B. Querying and Analyzing Log Analytics Data

X. *Azure Resource Manager*

In this module, you will learn about how resources are organized into resource groups and how ARM templates are used to deploy those resources. This module introduces the concepts and then they are applied in the other courses.

- A. ARM templates
- B. Resource Groups

XI. *Azure Tips, Tricks, and Tools*

This last module is provided to help you get the most from your administrative tools. This includes the Azure Portal, Cloud Shell, Azure CLI, Azure PowerShell, and Resource Explorer.

- A. Azure Portal

- B. Azure Tools and Environment

XII. *Overview of Azure Machines*

In this module, you'll be introduced to Azure virtual machines. What are virtual machines and what operating systems are supported? How can you determine if your existing virtual machines can be supported in Azure? What pricing and sizing options are available?

- A. Azure Virtual Machines Overview
- B. Planning Considerations

XIII. *Creating Virtual Machines*

In this module, you will learn how to create and configure Windows virtual machines. You will practice in the Azure portal, in Azure PowerShell, and with ARM templates.

- A. Overview of the Virtual Machine Creation Overview
- B. Creating Virtual Machines in the Azure Portal
- C. Creating Virtual Machines (PowerShell)
- D. Creating Virtual Machines using ARM Templates

XIV. *Deploying Virtual Machine Images*

In this module, you will learn how to create custom virtual machines in Azure. For example, deploying a server image that is in your on-premises datacenter. You will also learn how to create and connect to Linux virtual machines.

- A. Deploying Custom Images
- B. Deploying Linux Virtual Machines

XV. *Configuring Virtual Machines*

In this module, you will learn about the two main configuration areas for virtual machines: networking and storage. In the networking lesson, we will cover IP addressing, network interfaces, and network security groups. In the storage lesson, we will cover virtual machine disks, managed disks, attaching/detaching disks, and uploading disks.

- A. Overview of Virtual Machine Configuration
- B. Virtual Machine Networking
- C. Virtual Machine Storage

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Course Summary (cont'd)

XVI. Configuring Availability and Extensibility

In this module, you will learn how to keep your virtual machines highly available with update and fault domains, and availability sets. You will also learn how to use scale sets to increase and decrease the number of the virtual machines as the workload changes. Lastly, virtual machines can be extended through custom scripts and Desired State Configuration.

- A. Virtual Machine Availability
- B. Virtual Machine Scalability
- C. Applying Virtual Machine Extensions

XVII. Managing and Monitoring Virtual Machines

In this module, you will learn the very important tasks of backing up your virtual machines and monitoring their overall health. You will practice backing up and restoring virtual machines. You will learn about monitoring, diagnostics, and Azure Advisor.

- A. Backup and Restore
- B. Monitoring Virtual Machines

XVIII. Azure Virtual Networks

In this module, you will be introduced to Azure virtual networks. What are virtual networks and how are they organized? How do you create and configure virtual networks with templates, PowerShell, CLI, or the Azure portal? What is the difference between public, private, static, and dynamic IP addressing? How are system routes, routing tables, and routing algorithms used?

- A. Introducing Virtual Networks
- B. Creating Azure Virtual Networks
- C. Review of IP Addressing
- D. Network Routing

XIX. Azure DNS

In this module, you will learn about DNS basics and specifically implementing Azure DNS. In the DNS Basics lesson you will review DNS

domains, zones, record types, and resolution methods. In the Azure DNS lesson, we will cover delegation, metrics, alerts, and DNS hosting schemes.

- A. Azure DNS Basics
- B. Implementing Azure DNS

XX. Securing Virtual Network Resources

In this module, you will learn primarily about Network Security Groups (NSGs) including NSG rules and NSG scenarios. You will also learn how to implement NSGs considering service endpoints, logging, troubleshooting, and other network traffic

- A. Introduction to Network Security Groups
- B. Implementing Network Security Groups and Service Endpoints

XXI. Connecting Virtual Networks

In this module, you will learn about two specific types of intersite connectivity: VNet-to-VNet connections and VNet Peering. In both cases, you will learn when to choose which connectivity method, and how to implement and configure the method.

- A. Intersite Connectivity (VNet-to-VNet Connections)
- B. Virtual Network Peering

XXII. Managing Azure Active Directory

In this module, you will be introduced to Azure Active Directory. What is Azure Active Directory and how is it different from Active Directory Domain Services? What is Self-Service Password Reset and how is it configured? How can Azure AD Identity protection improve your security posture? How do you integrate SaaS applications with Azure AD?

- A. Azure Active Directory Overview
- B. Self-Service Password Reset
- C. Azure AD Identity Protection
- D. Integrating SaaS Applications with Azure AD

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XXIII. Managing Azure Active Directory Objects

In this module, you will learn the basics of implementing Azure AD objects. These objects include domains and tenants, users and groups, roles, and devices. In each lesson you will practice how to configure these objects through the portal and with Azure PowerShell. The Azure roles lesson will be your introduction to role-based access control.

- A. Azure Domains and Tenants
- B. Azure Users and Groups
- C. Azure Roles
- D. Managing Devices

XXIV. Implementing and Managing Hybrid Identities

In this module, you will learn how to integrate Active Directory with your existing infrastructure. You will learn about different authentication options like AD Connect, Single Sign On, and Pass-through authentication. You will also learn how to configure Azure AD Application Proxy and how it is used.

- A. Azure Active Directory Integration Options
- B. Azure AD Application Proxy