



Azure Administrator, Deployment

Course AZ-100

5 days

Instructor-led, Hands-on

Introduction

This five-day course is designed for system administrators who are transitioning into Azure, as well as IT professionals who have experience with Azure and want to expand their competencies.

The course takes a full day to dive deep into each of five important technologies within Azure. The first day focuses on managing Azure using standard tools such as the portal, templates, and monitoring options. The next three days cover the foundations of Infrastructure as a Service. Students will learn about virtual machines, virtual networks, and storage options through expert instruction and hands-on experience. Each of these topics is covered over a full day, giving the opportunity to dive deep into topics such as virtual machine customization, hybrid networking, and storage security. Finally, the course covers authentication, account management, and integration using Azure AD.

This course combines the following five, one-day courses, into one week:

- Course AZ-100T01: Manage Subscriptions and Resources
- Course AZ-100T02: Implementing and Managing Storage
- Course AZ-100T03: Deploying and Managing Virtual Machines
- Course AZ-100T04: Configuring and Managing Virtual Networks
- Course AZ-100T05: Manage Identities

At Course Completion

After completing this course, students will be able to:

- Manage Azure subscriptions, billing, and implement Azure policies.
- Implement access management with Azure users, groups, and role-based access control.
- Use Azure Monitor to configure Azure alerts and review the Azure Activity Log.
- Query and analyze Log Analytics data.
- Deploy resources with ARM templates and organize Azure resources.
- Optimize your use of Azure tools like the Azure portal, Azure PowerShell, Cloud Shell and the Azure CLI.
- Create Azure storage accounts for different data replication, pricing, and content scenarios.
- Implement virtual machine storage, blob storage, Azure files, and structured storage.
- Secure and manage storage with shared access keys, Azure backup, and Azure File Sync.

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- Store and access data using Azure Content Delivery Network, and the Import and Export service.
- Monitor Azure storage with metrics and alerts, and the Activity Log.
- Explain virtual machine usage cases, storage options, pricing, operating systems, networking capabilities, and general planning considerations.
- Create Windows virtual machines in the Azure Portal, with Azure PowerShell, or using ARM Templates.
- Deploy custom server images and Linux virtual machines.
- Configure virtual machine networking and storage options.
- Implement virtual machine high availability, scalability, and custom scripts extensions.
- Backup, restore, and monitor virtual machines.
- Understand virtual networking components, IP addressing, and network routing options.
- Implement Azure DNS domains, zones, record types, and resolution methods.
- Configure network security groups, service endpoints, logging, and network troubleshooting.
- Implement site connectivity schemas including VNet-to-VNet connections and virtual network peering.
- Implement Azure Active Directory, Self-Service Password Reset, Azure AD Identity Protection, and integrated SaaS applications.
- Configure domains and tenants, users and groups, roles, and devices.
- Implement and manage Azure Active Directory integration options and Azure AD Application Proxy.

Prerequisites

In addition to their professional experience, students who attend this training should already have the following technical knowledge:

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

Students should have attended, or equivalent experience in the following classes:

- 10961 - Automating Administration with Windows PowerShell
- 10979 - Microsoft Azure Fundamentals

Student Materials

The student kit includes a comprehensive workbook and other necessary materials for this class.

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Course Outline

Module 1: 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.

Lessons

- Overview of Azure Subscriptions
- Billing
- Azure Policy

After completing this module, students will be able:

- Manage Azure subscriptions and billing, and implement Azure policies.

Module 2: 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.

Lessons

- Azure Users and Groups
- Role-based Access Control

After completing this module, students will be able:

- Implement access management with Azure users, groups, and role-based access control.

Module 3: 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.

Lessons

- Exploring Monitoring Capabilities in Azure
- Azure Alerts
- Azure Activity Log

After completing this module, students will be able:

- Use Azure Monitor to configure Azure alerts and review the Azure Activity Log.

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Module 4: 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.

Lessons

- Introduction to Log Analytics
- Querying and Analyzing Log Analytics Data

After completing this module, students will be able:

- Query and analyze Log Analytics data.

Module 5: 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.

Lessons

- ARM templates
- Resource Groups

After completing this module, students will be able:

- Deploy resources with ARM templates and organize Azure resources.

Module 6: Azure Tips, Tricks, and Tools

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

Lessons

- Azure Portal
- Azure Tools and Environment

After completing this module, students will be able:

- Optimize your use of Azure tools like the Azure portal, Azure PowerShell, Cloud Shell and the Azure CLI.

Module 7: Lab-Manage Azure Subscriptions and Resources

This module is provided to give you hands-on experience with the information provided in the course.

Lab : Manage Azure Subscriptions and Resources

- Configure delegation of provisioning and management of Azure resources.

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- Verify delegation by provisioning Azure resources.

After completing this module, students will be able to:

- Configure delegation of provisioning and management of Azure resources by using built-in Role-Based (RBAC) roles and built-in Azure policies.
- Verify delegation by provisioning Azure resources as a delegated admin and auditing provisioning events.

Module 8: 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.

Lessons

- Azure storage accounts
- Data replication
- Azure Storage Explorer

After completing this module, students will be able to:

- Create Azure storage accounts for different data replication, pricing, and content scenarios.

Module 9: 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.

Lessons

- Virtual machine storage
- Blob storage
- Azure files
- Structured storage

After completing this module, students will be able to:

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- Implement virtual machine storage, blob storage, Azure files, and structured storage.

Module 10: 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.

Lessons

- Shared access keys
- Azure backup
- Azure File Sync

After completing this module, students will be able to:

- Secure and manage storage with shared access keys, Azure backup, and Azure File Sync.

Module 11: 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 and Azure Data Box.

Lessons

- Azure Content Delivery Network
- Import and Export service
- Data Box

After completing this module, students will be able to:

- Store and access data using Azure Content Delivery Network, the Import and Export service, and Data Box.

Module 12: 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.

Lessons

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- Metrics and Alerts
- Activity Log

After completing this module, students will be able to:

- Monitor Azure storage with metrics and alerts, and the Activity Log.

Module 13: Lab-Implement and Manage Storage

This module is provided to give you hands-on experience with the information provided in the course.

Lab : Implement and Manage Storage

- Prepare the lab environment.
- Implement and use Azure Blob storage.
- Implement and use Azure File storage.

After completing this module, you will be able to:

- Implement and use Blob storage.
- Implement and use File storage.

Module 14: Overview of Azure Machines

In this module, you'll will 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?

Lessons

- Azure Virtual Machines Overview
- Planning Considerations

After completing this module, students will be able to:

- Explain virtual machine usage cases, storage options, pricing, operating systems, networking capabilities, and general planning considerations.

Module 15: 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.

Lessons

- Overview of the Virtual Machine Creation Overview
- Creating Virtual Machines in the Azure Portal
- Creating Virtual Machines (PowerShell)
- Creating Virtual Machines using ARM Templates

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After completing this module, students will be able to:

- Create Windows virtual machines in the Azure Portal, with Azure PowerShell, or using ARM Templates.

Module 16: 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.

Lessons

- Deploying Custom Images
- Deploying Linux Virtual Machines

After completing this module, students will be able to:

- Deploy custom server images and Linux virtual machines.

Module 17: 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.

Lessons

- Overview of Virtual Machine Configuration
- Virtual Machine Networking
- Virtual Machine Storage

After completing this module, students will be able to:

- Configure virtual machine networking and storage options.

Module 18: 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.

Lessons

- Virtual Machine Availability
- Virtual Machine Scalability
- Applying Virtual Machine Extensions

After completing this module, students will be able to:

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- Implement virtual machine high availability, scalability, and custom scripts extensions.

Module 19: 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.

Lessons

- Backup and Restore
- Monitoring Virtual Machines

After completing this module, students will be able to:

- Backup, restore, and monitor virtual machines.

Module 20: Lab - Deploy and Manage Virtual Machines

This module is provided to give you hands-on experience with the information provided in the course.

Lab : Deploy and Manage Virtual Machines

- Deploy virtual machines.
- Configure networking setting for virtual machines.
- Configure Azure virtual machine scale sets.

After completing this module, you will be able to:

- Deploy Azure VMs by using the Azure portal, Azure PowerShell, and Azure Resource Manager templates.
- Configure networking settings of Azure VMs running Windows and Linux operating systems.
- Deploy and configure Azure VM scale sets.

Module 21: Azure Virtual Networks

In this module, you'll 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?

Lessons

- Introducing Virtual Networks
- Creating Azure Virtual Networks
- Review of IP Addressing
- Network Routing

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After completing this module, students will be able to:

- Understand virtual networking components, IP addressing, and network routing options.

Module 22: 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.

Lessons

- Azure DNS Basics
- Implementing Azure DNS

After completing this module, students will be able to:

- Implement Azure DNS domains, zones, record types, and resolution methods.

Module 23: 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.

Lessons

- Introduction to Network Security Groups
- Implementing Network Security Groups and Service Endpoints

After completing this module, students will be able to:

- Configure network security groups, service endpoints, logging, and network troubleshooting.

Module 24: 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.

Lessons

- Intersite Connectivity (VNet-to-VNet Connections)
- Virtual Network Peering

After completing this module, students will be able to:

- Implement site connectivity schemas including VNet-to-VNet connections and virtual network peering.

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Module 25: Lab - Configure and Manage Virtual Networks

This module is provided to give you hands-on experience with the information provided in the course.

Lab : Configure and Manage Virtual Networks

- Prepare the lab environment.
- Configure VNet peering.
- Implement custom routing.
- Validating service chaining.

After completing this module, you will be able to:

- Configure VNet peering.
- Implement custom routing.
- Validate service chaining.

Module 26: Managing Azure Active Directory

In this module, you'll 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?

Lessons

- Azure Active Directory Overview
- Self-Service Password Reset
- Azure AD Identity Protection
- Integrating SaaS Applications with Azure AD

After completing this module, students will be able to:

- Implement Azure Active Directory, Self-Service Password Reset, Azure AD Identity Protection, and integrated SaaS applications.

Module 27: 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.

Lessons

- Azure Domains and Tenants
- Azure Users and Groups
- Azure Roles
- Managing Devices

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After completing this module, students will be able to:

- Configure domains and tenants, users and groups, roles, and devices.

Module 28: 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.

Lessons

- Azure Active Directory Integration Options
- Azure AD Application Proxy

After completing this module, students will be able to:

- Implement and manage Azure Active Directory integration options and Azure AD Application Proxy.

Module 29: Lab - Implement and Manage Hybrid Identities

This module is provided to give you hands-on experience with the information provided in the course.

Lab : Implement and Manage Hybrid Identities

- Deploy a VM with an AD domain controller
- Create and configure an Azure AD tenant
- Synchronize an AD forest with an Azure AD tenant

After completing this module, you will be able to:

- Deploy an Azure VM hosting an Active Directory domain controller.
- Create and configure an Azure Active Directory tenant.
- Synchronize Active Directory forest with an Azure Active Directory tenant.