

Administering Windows Server Hybrid Core Infrastructure (AZ-800T00)

COURSE OVERVIEW

The course teaches IT Professionals how to implement and manage on-premises and hybrid solutions such as identity, management, compute, networking, and storage in a Windows Server hybrid environment.

WHO WILL BENEFIT FROM THIS COURSE?

This four-day course is intended for Windows Server Hybrid Administrators who have experience working with Windows Server and want to extend the capabilities of their on-premises environments by combining on-premises and hybrid technologies. Windows Server Hybrid Administrators implement and manage on-premises and hybrid solutions such as identity, management, compute, networking, and storage in a Windows Server hybrid environment.

PREREQUISITES

Before attending this course, students must have:

- Experience with managing Windows Server operating system and Windows Server workloads in on-premises scenarios, including AD DS, DNS, DFS, Hyper-V, and File and Storage Services
- Experience with common Windows Server management tools (implied in the first prerequisite).
- Basic knowledge of core Microsoft compute, storage, networking, and virtualization technologies (implied in the first prerequisite).
- Experience and an understanding of core networking technologies such as IP addressing, name resolution, and Dynamic Host Configuration Protocol (DHCP)
- Experience working with and an understanding of Microsoft Hyper-V and basic server virtualization concepts
- Basic experience with implementing and managing IaaS services in Microsoft Azure
- Basic knowledge of Azure Active Directory
- Experience working hands-on with Windows client operating systems such as Windows 10 or Windows 11
- Basic experience with Windows PowerShell

COURSE OBJECTIVES

Students will learn to:

- Introduction to AD DS
- Manage AD DS domain controllers and FSMO roles
- Implement Group Policy Objects
- Manage advanced features of AD DS



- Implement hybrid identity with Windows Server
- Deploy and manage Azure IaaS Active Directory domain controllers in Azure
- Perform Windows Server secure administration
- Describe Windows Server administration tools
- Perform post-installation configuration of Windows Server
- Just Enough Administration in Windows Server
- Administer and manage Windows Server IaaS Virtual Machine remotely
- Manage hybrid workloads with Azure Arc
- Configure and manage Hyper-V
- Configure and manage Hyper-V virtual machines
- Secure Hyper-V workloads
- Run containers on Windows Server
- Orchestrate containers on Windows Server using Kubernetes
- Plan and deploy Windows Server IaaS Virtual Machines
- Customize Windows Server IaaS Virtual Machine images
- Automate the configuration of Windows Server IaaS Virtual Machines
- Deploy and manage DHCP
- Implement Windows Server DNS
- Implement IP Address Management
- Implement remote access
- Implement hybrid network infrastructure
- Implement DNS for Windows Server IaaS VMs
- Implement Windows Server IaaS VM IP addressing and routing
- Manage Windows Server file servers
- Implement Storage Spaces and Storage Spaces Direct
- Implement Windows Server Data Deduplication
- Implement Windows Server iSCSI
- Implement Windows Server Storage Replica
- Implement a hybrid file server infrastructure

COURSE OUTLINE

Module 1: Introduction to AD DS

- Describe AD DS.
- Describe users, groups, and computers.
- Identify and describe AD DS forests and domains.
- Describe OUs.
- Manage objects and their properties in AD DS.

Module 2: Manage AD DS domain controllers and FSMO roles

- Deploy AD DS domain controllers.
- Maintain AD DS domain controllers.
- Describe the AD DS global catalog role and its placement considerations.



- Describe AD DS operations master roles, their placement considerations, and their management tasks.
- Describe AD DS schema and its management tasks.

Module 3: Implement Group Policy Objects

- Describe GPOs.
- Describe GPO scope and inheritance.
- Describe domain-based GPOs.
- Create and configure GPOs.
- Explain GPO storage.
- Describe administrative templates and the Central Store.

Module 4: Manage advanced features of AD DS

- Identify the purpose, types, and the process of creating trust relationships.
- Describe the purpose and the process of implementing ESAE forests.
- Monitor and troubleshoot AD DS replication.
- Identify the purpose and the process of creating custom AD DS partitions.

Module 5: Implement hybrid identity with Windows Server

- Select an Azure AD integration model.
- Plan for Azure AD integration.
- Prepare on-premises AD DS for directory synchronization.
- Install and configure directory synchronization using Azure AD Connect.
- Implement Seamless Single Sign-on (SSO).
- Enable Azure AD login for an Azure Windows virtual machine (VM).
- Describe Azure AD DS.
- Implement and configure Azure AD DS.
- Manage Windows Server 2019 in an Azure AD DS instance.
- Join a Windows Server VM to a managed domain.

Module 6: Deploy and manage Azure IaaS Active Directory domain controllers in Azure

- Select an option to implement directory and identity services by using Active Directory Domain Services (AD DS) in Azure.
- Deploy and configure AD DS domain controllers in Azure VMs.
- Install a replica AD DS domain controller in an Azure VM.
- Install a new AD DS forest on an Azure VNet.

Module 7: Perform Windows Server secure administration

- Explain least privilege administrative models.
- Implement delegated privilege.
- Describe privileged access workstations.
- Describe jump servers.

Module 8: Describe Windows Server administration tools

- Describe Windows Admin Center.
- Describe how to use Remote Server Administration Tools (RSAT) to manage servers.
- Describe Server Manager.
- Describe how to use Windows PowerShell to manage servers.
- Explain how to use Windows PowerShell to remotely administer a server.



Module 9: Perform post-installation configuration of Windows Server

- Explain post-installation configuration and describe the available post-installation configuration tools.
- Use Sconfig to configure Windows Server.
- Describe Desired State Configuration (DSC) and explain how to use it to configure Windows Server.
- Use Windows Admin Center to perform post-installation configuration.
- Implement answer files to complete the configuration.

Module 10: Just Enough Administration in Windows Server

- Explain the concept of Just Enough Administration (JEA)
- Define role group capabilities and session configurations for a JEA session
- Create and connect to a JEA endpoint

Module 11: Administer and manage Windows Server IaaS Virtual Machine remotely

- Select appropriate remote administration tools.
- Secure management connections to Windows Azure IaaS VMs with Azure Bastion.
- Configure JIT VM access.

Module 12: Manage hybrid workloads with Azure Arc

- Describe Azure Arc.
- Explain how to onboard on-premises Windows Server instances in Azure Arc.
- Connect hybrid machines to Azure from the Azure portal.
- Use Azure Arc to manage devices.
- Restrict access using RBAC.

Module 13: Configure and manage Hyper-V

- Describe the functionality and features of Hyper-V on Windows Server.
- Install Hyper-V on Windows Server.
- Describe the options for managing Hyper-V virtual machines (VMs) on Windows Server.
- Describe networking features and functionality in Hyper-V on Windows Server.
- Create virtual switches (vSwitches) for use with Hyper-V.
- Describe using nested virtualization in Hyper-V.

Module 14: Configure and manage Hyper-V virtual machines

- Describe settings, configuration, and generation versions available for VMs in Windows Server 2019.
- Identify virtual hard disk (VHD) formats and types.
- Create and configure a VM.
- Determine storage options for VMs.
- Describe shared VHDs and VHD Sets.
- Describe host and guest clustering with shared VHDs.

Module 15: Secure Hyper-V workloads

- Describe the features and functionality of the HGS in Windows Server.
- Describe the attestation options available with the HGS.
- Describe shielded VMs, their creation, and their deployment.



Module 16: Run containers on Windows Server

- Describe containers and how they work.
- Explain the difference between containers and virtual machines (VMs).
- Describe the difference between process isolation and Hyper-V isolation modes.
- Describe Docker and how it's used to manage Windows containers.
- Identify the container-based images available from the Microsoft Container Registry.
- Understand the process for running a Windows container.
- Explain how to manage containers using Windows Admin Center (WAC).

Module 17: Orchestrate containers on Windows Server using Kubernetes

- Describe container orchestration.
- Describe Kubernetes.
- Describe how to create a Kubernetes cluster.
- Describe Azure Arc for Kubernetes.

Module 18: Plan and deploy Windows Server IaaS Virtual Machines

- Describe Azure compute.
- Describe Azure storage.
- Deploy Azure VMs.
- Create a VM from the Azure portal.
- Create a VM from Azure Cloud Shell.
- Deploy Azure VMs by using templates.

Module 19: Customize Windows Server IaaS Virtual Machine images

- Create a generalized image.
- Create a new VM from a generalized image.
- Create a managed image of a generalized VM in Azure.
- Create a VM from a managed image.
- Describe Azure Image Builder.
- Use Azure Image Builder to create a Windows image.

Module 20: Automate the configuration of Windows Server IaaS Virtual Machines

- Describe Azure automation.
- Implement Azure automation with DSC.
- Remediate noncompliant servers.
- Describe custom script extension.
- Configure a VM by using DSC extensions.

Module 21: Deploy and manage DHCP

- Describe the DHCP Server role.
- Install and configure the DHCP Server role.
- Configure DHCP options.
- Create and configure a DHCP scope.
- Describe high availability options for DHCP.
- Describe DHCP Failover and explain how to configure it.



Module 22: Implement Windows Server DNS

- Describe Windows Server DNS.
- Describe DNS zones and records.
- Install and configure the DNS role and DNS zones.
- Describe how to implement DNS forwarding.

Module 23: Implement IP Address Management

- Describe IPAM.
- Deploy IPAM.
- Describe how to administer IPAM.
- Configure IPAM options.
- Manage DNS zones with IPAM.
- Manage DHCP servers with IPAM.
- Use IPAM to manage IP addressing.

Module 24: Implement remote access

- Describe the remote access options available in Windows Server.
- Select VPN options and set up VPN servers.
- Describe the NPS server role.
- Plan and implement NPS.
- Determine when to deploy PKI for remote access.
- Identify the authentication options for Web Application Proxy and explain how to use it to publish applications.

Module 25: Implement hybrid network infrastructure

- Describe Azure network topologies.
- Implement an Azure VPN.
- Explain how to create a route-based VPN gateway using the Azure portal.
- Implement Azure ExpressRoute.
- Implement an Azure WAN.
- Implement DNS resolution in hybrid environments.

Module 26: Implement DNS for Windows Server IaaS VMs

- Implement DNS in Azure
- Describe DNS options for Azure IaaS VMs
- Implement split-horizon DNS in Azure
- Troubleshoot DNS in Azure
- Create and configure an Azure DNS zone

Module 27: Implement Windows Server IaaS VM IP addressing and routing

- Implement an Azure virtual network
- Implement IP Address Allocation in Azure
- Assign and manage IP addresses
- Configure a private IP address for an Azure virtual machine
- Create a virtual machine with a static IP address
- Implement IaaS VM IP routing
- Implement IPv6 for Windows IaaS Virtual Machines



Module 28: Manage Windows Server file servers

- Describe the Windows Server file system.
- Describe the benefits and use of File Server Resource Manager.
- Describe SMB and its security considerations.
- Manage SMB configuration.
- Describe Volume Shadow Copy Service.

Module 29: Implement Storage Spaces and Storage Spaces Direct

- Describe the architecture and components of Storage Spaces.
- Describe the functionality, benefits, and use cases of Storage Spaces.
- Implement Storage Spaces.
- Describe the functionality, components, and use cases of Storage Spaces Direct.
- Implement Storage Spaces Direct.

Module 30: Implement Windows Server Data Deduplication

- Describe the architecture, components, and Data Deduplication functionality, components, and use cases of Data Deduplication.
- Describe the use cases and interoperability of Data Deduplication.
- Implement Data Deduplication.
- Manage and maintain Data Deduplication.

Module 31: Implement Windows Server iSCSI

- Describe iSCSI functionality, components, and use cases.
- Describe the considerations for implementing iSCSI.
- Implement iSCSI.
- Describe implementing high-availability iSCSI configurations.

Module 32: Implement Windows Server Storage Replica

- Describe the functionality and components of Storage Replica.
- Describe the prerequisites for implementing Storage Replica.
- Implement Storage Replica.

Module 33: Implement a hybrid file server infrastructure

- Describe Azure file services.
- Configure Azure file services.
- Configure connectivity to Azure file services.
- Describe Azure File Sync.
- Implement Azure File Sync.
- Deploy Azure File Sync.
- Manage cloud tiering.
- Migrate from DFSR to Azure File Sync.

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