MS-AZ801T00: CONFIGURING WINDOWS SERVER HYBRID ADVANCED SERVICES

DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
4 Days	Intermediate	Azure	Instructor-led	NA

INTRODUCTION

This course teaches IT Professionals to configure advanced Windows Server services using on-premises, hybrid, and cloud technologies. The course teaches IT Professionals how to leverage the hybrid capabilities of Azure, how to migrate virtual and physical server workloads to Azure IaaS, and how to secure Azure VMs running Windows Server. The course also teaches IT Professionals how to perform tasks related to high availability, troubleshooting, and disaster recovery. The course highlights administrative tools and technologies including Windows Admin Center, PowerShell, Azure Arc, Azure Automation Update Management, Microsoft Defender for Identity, Azure Security Center, Azure Migrate, and Azure Monitor.

AUDIENCE PROFILE

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 who already implement and manage on-premises core technologies want to secure and protect their environments, migrate virtual and physical workloads to Azure IaaS, enable a highly available, fully redundant environment, and perform monitoring and troubleshooting.

PREREQUISITES

Before attending this course, students must have:

- Experience with managing Windows Server operating systems and workloads in on-premises scenarios, including Active Directory Domain Services (AD DS), Domain Name System (DNS), Distributed File System (DFS), Hyper-V, and File and Storage Services.
- Familiarity with common Windows Server management tools such as PowerShell and Windows Admin Center.
- Basic knowledge of core Microsoft technologies, including compute, storage, networking, and virtualization.

COURSE OBJECTIVES

After completing this course, students will be able to:

- Harden the security configuration of the Windows Server operating system environment.
- Enhance hybrid security using Azure Security Centre, Azure Sentinel, and Windows Update Management.
- Apply security features to protect critical resources.
- Implement high availability and disaster recovery solutions.
- Implement recovery services in hybrid scenarios.

COURSE CONTENT

Module 1: Implement Windows Server IaaS VM network security
In this module, you will focus on how to improve the network security for Windows Server infrastructure as a service (IaaS) virtual machine (VMs) and how to diagnose network security issues with those VMs.
Lessons
- Introduction
- Implement network security groups and Windows IaaS VMs
- Implement adaptive network hardening
- Implement Azure Firewall and Windows IaaS VMs

- Implement Windows Firewall with Windows Server IaaS VMs
- Choose the appropriate filtering solution
- Deploy and configure Azure firewall using the Azure portal
- Capture network traffic with network watcher
- Log network traffic to and from a VM using the Azure portal
- Knowledge check
- Summary
After completing this module, you'll be able to:
- Implement Network Security Groups (NSGs) with Windows Server IaaS VMs.
- Implement adaptive network hardening.

- Implement Azure Firewall.
- Implement Windows Defender Firewall in Windows Server IaaS VMs.
- Choose an appropriate filtering solution.
- Capture network traffic with Network Watcher.

Module 2: Audit the security of Windows Server IaaS Virtual Machines
Learn about Microsoft Defender for Cloud and how to onboard Windows Server computers to Microsoft Defender for Cloud. Also learn about Microsoft Sentinel, security information and event management (SIEM), and security

orchestration, automation, and response (SOAR).
Lessons
– Introduction
– Describe Microsoft Defender for Cloud
– Enable Microsoft Defender for Cloud in hybrid environments
– Implement and assess security policies
– Protect your resources with Microsoft Defender for Cloud
– Implement Azure Sentinel
– Knowledge check
– Summary
After completing this course, you'll will be able to:
– Describe Microsoft Defender for Cloud.
– Enable Microsoft Defender for Cloud in hybrid environments.
– Onboard Windows Server computers to Microsoft Defender for Cloud.
– Implement and assess security policies.
– Describe Microsoft Sentinel.
– Implement SIEM and SOAR.
– Protect your resources with Microsoft Defender for Cloud.

Module 3: Manage Azure updates
You'll be able to enable Azure Update Management, deploy updates, review an update assessment, and manage updates for your Azure VMs.
Lessons
– Introduction
– Describe update management
– Enable update management
– Deploy updates
– View update assessments
– Manage updates for your Azure Virtual Machines
– Knowledge check
– Summary
After completing this module, you'll will be able to:
– Describe Azure updates.
– Enable Update Management.
– Deploy updates.
– Review an update assessment.
– Manage updates for your Azure VMs.

Module 4: Create and implement application allowlists with adaptive application control
You'll be able to implement Adaptive application controls within your organization to protect your Windows Server IaaS VMs.
Lessons
– Introduction
– Describe adaptive application control
– Implement adaptive application control policies
– Knowledge check
– Summary

After completing this module, you'll will be able to:
– Enable Adaptive application controls.
– Implement adaptive application control policies.

Module 5: Configure BitLocker disk encryption for Windows IaaS Virtual Machines
You'll be able to configure Azure Disk Encryption for Windows IaaS VMs and back up and recover encrypted data.
Lessons
– Introduction
– Describe Azure Disk Encryption and server-side encryption
– Configure Key Vault for Azure Disk Encryption
– Encrypt Azure IaaS Virtual Machine hard disks
– Back up and recover data from encrypted disks
– Create and encrypt a Windows Virtual Machine
– Knowledge check
– Summary
After completing this module, you'll be able to:
– Describe Azure Disk Encryption.
– Configure Key Vault to support Azure Disk Encryption.
– Explain how to encrypt Azure IaaS VM hard disks.
– Back up and recover encrypted data from IaaS VM hard disks.

Module 6: Implement change tracking and file integrity monitoring for Windows IaaS VMs
In this module, you'll learn how to monitor Windows Server Azure IaaS VMs for changes in files and the registry, as well as other monitor modifications made to application software.
Lessons
– Introduction
– Implement Change Tracking and Inventory
– Manage Change Tracking and Inventory
– Manage tracked files
– Implement File Integrity Monitoring
– Select and monitor entities
– Use File Integrity Monitoring
– Knowledge check
– Summary
After completing this module, you will be able to:
– Implement Change Tracking and Inventory
– Manage Change Tracking and Inventory
– Manage tracked files

– Implement File Integrity Monitoring
– Select and monitor entities
– Use File Integrity Monitoring

Module 7: Secure Windows Server DNS
Learn how to secure Windows Server DNS to help protect your network name resolution infrastructure and implement DNS policies.
Lessons
– Introduction
– Implement split-horizon DNS
– Create DNS policies
– Implement DNS policies
– Secure Windows Server DNS
– Implement DNSSEC
– Knowledge check
– Summary
After completing this module, you'll be able to:
– Describe split-horizon DNS and explain how to implement it.
– Create DNS policies.
– Implement DNS policies.
– Describe the options for protecting the DNS server role.
– Implement DNS security.

Module 8: Secure Windows Server user accounts
Protect your Active Directory environment by securing user accounts to least privilege and placing them in the Protected Users group. Learn how to limit authentication scope and remediate potentially insecure accounts.
Lessons
– Introduction
– Configure user account rights
– Protect user accounts with the Protected Users group
– Describe Windows Defender Credential Guard
– Block NTLM authentication
– Locate problematic accounts
– Knowledge check
– Summary
After completing this course, students will be able to:
– Configure and manage user accounts to limit security threats across an organization
– Apply Protected Users settings, policies, and authentication silos to protect highly privileged user accounts
– Describe and configure Windows Defender Credential Guard
– Configure Group Policy to block the use of NTLM for authentication

Module 9: Hardening Windows Server

Learn how to harden the security configuration of your Windows Server operating system environment. Secure administrative access to Privileged Access Workstations (PAWs), apply security baselines, and secure domain controllers and SMB traffic.

Lessons

– Introduction
– Describe Local Password Administrator Solution
– Configure Privileged Access Workstations
– Secure domain controllers
– Analyze security configuration with Security Compliance Toolkit
– Secure SMB traffic
– Knowledge check
– Summary and Resources

After completing this module, you'll be able to:

– Manage local administrator passwords using Local Administrator Password Solution
– Limit administrative access to Privileged Access Workstations (PAWs)
– Explain how to secure domain controllers from being compromised
– Describe how to use the Microsoft Security Compliance Toolkit to harden servers
– Secure SMB traffic using SMB encryption

Module 10: Windows Server update management

Learn how to use Windows Server Update Services to deploy operating system updates to computers on your network. Select the appropriate deployment option and combine WSUS with Microsoft Azure Update Management to manage server updates.

Lessons

– Introduction
– Explore Windows Update
– Outline Windows Server Update Services server deployment options
– Define Windows Server Update Services update management process
– Describe the process of Update Management
– Knowledge check
– Summary

After completing this module, you'll be able to:

– Describe the role of Windows Server Update Services (WSUS)
– Describe the WSUS update management process
– Deploy updates with WSUS

Module 11: Introduction to Cluster Shared Volumes

Learn about the core functionality, benefits, use cases, and implementation of Cluster Shared Volumes (CSV) in Windows Server 2019.

Lessons

– Introduction
– Determine the functionality of Cluster Shared Volumes
– Explore the architecture and components of Cluster Shared Volumes
– Implement Cluster Shared Volumes
– Knowledge check
– Summary

After completing this module, you'll be able to:

– Describe the functionality of CSV.
– Describe the architecture and components of CSV.
– Implement CSV.

Module 12: Implement Windows Server failover clustering

Learn about the core functionality of Windows Server failover clustering, various configuration options for failover clustering, and the use of cluster sets.

Lessons

– Introduction
– Define Windows Server failover clustering
– Plan Windows Server failover clustering
– Implement Windows Server failover clustering
– Manage Windows Server failover clustering
– Implement stretch clusters
– Define cluster sets
– Knowledge check
– Summary

After completing this module, you'll be able to:

– Describe Windows Server failover clustering.
– Implement Windows Server failover clustering.
– Manage Windows Server failover clustering.
– Implement stretch clusters.
– Describe cluster sets.

Module 13: Implement high availability of Windows Server VMs

Learn about the core functionality, benefits, use cases, and implementation of highly available Microsoft Hyper-V virtual machines (VMs) in Windows Server 2019.

Lessons

– Introduction
– Select high-availability options for Hyper-V
– Consider network load balancing for Hyper-V VMs
– Implement Hyper-V VM live migration

– Implement Hyper-V VMs storage migration
– Knowledge check
– Summary

After completing this module, you'll be able to:

– Describe the Hyper-V high availability options.
– Describe Hyper-V VMs load balancing.
– Implement Hyper-V VMs live migration.
– Implement Hyper-V VMs storage migration.

Module 14: Implement Windows Server File Server high availability

Learn about the core functionality, benefits, use cases, and implementation of the highly available File Server role in Windows Server 2019.

Lessons

– Introduction
– Explore the Windows Server File Server high-availability options
– Define Cluster Shared Volumes
– Implement Scale-Out File Server
– Implement Storage Replica
– Knowledge check
– Summary

After completing this module, you will be able to:

– Provide a high-level overview of Windows Server File Server high-availability options.
– Describe the characteristics of, and high-level implementation steps for Cluster Shared Volumes (CSV).
– Describe the characteristics of, and high-level implementation steps for Scale-Out File Server (SOFS).
– Describe the characteristics of, and high-level implementation steps for Storage Replica.

Module 15: Implement scale and high availability with Windows Server VM

Learn how to implement scaling for virtual machine scale sets and load-balanced VMs. You'll also learn how to implement Azure Site Recovery.

Lessons

– Introduction
– Describe virtual machine scale sets
– Implement scaling
– Implement load-balancing VMs
– Create a virtual machine scale set in the Azure portal
– Describe Azure Site Recovery
– Implement Azure Site Recovery

– Knowledge check
– Summary
After completing this module, you'll be able to:
– Describe virtual machine scale sets.
– Implement scaling.
– Implement load-balancing virtual machines.
– Implement Azure Site Recovery.

Module 16: Implement Hyper-V Replica
Learn about Hyper-V Replica, scenarios for its use, and prerequisites to use it. Learn about Azure Site Recovery and the benefits of using it, focusing on implementing Site Recovery in on-premises scenarios.
Lessons
– Introduction
– Define Hyper-V Replica
– Plan for Hyper-V Replica
– Configure and implement Hyper-V Replica
– Define extended replication
– Define Azure Site Recovery
– Implement Site Recovery from on-premises site to Azure
– Implement Site Recovery from on-premises site to on-premises site
– Knowledge check
– Summary
After completing this module, you'll be able to:
– Describe Hyper-V Replica, pre-requisites for its use, and its high-level architecture and components.
– Describe Hyper-V Replica usage scenarios, available replication settings, and security considerations.
– Configure Hyper-V Replica settings, health monitoring, and failover options.
– Implement Hyper-V Replica.
– Describe extended replication.
– Describe Site Recovery.
– Implement Site Recovery.

Module 17: Implement hybrid backup and recovery with Windows Server IaaS
Learn about Azure Backup before learning to implement Recovery Vaults and Azure Backup Policies. You'll learn to implement Windows IaaS VM recovery, perform backup and restore of on-premises workloads, and manage Azure VM backups.
Lessons
– Introduction
– Describe Azure Backup
– Implement recovery vaults
– Implement Azure Backup policies

– Recover Windows IaaS Virtual Machines
– Perform file and folder recovery
– Perform backup and restore of on-premises workloads
– Manage Azure Virtual Machine backups with Azure Backup service
– Knowledge check
– Summary
After completing this module, you'll be able to:
– Describe Azure Backup.
– Implement Recovery Vaults.
– Implement Azure Backup policies.
– Recover Windows IaaS VMs.
– Perform file and folder recovery.
– Perform backup and recovery of on-premises workloads.
– Explain how to manage Azure VM backups with Azure Backup.

Module 18: Protect your on-premises infrastructure from disasters with Azure Site Recovery
Provide disaster recovery for your on-premises infrastructure by managing and orchestrating replication, failover, and failback of VMware virtual machines, Hyper-V virtual machines, and physical servers with Azure Site Recovery.
Lessons
– Introduction
– Azure Site Recovery overview
– Workloads supported for protection with Azure Site Recovery
– Run a disaster recovery drill
– Failover and failback
– Summary
After completing this module, you'll be able to:
– Identify the features and protection capabilities Azure Site Recovery provides to on-premises infrastructure
– Identify the requirements for enabling protection of on-premises infrastructure

Module 19: Protect your Azure infrastructure with Azure Site Recovery
In this module, you'll learn to provide disaster recovery for your Azure infrastructure by customizing replication, failover, and failback of Azure virtual machines with Azure Site Recovery.
Lessons
– Introduction
– What is Azure Site Recovery
– Prepare for disaster recovery with Azure Site Recovery

– Exercise - Set up disaster recovery with Azure Site Recovery
– Run a disaster recovery drill
– Exercise - Run a disaster recovery drill
– Failover and failback using Azure Site Recovery
– Exercise - Failover and failback using Azure Site Recovery
– Summary
After completing this module, you'll be able to:
– Protect Azure virtual machines with Azure Site Recovery
– Run a disaster recovery drill to validate protection
– Failover and failback your virtual machines

Module 20: Protect your virtual machines by using Azure Backup
Use Azure Backup to help protect on-premises servers, virtual machines, SQL Server, Azure file shares, and other workloads.
Lessons
– Introduction
– Azure Backup features and scenarios
– Back up an Azure virtual machine by using Azure Backup
– Exercise - Back up an Azure virtual machine
– Restore virtual machine data
– Exercise - Restore Azure virtual machine data
– Summary
After completing this module, you'll be able to:
– Identify the scenarios for which Azure Backup provides backup and restore capabilities
– Back up and restore an Azure virtual machine

Module 21: Migrate on-premises Windows Server instances to Azure IaaS virtual machines
You're able to plan a migration and select appropriate server migration tools. You will also learn how to use Azure Migrate, how to assess physical servers, and how to migrate those servers.
Lessons
– Introduction
– Plan your migration
– Describe Azure Migrate
– Perform server assessment
– Assess physical servers with Azure Migrate
– Migrate Windows Server workloads by using Azure Migrate
– Knowledge check
– Summary

After completing this module, you'll be able to:
- Plan your migration.
- Describe Azure Migrate.
- Migrate server workloads using Windows Server Migration Tools.
- Assess physical servers with Azure Migrate.
- Migrate on-premises servers to Azure.

Module 22: Upgrade and migrate Windows Server IaaS virtual machines
Learn to migrate a workload running in Windows Server to an infrastructure as a service (IaaS) virtual machine (VM) and to Windows Server 2025 by using Windows Server migration tools or the Storage Migration Service.
Lessons
- Introduction
- Describe Azure Migrate
- Migrate Windows Server workloads by using Azure Migrate
- Describe storage migration
- Migrate file servers by using Storage Migration Service
- Knowledge check
- Summary
After completing this module, you'll be able to:
- Describe Windows Server IaaS migration.
- Explain how to migrate workloads using Windows Server Migration tools.
- Describe storage migration.
- Migrate file servers by using the Storage Migration Service.

Module 23: Active Directory Domain Services migration
Determine the best approach to moving domain controllers to Windows Server 2025. Learn how the Active Directory Migration Tool can consolidate domains within a forest or migrate domains to a new AD DS forest.
Lessons
- Introduction
- Examine upgrade vs. migration
- Upgrade a previous version of Active Directory Domain Services to Windows Server 2025
- Migrate to Active Directory Domain Services in Windows Server 2025 from a previous version
- Explore the Active Directory Migration Tool
- Knowledge check
- Summary
After completing this module, you'll be able to:

- Compare upgrading an AD DS forest and migrating to a new AD DS forest
- Describe how to upgrade an existing AD DS forest
- Describe how to migrate to a new AD DS forest
- Describe Active Directory Migration Tool (ADMT)

Module 24: Migrate file server workloads using Storage Migration Service
Learn to use Storage Migration Service to migrate files and files shares from existing file server to new servers running Windows Server. Configure storage migration for optimum performance of data migration.
Lessons
- Introduction
- Storage Migration Service overview and usage scenarios
- Storage migration requirements
- Migrate a server with Storage migration
- Evaluate storage migration considerations
- Knowledge check
- Summary
After completing this module, you'll be able to:
- Describe Storage Migration Service and its usage scenarios
- Identify the requirements for using Storage Migration Service
- Describe how to migrate a server with storage migration
- List the considerations for using Storage Migration Service

Module 25: Monitor Windows Server IaaS Virtual Machines and hybrid instances
Learn to implement Azure Monitor for IaaS VMs in Azure, implement Azure Monitor in on-premises environments, and use dependency maps.
Lessons
- Enable Azure Monitor for VMs.
- Monitor an Azure VM with Azure Monitor.
- Enable Azure Monitor in hybrid scenarios.
- Collect data from a Windows computer in a hybrid environment.
- Integrate Azure Monitor with Microsoft Operations Manager.
After completing this module, you'll be able to:
- Enable Azure Monitor for VMs.
- Monitor an Azure VM with Azure Monitor.

- Enable Azure Monitor in hybrid scenarios.
- Collect data from a Windows computer in a hybrid environment.
- Integrate Azure Monitor with Microsoft Operations Manager.

Module 26: Monitor your Azure virtual machines with Azure Monitor
Learn how to monitor your Azure VMs by using Azure Monitor to collect and analyze VM host and client metrics and logs.
Lessons
- Introduction
- Monitoring for Azure VMs
- Monitor VM host data
- Use Metrics Explorer to view detailed host metrics
- Collect client performance counters by using VM insights
- Collect VM client event logs
- Summary
After completing this module, you'll be able to:
- Understand which monitoring data you need to collect from your VM.
- Enable and view recommended alerts and diagnostics.
- Use Azure Monitor to collect and analyze VM host metrics data.
- Use Azure Monitor Agent to collect VM client performance metrics and event logs.

Module 27: Monitor Windows Server performance
Learn to use a range of Windows Server tools to monitor the operating system and applications on a server computer. You'll also learn to configure your system to optimize efficiency and to troubleshoot problems.
Lessons
- Introduction
- Use Performance Monitor to identify performance problems
- Use Resource Monitor to review current resource usage
- Review reliability with Reliability Monitor
- Implement a performance monitoring methodology
- Use Data Collector Sets to analyze server performance
- Monitor network infrastructure services
- Monitor virtual machines running Windows Server
- Monitor performance with Windows Admin Center
- Use System Insights to help predict future capacity issues
- Optimize the performance of Windows Server
- Knowledge check

– Summary and resources
After completing this module, you will be able to:
– Use built-in tools in Windows Server to monitor server performance
– Understand the fundamentals of server performance tuning

Module 28: Manage and monitor Windows Server event logs
Learn how Event Viewer provides a convenient and accessible location for you to observe events that occur. Access event information quickly and conveniently. Learn how to interpret the data in the event log.
Lessons
– Introduction
– Describe Windows Server event logs
– Use Windows Admin Center to review logs
– Use Server Manager to review logs
– Use custom views
– Implement event log subscriptions
– Knowledge check
– Summary
After completing this module, you will be able to:
– Describe event logs
– Use Server Manager and Windows Admin Center to - Review event logs
– Implement custom views
– Configure an event subscription

Module 29: Implement Windows Server auditing and diagnostics
Learn to audit and diagnose your Windows Server environment for regulatory compliance, user activity, and troubleshooting. Implement security best practices through regular audits of your network environment to gain early warning of potential malicious activity.
Lessons
– Introduction
– Describe basic auditing categories

– Describe advanced categories
– Log user access
– Enable setup and boot event collection
– Knowledge check
– Summary
After completing this module, you will be able to:
– Audit Windows Server events
– Configure Windows Server to record diagnostic information

Module 30: Troubleshoot on-premises and hybrid networking
Learn to troubleshoot on-premises connectivity and hybrid network connectivity. Diagnose common issues with DHCP, name resolution, IP configuration, and routing that can cause reliability and connectivity problems in an on-premises and a hybrid environment.
Lessons
– Introduction
– Diagnose DHCP problems
– Diagnose DNS problems
– Diagnose IP configuration issues
– Diagnose routing problems
– Use Packet Monitor to help diagnose network problems
– Use Azure Network Watcher to help diagnose network problems
– Knowledge check
– Summary
After completing this module, you will be able to:
– Diagnose DHCP and DNS problems in on-premises contexts
– Diagnose IP configuration and routing problems
– Implement Packet Monitor to help diagnose network problems
– Use Azure Network Watcher to troubleshoot Microsoft Azure virtual networks

Module 31: Troubleshoot Windows Server Virtual Machines in Azure
Learn to troubleshoot configuration issues that impact connectivity to

your Azure-hosted Windows Server virtual machines (VMs). Explore approaches to resolve issues with VM startup, extensions, performance, storage, and encryption.
Lessons
– Introduction
– Troubleshoot VM deployment
– Troubleshoot VM startup
– Troubleshoot VM extensions
– Troubleshoot VM connectivity
– Troubleshoot VM performance
– Troubleshoot VM storage
– Knowledge check
– Summary
After completing this module, you will be able to:
– Troubleshoot VM deployment and extension issues
– Troubleshoot VM startup and performance issues
– Troubleshoot VM storage and encryption issues
– Troubleshoot connectivity to VMs

Module 32: Troubleshoot Active Directory
Learn how to troubleshoot AD DS service failures or degraded performance. Learn how to recover deleted security objects and the AD DS database, and how to troubleshoot hybrid authentication issues.
Lessons
– Introduction
– Recover objects from the AD recycle bin
– Recover the AD DS database
– Recover SYSVOL
– Troubleshoot AD DS replication
– Troubleshoot hybrid authentication issues
– Knowledge check
– Summary
After completing this module, you will be able to:
– Recover the AD DS database, objects in AD DS, and SYSVOL
– Troubleshoot AD DS replication

ASSOCIATED CERTIFICATION & EXAM

This course will prepare delegates to write the Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services.