training code: MS 55341 / ENG DL 5d / EN

# Installation, Storage, and Compute with Windows Server 2019/2022

Target audience:

- Administrator
- HelpDesk
- IT specialist

## Training recipients

This 5-day course is first of all addressed to IT specialists who have certain experience with Windows Server system. It is intended for experts who are responsible for managing mass storage and computing using Windows Server and who must understand requirements and options of configuring mass storage and data processing available and having appliance in Windows Server system. The training and related laboratories concern systemu Windows Server 2022 system, but most topics discussed are also available on Windows Server 2016 and 2019. During practical laboratories participants focus on how to administer Windows Server using not only traditional tools such as PowerShell and Server Manager, but also Windows Admin Center.

Main target audience of the course are:
– Administrators of Windows Server system who have basic knowledge of administering Windows Server and related technologies, as well as who would like to know more about mass storage and computing power in Windows Server system.
– IT experts with general IT knowledge who would like to gain expertise on Windows Server, especially on mass storage and computing in Windows Server system.
– IT specialists, who have certain experience in working with Windows Server system, wanting to expand or consolidate their knowledge.

MS 55341 course is the equivalent of withdrawn authorized course MS 20740 Installation, Storage and Compute with Windows Server 2016.

## Benefits

An ability to prepare and install Windows Server system Windows Server and its update.
Knowledge of server's migration strategy.
An ability to use different options of storage, knowledge of formats of partition tables, basic and dynamic disks, file systems, administering disks and volumes.
Knowledge of mass storage troubleshooting for companies, implementing space for storage and data deduplication and managing them.
Knowledge of Microsoft Hyper-V role and an ability to configure and manage virtual machine.
Knowledge related to implementing, configuring and managing  Windows and Hyper-V containers.
An ability to use high-availability technologies  and Disaster Recovery in Windows Server system.
An ability to plan, develop and manage Disaster Recovery cluster.
Knowledge of Disaster Recovery cluster for Hyper-V virtual machines.
Knowledge of Network Load Balance cluster NLB) and implementing Network Load Balance.
An ability to create implementation images and to manage them.
Knowledge of management, monitoring and maintenance of virtual machines installation.

## Training program

1. Introduction
   - Information about the training
   - Training agenda
   - Laboratory environment
2. Installing, updating and server and workload migration
   - Windows Server introduction
   - Preparing and installing Server Core
   - Preparing for update and migration
   - Role and server workload migration
   - Windows Server system activation models
3. Configruing local storage
   - Disk management in Windows Server system
   - Volume management in Windows Server
   - Developing and managing volumes
   - Changing the size of volumes
   - Virtual Hard Disk management
4. Implementing mass storage solutions for companies
   - DAS, NAS and SAN solutions review

- Comparing Fibre Channel, iSCSI and Fibre Channel via Ethernet
- Understanding iSNS, DCB and MPIO
- Sharing configuration in Windows Server
- Planning warehouse requirements
- iSCSI storage configruation
- Shared infrastructure configuration and management

5. Implementing storages and data deduplication
- Implementing storages
- Storage management
- Implementing data deduplication
- Creating space for storage
- Installing data deduplication
- Configuring data deduplication

6. Installing and configuring  Hyper-V and virtual machines
- Review of Hyper-V
- Installing Hyper-V
- Configuring warehouse on Hyper-V host servers
- Network configuration on Hyper-V host servers
- Configuring Hyper-V virtual machines
- Virtual machine management
- Hyper-V network configuration
- Virtual machine configuration
- Embedded virtualization for virtual machine

7. Container implementation and management
- Review of containers in Windows Server
- Implementing Windows Server and Hyper-V containers
- Installing, configuring and managing containers using Docker
- Installing and configuring Windows Server system containers using Windows PowerShell application
- Implementing containers using Docker

8. High availabilty and Disaster Recovery
- Defining availability levels
- Planning solutions ensuring high availability and Disaster Recovery  using Hyper-V virtual machines
- Back-ups and Disaster Recovery using back-up function of Windows Server system
- High-availability thanks to Disaster Recovery clusters in Windows Server system
- Specifying appropriate solution ensuring high-availability and Diaster Recovery
- Storage migration implementation
- Configuring Hyper-V replicas

9. Implementing Disaster Recovery clusters
- Planning Disaster Recovery cluster
- Creating and configuring new Disaster Recovery cluster
- Disaster Recovery cluster maintenance

- Troubleshooting Disaster Recovery cluster
- Implementing high-availability with stretch clustering
- Developing Disaster Recovery cluster
- Verifying quorum settings and adding a node
- Node eviction and verifying quorum settings
- Modifying quorum settings
- Verifying high availability

10. Implementing Disaster Recovery clusters in Windows Server Hyper-V system
    - Discussing integration of Hyper-V functions with Disaster Recovery clustersj
    - Implementing Hyper-V virtual machines in Disaster Recovery clusters
    - Most important functions of virtual machines in cluster environment
    - Configuring Disaster Recovery cluster for Hyper-V
    - Configuring high-availability virtual machine
11. Implementing Network Load Balancing
    - NLB review
    - Configuring Network Load Balancing cluster
    - PlanningNLB implementation
    - Implementing Network Load Balancing cluster (NLB)
    - Configuring and managing Network Load Balancing cluster
    - Verifying high-availability of Network Load Balancing cluster
12. Creating and managing implementation images
    - Introduction to implementation images
    - Creating and managing implementation images using MDT
    - Virtual machine environments for varoius workloads
    - MDT configuration
    - Creating and implementing the image
13. Managing, monitoring and virtual machine installation maintenance
    - Discussing WSUS application and implementation options
    - Updating management process using WSUS
    - Discussing Windows PowerShell DSC
    - A review of tools to monitor Windows Server system
    - Using performance Monitor
    - Monitoring event logs
    - Determining performance benchmark
    - Identifying the source of performance problem
    - A review and configuration of centralized event logs

## Expected preparation of the participant

Basic understanding network fundamentals, awareness and understanding security best practices.
Understanding Active Directory basic concepts, basic knowledge of server hardware.
Experience in servicing and configuring Client Windows operational systems such as Windows 10 or Windows 11.
Recommended basic knowledge of using Windows PowerShell commands.
An ability to use materials in English,
To increase the comfort of work and training’s effectiveness we suggest using an additional monitor. The lack of additional monitor does not exclude participation in the training, however, it significantly influences the comfort of work during classes.
You can find information and requirements of participation in Distance Learning trainings at:
https://www.altkomakademia.pl/en/how-it-works/about-courses/

## Training Includes

- access to Altkom Akademia's student portal

Training methods:

- theory
- demonstrations
- shared projects
- individual laboratories

specify the quantity theory versus practice

- 50% theory
- 50% practice

## Duration

5 days / 35 hours

## Language

- Training: English
- Materials: English