

System Administration 1

Prepared by Dr. Ahmed Omar

IT391

System Administration 1

Lecture 4



User and Group Management: Windows Server

Lecture 4

IT391

System Administration 1

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Agenda

- What is Active Directory?
- Active Directory concepts
- Downloading Windows Client Operating Systems
- Active Directory Installation Steps on Windows Server

What is Active Directory?

Active Directory (AD) is a directory service provides a **centralized, standardized** system for **managing** network resources, including:

- **Users:** User accounts, passwords, and group memberships.
- **Computers:** Workstations and servers.
- **Groups:** Collections of users or computers for easier permission management.
- **Printers, Applications, and other network objects.**

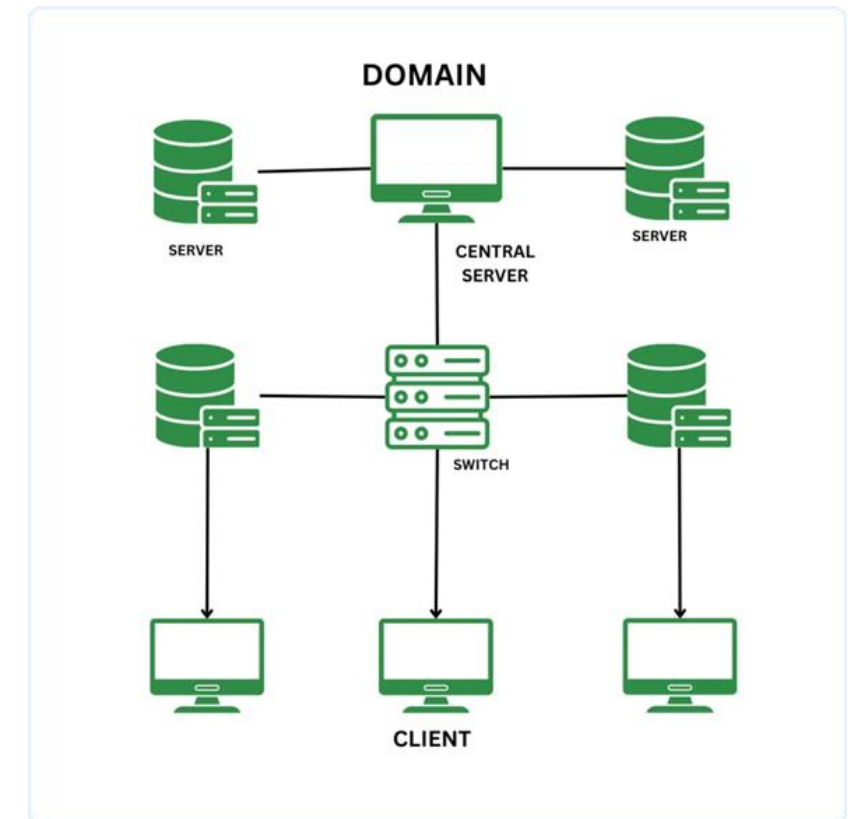
What is Active Directory?

Key Functionality:

- **Authentication:** Verifies the identity of users and computers.
- **Authorization:** Controls access to resources based on permissions.
- **Centralized Management:** Simplifies administration of large networks.
- **Scalability:** Can manage millions of objects across a distributed network.

Domain vs. Workgroup

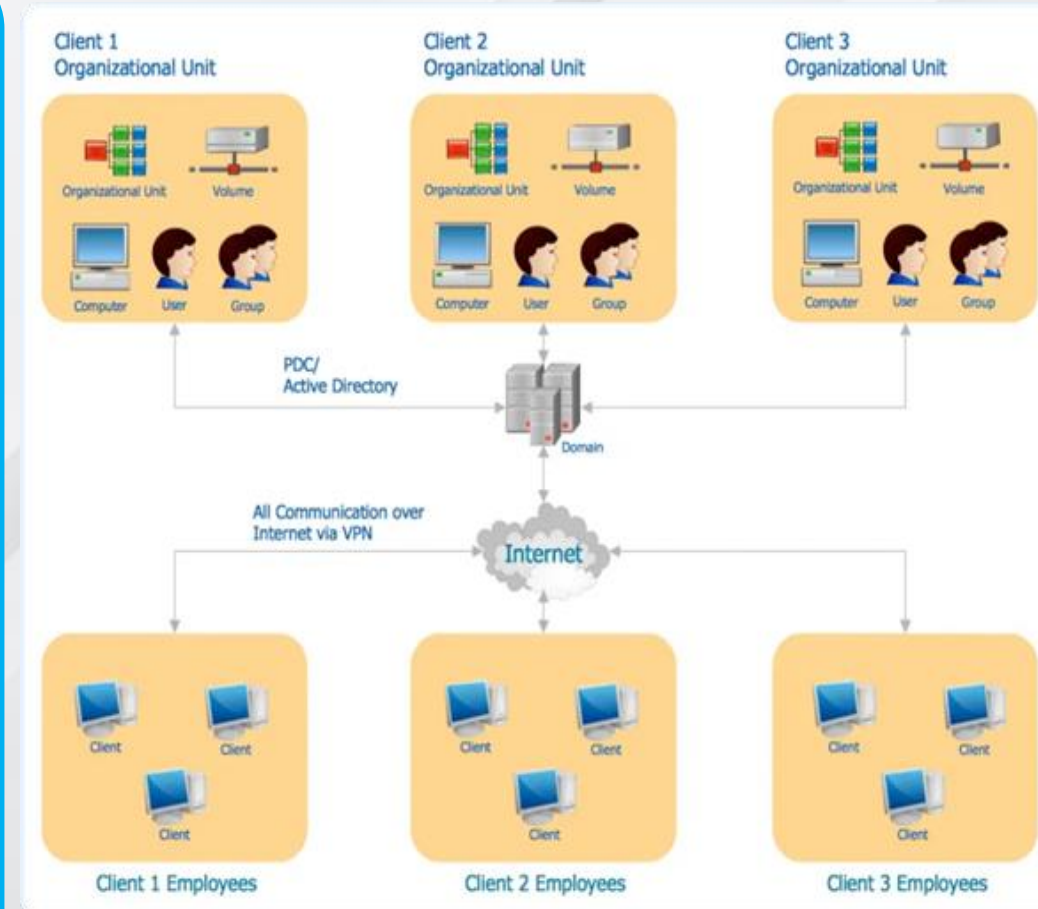
Feature	Domain	Workgroup
Management	Centralized	Decentralized
Authentication	Domain controller	Local computer
User Accounts	Single domain account	Separate account on each PC
Security	Centralized policies	Individual settings
Scalability	Highly scalable	Limited (≤ 10 computers)
Best For	Medium to large organizations	Small networks, home use



Domain Controller (DC)

Domain Controller (DC) :

- ☐ A server running Active Directory Domain Services (AD DS) and responsible for responding to authentication requests
- ☐ Manages and stores the Active Directory database (NTDS.dit)
- ☐ Enforces security and group policies
- ☐ Handles login, replication, and directory searches

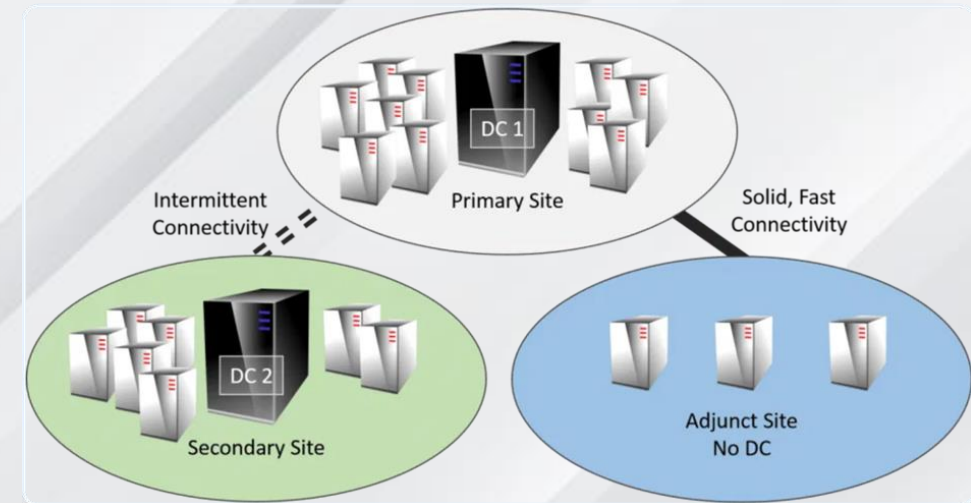


Additional Domain Controllers

These are DCs installed after the first DC in a domain.

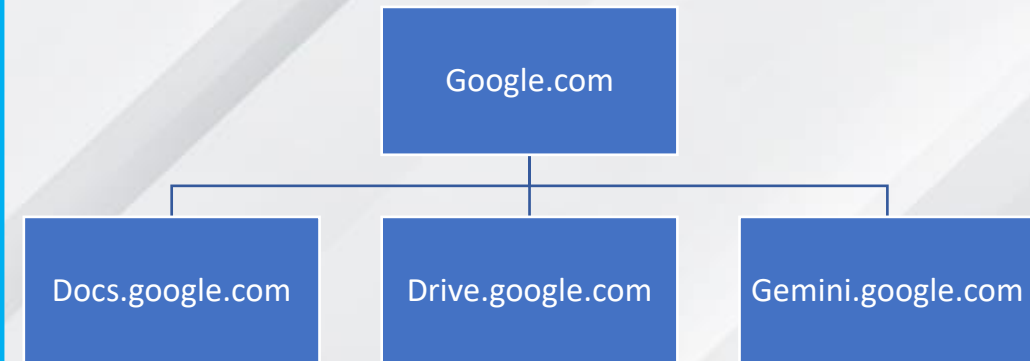
❑ Benefits:

- ✓ **Redundancy (Fault Tolerance):** If the DC fails, the remaining ADCs can continue to provide services, preventing downtime.
- ✓ **Load Balancing:** Distributes authentication and directory lookup requests across multiple servers, improving response times.
- ✓ **Geographic Distribution:** Placing DCs in different physical locations improves performance for users in those areas and provides disaster recovery capabilities.



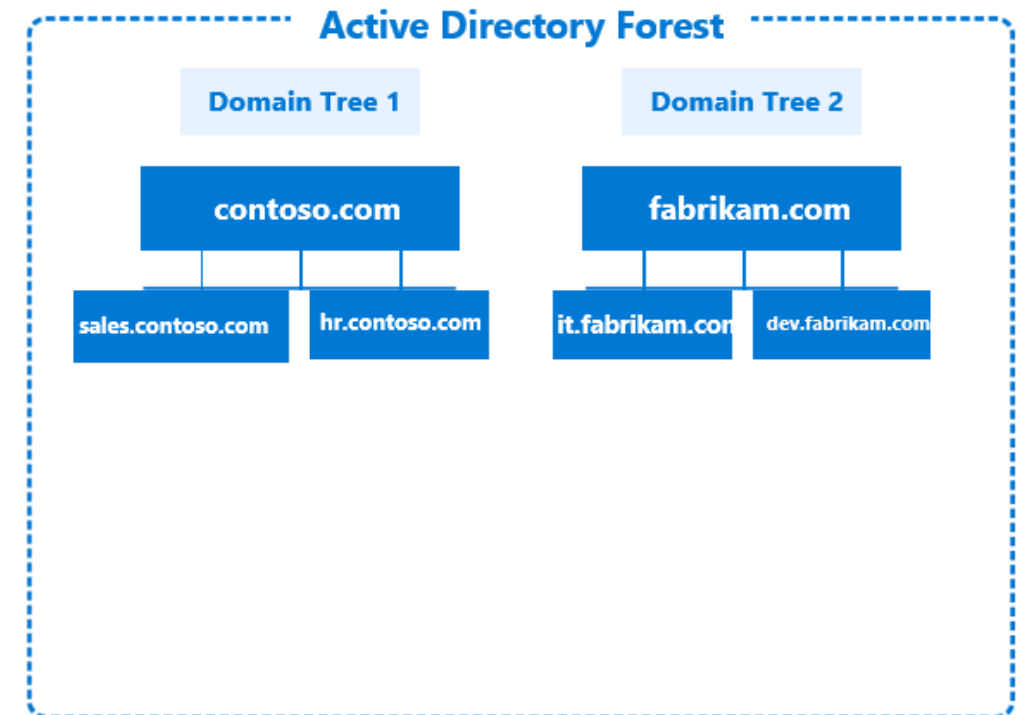
Child Domain

-  A domain created within an existing Active Directory domain
-  Forms a hierarchical structure with the parent domain
-  Automatic two-way transitive trust with parent domain
-  Allows for decentralized administration
-  Reduces replication traffic across the network



Forest

- 🌲 Highest-level logical structure in Active Directory
- 🏢 Collection of one or more domains that share a common schema and configuration
- 🛡 Security boundary for Active Directory
- 🔗 All domains within a forest trust each other implicitly



Install client Virtual Machine

Download Windows 10

<https://www.microsoft.com/en-us/software-download/windows10>

Direct link

https://dn721103.ca.archive.org/0/items/en-us_windows_10_consumer_editions_version_22h2_updated_feb_2023_x64_dvd_c29e4bb3/en-us_windows_10_consumer_editions_version_22h2_updated_feb_2023_x64_dvd_c29e4bb3.iso

Install client Virtual Machine

Windows 10 2022 Update | Version 22H2

The Update Assistant can help you update to the latest version of Windows 10. To get started, click **Update now**.

[Update now](#)

Create Windows 10 installation media

To get started, you will first need to have a license to install Windows 10. You can then download and run the media creation tool. For more information on how to use the tool, see the instructions below.

[Download Now](#)



Install client Virtual Machine

Windows 10 Setup

Applicable notices and license terms

Please read this so you know what you're agreeing to.

MICROSOFT SOFTWARE LICENSE TERMS

MICROSOFT MEDIA CREATION TOOL

IF YOU LIVE IN (OR ARE A BUSINESS WITH A PRINCIPAL PLACE OF BUSINESS IN) THE UNITED STATES, PLEASE READ THE "BINDING ARBITRATION AND CLASS ACTION WAIVER" SECTION BELOW. IT AFFECTS HOW DISPUTES ARE RESOLVED.

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1. INSTALLATION AND USE RIGHTS.

- a) **General.** You may install and use one copy of the software to develop and test your applications, and solely for use on Windows. You may make one backup copy of the software for the sole purpose of reinstalling the software.
- b) **Third Party Software.** The software may include third party applications that Microsoft, or the third party, licenses to you under this agreement. Any included licenses for third

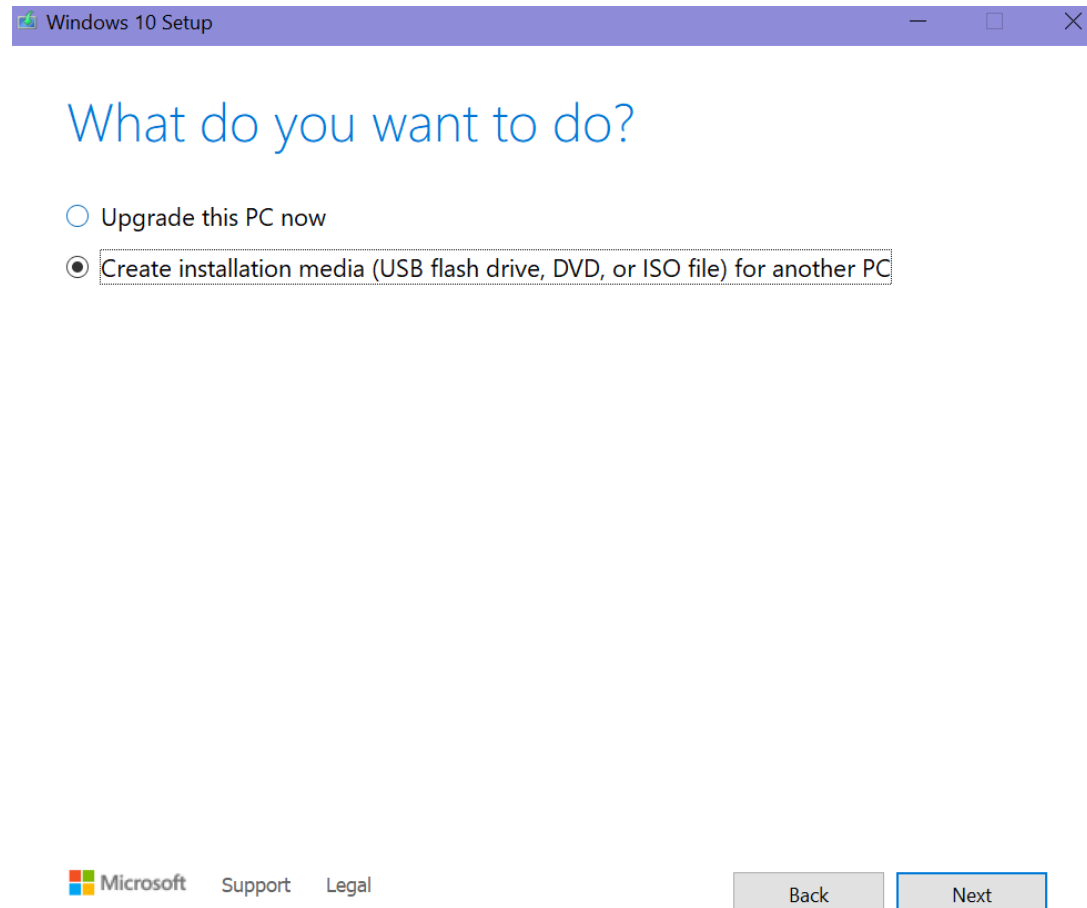
[Privacy statement](#)

Microsoft Support Legal

Decline

Accept

Install client Virtual Machine



Install client Virtual Machine

Windows 10 Setup

Select language, architecture, and edition

Please select from one of the available options to continue.

Language English (United States) ▾

Edition Windows 10 ▾

Architecture 64-bit (x64) ▾

☐ [Use the recommended options for this PC](#)

Install client Virtual Machine

Windows 10 Setup

Choose which media to use

If you want to install Windows 10 on another partition, you need to create and then run the media to install it.

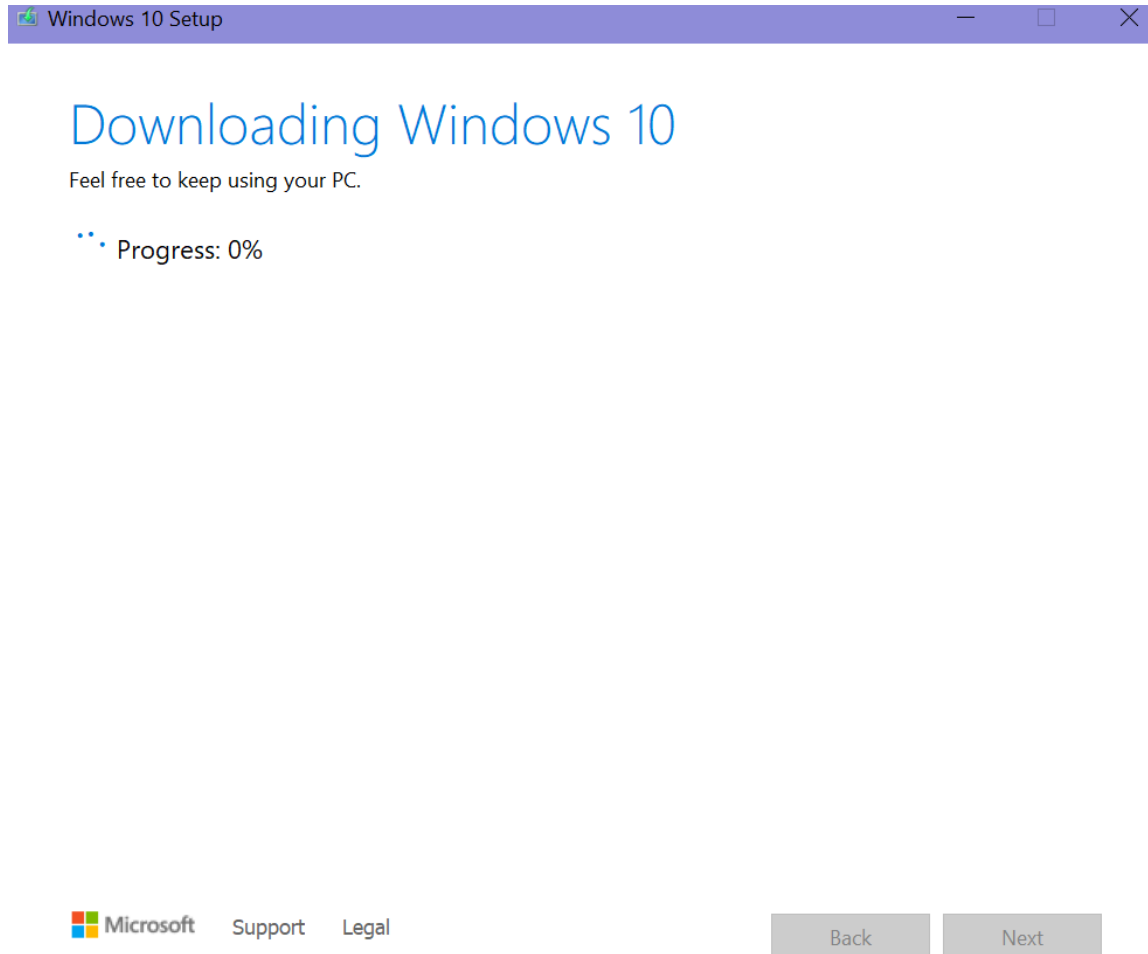
☐ USB flash drive
It needs to be at least 8 GB.

☒ ISO file
You'll need to burn the ISO file to a DVD later.

 Microsoft [Support](#) [Legal](#)

[Back](#) [Next](#)

Install client Virtual Machine



Install client Virtual Machine

Download Windows 11

<https://www.microsoft.com/en-us/software-download/windows11>

Download Now

Create Windows 11 Installation Media

If you want to perform a reinstall or clean install of Windows 11 on a new or used PC, use this option to download the media creation tool to make bootable USB or DVD.

Note: Windows 11 media creation tool cannot be used to create installation media for Arm-based PCs; it can only create media for x64 processors.

> Before you begin using the media creation tool

Download Now

Download Windows 11 Disk Image (ISO) for x64 devices

This option is for users that want to create a bootable installation media (USB flash drive, DVD) or create a virtual machine (.ISO file) to install Windows 11. This download is a multi-edition ISO which uses your product key to unlock the correct edition.

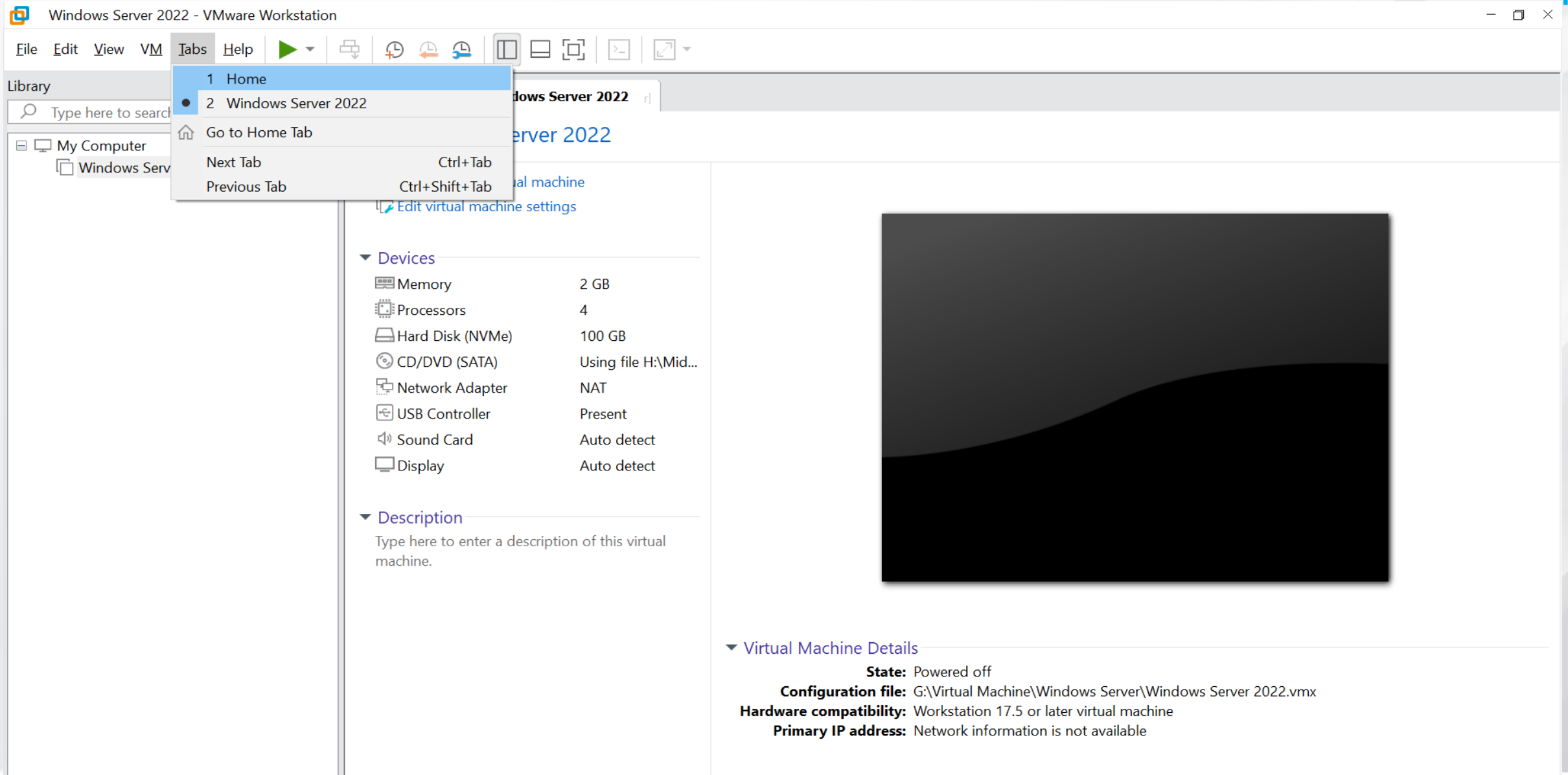
Windows 11 ISOs for Arm64 devices are available [here](#).

Windows 11 (multi-edition ISO for x64 devices) ▾

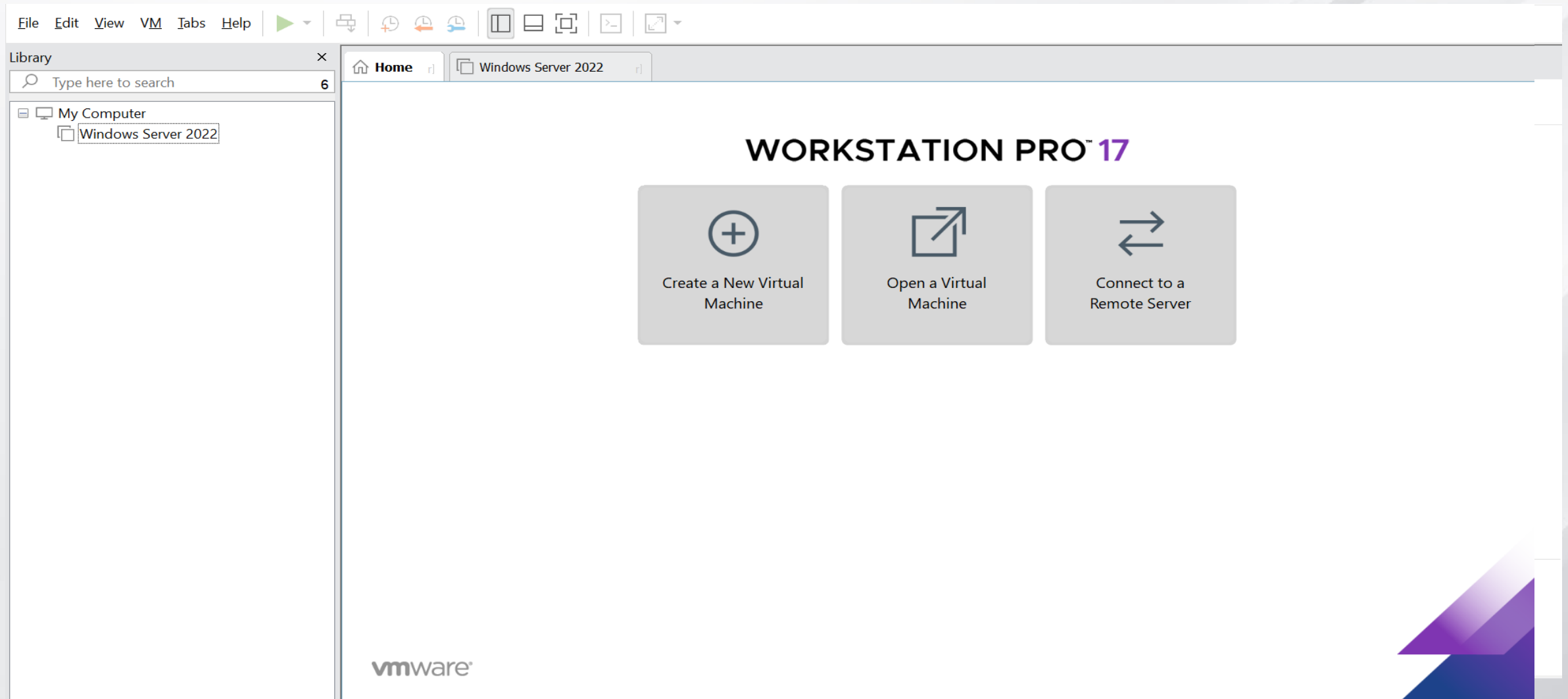
> Before you begin downloading an ISO

Confirm

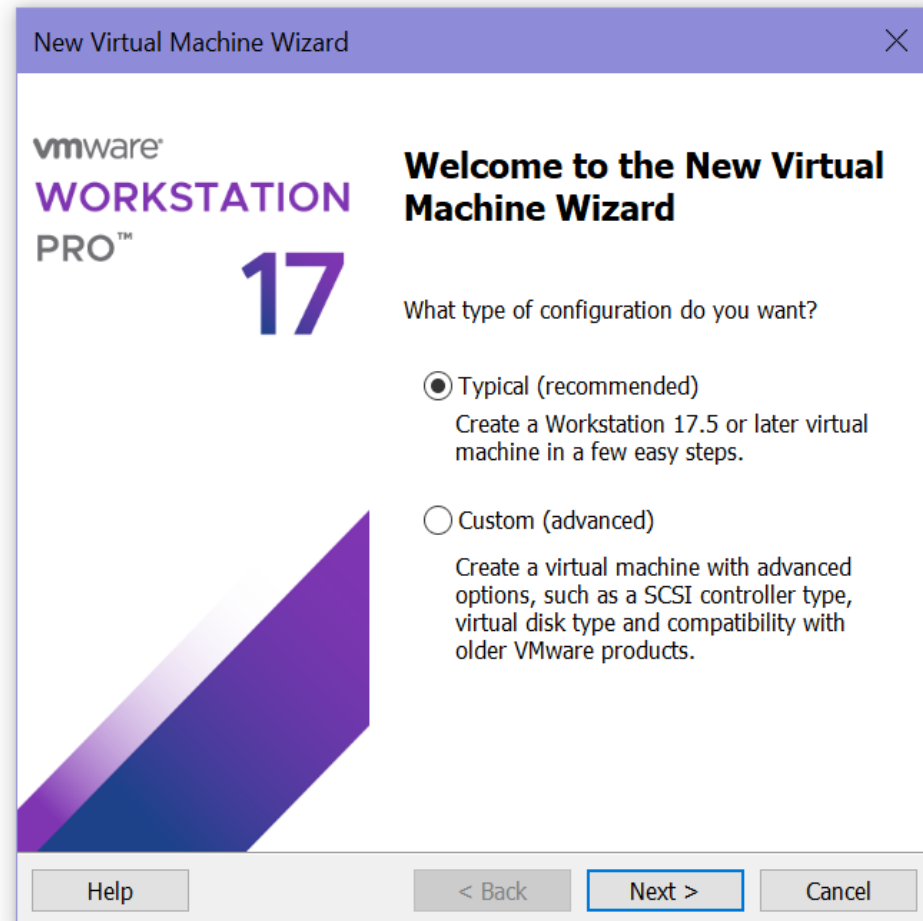
MIDOCEAN
UNIVERSITY



Install client Virtual Machine



Install client Virtual Machine



PRO™ 17



Connect to a
Remote Server

Install client Virtual Machine

New Virtual Machine Wizard

Guest Operating System Installation
A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?

Install from:

☐ Installer disc:
No drives available

☐ Installer disc image file (iso):
H:\MidOcean\IT391 - System Administration 1\Materail

Browse...

☒ I will install the operating system later.
The virtual machine will be created with a blank hard disk.

Help

< Back

Next >

Cancel

New Virtual Machine Wizard

Name the Virtual Machine

What name would you like to use for this virtual machine?

Virtual machine name:

Windows 11

Location:

G:\Virtual Machine\Windows 11

Browse...

The default location can be changed at Edit > Preferences.

< Back Next > Cancel

Install client Virtual Machine

New Virtual Machine Wizard

✕

Encryption Information
How would you like to encrypt this virtual machine?

This Guest OS requires an encrypted Trusted Platform Module to operate.

Your files will be encrypted using a password you must set. This password is stored in the systems credential manager. Keep a copy of the password in a safe place, you can not start this VM without it.

Choose Encryption Type

☐ All the files (.vmdk, .vmx, etc) for this virtual machine are encrypted.

☒ Only the files needed to support a TPM are encrypted. (.nvram, .vmss, .vmem, .vmx, .vmsn)

Password

••••••••

Copy

Confirm Password

••••••••

☒ Remember the password on this machine in Credential Manager

< Back

Next >

Cancel

Install client Virtual Machine

New Virtual Machine Wizard

Specify Disk Capacity

How large do you want this disk to be?

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (GB):

Recommended size for Windows 11 x64: 64 GB

☒ Store virtual disk as a single file

☐ Split virtual disk into multiple files

Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

Help

< Back

Next >

Cancel

Install client Virtual Machine

New Virtual Machine Wizard

Ready to Create Virtual Machine
Click Finish to create the virtual machine. Then you can install Windows 11 x64.

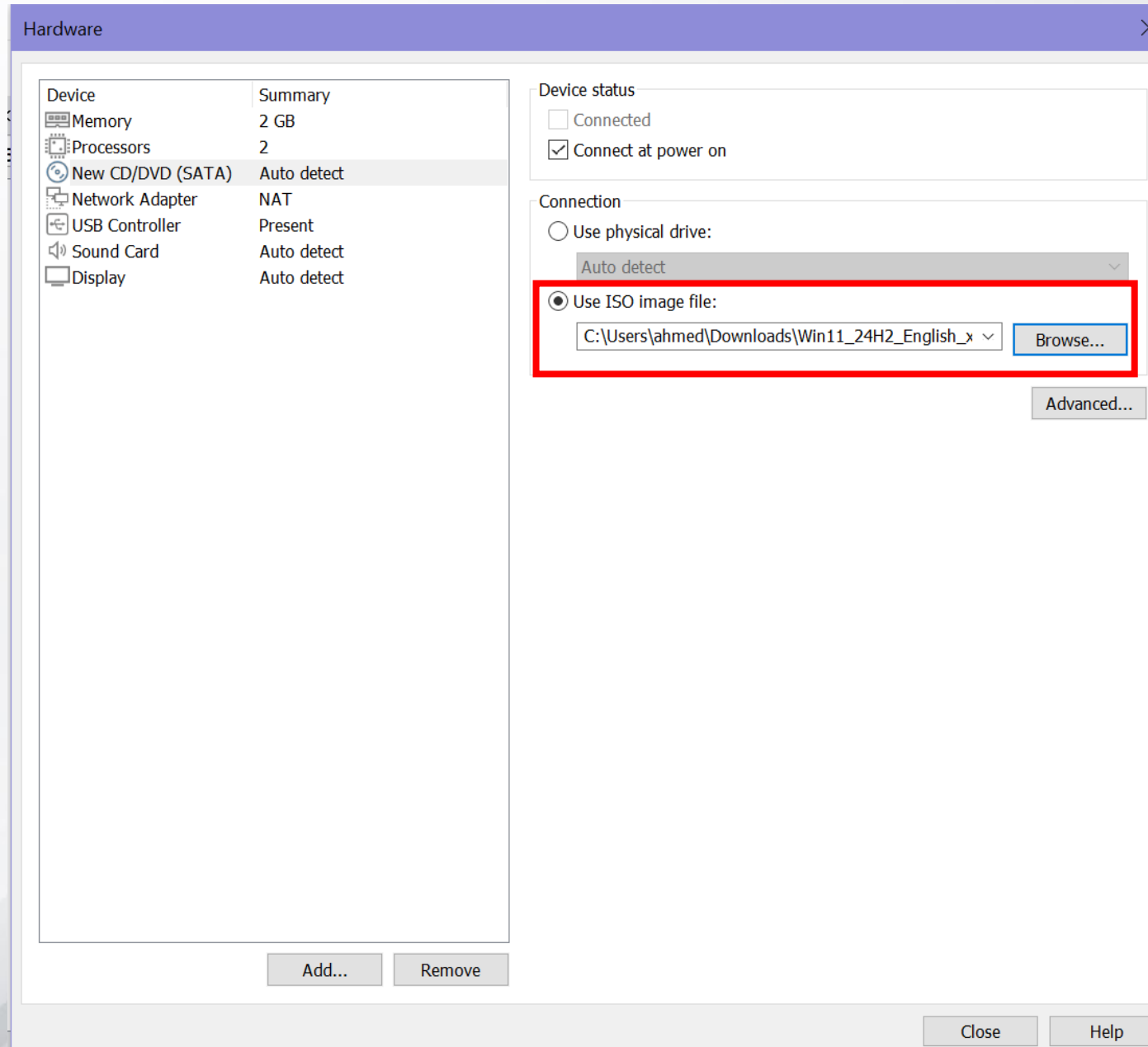
The virtual machine will be created with the following settings:

Name:	Windows 11
Location:	G:\Virtual Machine\Windows 11
Version:	Workstation 17.5 or later
Operating System:	Windows 11 x64
Hard Disk:	64 GB
Memory:	4096 MB
Network Adapter:	NAT
Other Devices:	2 CPU cores, CD/DVD, USB Controller, Sound Card

[Customize Hardware...](#)

< Back Finish Cancel

Install client Virtual Machine



Install client Virtual Machine

The screenshot displays the Oracle VM VirtualBox application window. The top navigation bar shows three tabs: 'Home', 'Windows Server 2022', and 'Windows 11'. The left sidebar contains a search bar and a tree view with 'My Computer', 'Windows Server 2022', and 'Windows 11'. The main pane is titled 'Windows 11' and features a red rectangular box highlighting the 'Power on this virtual machine' button, which is accompanied by a green play icon. Below this button is a link for 'Edit virtual machine settings'. The 'Devices' section lists various hardware components and their configurations: Memory (2 GB), Processors (2), Hard Disk (NVMe) (64 GB), CD/DVD (SATA) (Using file C:\Use...), Network Adapter (NAT), USB Controller (Present), Sound Card (Auto detect), Display (Auto detect), and Trusted Platform Module (Present). The 'Description' section prompts the user to enter a description for the virtual machine. On the right side, a large black rectangular area represents the virtual machine's display. At the bottom right, the 'Virtual Machine Details' section provides the following information: State: Powered off, Configuration file: G:\Virtual Machine\Windows 11\Windows 11.vmx, Hardware compatibility: Workstation 17.5 or later virtual machine, and Primary IP address: Network information is not available.

Home | Windows Server 2022 | Windows 11

Type here to search 6

My Computer

- Windows Server 2022
- Windows 11

Windows 11

Power on this virtual machine

Edit virtual machine settings

Devices

Memory	2 GB
Processors	2
Hard Disk (NVMe)	64 GB
CD/DVD (SATA)	Using file C:\Use...
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Display	Auto detect
Trusted Platform Module	Present

Description

Type here to enter a description of this virtual machine.

Virtual Machine Details

State: Powered off

Configuration file: G:\Virtual Machine\Windows 11\Windows 11.vmx

Hardware compatibility: Workstation 17.5 or later virtual machine

Primary IP address: Network information is not available

Install client Virtual Machine



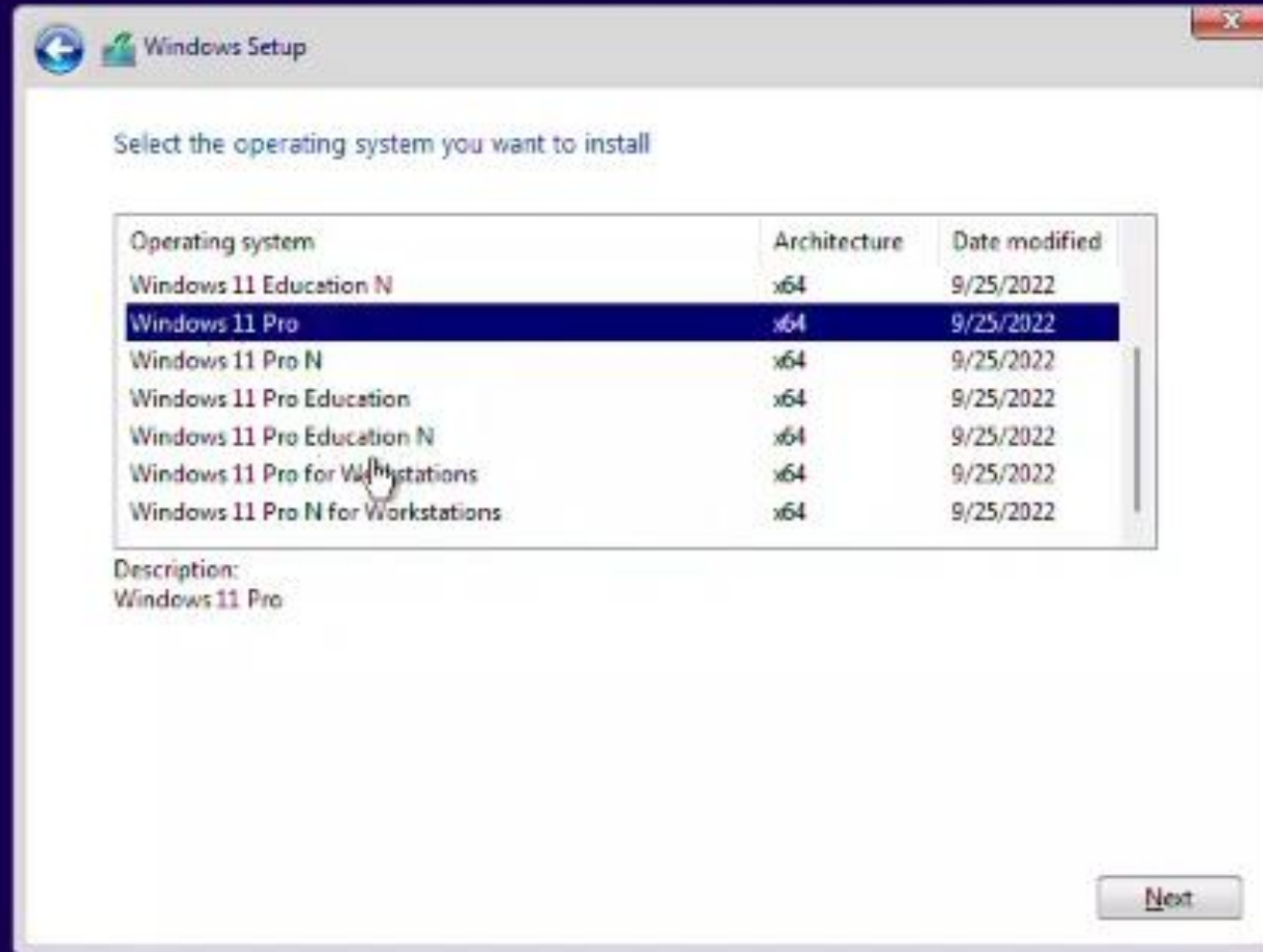
Install client Virtual Machine



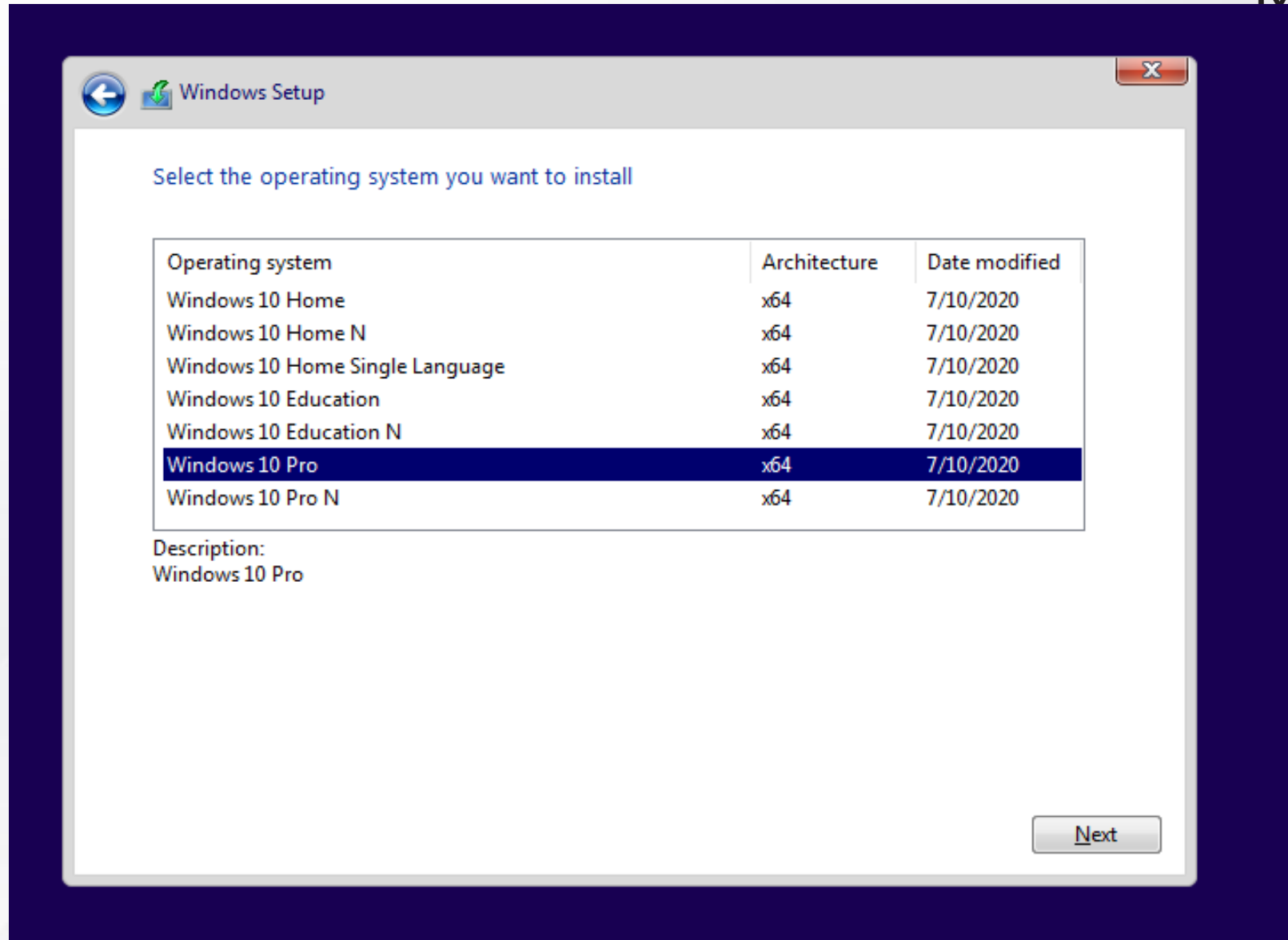
Install client Virtual Machine



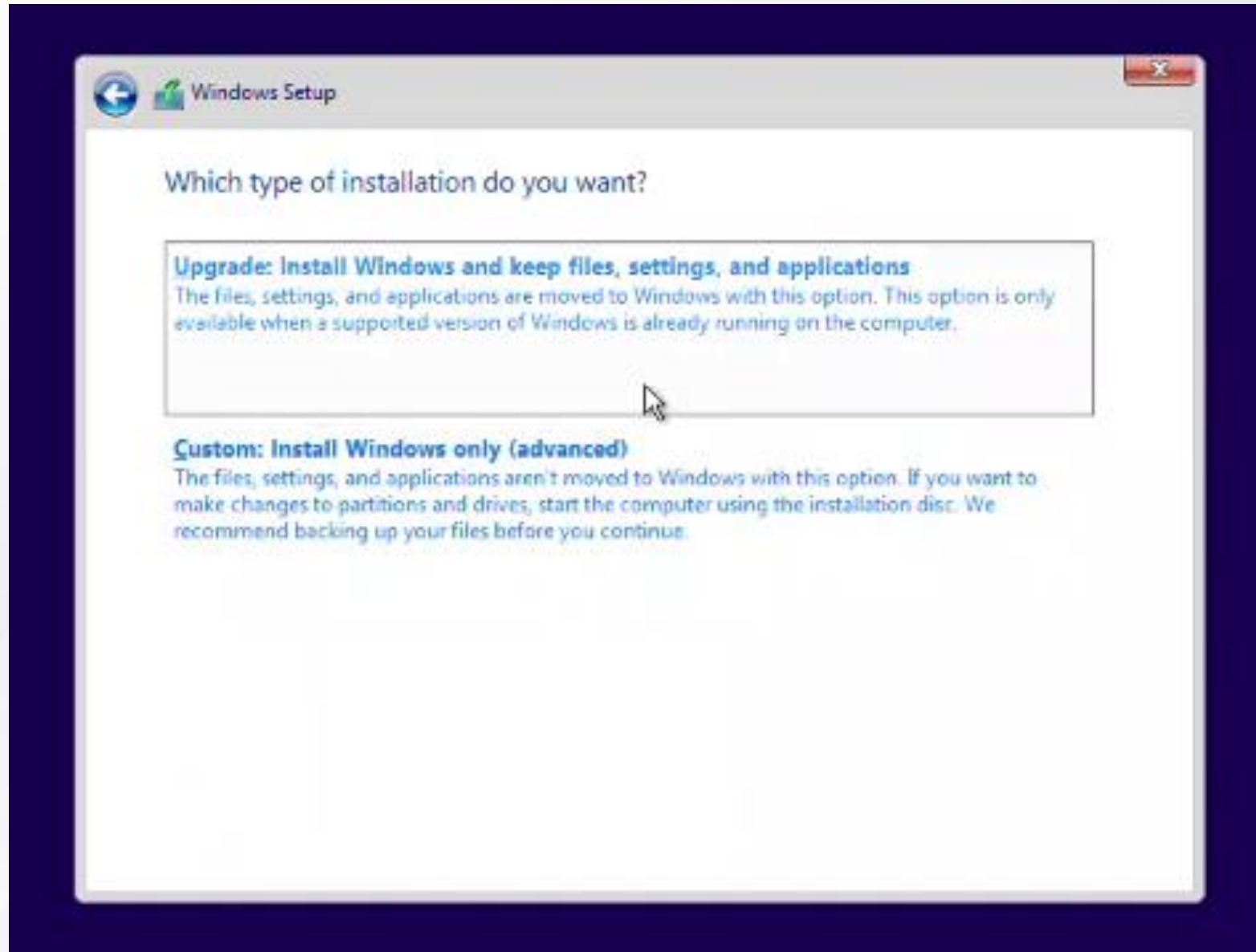
Install client Virtual Machine



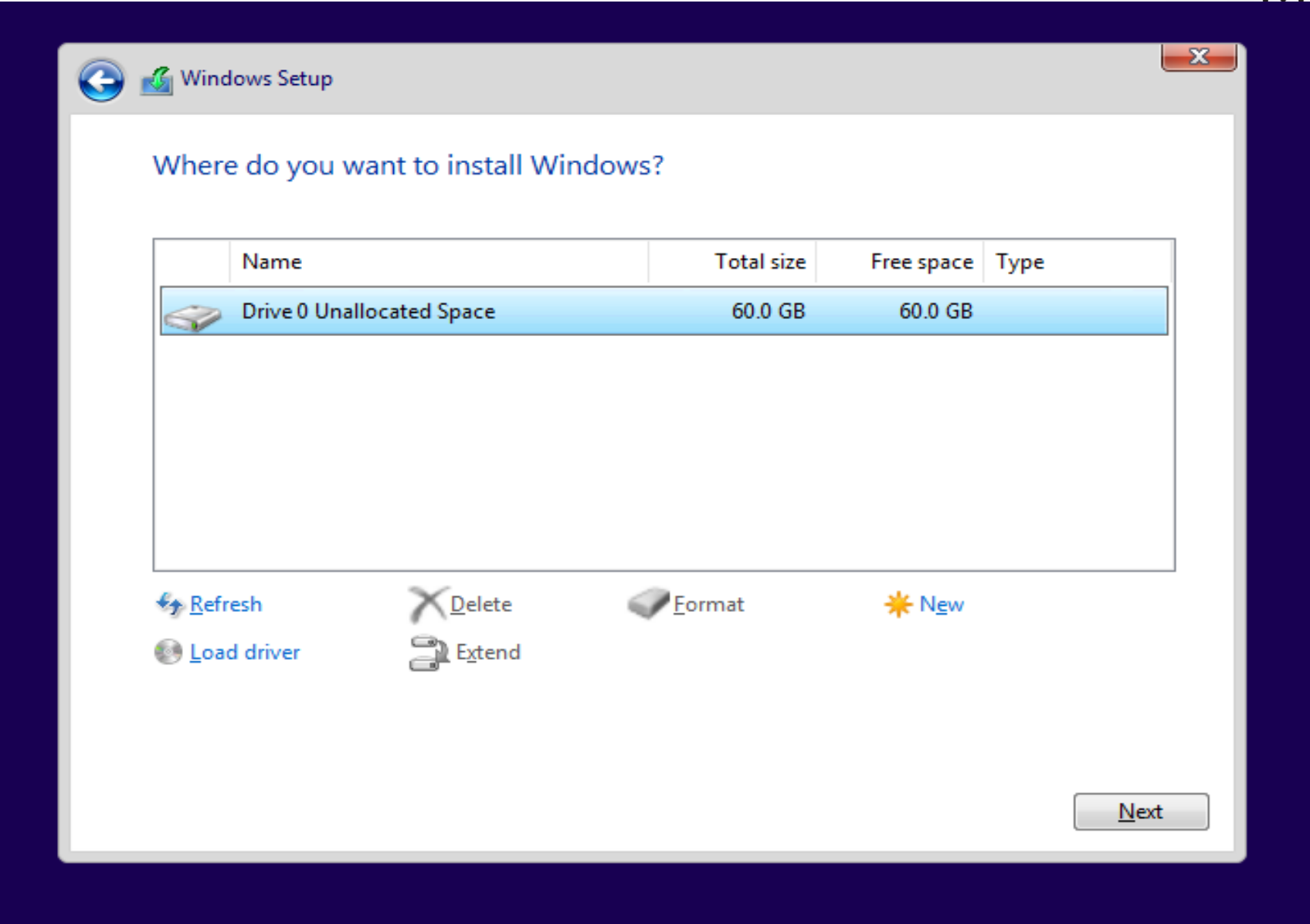
Install client Virtual Machine



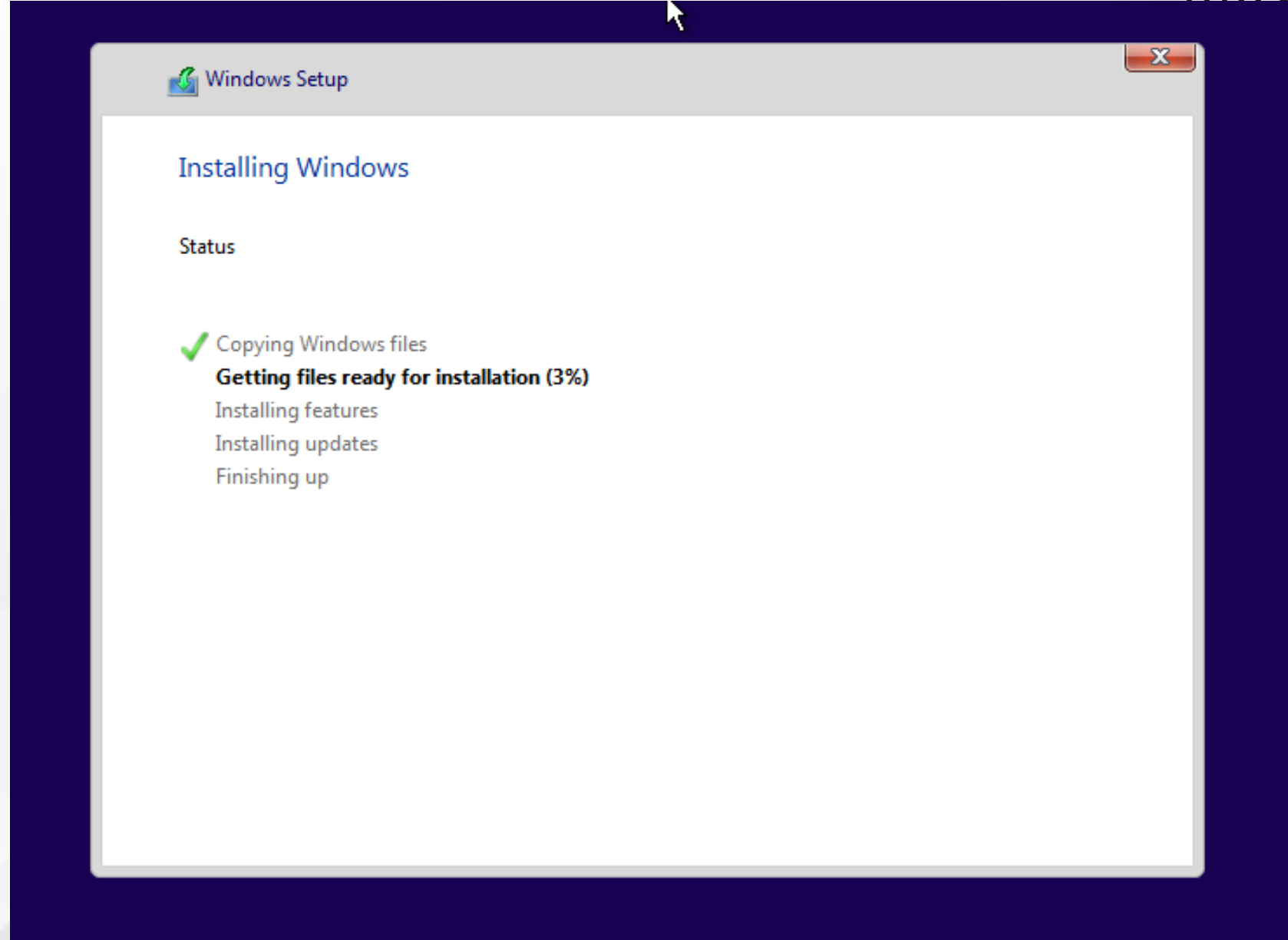
Install client Virtual Machine



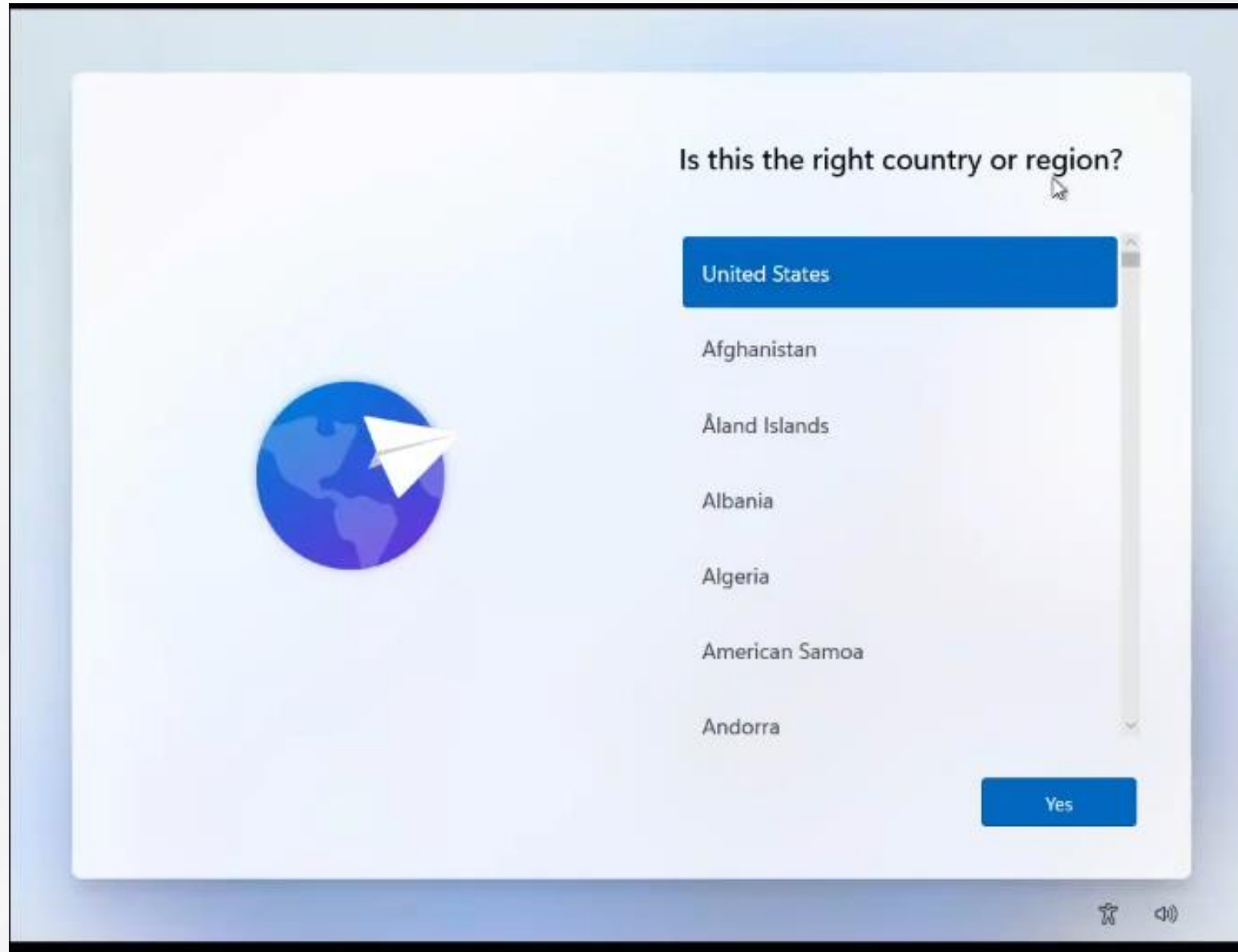
Install client Virtual Machine



Install client Virtual Machine



Install client Virtual Machine



Install client Virtual Machine

Get the latest from Windows



The newest Windows feature update is ready for you to download and install.
It's about 4 GB, and we'll download it in the background while you continue setting up.

Skip for now

Get it

Install client Virtual Machine

How would you like to set up?



Set up for personal use

We'll help you set it up with a personal Microsoft account.
You'll have full control over this device.

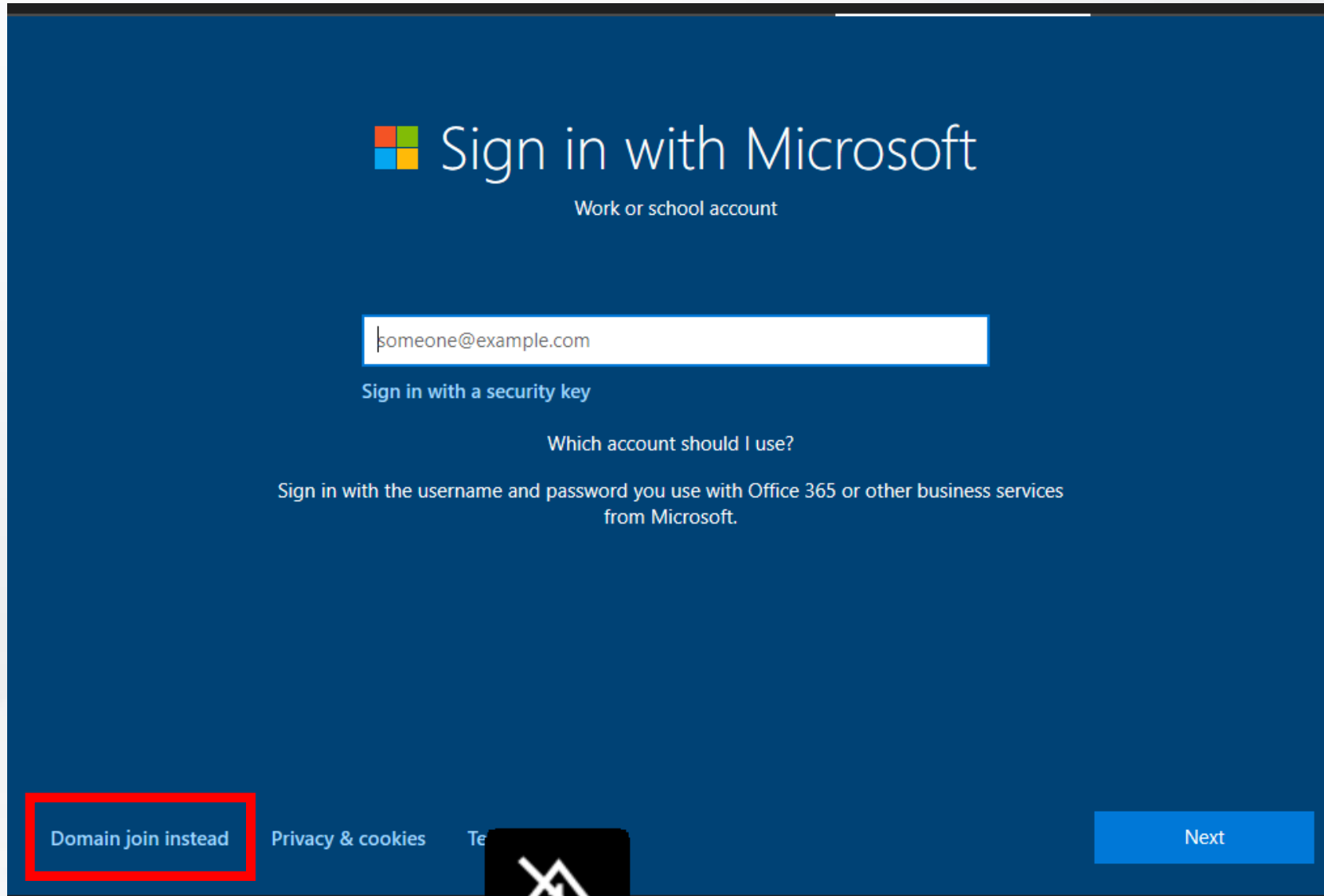


Set up for an organization

You'll gain access to your organization's resources like email, network, apps, and services. Your organization will have full control over this device.

Next

Install client Virtual Machine



The image shows a Microsoft sign-in interface with a dark blue background. At the top center is the Microsoft logo followed by the text "Sign in with Microsoft" and "Work or school account" below it. A white text input field in the center contains the placeholder text "someone@example.com". Below the input field are two links: "Sign in with a security key" and "Which account should I use?". Further down is a paragraph: "Sign in with the username and password you use with Office 365 or other business services from Microsoft." At the bottom left, the text "Domain join instead" is highlighted with a red rectangular border. To its right are the links "Privacy & cookies" and "Terms of use". At the bottom right is a blue button labeled "Next". A small black icon with a white 'X' is visible at the very bottom center.

Sign in with Microsoft

Work or school account

someone@example.com

Sign in with a security key

Which account should I use?

Sign in with the username and password you use with Office 365 or other business services from Microsoft.

Domain join instead

Privacy & cookies

Terms of use

Next

Install client Virtual Machine

Who's going to use this PC?

What name do you want to use?



client



Or, even better, use an online account



Next

Install client Virtual Machine

Account

Create a super memorable password

Make sure to pick something you'll absolutely remember.



Or, even better, use an online account

Next

Install client Virtual Machine

←Account

Create security questions for this account

Just in case you forget your password, choose 3 security questions, and make sure your answers are unforgettable.



What was your first pet's name?▼

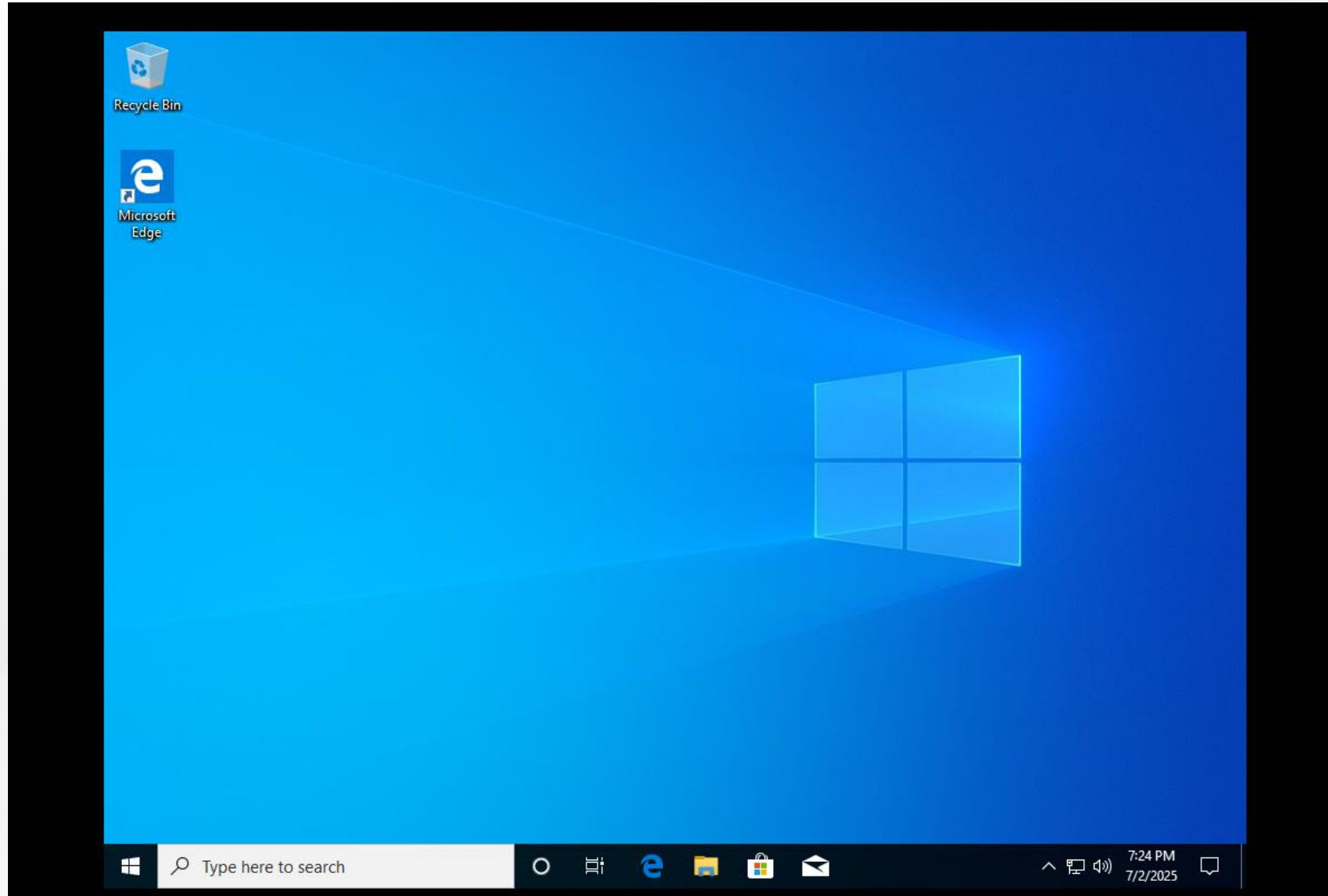
tom×

Or, even better, use an online account



Next

Install client Virtual Machine



Active Directory Installation



Server Manager ▸ Dashboard



Manage

Tools

View

H

 Dashboard

- Local Server

All Servers

File and Storage Services ▸

WELCOME TO SERVER MANAGER

QUICK START

WHAT'S NEW

[LEARN MORE](#)

1 Configure this local server

2 Add roles and features

3 Add other servers to manage

4 Create a server group

5 Connect this server to cloud services

Hide

ROLES AND SERVER GROUPS

Roles: 1 | Server groups: 1 | Servers total: 1

 File and Storage Services 1

 Manageability

Events

Performance

Local Server	1
--------------	---

Manageability

Events

Services

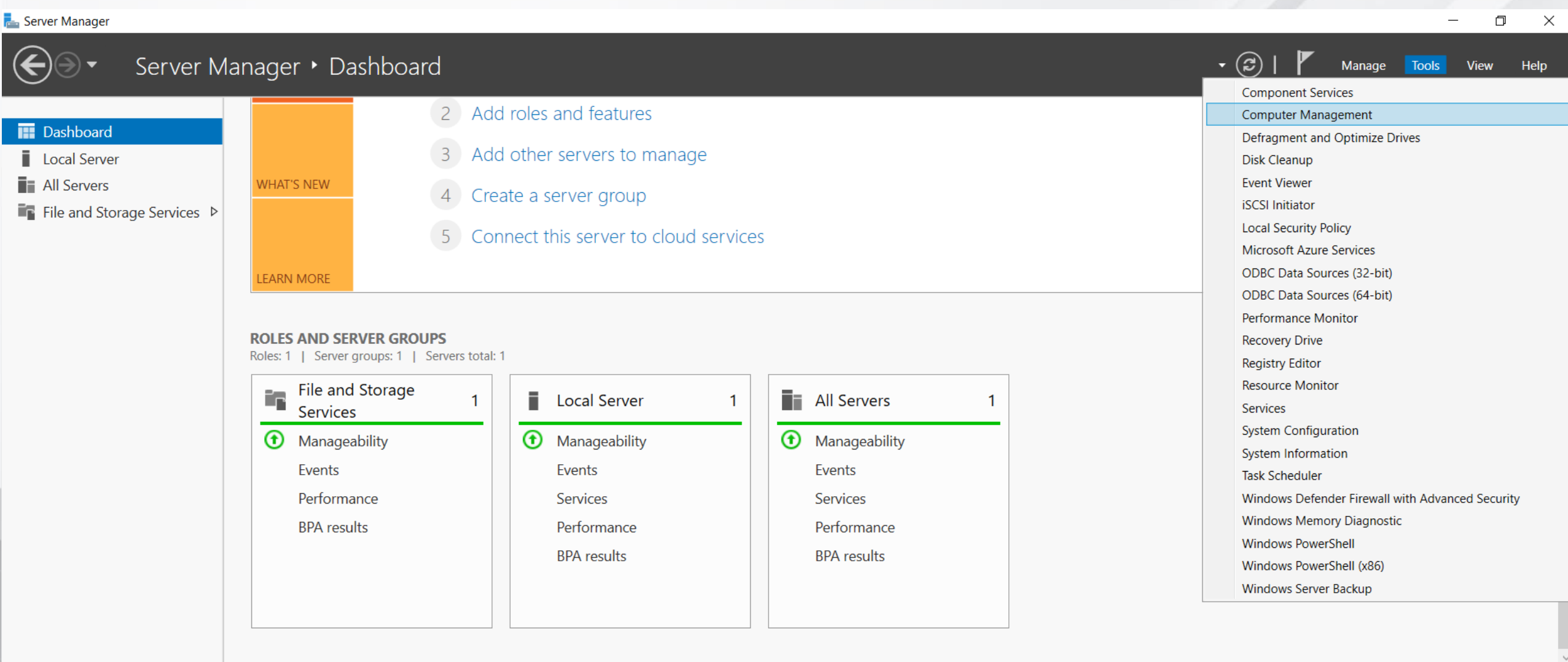
 All Servers 1

Manageability

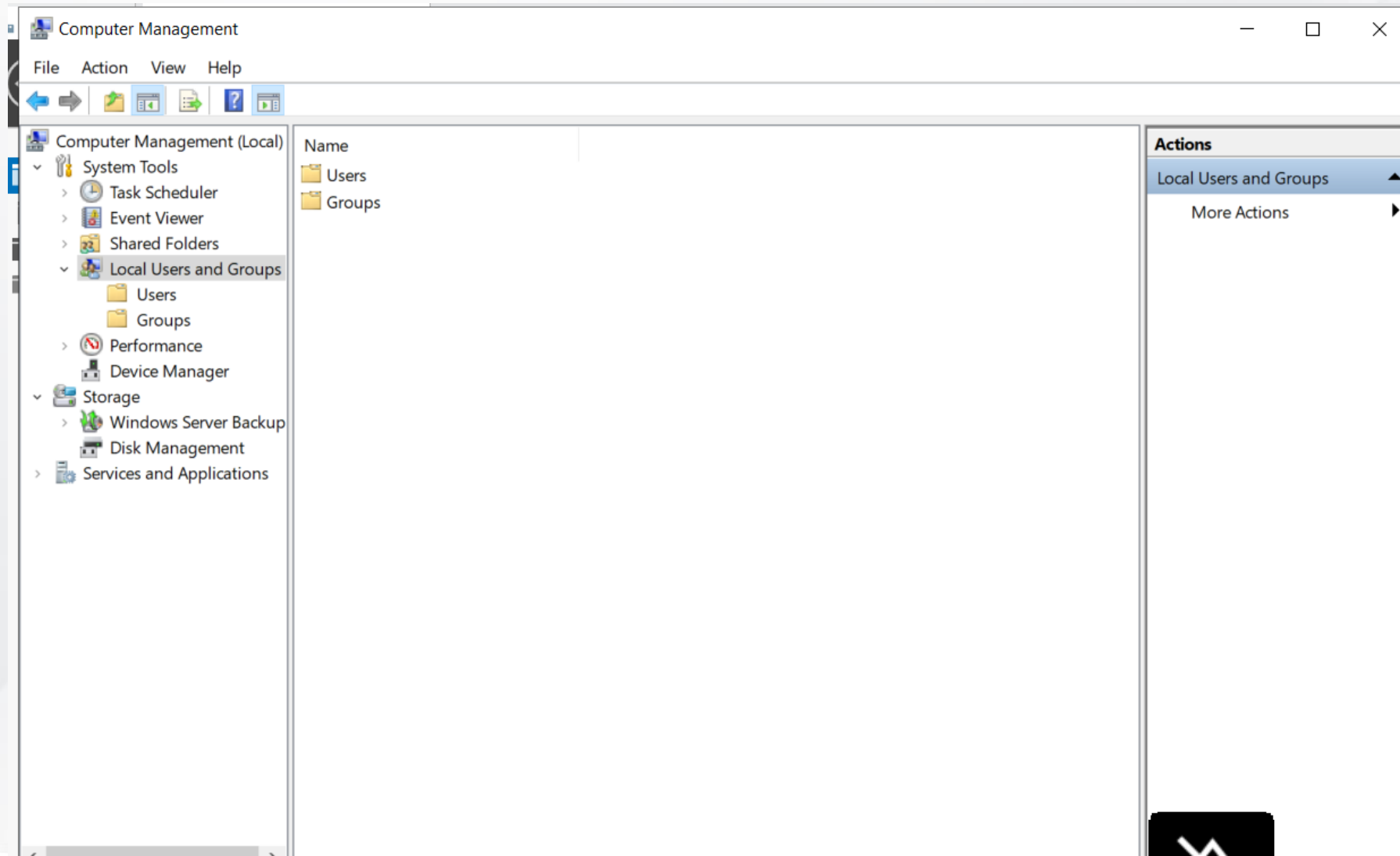
Even

Serv





Active Directory Installation



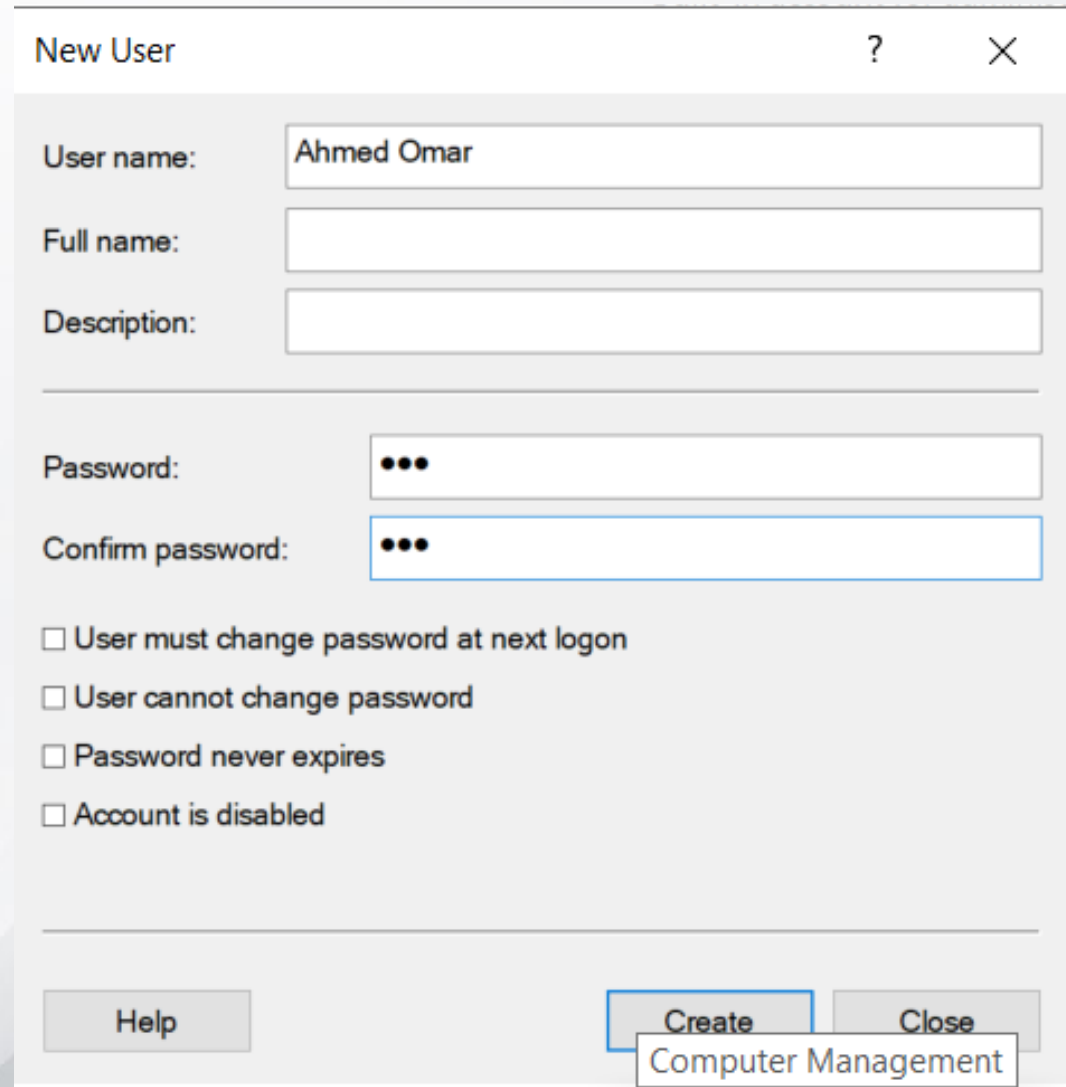
Active Directory Installation

The screenshot displays the Windows 'Computer Management' console. The left-hand navigation pane shows the tree structure under 'Computer Management (Local)', with 'Local Users and Groups' expanded and the 'Users' folder selected. A right-click context menu is open over the 'Users' folder, showing options: 'New User...', 'Refresh', 'Export List...', 'View', 'Arrange Icons', 'Line up Icons', and 'Help'. The main central pane displays a table of built-in user accounts.

Name	Full Name	Description
Administrator		Built-in account for administering ...
DefaultAccount		A user account managed by the sy...
Guest		Built-in account for guest access t...
WDAGUtilityAccount		A user account managed and used...

On the right side of the console, the 'Actions' pane is visible, showing 'Users' as the selected category with a 'More Actions' link. The status bar at the bottom of the console reads: 'Creates a new Local User account.'

Active Directory Installation



The image shows a 'New User' dialog box from the Windows Active Directory Installation Wizard. The dialog has a title bar with 'New User', a help icon (?), and a close icon (X). The form contains the following fields and options:

- User name:** A text box containing 'Ahmed Omar'.
- Full name:** An empty text box.
- Description:** An empty text box.
- Password:** A text box with three dots, indicating a masked password.
- Confirm password:** A text box with three dots, indicating a masked password.
- Options:** Four unchecked checkboxes:
 - ☐ User must change password at next logon
 - ☐ User cannot change password
 - ☐ Password never expires
 - ☐ Account is disabled
- Buttons:** At the bottom, there are three buttons: 'Help', 'Create', and 'Close'. The 'Create' button is highlighted with a blue border.

A tooltip for the 'Create' button is visible, displaying the text 'Computer Management'.

Active Directory Installation

Server Manager

Server Manager ▸ Local Server

Dashboard
Local Server
All Servers
File and Storage Services ▸

PROPERTIES
For DC

Computer name: DC
Workgroup: WORKGROUP

Last installed updates: Never
Windows Update: Download updates only, using Windows Update
Last checked for updates: Today at 10:47 AM

Microsoft Defender Firewall: Private: On
Remote management: Enabled
Remote Desktop: Disabled
NIC Teaming: Disabled
Ethernet0: **IPv4 address assigned by DHCP, IPv6 enabled**

Microsoft Defender Antivirus: Real-Time Protection: On
Feedback & Diagnostics: Settings
IE Enhanced Security Configuration: On
Time zone: (UTC-08:00) Pacific Time (US & Canada)
Product ID: 00455-50000-00001-AA311 (activated)

Operating system version: Microsoft Windows Server 2022 Datacenter Evaluation
Hardware information: VMware, Inc. VMware20,1

Processors: Intel(R) Core(TM) i7-5500U CPU @ 2.40GHz, Intel(R) Core(TM) i7-5500U CPU @ 2.40GHz
Installed memory (RAM): 2 GB
Total disk space: 59.49 GB

EVENTS
All events | 3 total

Filter

Server Name	ID	Severity	Source	Log	Date and Time
-------------	----	----------	--------	-----	---------------

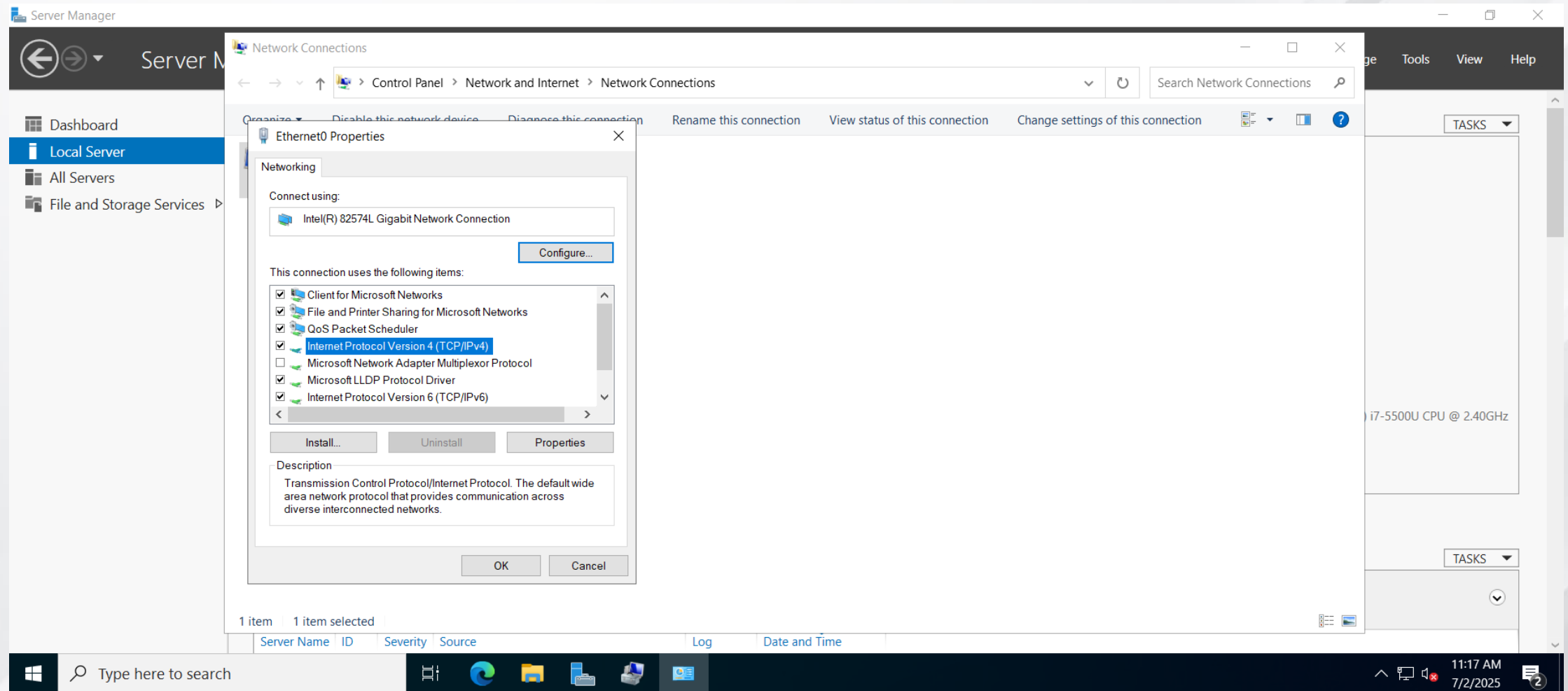
Type here to search

11:15 AM
7/2/2025

Active Directory Installation

The screenshot displays the Windows Server Manager interface. On the left, the navigation pane shows 'Local Server' selected. The main area is titled 'Network Connections' and shows a list of network adapters. The 'Ethernet0' adapter is selected, and a context menu is open over it, showing options: 'Disable', 'Status', 'Diagnose', 'Bridge Connections', 'Create Shortcut', 'Delete', 'Rename', and 'Properties'. The 'Status' option is currently selected. The bottom of the window shows a taskbar with various application icons and a system tray with the date and time '11:16 AM 7/2/2025'.

Active Directory Installation



Active Directory Installation

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 10 . 11 . 100 . 100

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses

Preferred DNS server: 127 . 0 . 0 . 1

Alternate DNS server: . . .

☐ Validate settings upon exit

Advanced...

OK Cancel



Recycle Bin

Server Manager

Server Manager ▸ Local Server

Manage Tools View Help

Dashboard

Local Server

All Servers

AD DS

DNS

File and Storage Services ▸

PROPERTIES

For DC

TASKS ▾

Computer name	DC	Last installed updates	Never
Domain	Ahmed.local	Windows Update	Download updates
		Last checked for updates	Yesterday at 10:00 AM
Microsoft Defender Firewall	Public: On	Microsoft Defender Antivirus	Real-Time Protection: On
Remote management	Enabled	Feedback & Diagnostics	Settings
Remote Desktop	Disabled	IE Enhanced Security Configuration	On
NIC Teaming	Disabled	Time zone	(UTC-08:00) Pacific Time (US & Canada)
Ethernet0	10.11.100.100, IPv6 enabled	Product ID	00455-50000-00000-00000-00000
Operating system version	Microsoft Windows Server 2022 Datacenter Evaluation	Processors	Intel(R) Core(TM) i7-10700K CPU @ 3.80GHz
Hardware information	VMware, Inc. VMware20,1	Installed memory (RAM)	2 GB
		Total disk space	59.49 GB

Active Directory Installation

Server Manager

Server Manager ▸ Dashboard

Dashboard

Local Server

All Servers

File and Storage Services ▾

WELCOME TO SERVER MANAGER

QUICK START

WHAT'S NEW

LEARN MORE

1

Configure this local server

2

Add roles and features

3

Add other servers to manage

4

Create a server group

5

Connect this server to cloud services

Hide

ROLES AND SERVER GROUPS

Roles: 1 | Server groups: 1 | Servers total: 1

File and Storage Services

1

Manageability

Events

Performance

Local Server

1

Manageability

Events

Services

All Servers

1

Manageability

Events

Services

Manage

Tools

View

Help

Add Roles and Features

Remove Roles and Features

Add Servers

Create Server Group

Server Manager Properties

Type here to search

11:12 AM

7/2/2025

2

Active Directory Installation

The screenshot displays a Windows Server 2022 virtual machine running in VMware Workstation. The 'Server Manager' application is open, showing the 'Dashboard' view. A wizard titled 'Add Roles and Features Wizard' is in progress, specifically at the 'Before you begin' step. The wizard provides instructions on how to use it and lists prerequisites that must be met before installation. The prerequisites include a strong Administrator password, configured network settings, and installed security updates. A progress bar at the bottom of the wizard indicates the current step is 1 out of 5. The Windows taskbar at the bottom shows the time as 11:13 AM on 7/2/2025, along with system icons and a search bar.

Windows Server 2022 - VMware Workstation

File Edit View VM Tabs Help

Home Windows Server 2022

Server Manager

Server Manager Dashboard

Add Roles and Features Wizard

Before you begin

DESTINATION SERVER
DC

Before You Begin

Installation Type
Server Selection
Server Roles
Features
Confirmation
Results

This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website.

To remove roles, role services, or features:
[Start the Remove Roles and Features Wizard](#)

Before you continue, verify that the following tasks have been completed:

- The Administrator account has a strong password
- Network settings, such as static IP addresses, are configured
- The most current security updates from Windows Update are installed

If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again.

To continue, click Next.

☐ Skip this page by default

< Previous Next > Install Cancel

1

Type here to search

To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

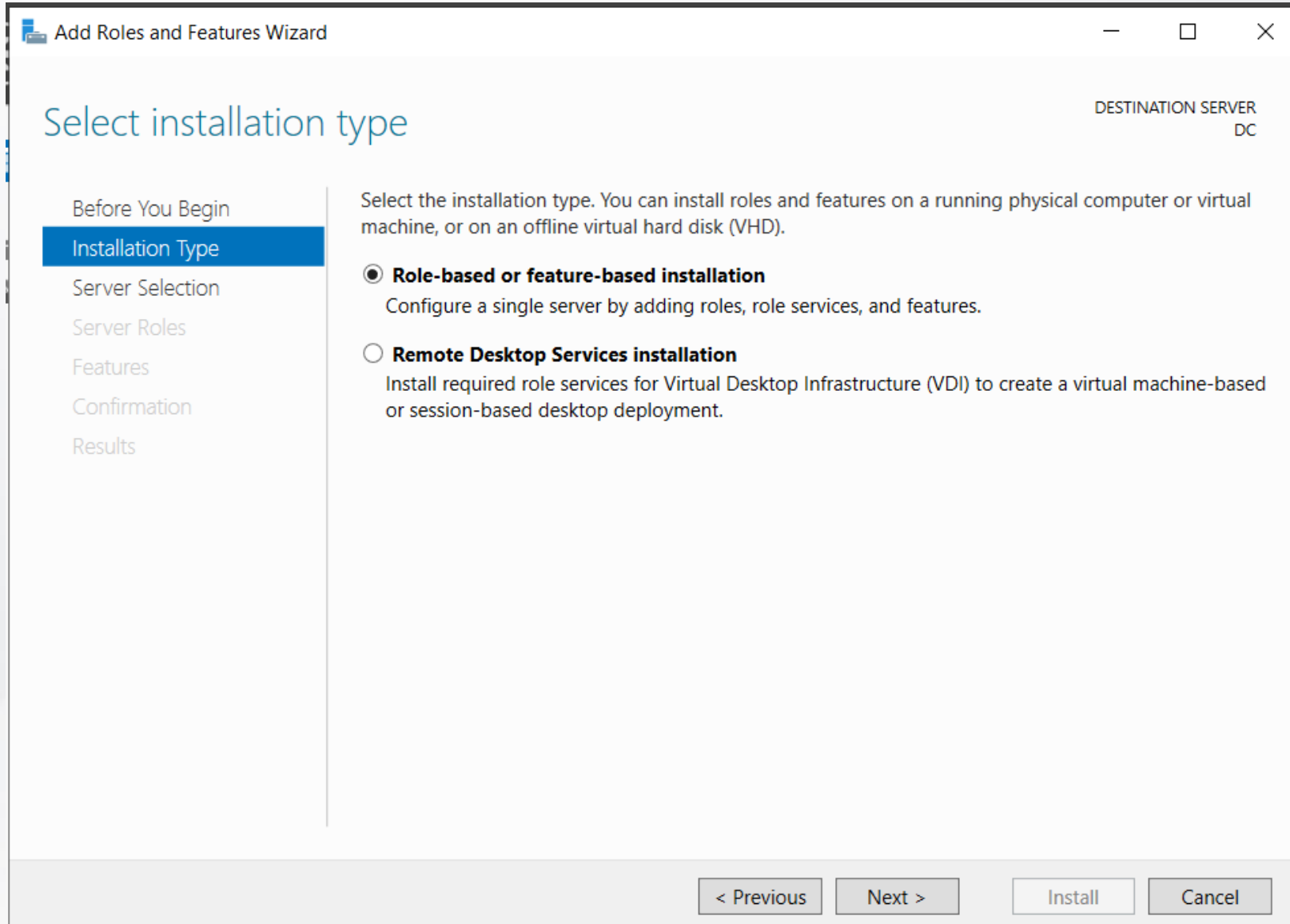
Type here to search

62%

32°C صافي غالبًا

09:13 م 7/2/2025

Active Directory Installation



The screenshot shows the 'Add Roles and Features Wizard' window. The title bar reads 'Add Roles and Features Wizard'. The main heading is 'Select installation type'. In the top right corner, it says 'DESTINATION SERVER DC'. On the left, a navigation pane lists the steps: 'Before You Begin', 'Installation Type' (which is highlighted with a blue bar), 'Server Selection', 'Server Roles', 'Features', 'Confirmation', and 'Results'. The main content area contains the following text: 'Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).'. Below this text are two radio button options: 1. 'Role-based or feature-based installation' (selected with a filled radio button), with the description 'Configure a single server by adding roles, role services, and features.' 2. 'Remote Desktop Services installation' (unselected with an empty radio button), with the description 'Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.' At the bottom of the window, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

DESTINATION SERVER
DC

Select installation type

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results

Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).

- ☒ **Role-based or feature-based installation**
Configure a single server by adding roles, role services, and features.
- ☐ **Remote Desktop Services installation**
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

< Previous Next > Install Cancel

Active Directory Installation

Add Roles and Features Wizard

Select destination server

DESTINATION SERVER
DC

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Select a server or a virtual hard disk on which to install roles and features.

☒ Select a server from the server pool

☐ Select a virtual hard disk

Server Pool

Filter:

Name	IP Address	Operating System
DC	10.11.100.100	Microsoft Windows Server 2022 Datacenter Evaluation

1 Computer(s) found

This page shows servers that are running Windows Server 2012 or a newer release of Windows Server, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

< Previous

Next >

Install

Cancel

Active Directory Installation

Add Roles and Features Wizard

Select server roles

DESTINATION SERVER
DC

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Select one or more roles to install on the selected server.

Roles

☐ Active Directory Certificate Services

☐ Active Directory Domain Services

☐ Active Directory Federation Services

☐ Active Directory Lightweight Directory Services

☐ Active Directory Rights Management Services

☐ Device Health Attestation

☐ DHCP Server

☐ DNS Server

☐ Fax Server

☒ File and Storage Services (1 of 12 installed)

☐ Host Guardian Service

☐ Hyper-V

☐ Network Controller

☐ Network Policy and Access Services

☐ Print and Document Services

☐ Remote Access

☐ Remote Desktop Services

☐ Volume Activation Services

☐ Web Server (IIS)

☐ Windows Deployment Services

Description

Active Directory Certificate Services (AD CS) is used to create certification authorities and related role services that allow you to issue and manage certificates used in a variety of applications.

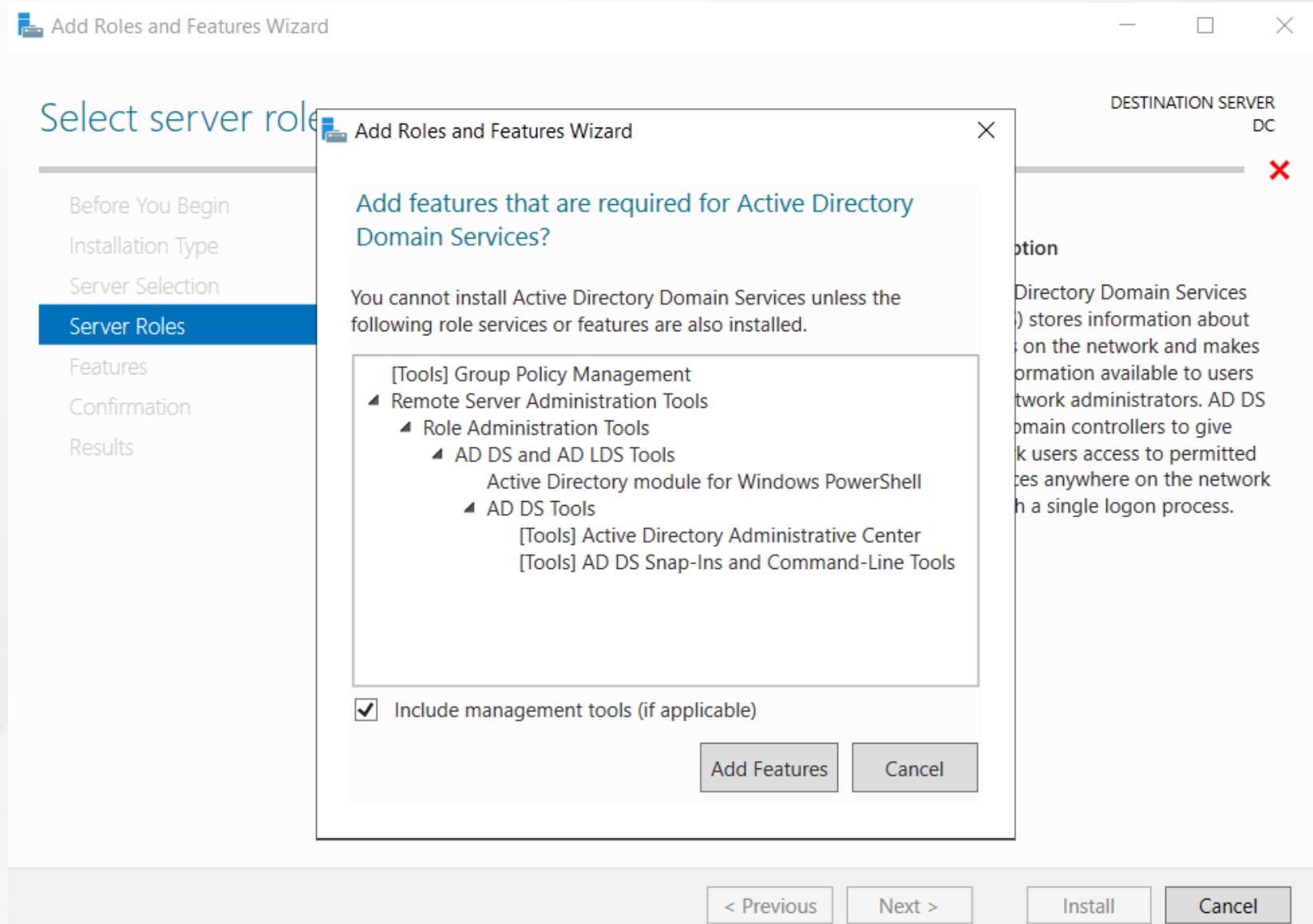
< Previous

Next >

Install

Cancel

Active Directory Installation



Active Directory Installation

Add Roles and Features Wizard

Select server roles

DESTINATION SERVER
DC

Before You Begin

Installation Type

Server Selection

Server Roles

Features

AD DS

Confirmation

Results

Select one or more roles to install on the selected server.

Roles

☐ Active Directory Certificate Services

☒ Active Directory Domain Services

☐ Active Directory Federation Services

☐ Active Directory Lightweight Directory Services

☐ Active Directory Rights Management Services

☐ Device Health Attestation

☐ DHCP Server

☐ DNS Server

☐ Fax Server

☒ File and Storage Services (1 of 12 installed)

☐ Host Guardian Service

☐ Hyper-V

☐ Network Controller

☐ Network Policy and Access Services

☐ Print and Document Services

☐ Remote Access

☐ Remote Desktop Services

☐ Volume Activation Services

☐ Web Server (IIS)

☐ Windows Deployment Services

Description

Domain Name System (DNS) Server provides name resolution for TCP/IP networks. DNS Server is easier to manage when it is installed on the same server as Active Directory Domain Services. If you select the Active Directory Domain Services role, you can install and configure DNS Server and Active Directory Domain Services to work together.

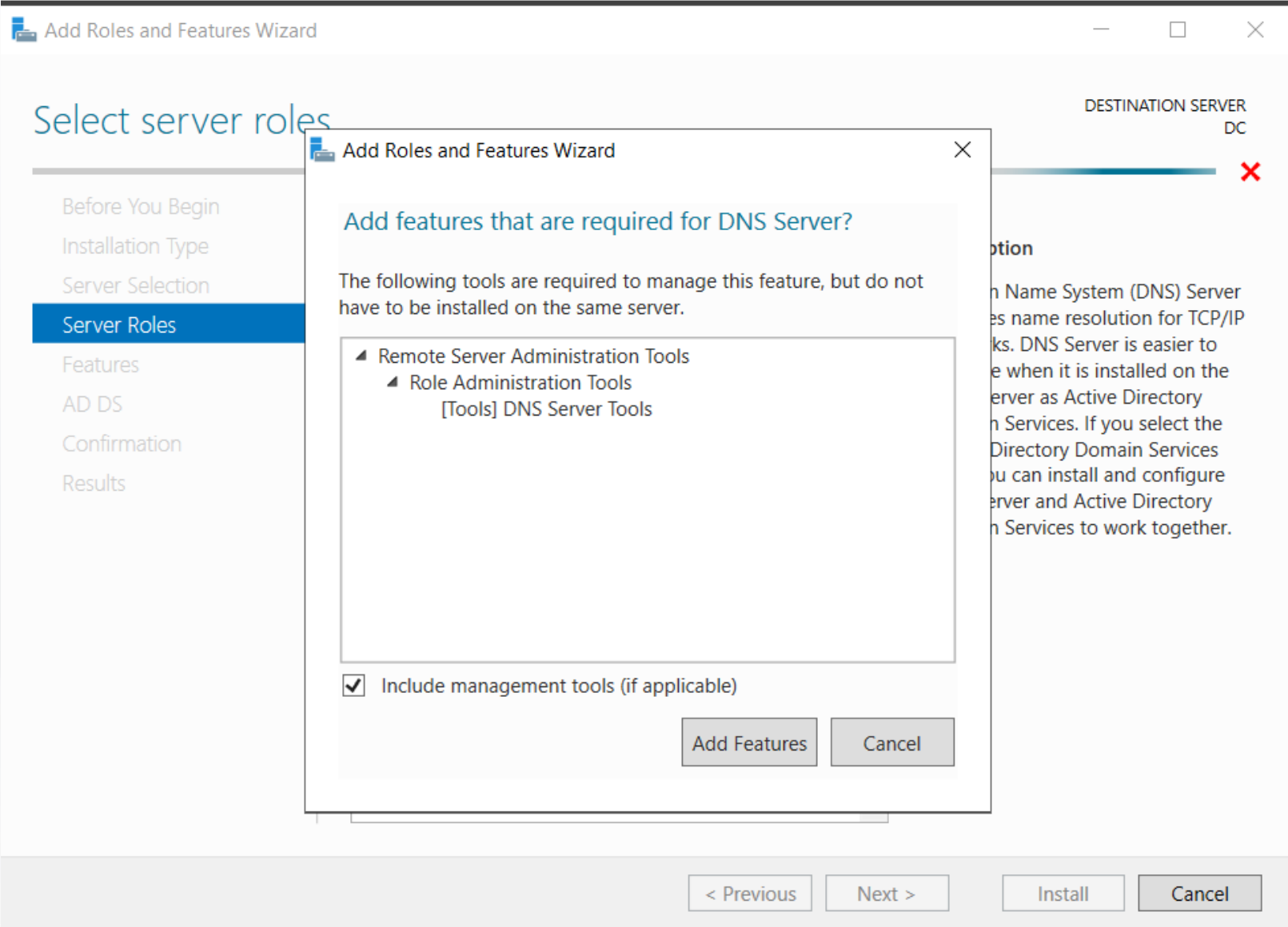
< Previous

Next >

Install

Cancel

Active Directory Installation



Active Directory Installation

Add Roles and Features Wizard

DESTINATION SERVER
DC

Select features

Before You Begin

Installation Type

Server Selection

Server Roles

Features

AD DS

DNS Server

Confirmation

Results

Select one or more features to install on the selected server.

Features

☐ .NET Framework 3.5 Features

☒ .NET Framework 4.8 Features (2 of 7 installed)

☐ Background Intelligent Transfer Service (BITS)

☐ BitLocker Drive Encryption

☐ BitLocker Network Unlock

☐ BranchCache

☐ Client for NFS

☐ Containers

☐ Data Center Bridging

☐ Direct Play

☐ Enhanced Storage

☐ Failover Clustering

☒ Group Policy Management

☐ Host Guardian Hyper-V Support

☐ I/O Quality of Service

☐ IIS Hostable Web Core

☐ Internet Printing Client

☐ IP Address Management (IPAM) Server

☐ LPR Port Monitor

Description

.NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.

< Previous

Next >

Install

Cancel

Active Directory Installation

 Add Roles and Features Wizard

Active Directory Domain Services

DESTINATION SERVER
DC

Before You Begin

Installation Type

Server Selection

Server Roles

Features

AD DS

DNS Server

Confirmation

Results

Active Directory Domain Services (AD DS) stores information about users, computers, and other devices on the network. AD DS helps administrators securely manage this information and facilitates resource sharing and collaboration between users.

Things to note:

- To help ensure that users can still log on to the network in the case of a server outage, install a minimum of two domain controllers for a domain.
- AD DS requires a DNS server to be installed on the network. If you do not have a DNS server installed, you will be prompted to install the DNS Server role on this machine.



Azure Active Directory, a separate online service, can provide simplified identity and access management, security reporting, single sign-on to cloud and on-premises web apps.

[Learn more about Azure Active Directory](#)

[Configure Office 365 with Azure Active Directory Connect](#)

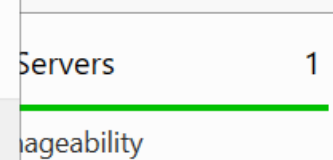
< Previous

Next >

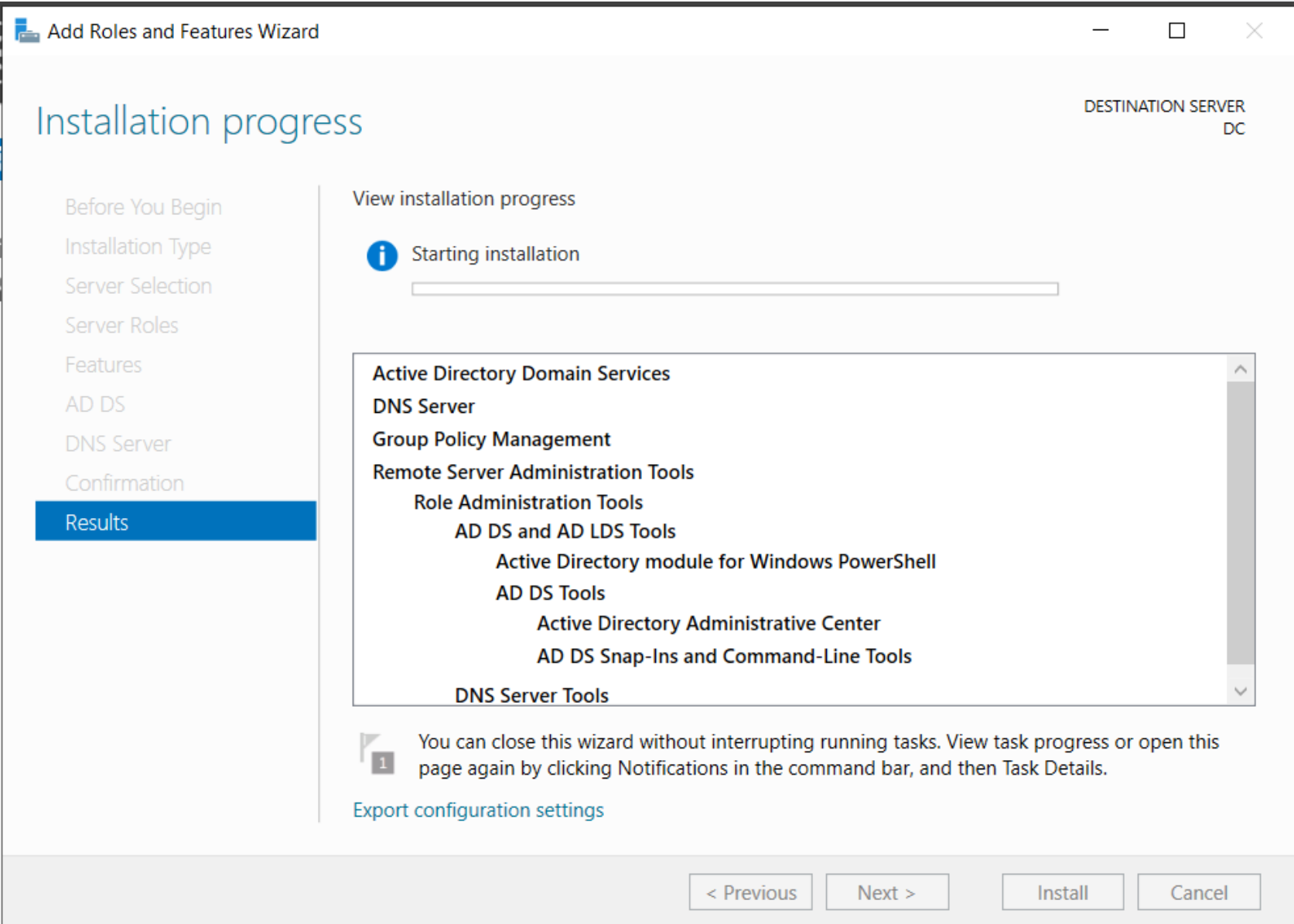
Install

Cancel

MIDOCEAN
UNIVERSITY



Active Directory Installation



Active Directory Installation

Add Roles and Features Wizard

DESTINATION SERVER
DC

Installation progress

Before You Begin

Installation Type

Server Selection

Server Roles

Features

AD DS

DNS Server

Confirmation

Results

View installation progress

Feature installation

Configuration required. Installation succeeded on DC.

Active Directory Domain Services

Additional steps are required to make this machine a domain controller.

Promote this server to a domain controller

DNS Server

Group Policy Management

Remote Server Administration Tools

Role Administration Tools

AD DS and AD LDS Tools

Active Directory module for Windows PowerShell

AD DS Tools

Active Directory Administrative Center

1

You can close this wizard without interrupting running tasks. View task progress or open this page again by clicking Notifications in the command bar, and then Task Details.

Export configuration settings

< Previous

Next >

Close

Cancel

Active Directory Installation

Active Directory Domain Services Configuration Wizard

Deployment Configuration

TARGET SERVER
DC

Deployment Configuration

Domain Controller Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Select the deployment operation

☐ Add a domain controller to an existing domain

☐ Add a new domain to an existing forest

☒ Add a new forest

Specify the domain information for this operation

Root domain name:

[More about deployment configurations](#)

Active Directory Installation

Active Directory Domain Services Configuration Wizard

Domain Controller Options

TARGET SERVER
DC

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Select functional level of the new forest and root domain

Forest functional level: Windows Server 2008

Domain functional level: Windows Server 2008

Specify domain controller capabilities

☒ Domain Name System (DNS) server

☒ Global Catalog (GC)

☐ Read only domain controller (RODC)

Type the Directory Services Restore Mode (DSRM) password

Password: *

Confirm password: *

[More about domain controller options](#)

< Previous

Next >

Install

Cancel

Active Directory Installation

Active Directory Domain Services Configuration Wizard

DNS Options

TARGET SERVER
DC

 A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found o...[Show more](#)

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Specify DNS delegation options

☐ Create DNS delegation

[More about DNS delegation](#)

< Previous

Next >

Install

Cancel

Active Directory Installation

Active Directory Domain Services Configuration Wizard

Additional Options

TARGET SERVER
DC

Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results

Verify the NetBIOS name assigned to the domain and change it if necessary

The NetBIOS domain name:

[More about additional options](#)

< Previous Next > Install Cancel

Active Directory Installation

Active Directory Domain Services Configuration Wizard

Paths

TARGET SERVER
DC

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Specify the location of the AD DS database, log files, and SYSVOL

Database folder:

C:\Windows\NTDS

...

Log files folder:

C:\Windows\NTDS

...

SYSVOL folder:

C:\Windows\SYSVOL

...

[More about Active Directory paths](#)

< Previous

Next >

Install

Cancel

Active Directory Installation

Active Directory Domain Services Configuration Wizard

Review Options

TARGET SERVER
DC

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Review your selections:

Configure this server as the first Active Directory domain controller in a new forest.

The new domain name is "Ahmed.local". This is also the name of the new forest.

The NetBIOS name of the domain: AHMED

Forest Functional Level: Windows Server 2008

Domain Functional Level: Windows Server 2008

Additional Options:

Global catalog: Yes

DNS Server: Yes

Create DNS Delegation: No

These settings can be exported to a Windows PowerShell script to automate additional installations

View script

More about installation options

< Previous

Next >

Install

Cancel

< Previous

Next >

Close

Cancel

Active Directory Installation

```
#  
# Windows PowerShell script for AD DS Deployment  
#
```

```
Import-Module ADDSDeployment  
Install-ADDSForest `  
-CreateDnsDelegation:$false `  
-DatabasePath "C:\Windows\NTDS" `  
-DomainMode "Win2008" `  
-DomainName "Ahmed.local" `  
-DomainNetbiosName "AHMED" `  
-ForestMode "Win2008" `  
-InstallDns:$true `  
-LogPath "C:\Windows\NTDS" `  
-NoRebootOnCompletion:$false `  
-SysvolPath "C:\Windows\SYSVOL" `  
-Force:$true
```

Active Directory Installation

Active Directory Domain Services Configuration Wizard

Prerequisites Check

TARGET SERVER
DC

✔ All prerequisite checks passed successfully. Click 'Install' to begin installation.

Show more

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Prerequisites need to be validated before Active Directory Domain Services is installed on this computer

Rerun prerequisites check

⬆ View results

⚠ Windows Server 2022 domain controllers have a default for the security setting named "Allow cryptography algorithms compatible with Windows NT 4.0" that prevents weaker cryptography algorithms when establishing security channel sessions.

For more information about this setting, see Knowledge Base article 942564 (<http://go.microsoft.com/fwlink/?LinkId=104751>).

⚠ A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found or it does not run Windows DNS server. If you are integrating with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain "Ahmed.local". Otherwise, no action is required.

⚠ If you click Install, the server automatically reboots at the end of the promotion operation.

More about prerequisites

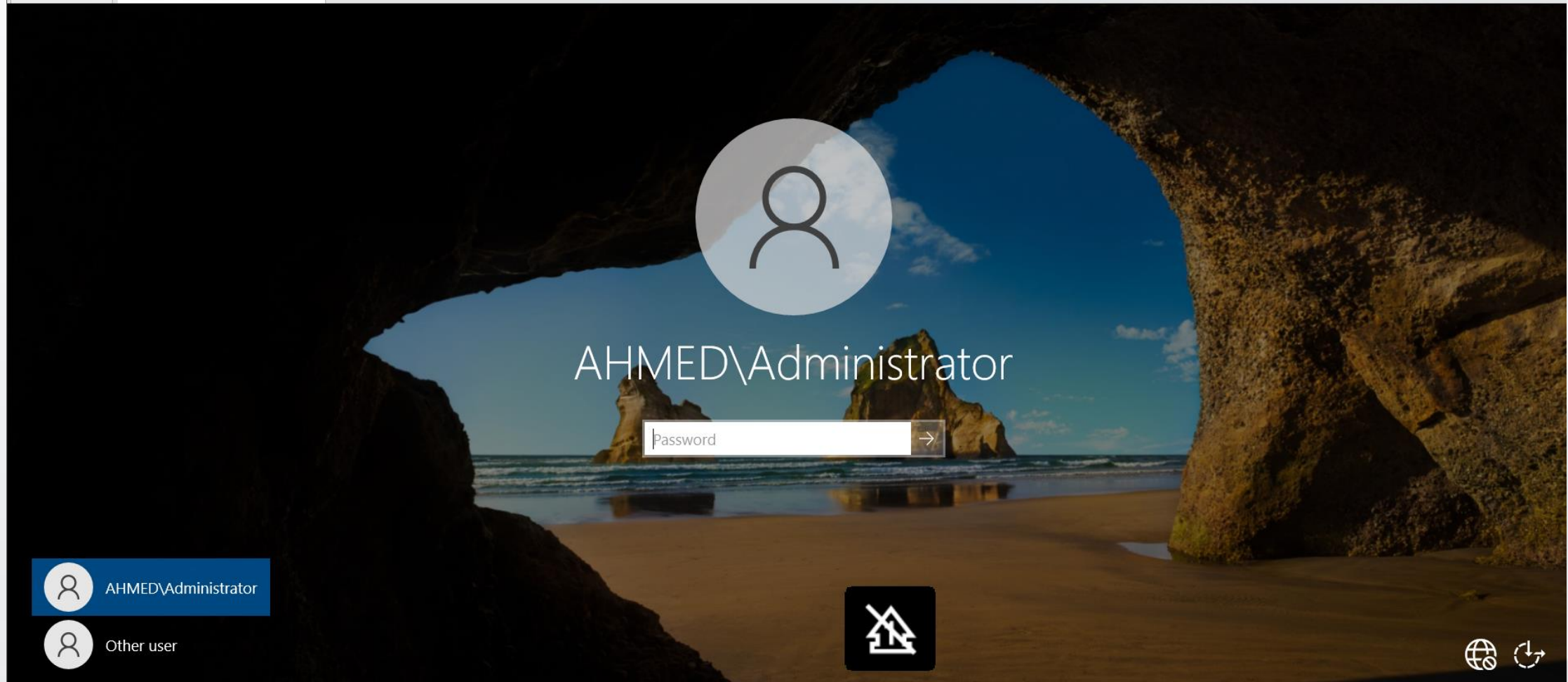
< Previous

Next >

Install

Cancel

Active Directory Installation



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Active Directory Installation

The screenshot shows the Windows Server Manager application. The background is a blue Windows 10 desktop with a Recycle Bin icon. The Server Manager window is open, displaying the 'Dashboard' view. The left-hand navigation pane shows 'Dashboard' selected, with 'Local Server' and 'All Servers' below it. The main content area is titled 'WELCOME TO SERVER MANAGER' and features a 'QUICK START' section with five numbered steps: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, 4. Create a server group, and 5. Connect this server to cloud services. Below this is a 'WHAT'S NEW' section and a 'LEARN MORE' link. At the bottom, the 'ROLES AND SERVER GROUPS' section shows 'Roles: 0 | Server groups: 1 | Servers total: 1'. The 'Tools' menu is open, showing a list of administrative tools including Active Directory Administrative Center, Active Directory Domains and Trusts, Active Directory Module for Windows PowerShell, Active Directory Sites and Services, Active Directory Users and Computers, ADSI Edit, Component Services, Computer Management, Defragment and Optimize Drives, Disk Cleanup, DNS, Event Viewer, Group Policy Management, iSCSI Initiator, Local Security Policy, Microsoft Azure Services, ODBC Data Sources (32-bit), ODBC Data Sources (64-bit), and Performance Monitor. In the bottom right corner, a watermark reads '2022 Datacenter Evaluation License valid for 165 days'.

Recycle Bin

Server Manager

Server Manager ▸ Dashboard

Manage Tools View Help

Dashboard

Local Server

All Servers

WELCOME TO SERVER MANAGER

1 Configure this local server

2 Add roles and features

3 Add other servers to manage

4 Create a server group

5 Connect this server to cloud services

QUICK START

WHAT'S NEW

LEARN MORE

ROLES AND SERVER GROUPS

Roles: 0 | Server groups: 1 | Servers total: 1

Active Directory Administrative Center

Active Directory Domains and Trusts

Active Directory Module for Windows PowerShell

Active Directory Sites and Services

Active Directory Users and Computers

ADSI Edit

Component Services

Computer Management

Defragment and Optimize Drives

Disk Cleanup

DNS

Event Viewer

Group Policy Management

iSCSI Initiator

Local Security Policy

Microsoft Azure Services

ODBC Data Sources (32-bit)

ODBC Data Sources (64-bit)

Performance Monitor

2022 Datacenter Evaluation License valid for 165 days

Active Directory Installation

The screenshot displays the Windows Server Manager interface. The 'Tools' menu is open, showing a list of administrative tools. 'Active Directory Users and Computers' is highlighted. The main dashboard area shows a 'WELCOME TO SERVER MANAGER' section with a 'QUICK START' list of five tasks: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, 4. Create a server group, and 5. Connect this server to cloud services. The left sidebar shows the 'Dashboard' with links to 'Local Server', 'All Servers', 'AD DS', 'DNS', and 'File and Storage Services'. The bottom taskbar shows the Windows logo, a search bar, and several application icons. The system tray in the bottom right corner shows the date and time as 2:43 PM on 7/2/2025, along with a notification icon.

Recycle Bin

Server Manager

Server Manager ▶ Dashboard

Manage Tools View Help

Dashboard

Local Server

All Servers

AD DS

DNS

File and Storage Services ▶

WELCOME TO SERVER MANAGER

QUICK START

1 Configure this local server

2 Add roles and features

3 Add other servers to manage

4 Create a server group

5 Connect this server to cloud services

WHAT'S NEW

LEARN MORE

ROLES AND SERVER GROUPS

Roles: 3 | Server groups: 1 | Servers total: 1

Active Directory Administrative Center

Active Directory Domains and Trusts

Active Directory Module for Windows PowerShell

Active Directory Sites and Services

Active Directory Users and Computers

ADSI Edit

Component Services

Computer Management

Defragment and Optimize Drives

Disk Cleanup

DNS

Event Viewer

Group Policy Management

iSCSI Initiator

Local Security Policy

Microsoft Azure Services

ODBC Data Sources (32-bit)

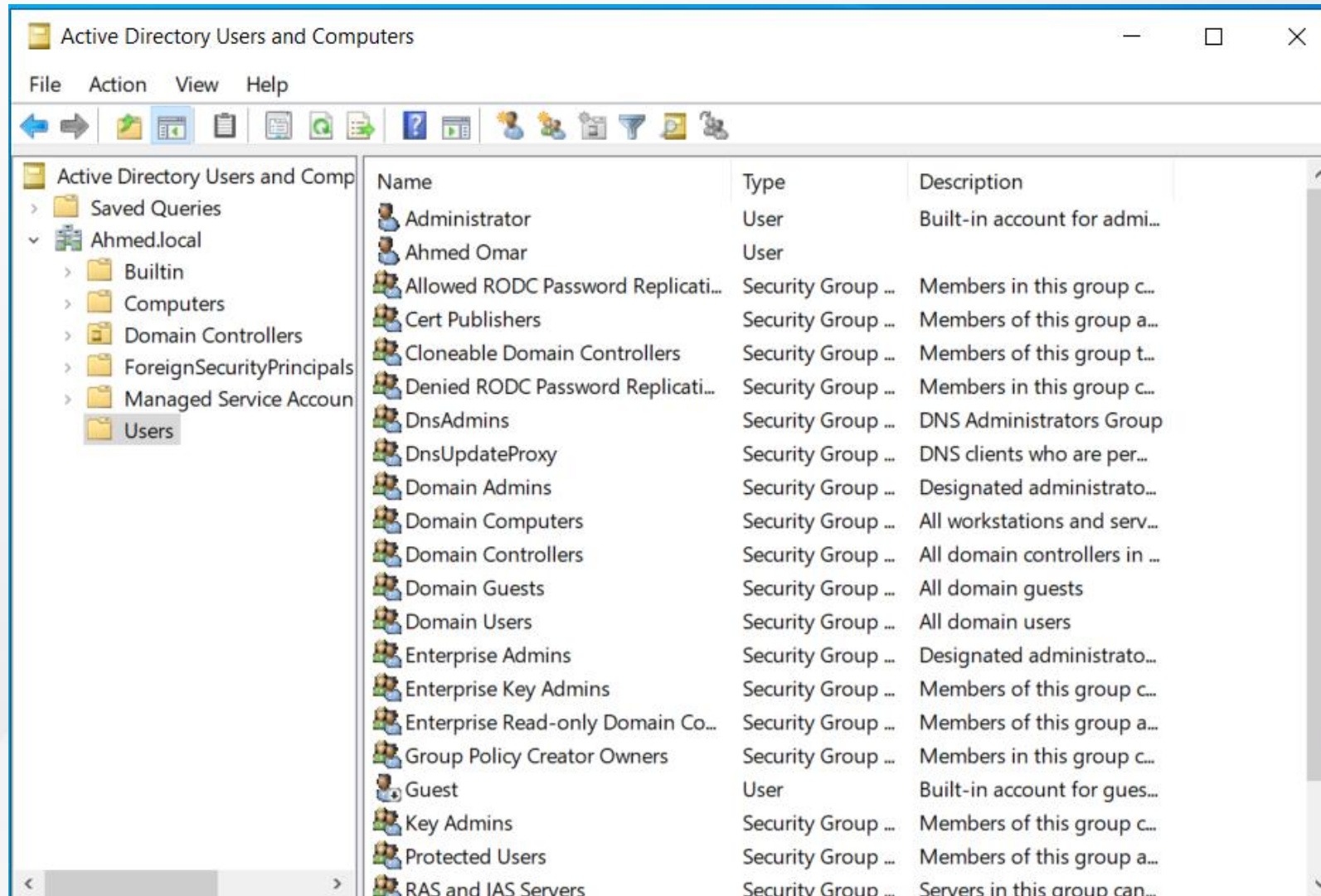
ODBC Data Sources (64-bit)

Performance Monitor

2022 Datacenter Evaluation
License valid for 165 days
0348.fe_release.210507-1500

2:43 PM
7/2/2025

Active Directory Installation





Thank You