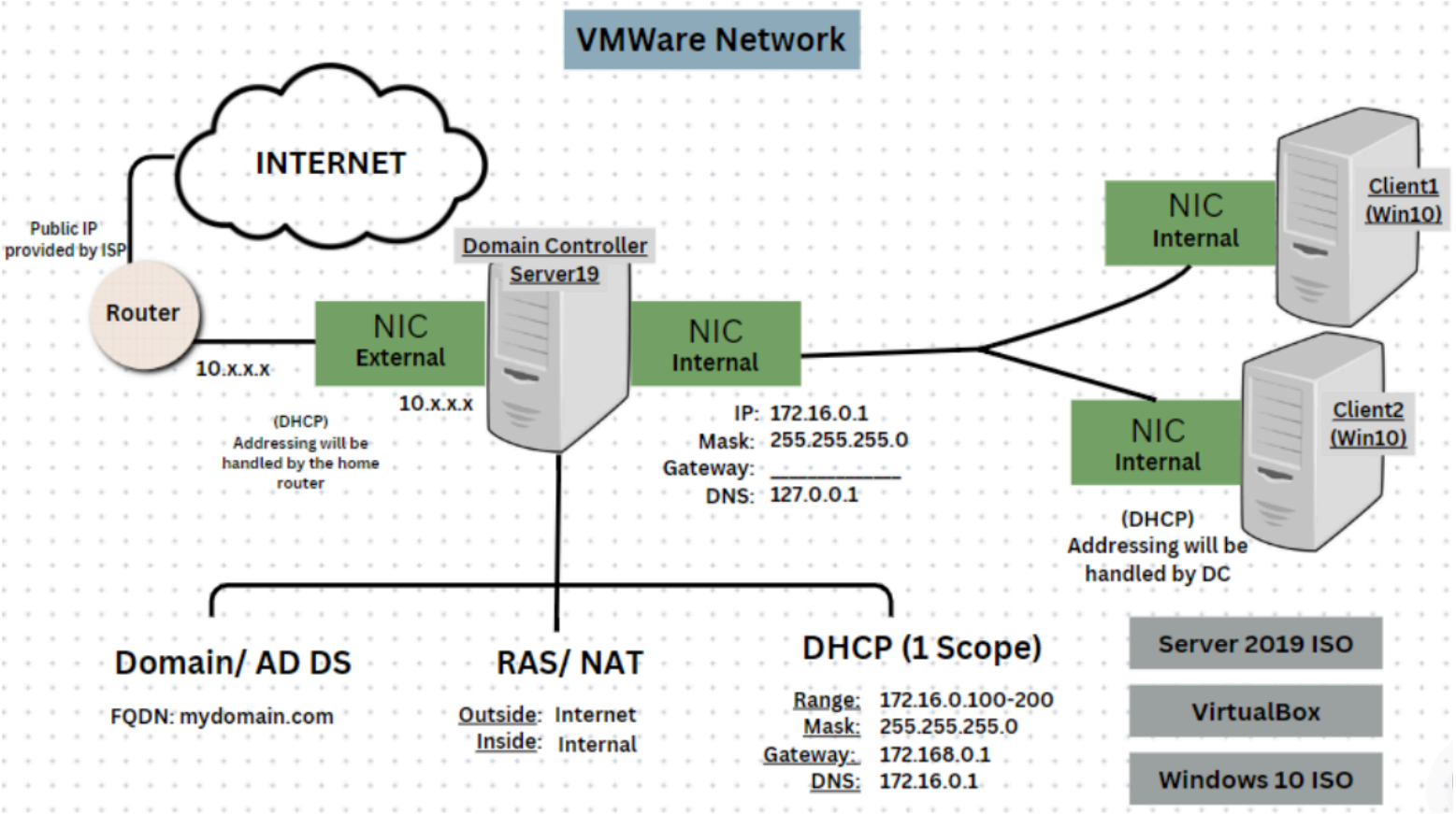
Home Lab Network Telemetry w/ Active Directory



Requirements:

Oracle VirtualBox: https://www.virtualbox.org/wiki/Downloads
Server 2019 ISO: https://www.microsoft.com/en-us/evalcenter/download-windows-server-2019
Windows 10 ISO: https://www.microsoft.com/en-us/software-download/windows10

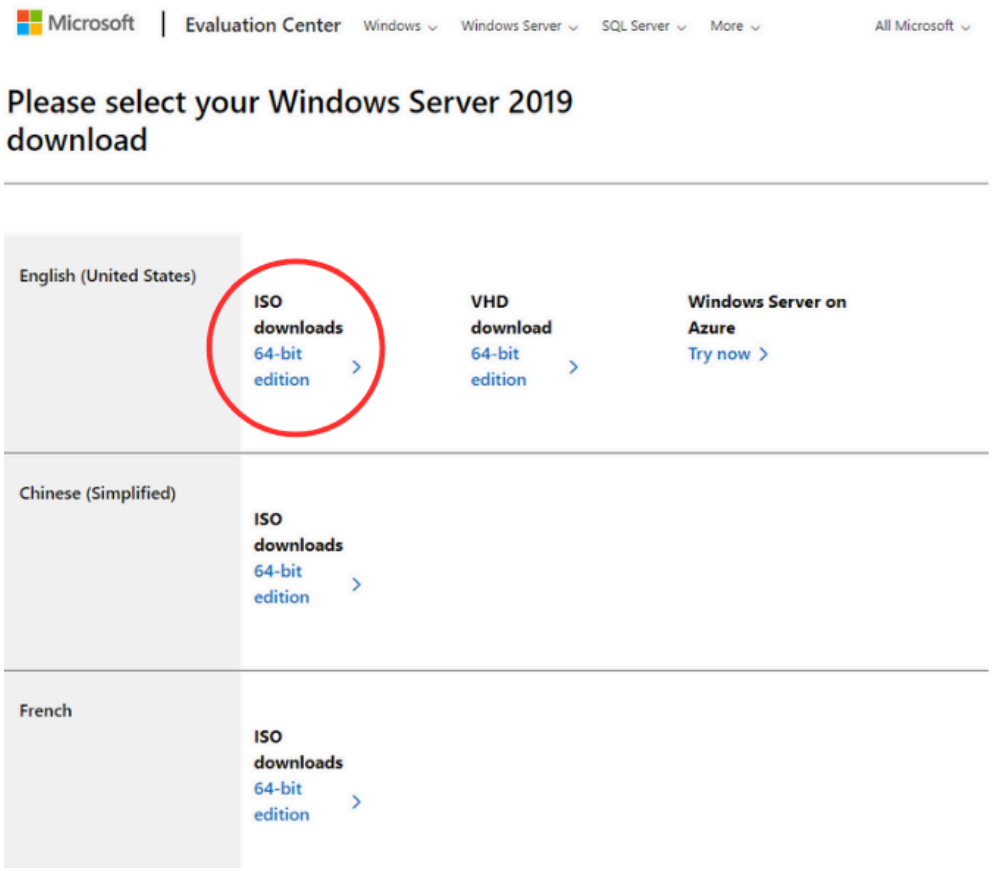
Objective:

This home lab will create an Active Directory environment simulating an organization with over 1,000 users. This setup allows you to:

- Experiment with configurations and settings risk-free, avoiding disruptions to production systems.
- Build valuable IT skills, enhancing your proficiency and confidence.
- Transfer successful configurations to your workplace environment if authorized.

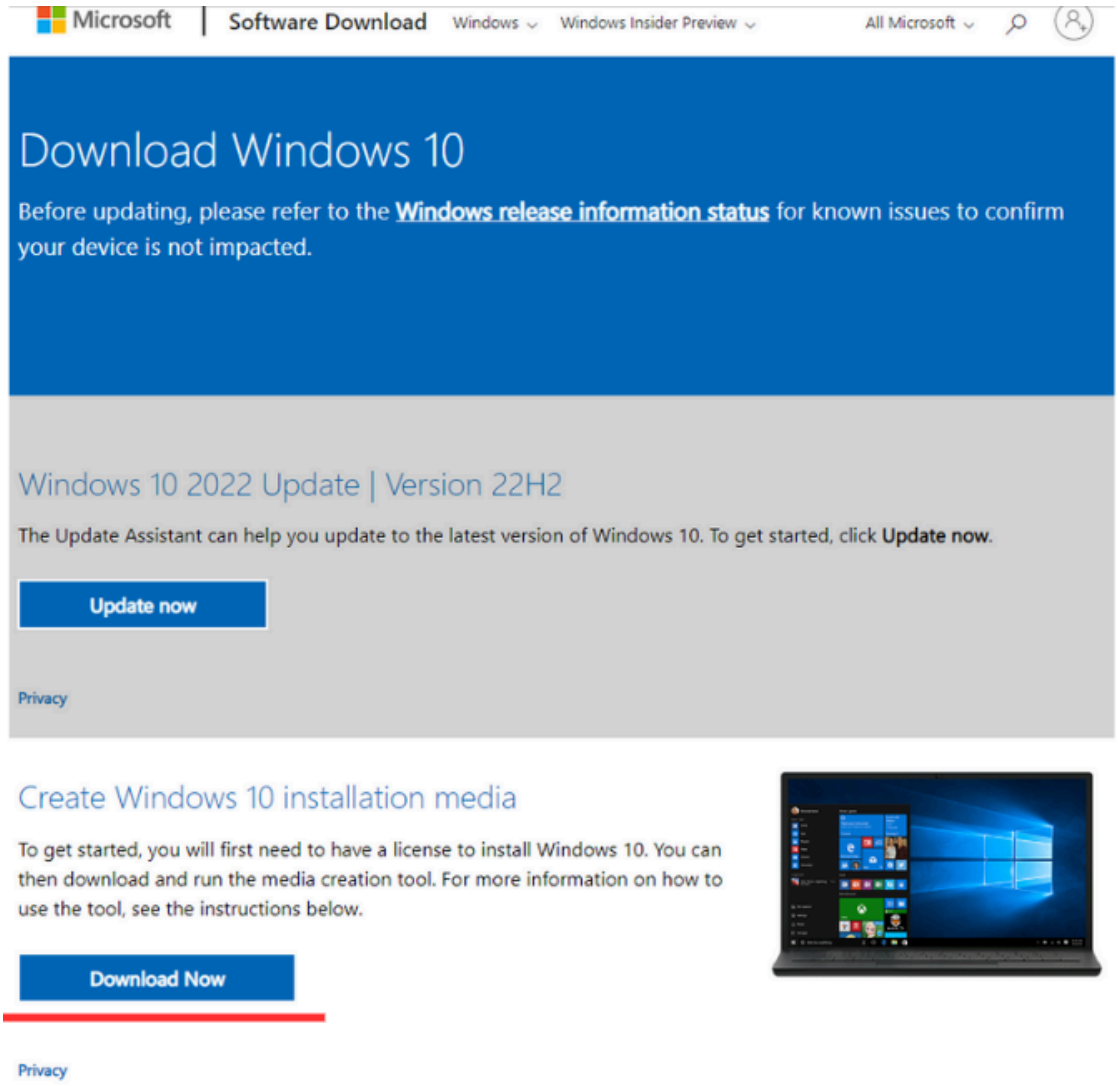
Download Oracle VirtualBox:

Download Server 2019 ISO:

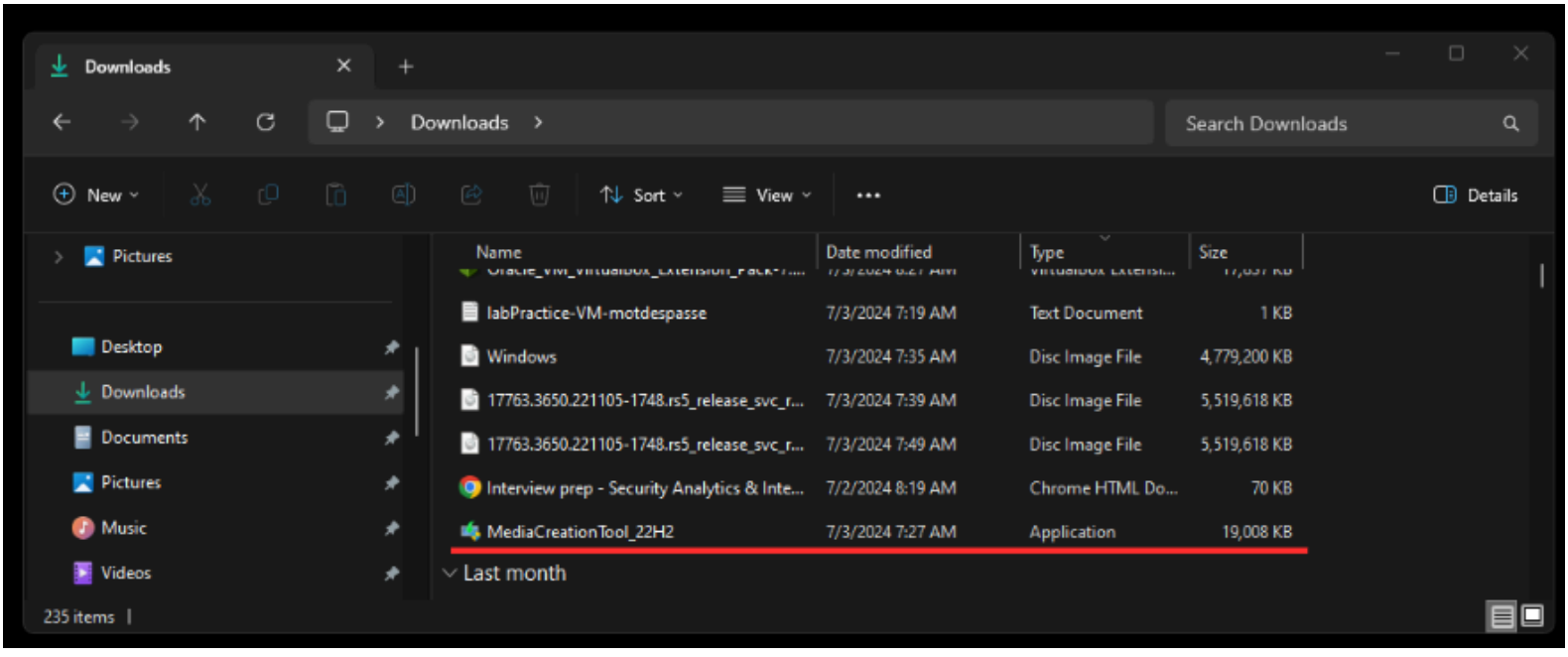


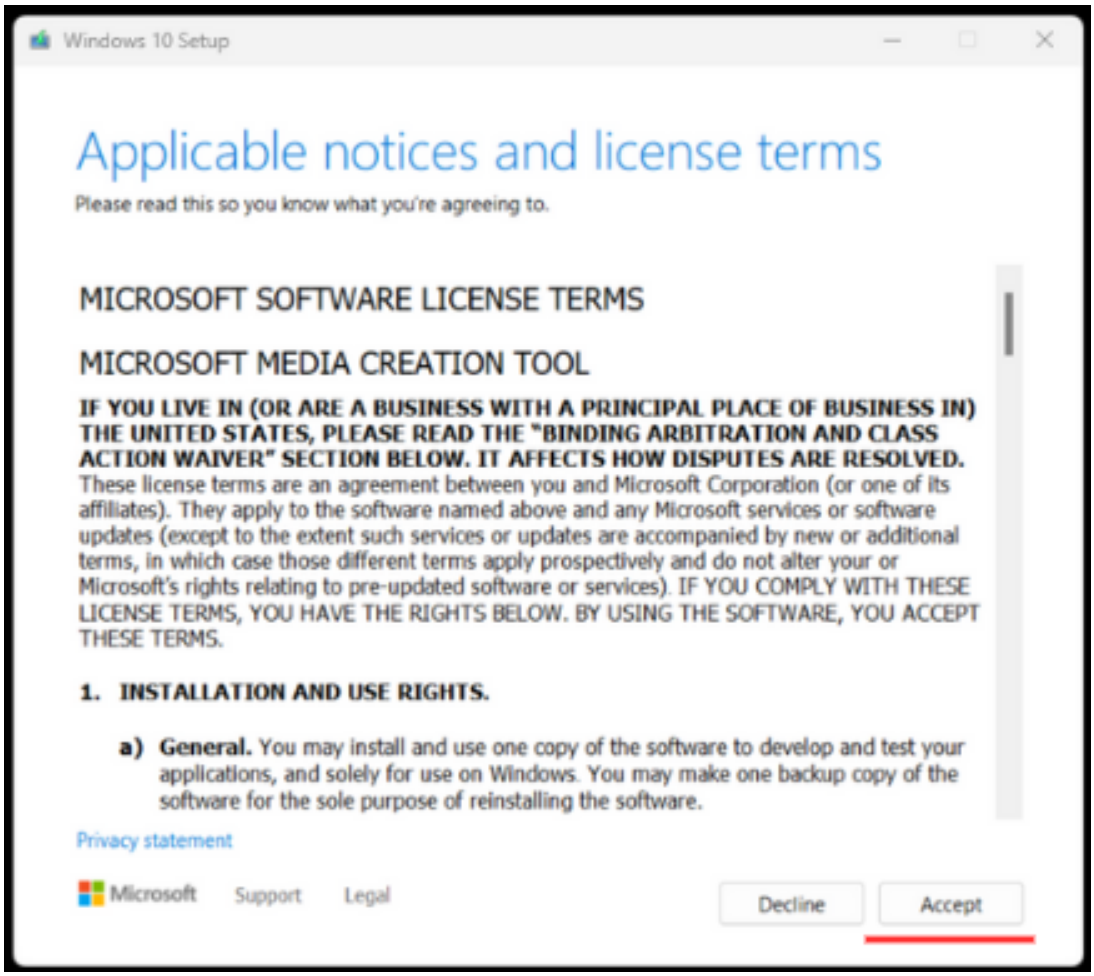
Navigate to the listed URL. Pick the download that works best for you. Make sure you remember the location it is downloaded.

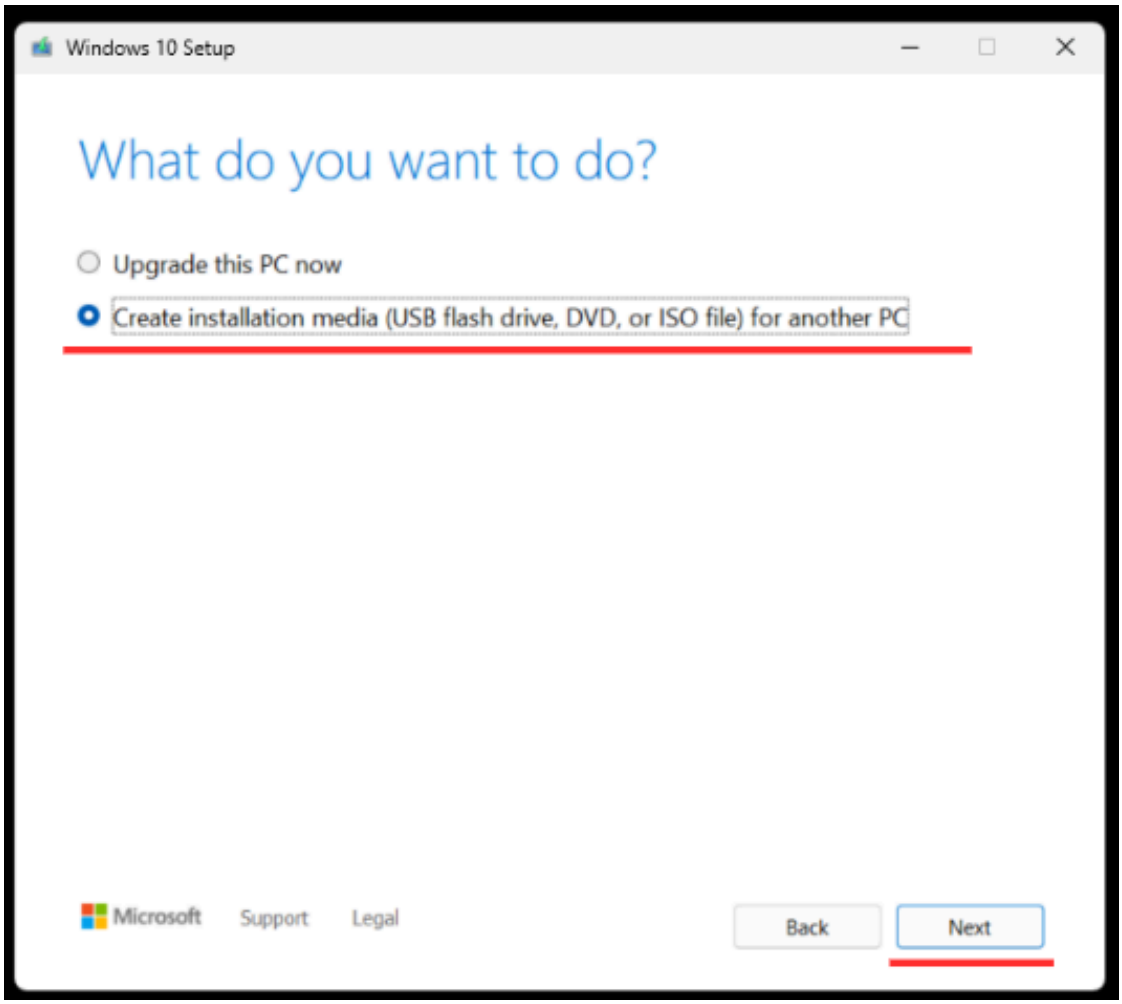
Download Windows 10 ISO:

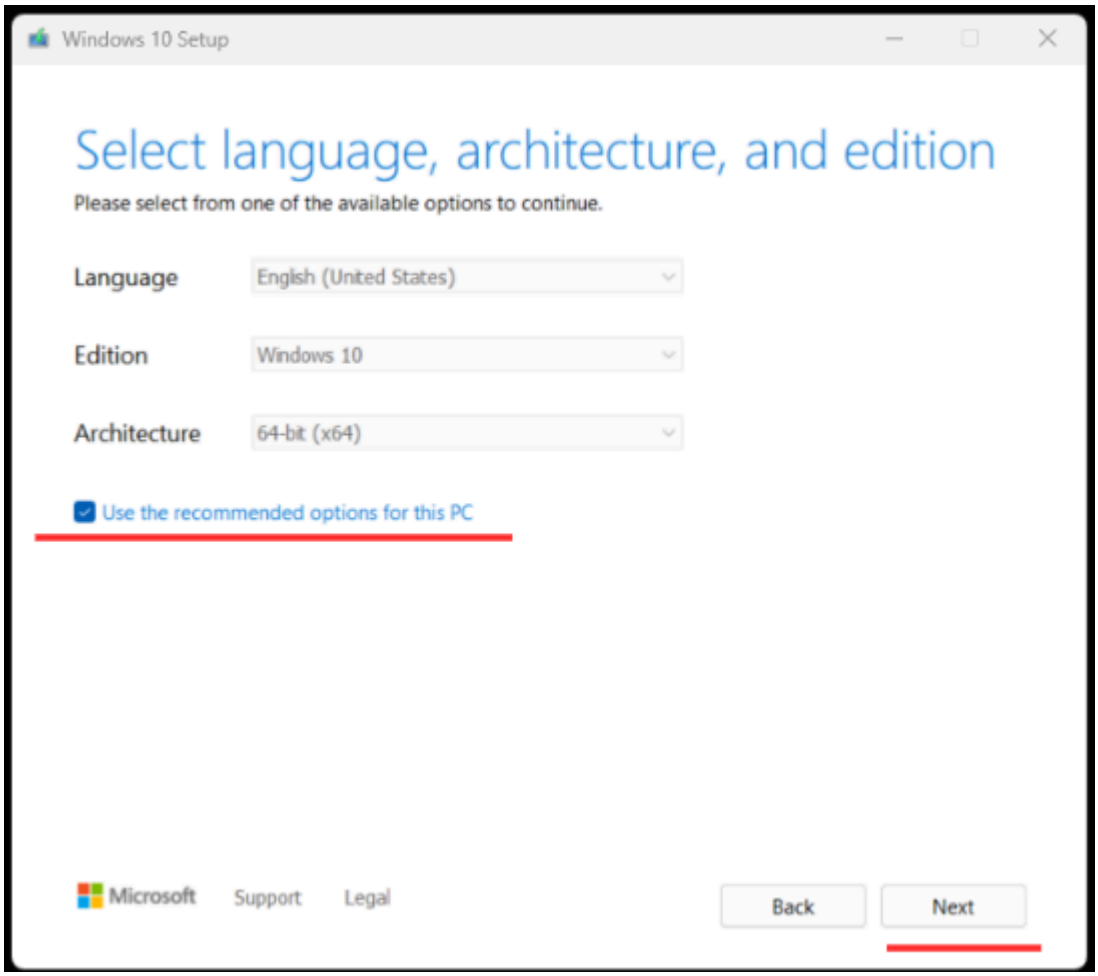


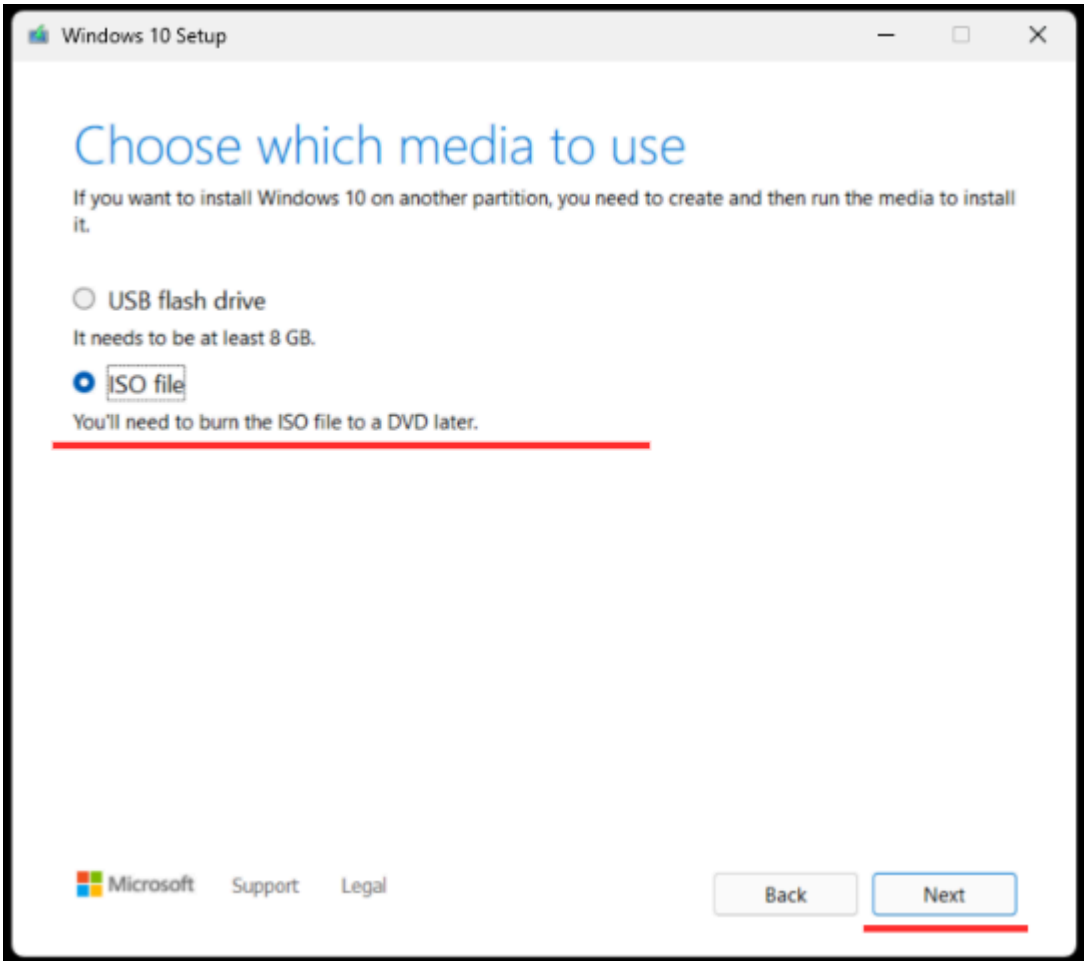
Run the downloaded application



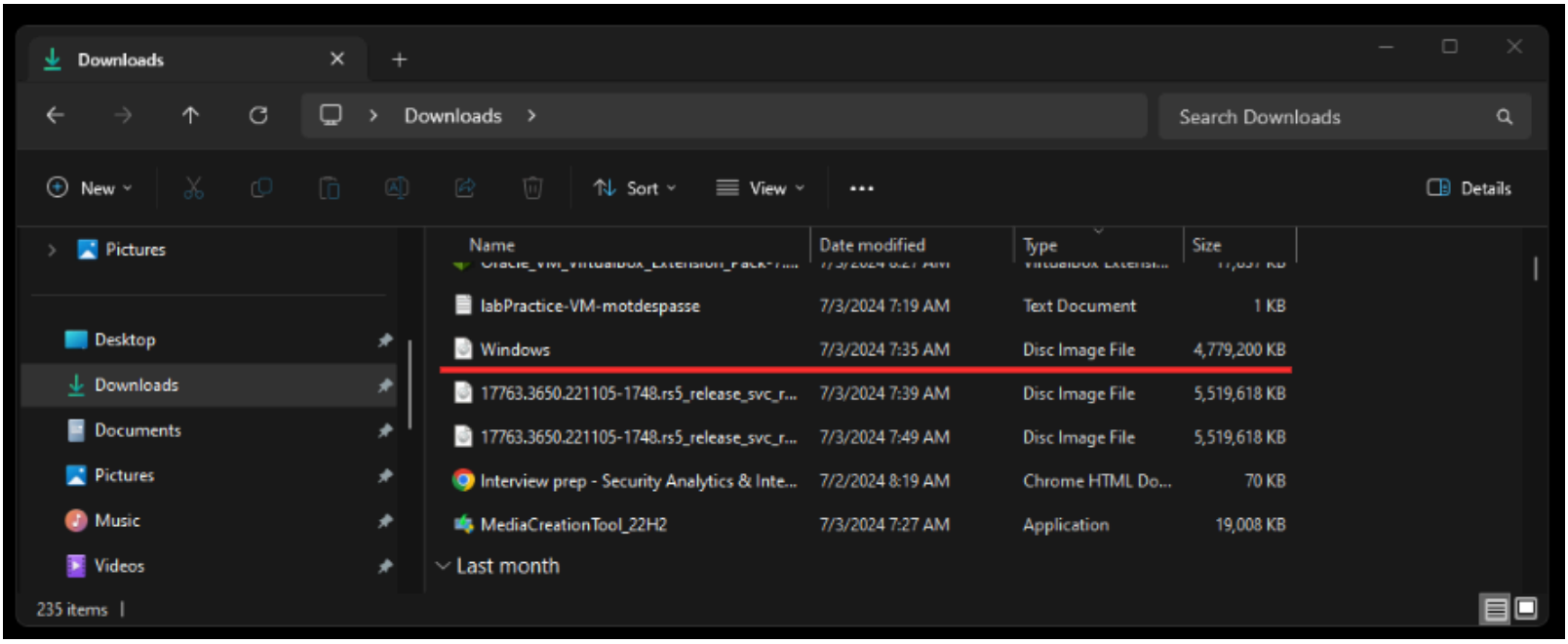

Windows 10 Setup
Applicable notices and license terms
Please read this so you know what you're agreeing to.
MICROSOFT SOFTWARE LICENSE TERMS
MICROSOFT MEDIA CREATION TOOL
IF YOU LIVE IN (OR ARE A BUSINESS WITH A PRINCIPAL PLACE OF BUSINESS IN) THE UNITED STATES, PLEASE READ THE "BINDING ARBITRATION AND CLASS ACTION WAIVER" SECTION BELOW. IT AFFECTS HOW DISPUTES ARE RESOLVED.
These license terms are an agreement between you and Microsoft Corporation (or one of its affiliates). They apply to the software named above and any Microsoft services or software updates (except to the extent such services or updates are accompanied by new or additional terms, in which case those different terms apply prospectively and do not alter your or Microsoft's rights relating to pre-updated software or services). IF YOU COMPLY WITH THESE LICENSE TERMS, YOU HAVE THE RIGHTS BELOW. BY USING THE SOFTWARE, YOU ACCEPT THESE TERMS.
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.
Privacy statement
Microsoft
Support
Legal
Decline
Accept

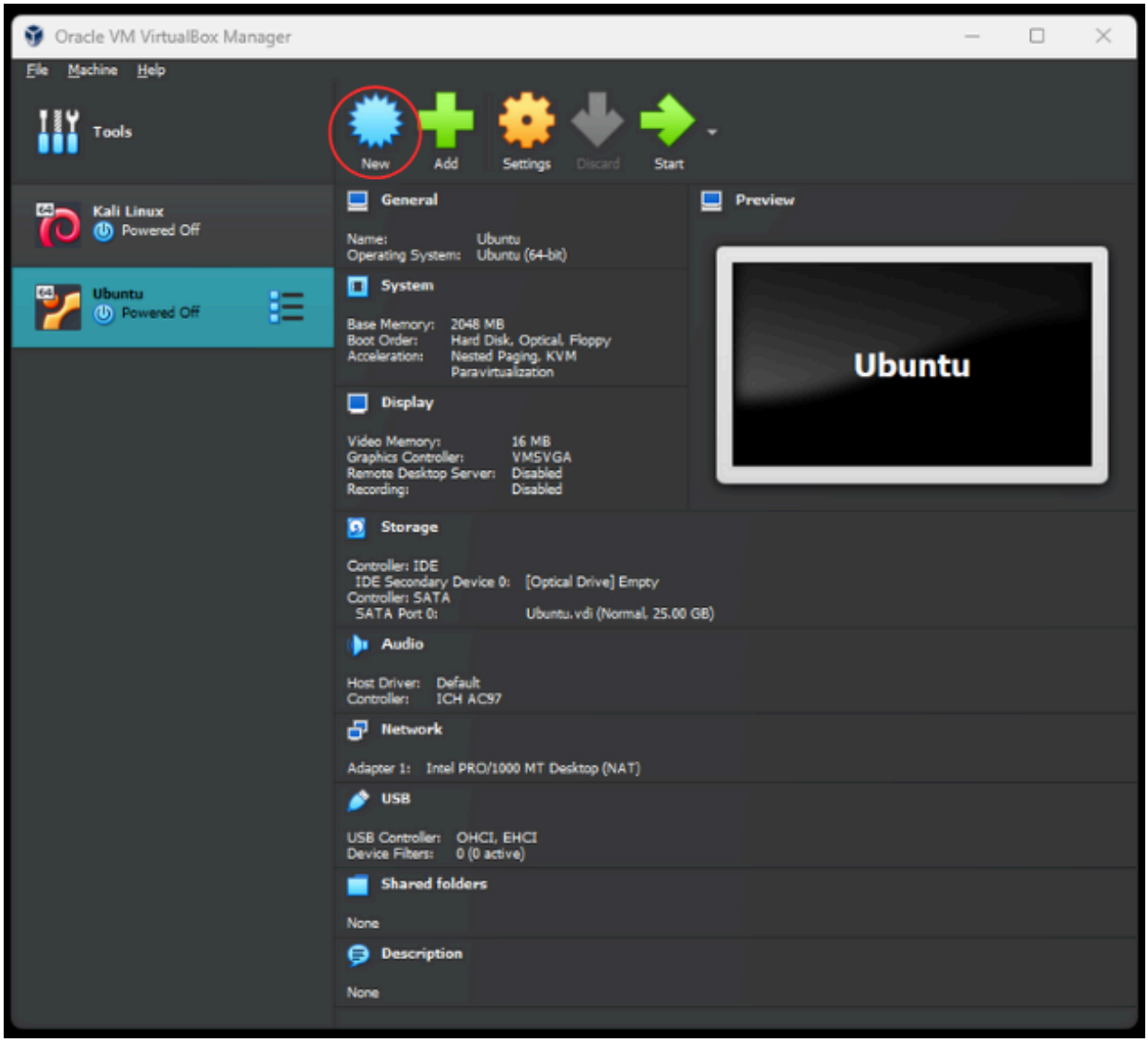

Windows 10 Setup
What do you want to do?
Upgrade this PC now
Create installation media (USB flash drive, DVD, or ISO file) for another PC
Microsoft
Support
Legal
Back
Next

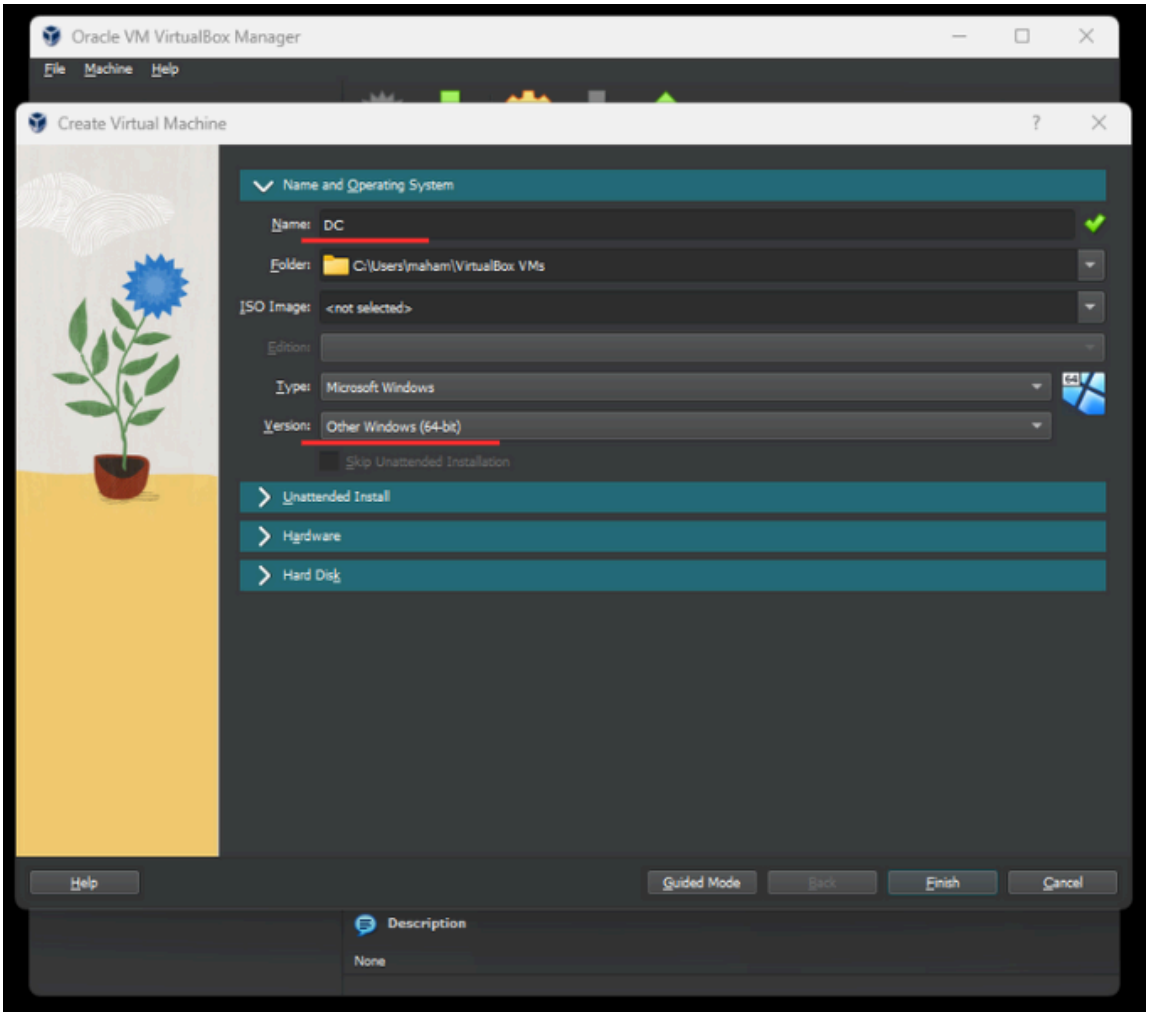

Windows 10 Setup
Select language, architecture, and edition
Please select from one of the available options to continue.
Language
English (United States)
Edition
Windows 10
Architecture
64-bit (x64)
Use the recommended options for this PC
Microsoft
Support
Legal
Back
Next


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

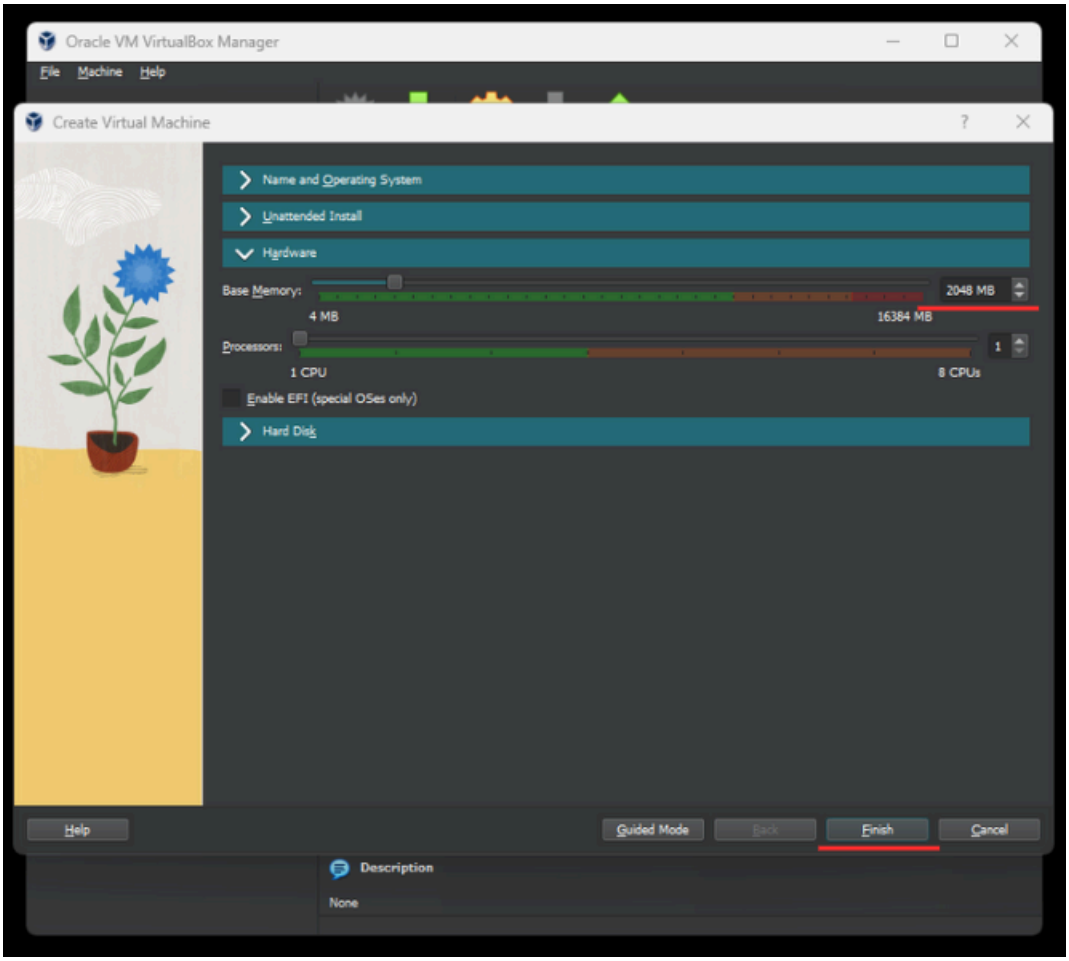
Save it to the location on where you can easily find through file explorer
Voila, there goes your ISO file you will use later to create the windows 10 OS on your VM.



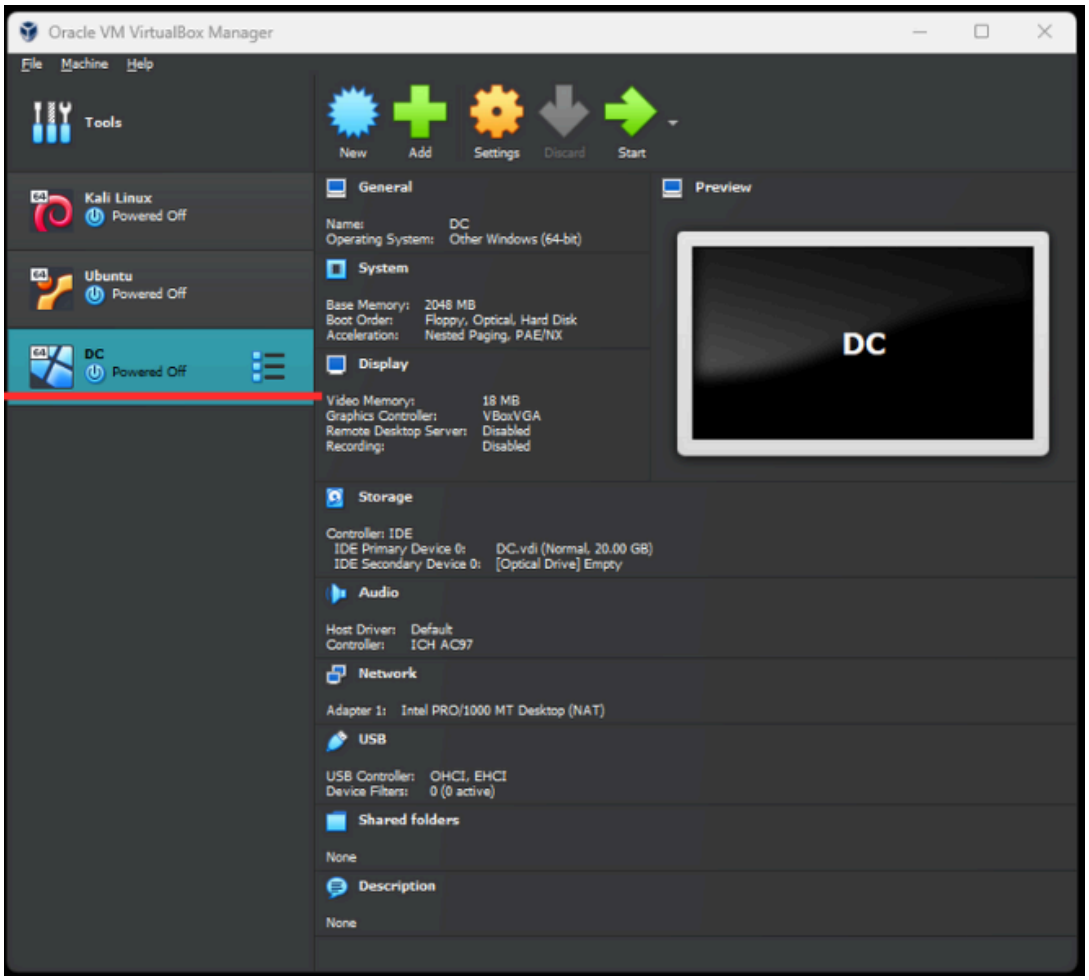


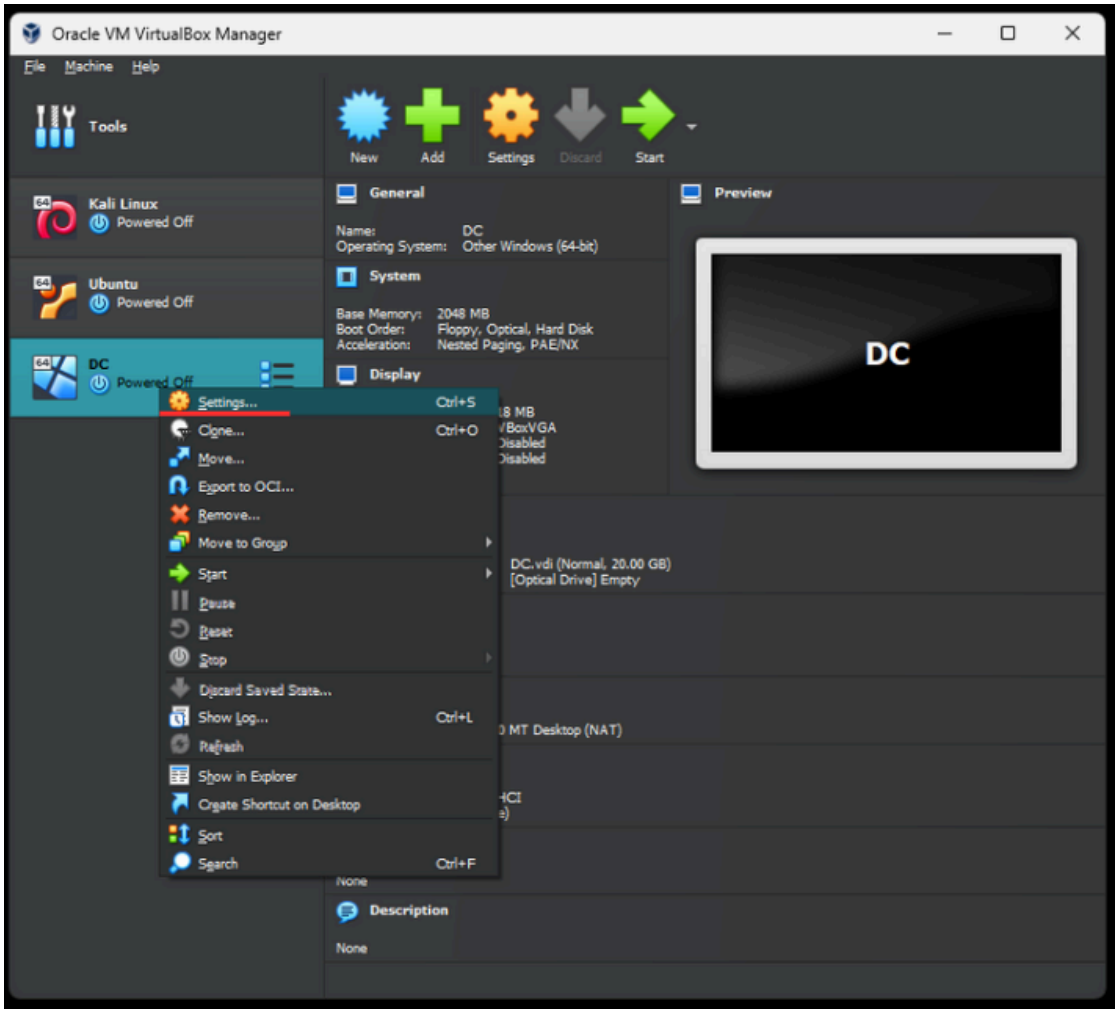


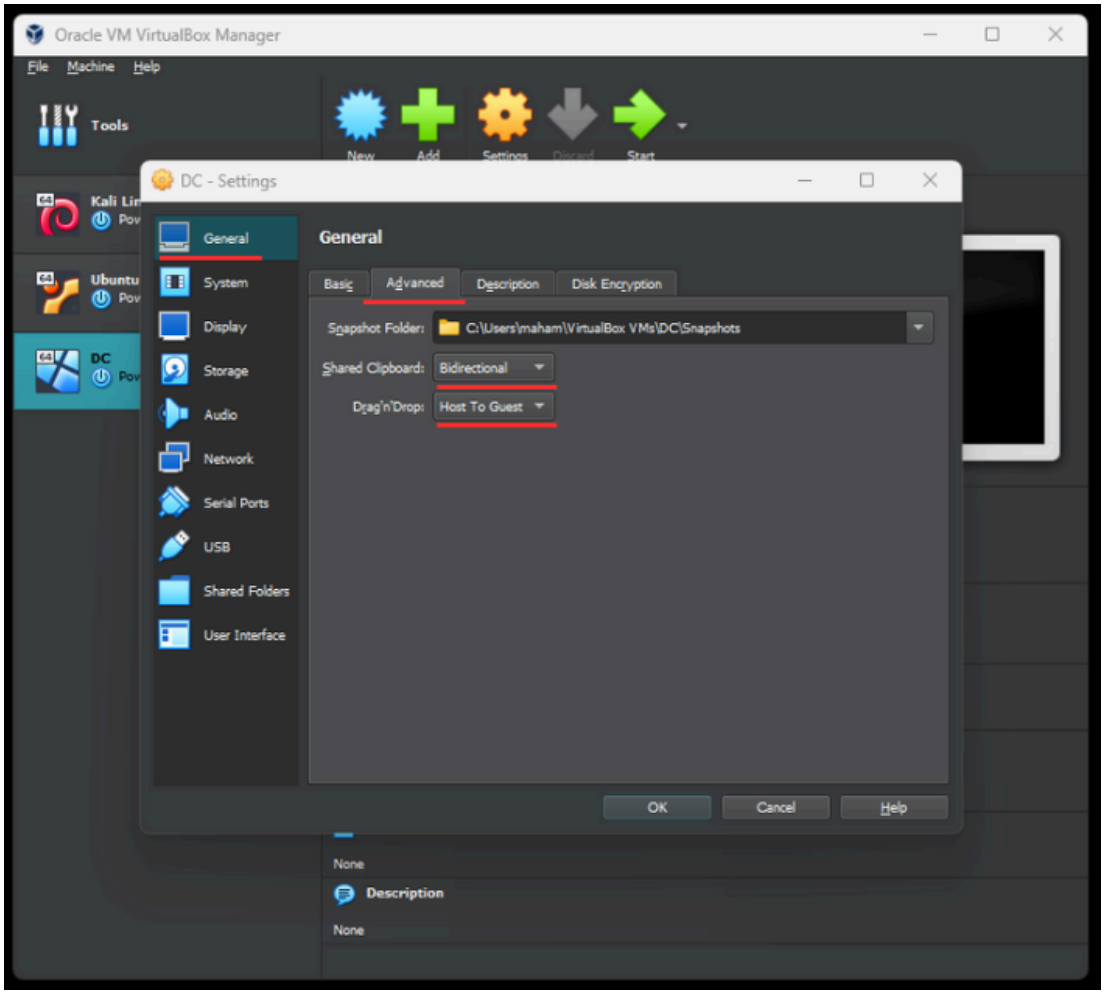
Name: DC (Domain Controller)
Version: Other Windows (64-bit)



Base Memory: 2048 MB







Shared Clipboard: Bidirectional
Drag'n Drop: Host To Guest

Here is a security lesson for those who choose the convenience of bidirectional drag and drop:

Security Concerns of Bidirectional Drag and Drop in a Virtual Machine

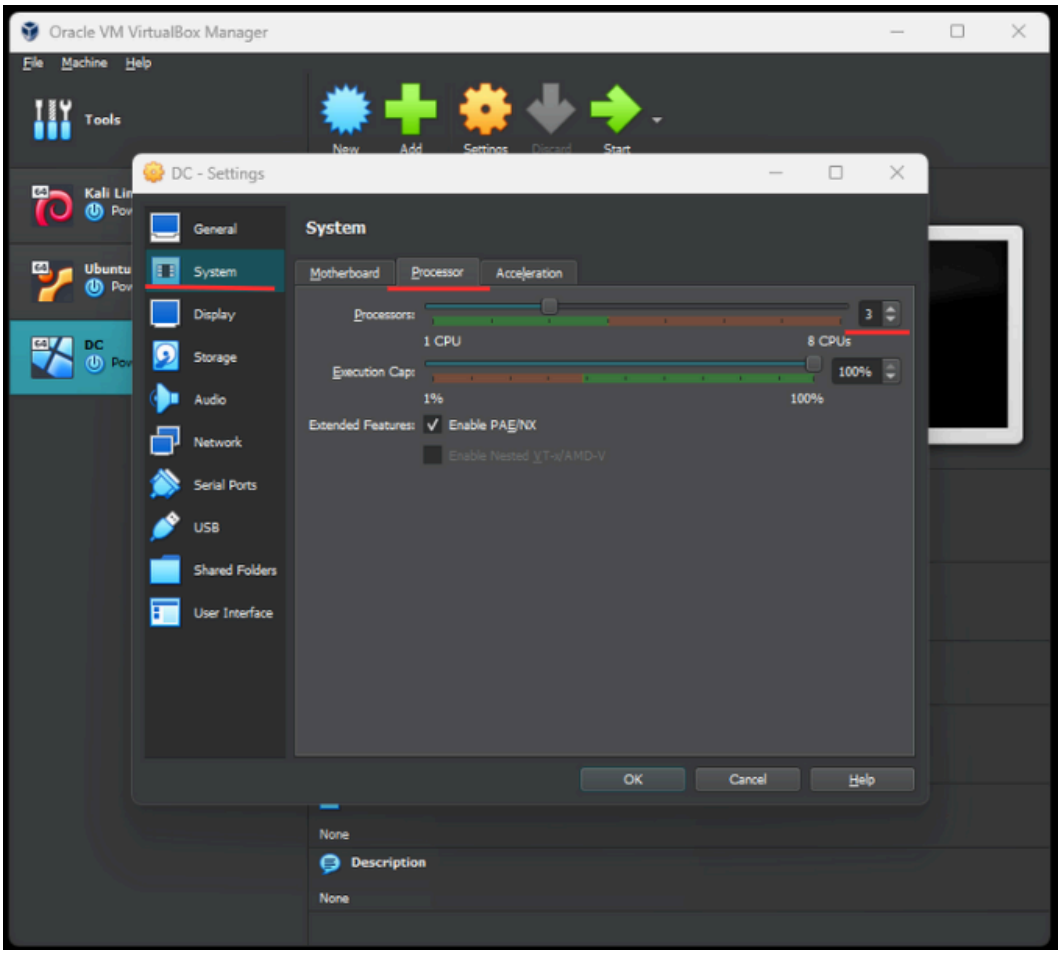
Enabling bidirectional drag and drop between your host machine and a virtual machine (VM) can be convenient, but it also poses several security risks:

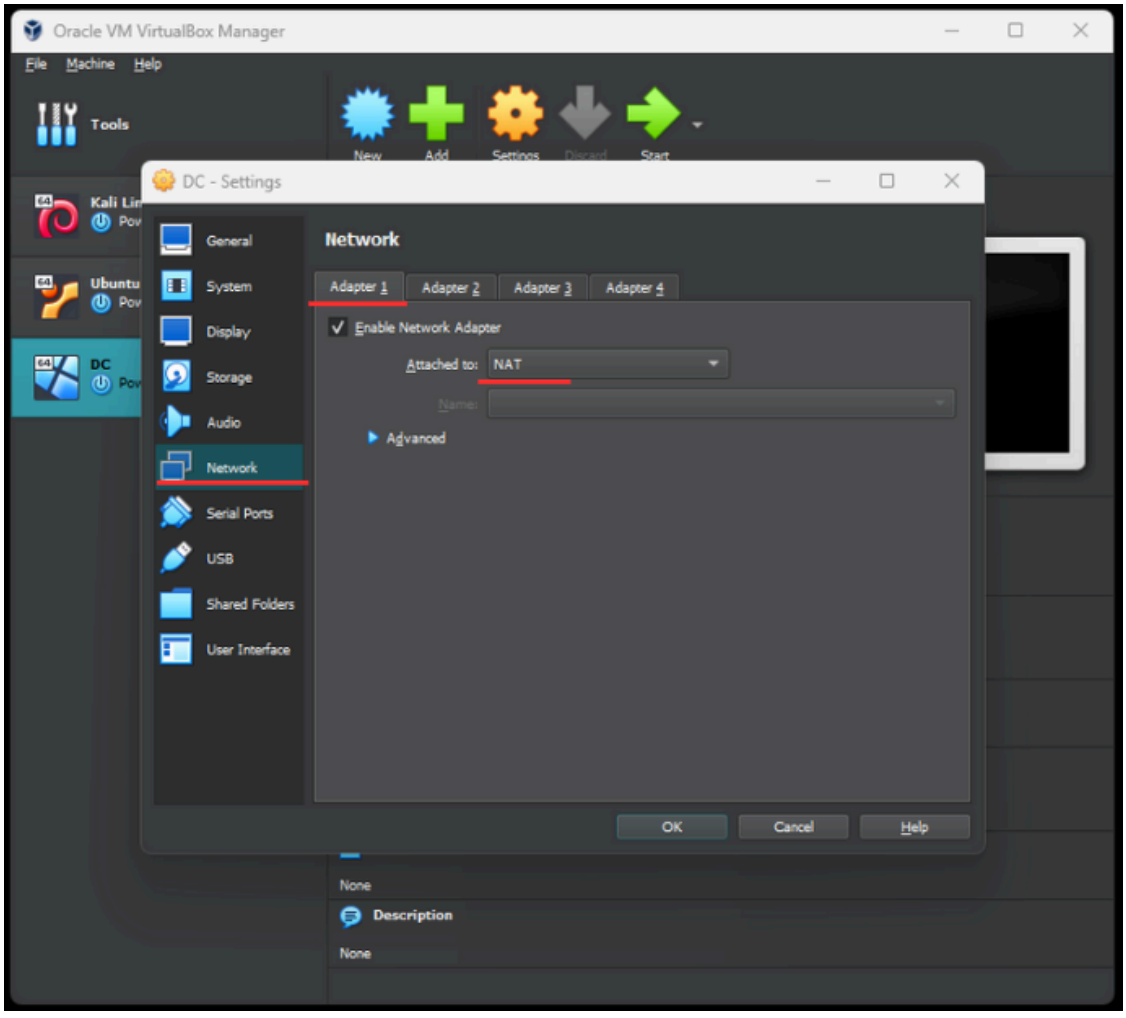
1. **Malware Transmission:**
   - Files transferred between the host and VM can carry malware, potentially infecting both systems.
2. **Data Leakage:**
   - Sensitive data from the host could be unintentionally moved to the VM, compromising security.
3. **Isolation Breach:**
   - This feature can break the isolation between the host and VM, exposing both to risks.
4. **Unauthorized Access:**
   - A compromised VM could be used to exfiltrate data from the host machine.

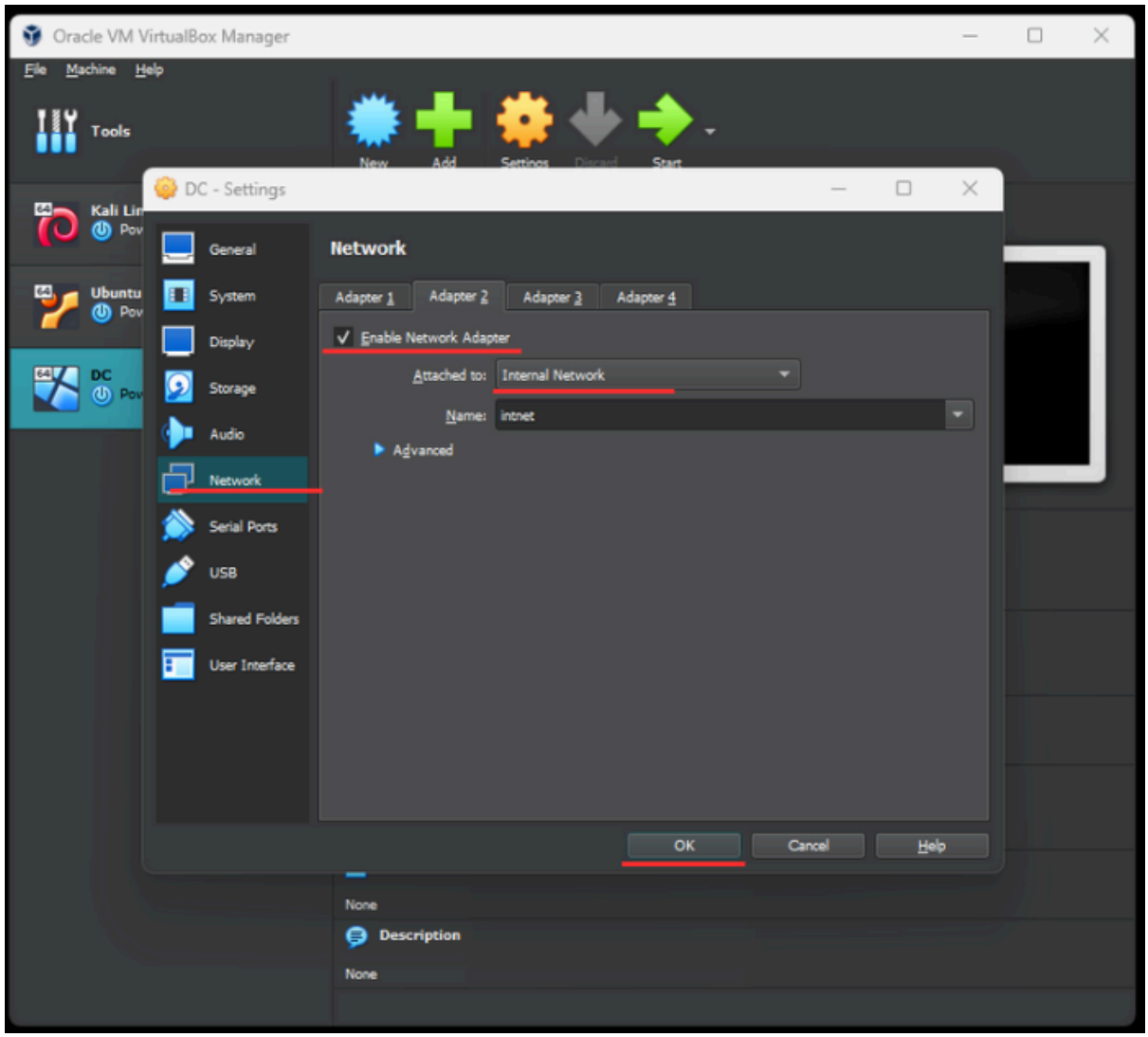
Mitigation Strategies:

- **Disable bidirectional drag and drop** unless necessary.
- **Use one-way transfer** (host to VM or VM to host) to reduce risk.
- **Regularly scan** both host and VM for malware.
- **Limit file transfers** to only essential files.

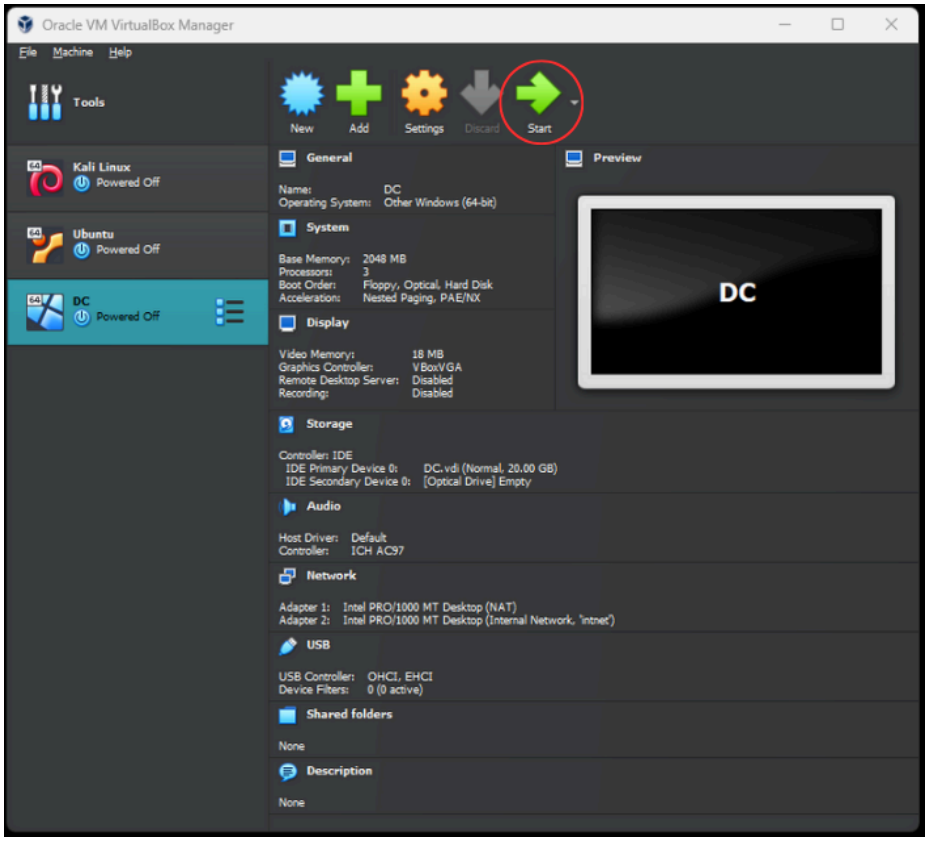
By taking these precautions, you can maintain a secure and effective home lab environment.

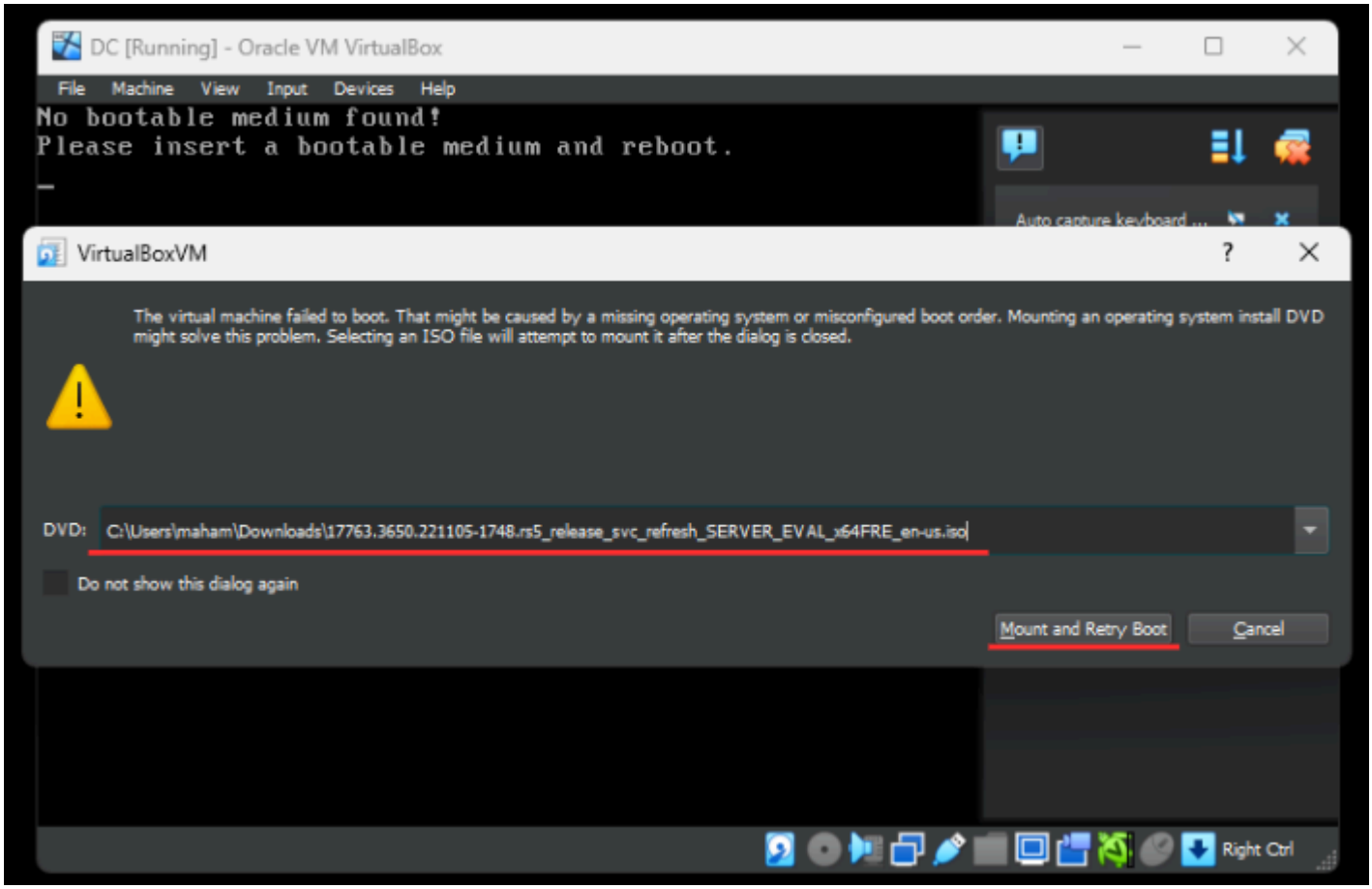

Oracle VM VirtualBox Manager
File Machine Help
Tools
New Add Settings Discard Start
DC - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
System
Motherboard Processor Acceleration
Processors: 3
1 CPU 8 CPUs
Execution Cap: 100%
1% 100%
Extended Features: Enable PAE/NX
Enable Nested VT-x/AMD-V
OK Cancel Help
None
Description
None


Oracle VM VirtualBox Manager
File Machine Help
Tools
New Add Settings Discard Start
DC - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Network
Adapter 1 Adapter 2 Adapter 3 Adapter 4
Enable Network Adapter
Attached to: NAT
Name:
Advanced
OK Cancel Help
None
Description
None

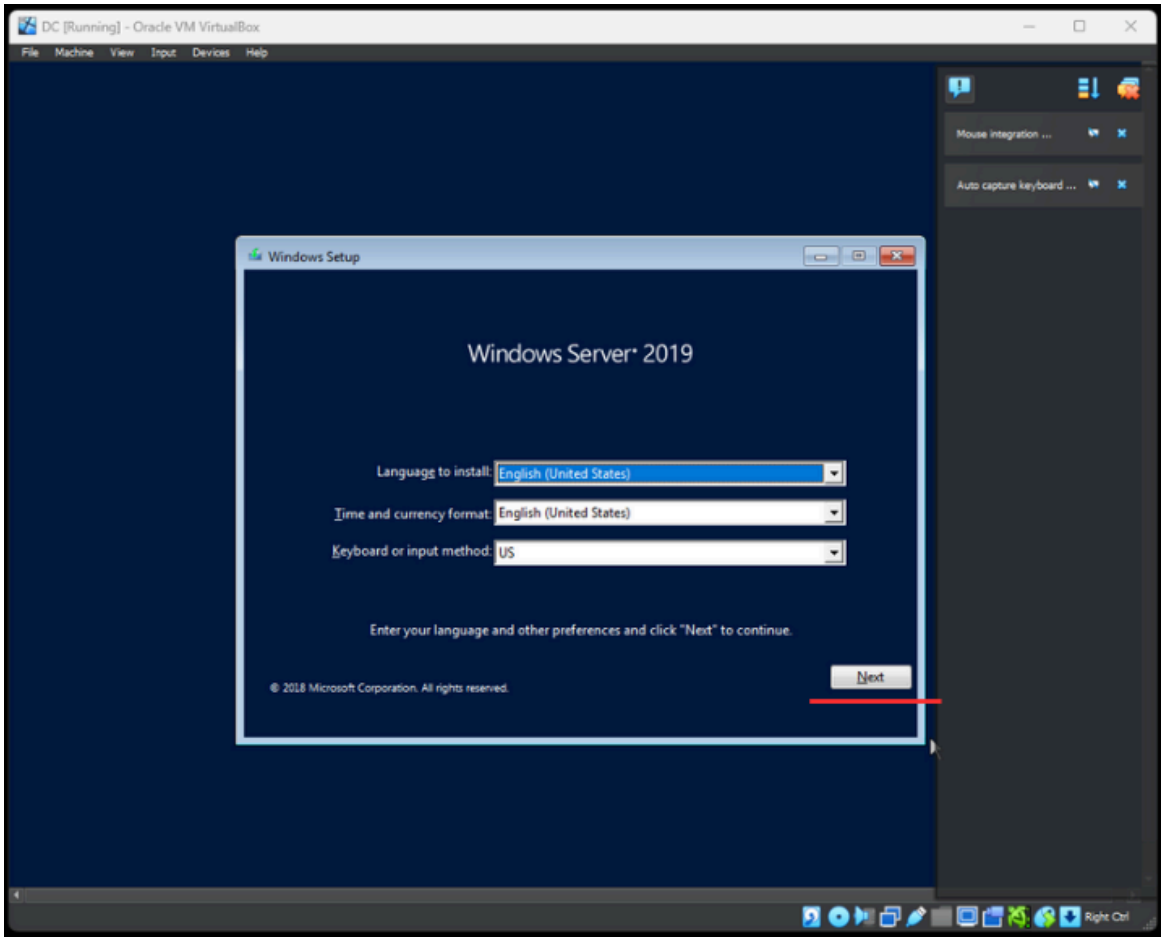


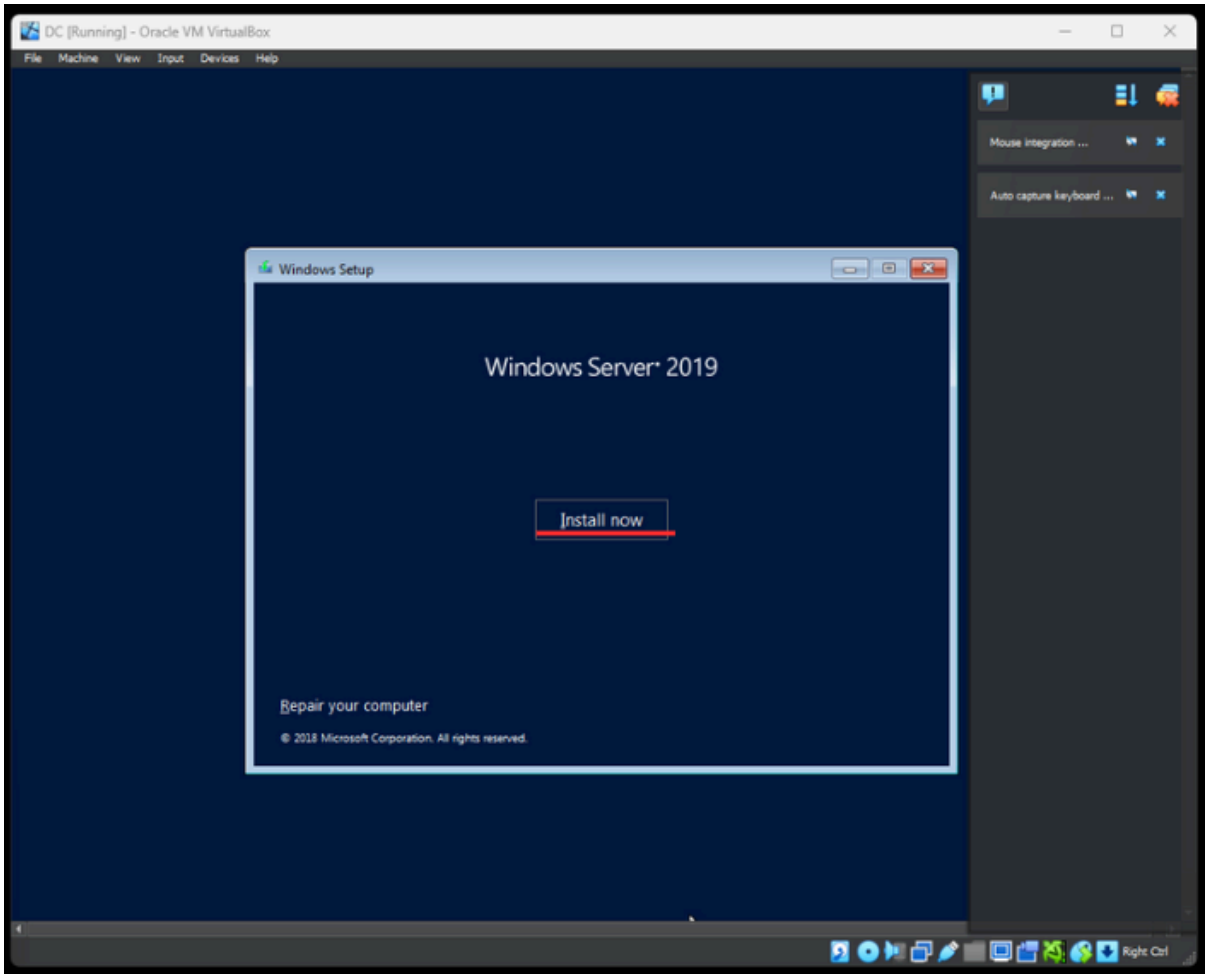
Adapter 1 will enable the VM to communicate with the router using NAT. The internal adapter will connect to th internal network, allowing the Domain Controller to communicate with other internal VMs.

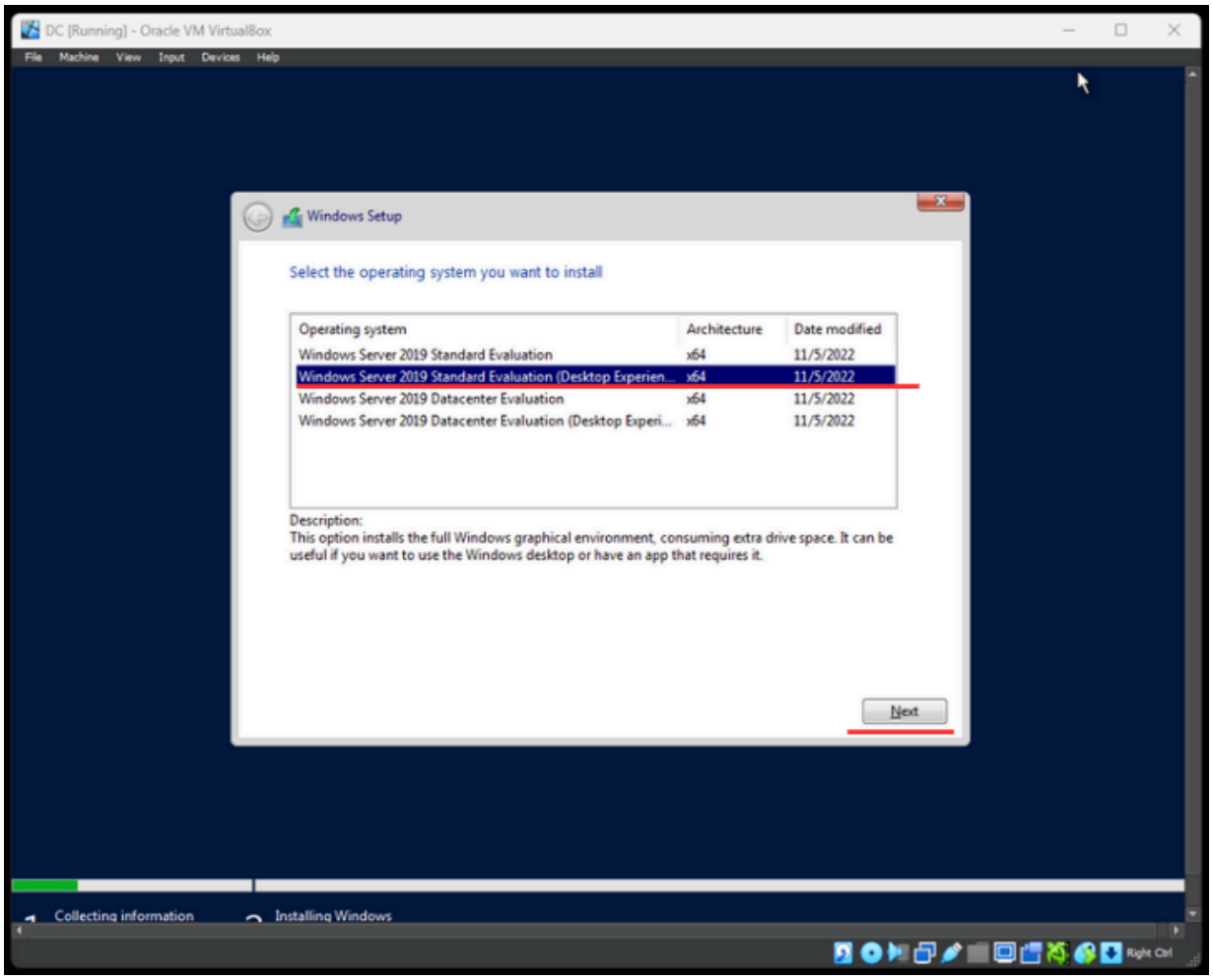


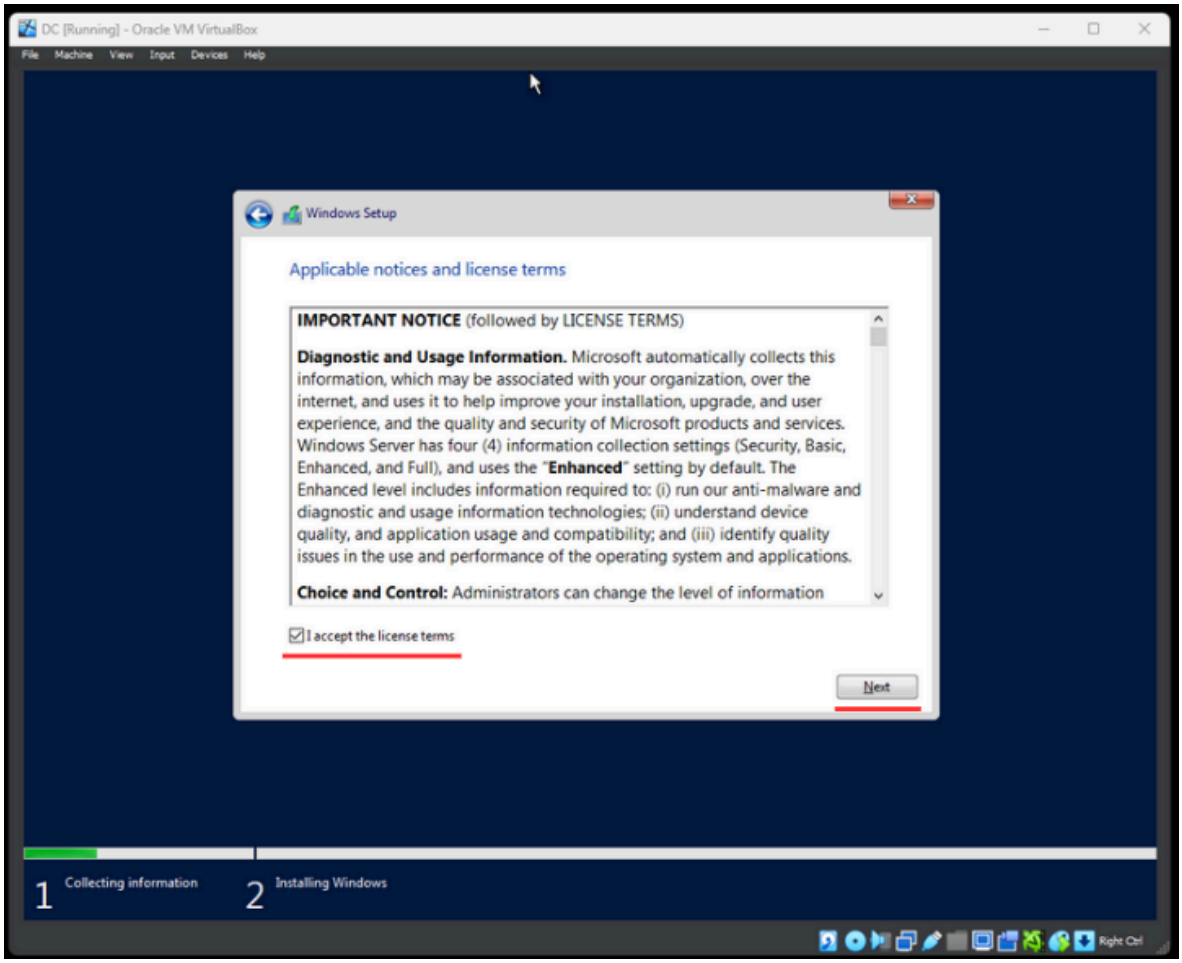


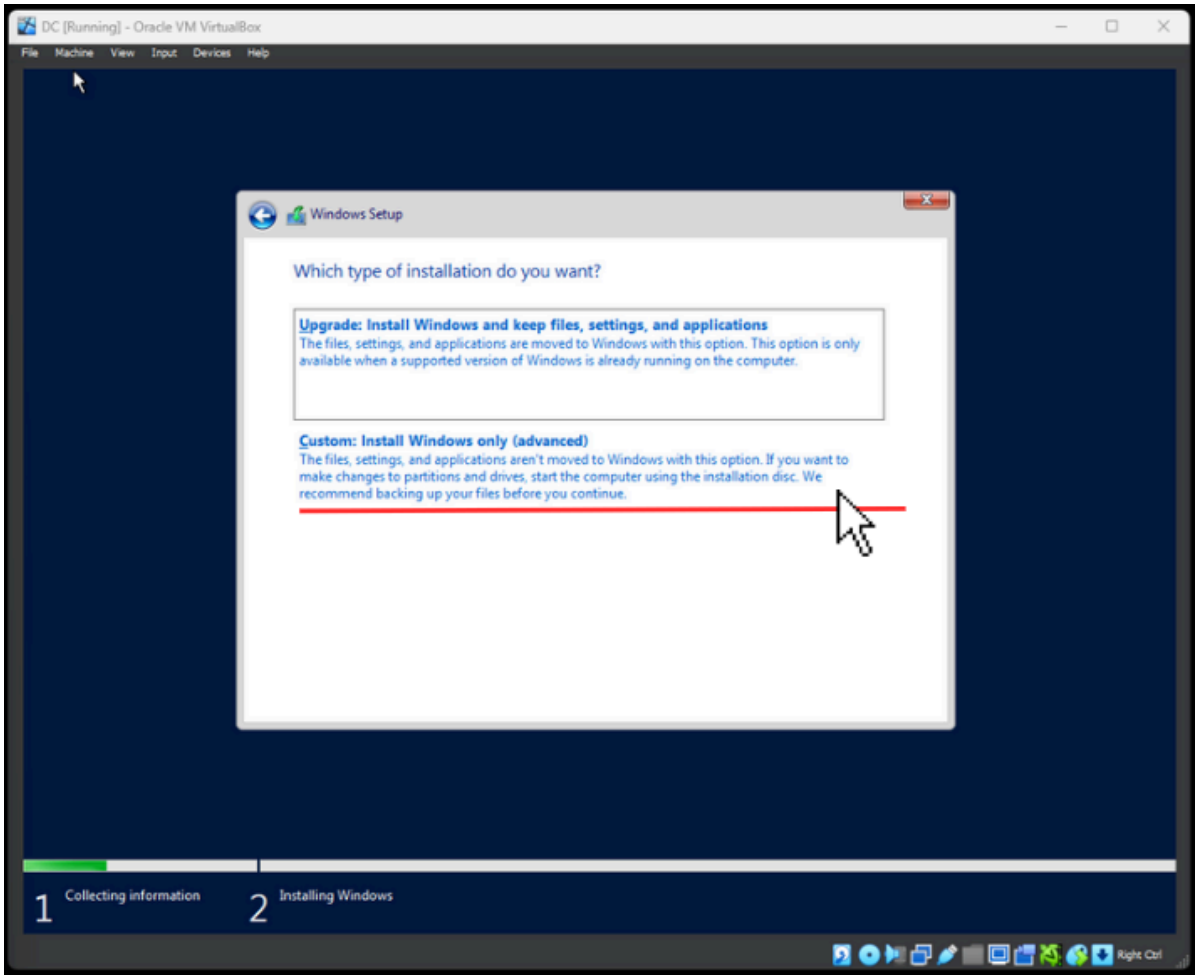
This is from the link provided when downloading the Server 2019

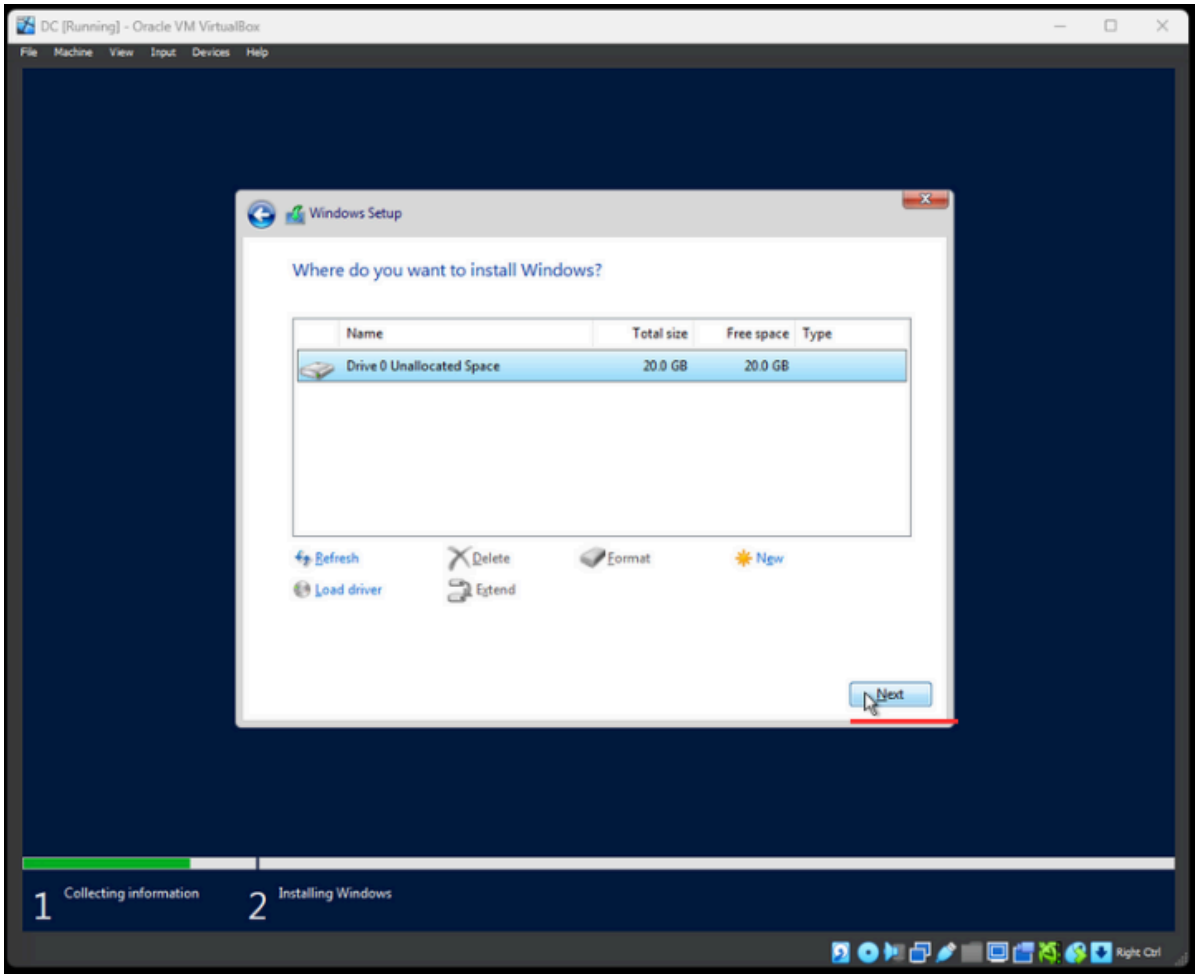


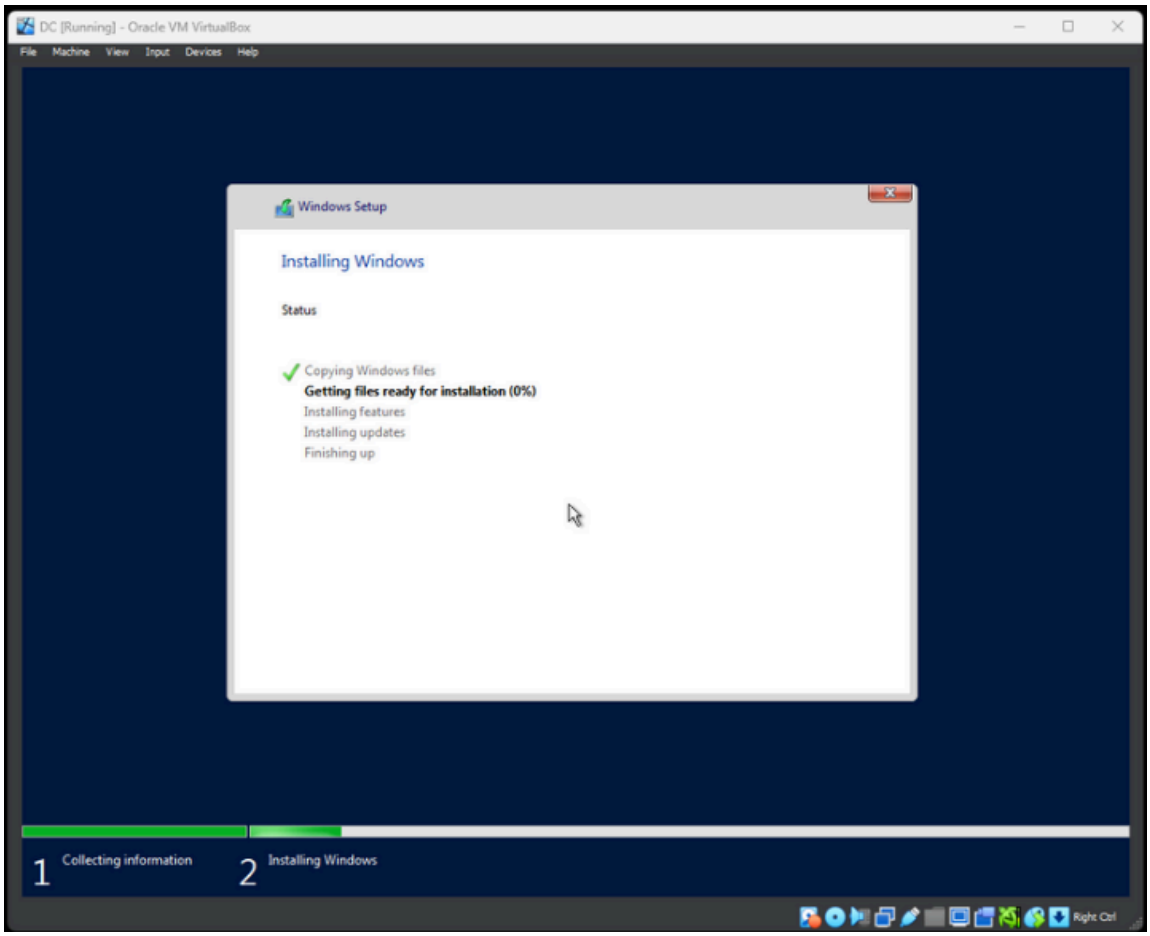

DC [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Mouse integration ...
Auto capture keyboard ...
Windows Setup
Windows Server 2019
Install now
Repair your computer
© 2018 Microsoft Corporation. All rights reserved.
Right Ctrl


DC [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Windows Setup
Select the operating system you want to install
Operating system
Architecture
Date modified
Windows Server 2019 Standard Evaluation
x64
11/5/2022
Windows Server 2019 Standard Evaluation (Desktop Experien...
x64
11/5/2022
Windows Server 2019 Datacenter Evaluation
x64
11/5/2022
Windows Server 2019 Datacenter Evaluation (Desktop Experi...
x64
11/5/2022
Description:
This option installs the full Windows graphical environment, consuming extra drive space. It can be useful if you want to use the Windows desktop or have an app that requires it.
Next
Collecting information
Installing Windows
Right Ctrl


DC [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Windows Setup
Applicable notices and license terms
IMPORTANT NOTICE (followed by LICENSE TERMS)
Diagnostic and Usage Information. Microsoft automatically collects this information, which may be associated with your organization, over the internet, and uses it to help improve your installation, upgrade, and user experience, and the quality and security of Microsoft products and services. Windows Server has four (4) information collection settings (Security, Basic, Enhanced, and Full), and uses the "Enhanced" setting by default. The Enhanced level includes information required to: (i) run our anti-malware and diagnostic and usage information technologies; (ii) understand device quality, and application usage and compatibility; and (iii) identify quality issues in the use and performance of the operating system and applications.
Choice and Control: Administrators can change the level of information
I accept the license terms
Next
1 Collecting information
2 Installing Windows
Right Ctrl

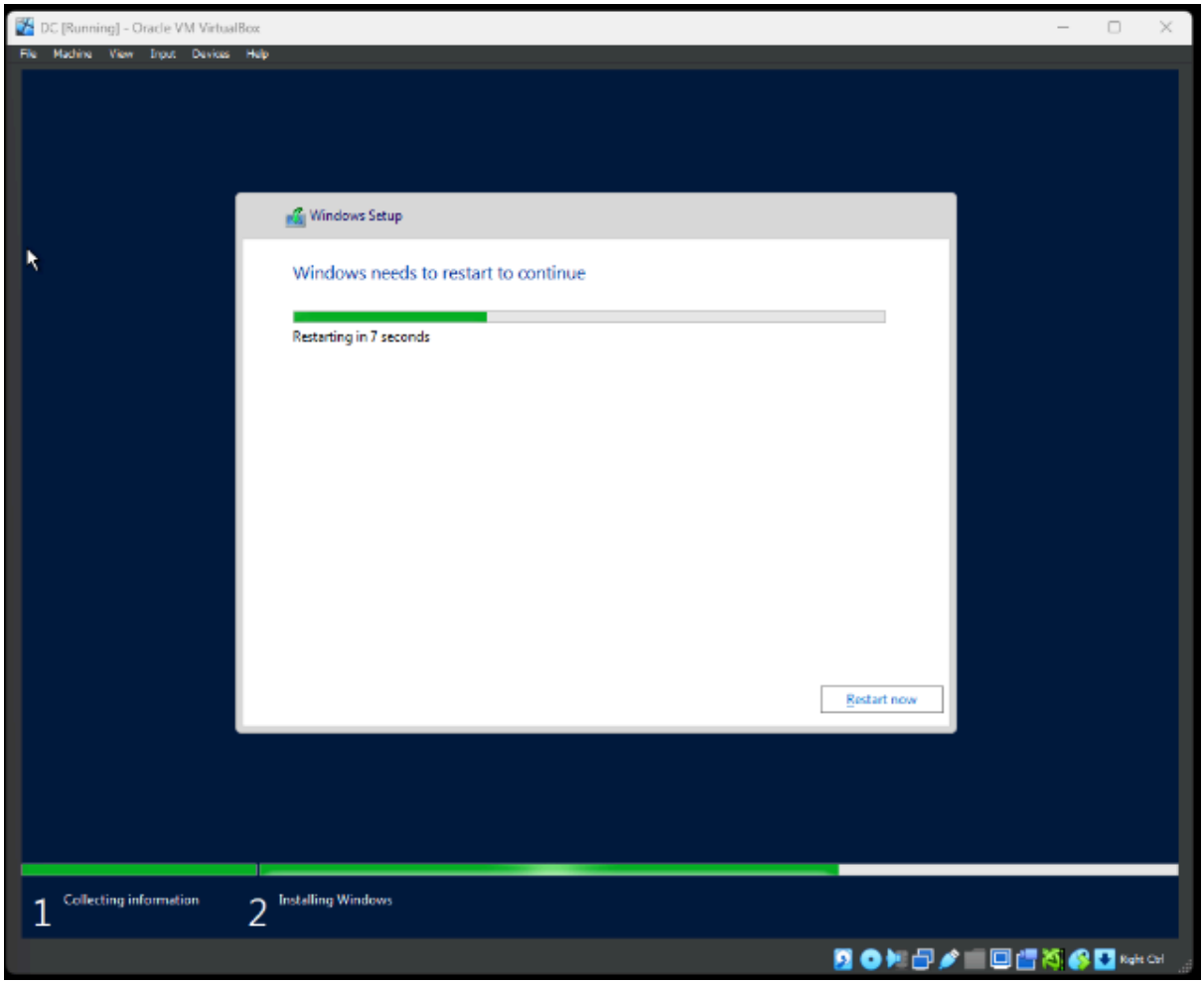

DC [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Windows Setup
Which type of installation do you want?
Upgrade: Install Windows and keep files, settings, and applications
The files, settings, and applications are moved to Windows with this option. This option is only available when a supported version of Windows is already running on the computer.
Custom: Install Windows only (advanced)
The files, settings, and applications aren't moved to Windows with this option. If you want to make changes to partitions and drives, start the computer using the installation disc. We recommend backing up your files before you continue.
1 Collecting information
2 Installing Windows
Right Ctrl



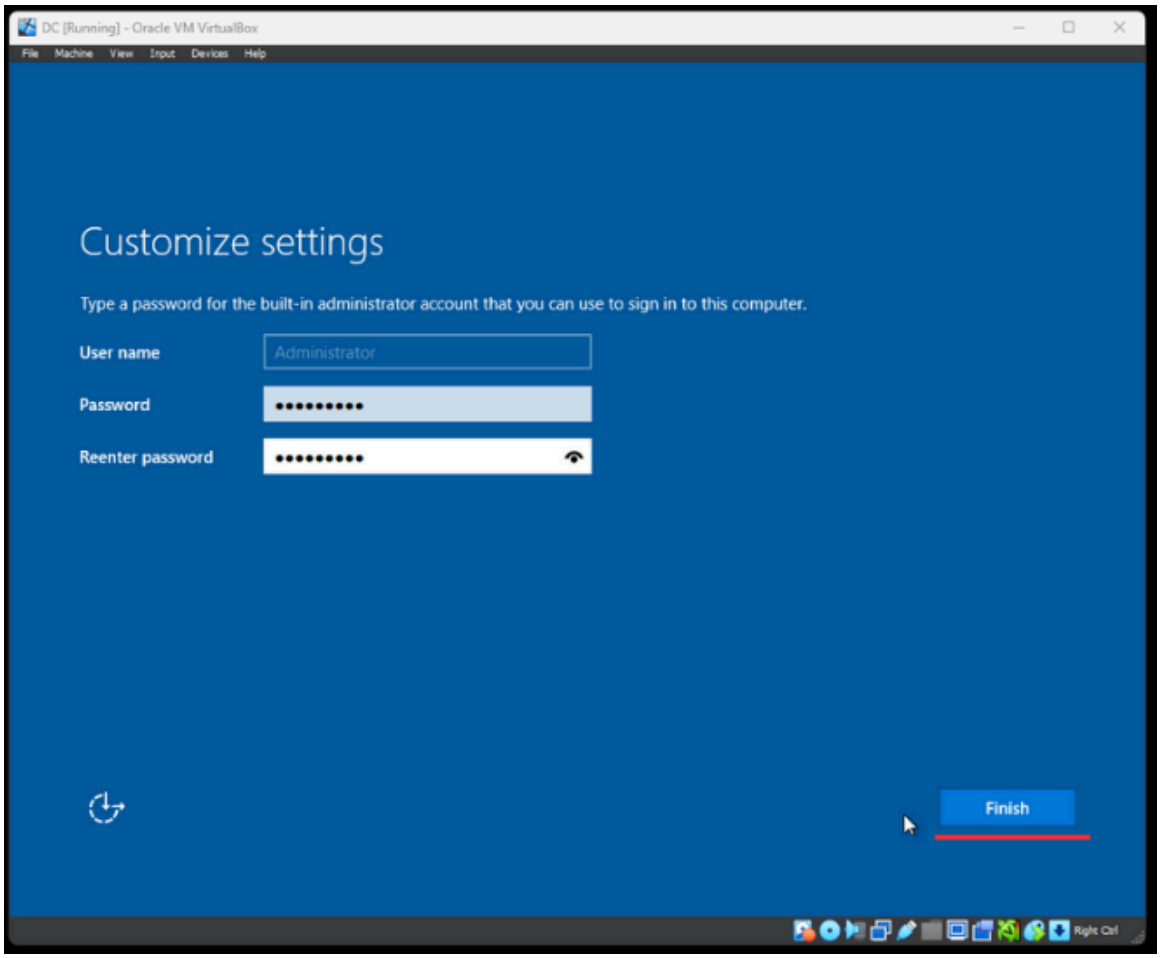


*

This may take a while, it is normal



It will restart by itself



To minimize the burden of memorizing multiple passwords, all passwords will be standardized as "Password1."

Only do this on labs, never on an production or personal environment

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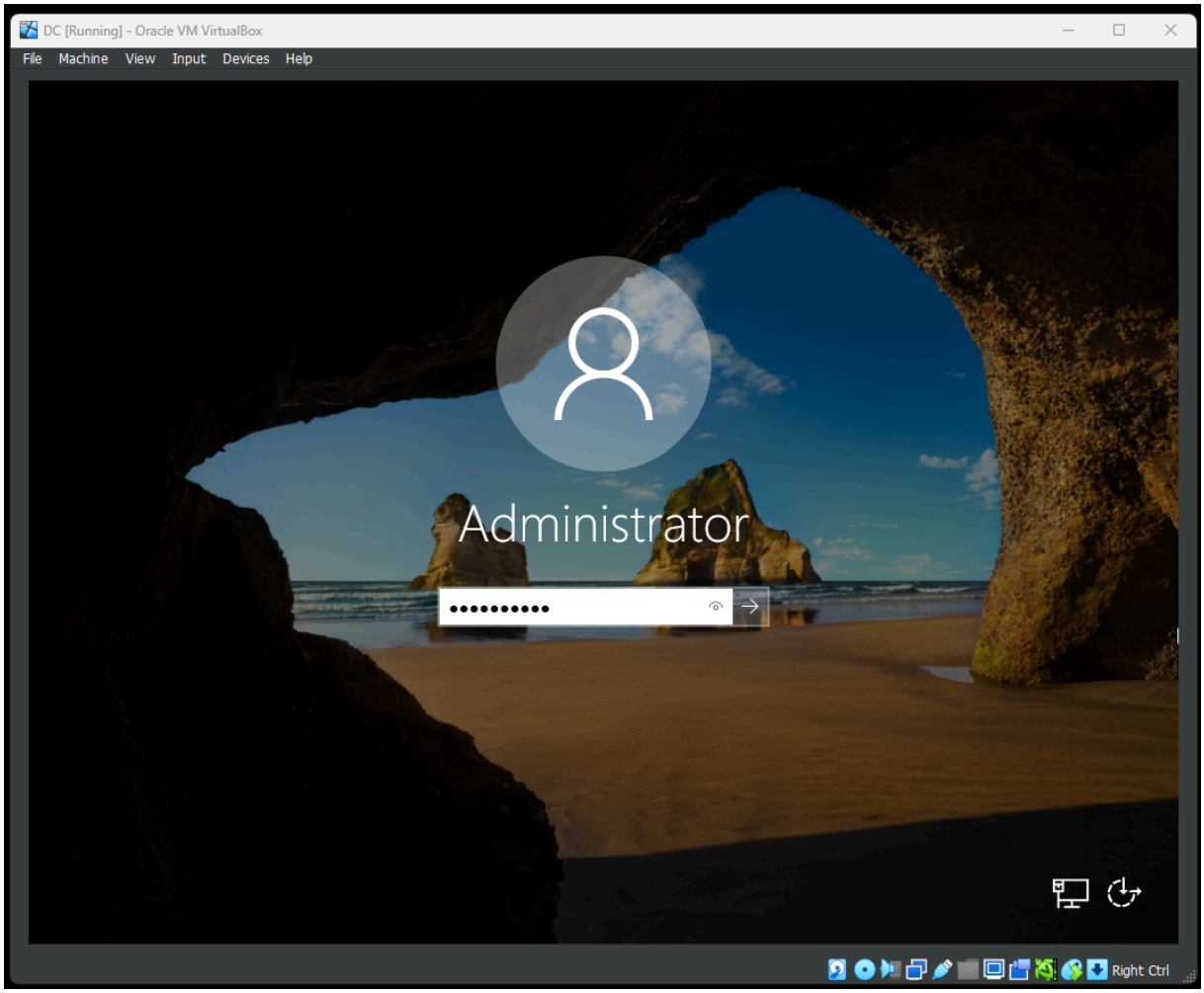
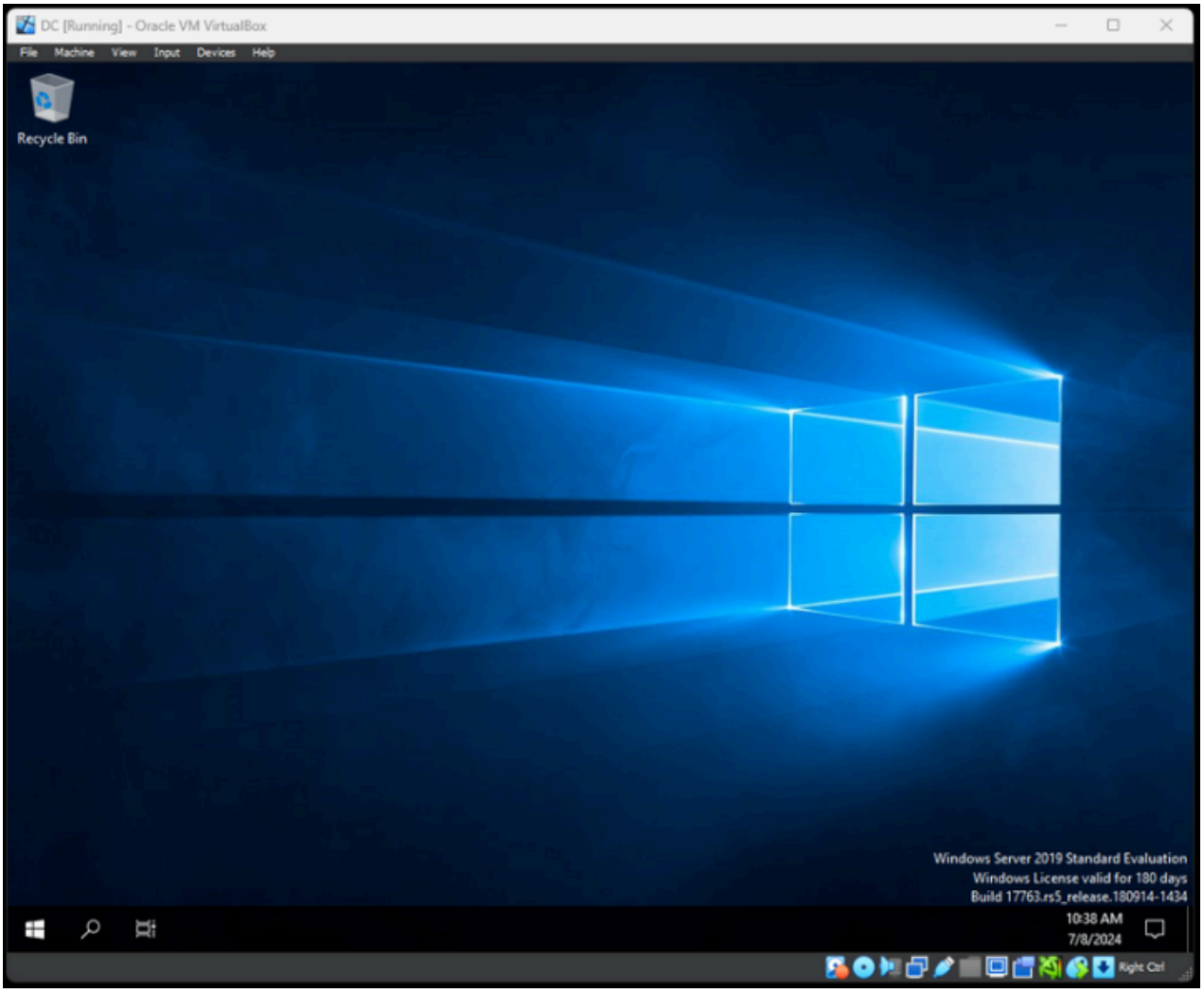
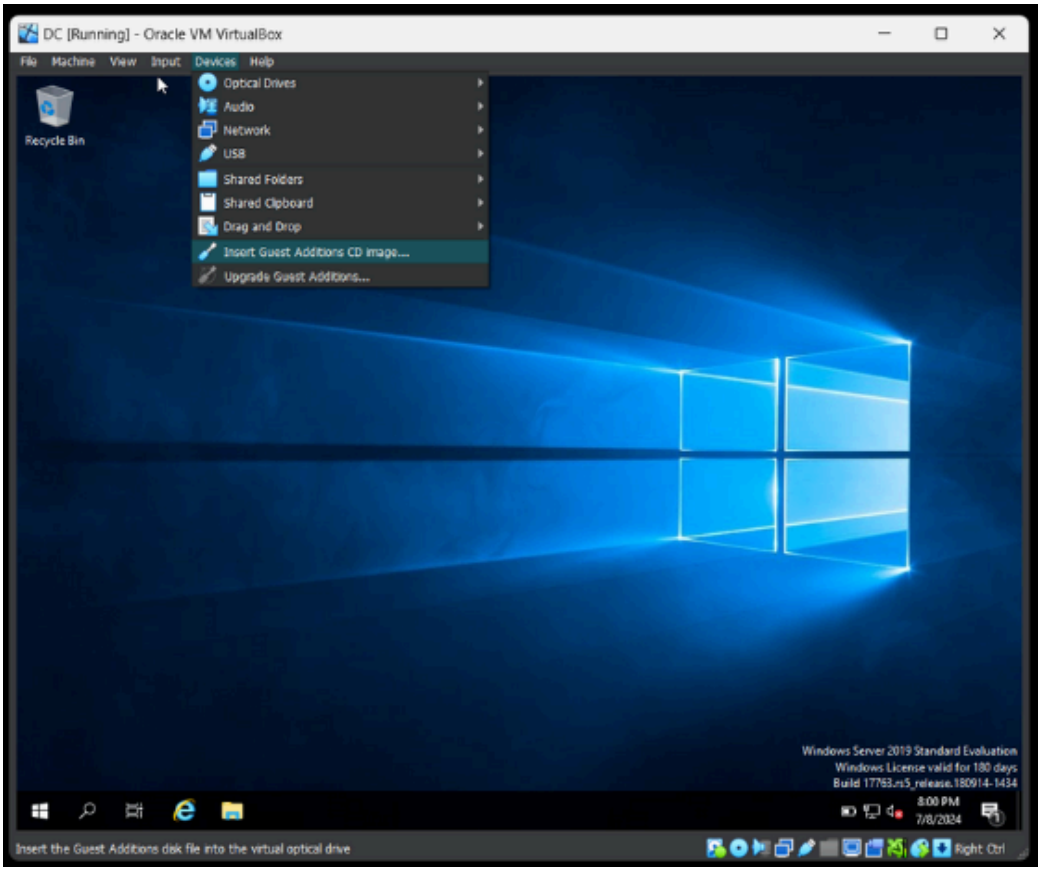
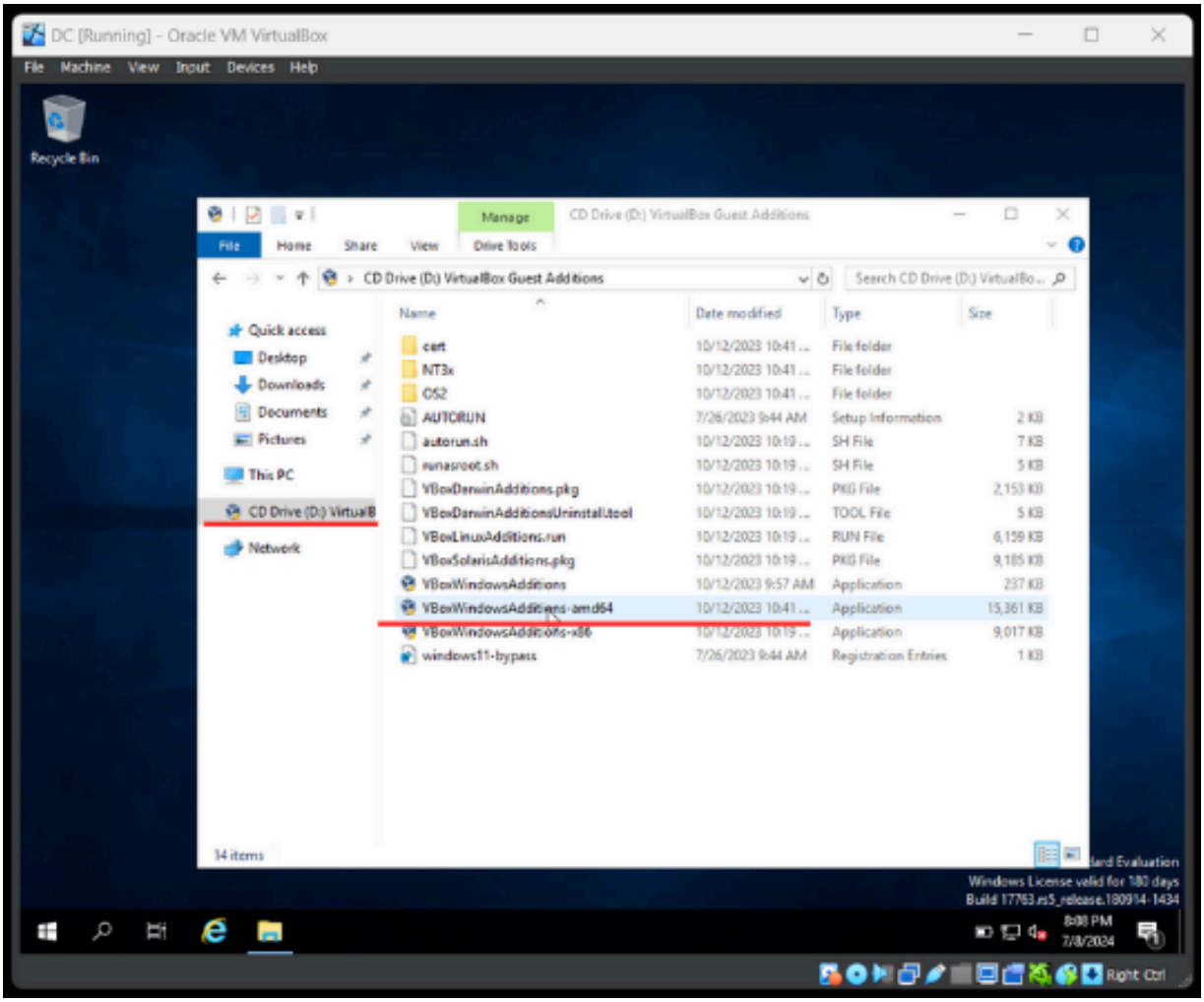
DC [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Keyboard
Mouse Integration
Keyboard Settings...
Soft Keyboard...
Insert Ctrl-Alt-Del Host+Del
Insert Ctrl-Break
Insert Insert
Insert Print Screen
Insert Alt Print Screen
Insert Host Key Combo Host+Ins
Press Ctrl+Alt+Delete to unlock.
10:35
Monday, July 8
Send the Ctrl-Alt-Del sequence to the virtual machine
Right Ctrl

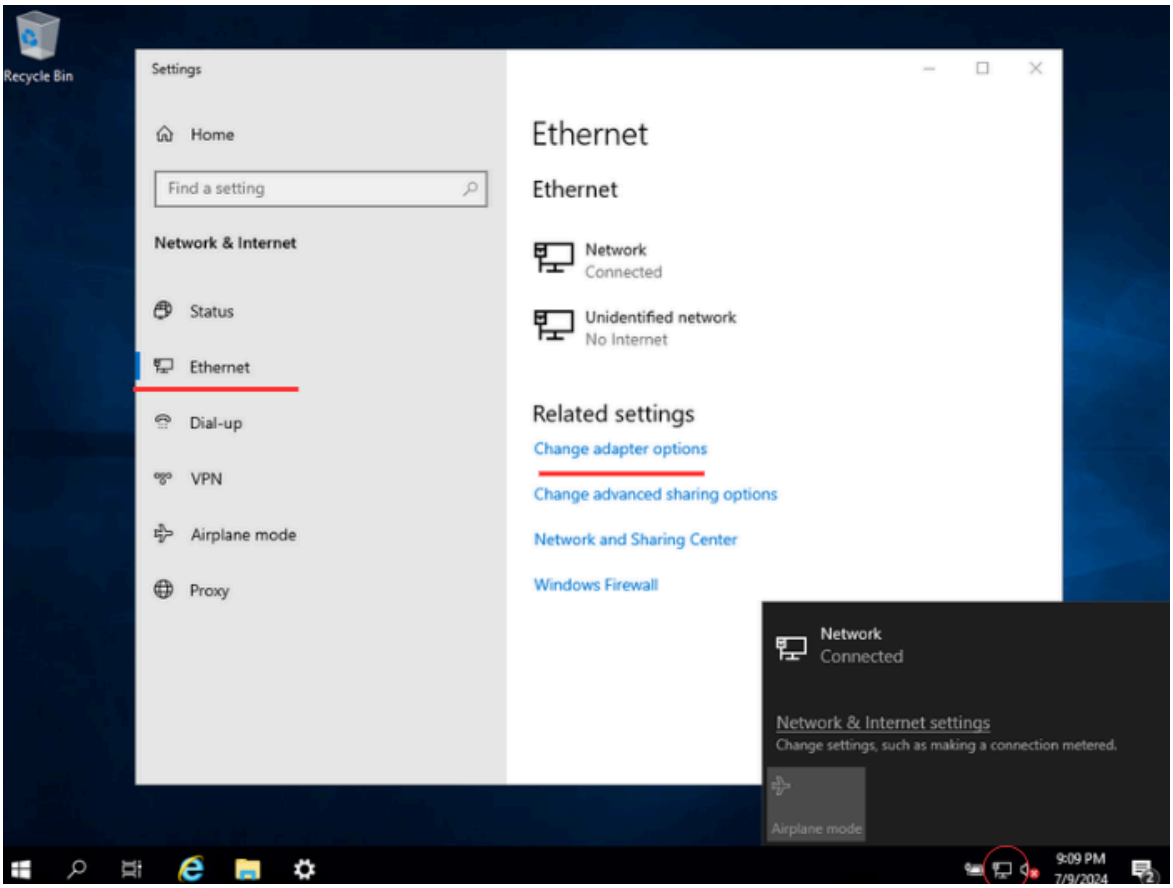

DC [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Administrator
Right Ctrl

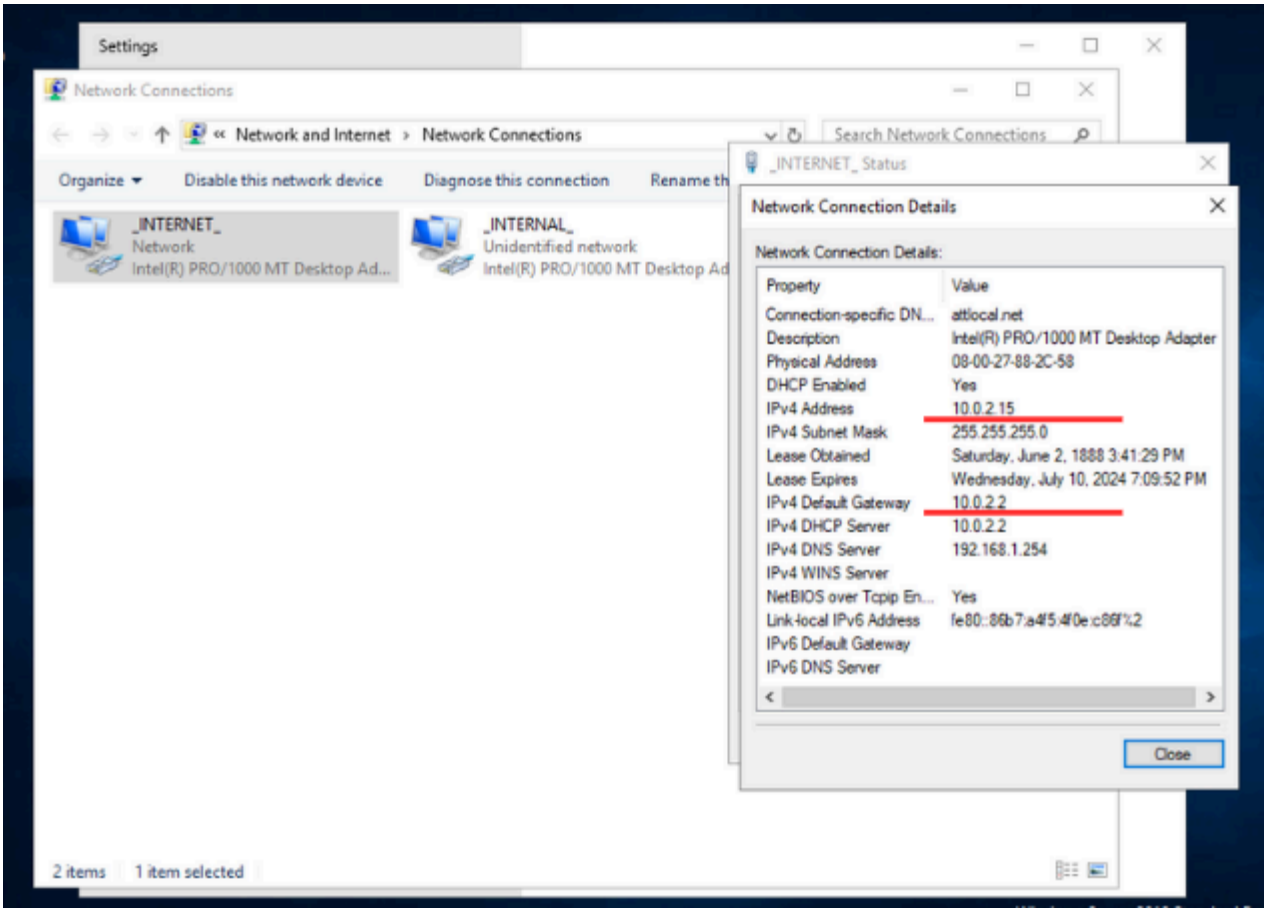

DC [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Recycle Bin
Windows Server 2019 Standard Evaluation
Windows License valid for 180 days
Build 17763.rs5_release.180914-1434
10:38 AM
7/8/2024
Right Ctrl


DC [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Recycle Bin
Optical Drives
Audio
Network
USB
Shared Folders
Shared Clipboard
Drag and Drop
Insert Guest Additions CD image...
Upgrade Guest Additions...
Windows Server 2019 Standard Evaluation
Windows License valid for 180 days
Build 17763.rs5_release.180914-1434
8:00 PM
7/8/2024
Insert the Guest Additions disk file into the virtual optical drive
Right Ctrl



Run the installation by selecting "Next," "Continue," and "Install" as prompted until you complete the process. Select the option to restart, sometimes a reboot as necessary. This allows you to resize and manage everything more efficiently.



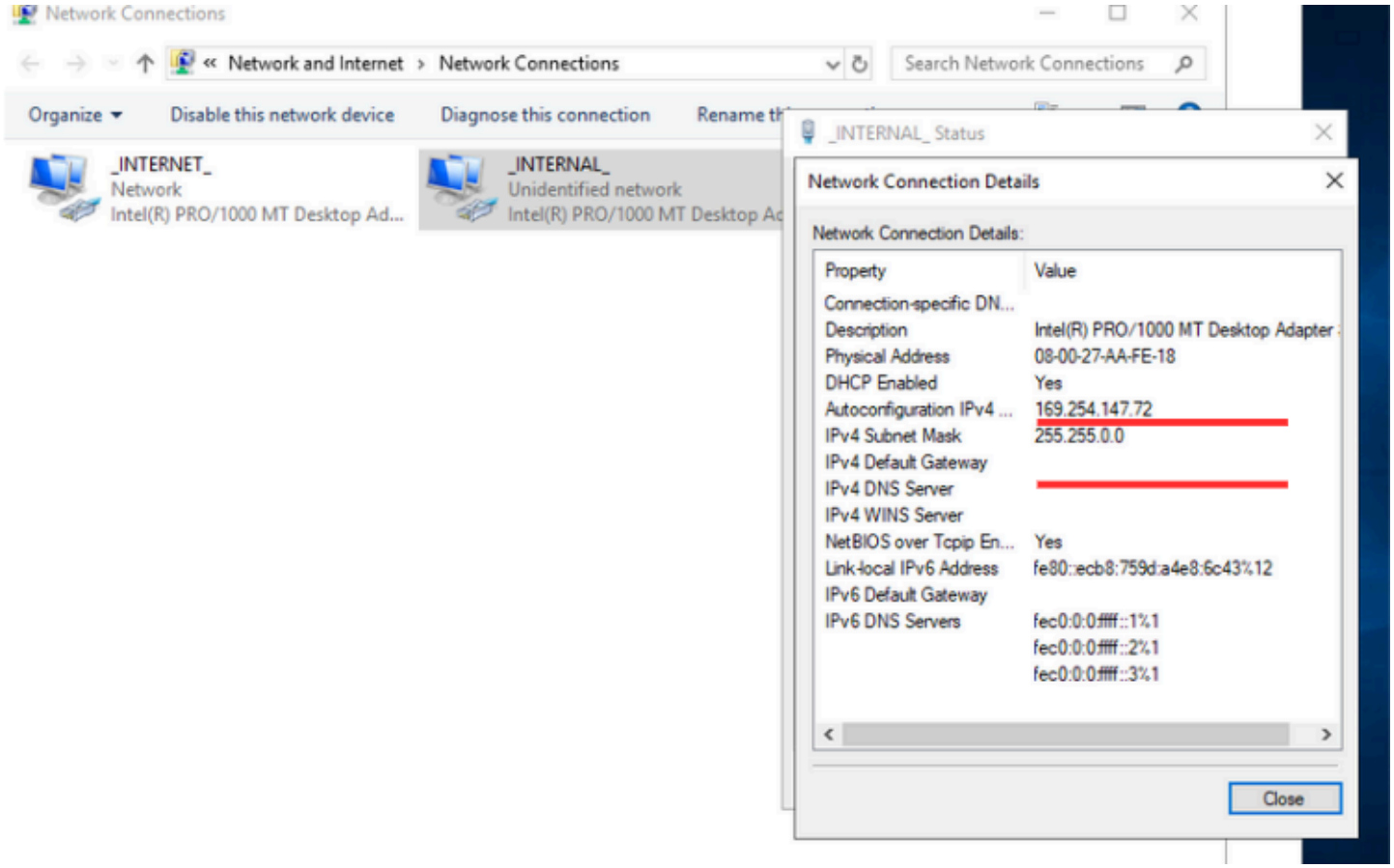


Here we are working with the network interface of the domain controller. Identify the internal NIC and the. external NIC and rename them.

How NAT works in In Oracle VirtualBox

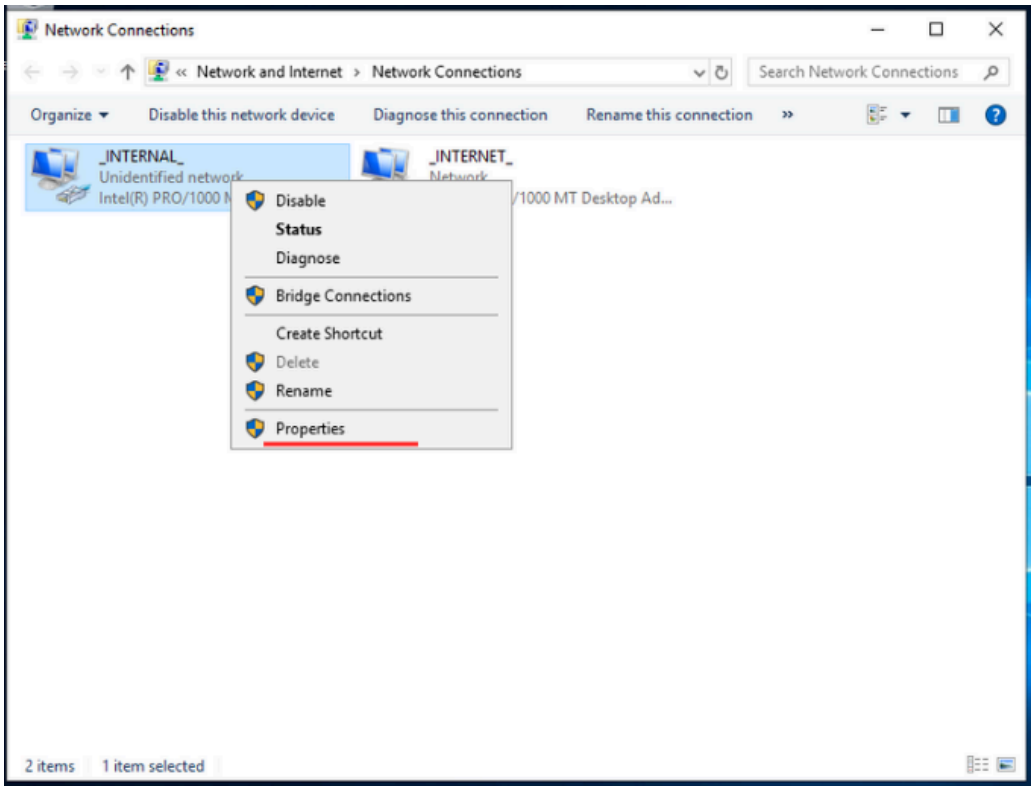
In Oracle VirtualBox, the NAT (Network Address Translation) network type typically uses a default gateway IP address of `10.0.2.2`. This IP address is used as the default gateway for VMs connected via NAT to communicate with the host machine and other networks.

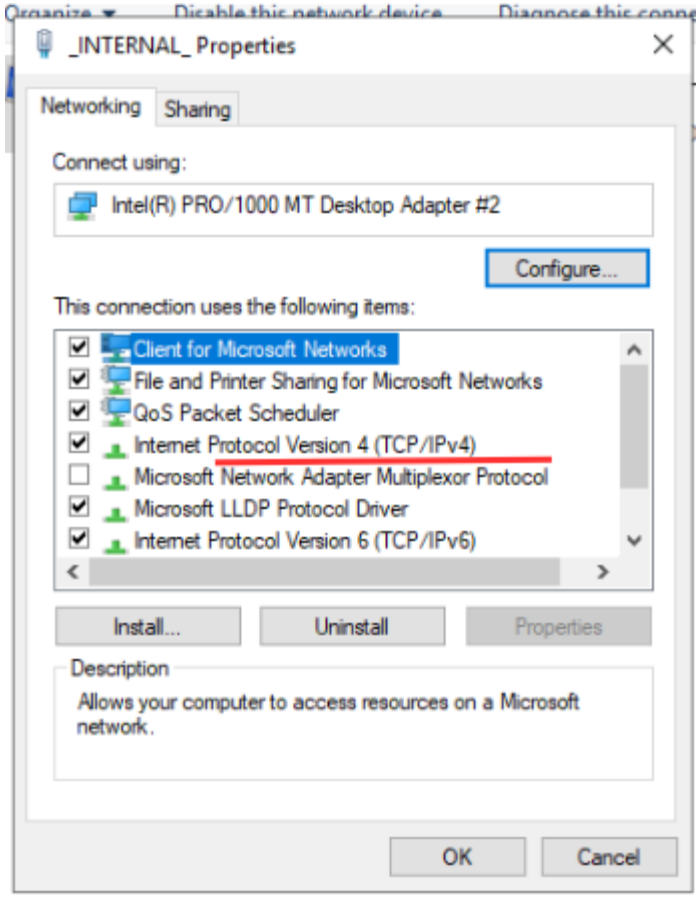
When you configure a VM in Oracle VirtualBox to use NAT for its network connection, the internal DHCP server provided by VirtualBox will automatically assign an IP address to the VM. The NAT networking mode in VirtualBox provides a way for VMs to communicate with external networks using the host machine's network connection. The IP addresses assigned to VMs using NAT are managed by VirtualBox's internal DHCP server.

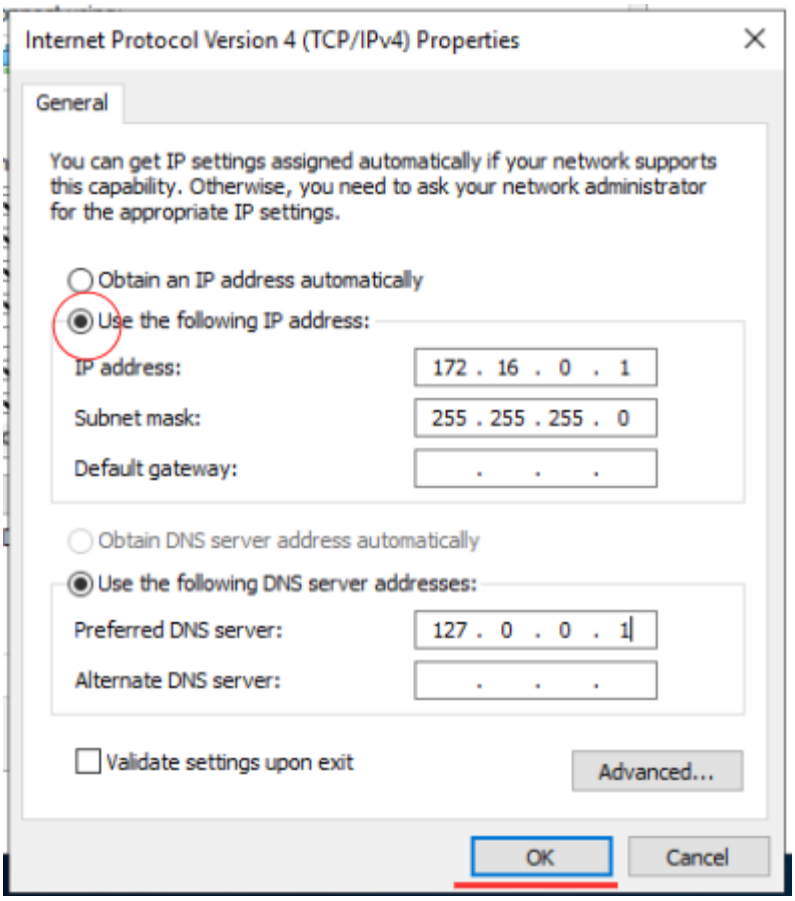


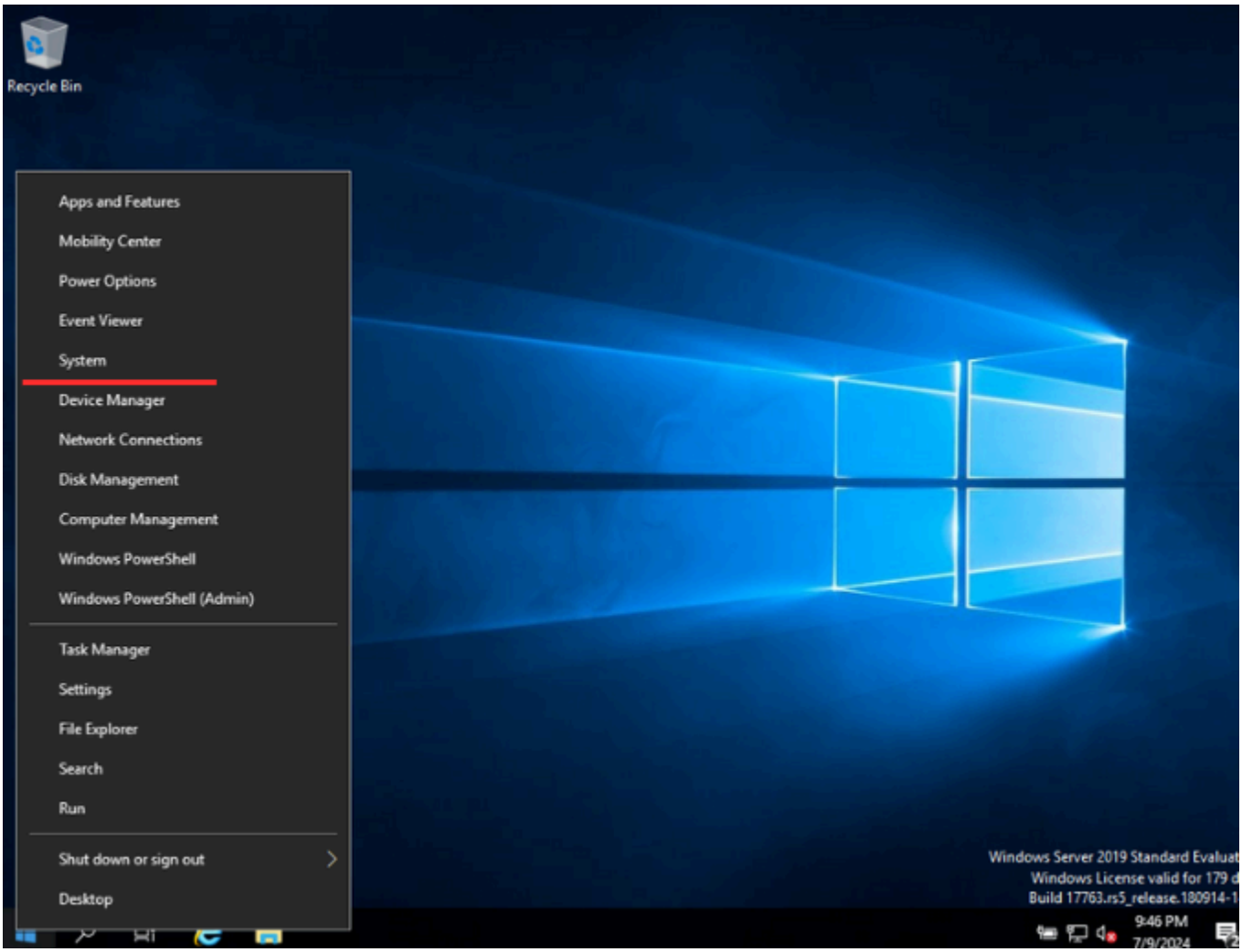
The INTERNAL network adapter has an Autoconfiguration IPv4 Address of 169.254.147.72, which indicates that it did not receive an IP address from a DHCP server. Instead, it has assigned itself an Automatic Private IP Addressing (APIPA) address. APIPA addresses are in the range of 169.254.x.x and are used when a device cannot obtain an IP address from a DHCP server.

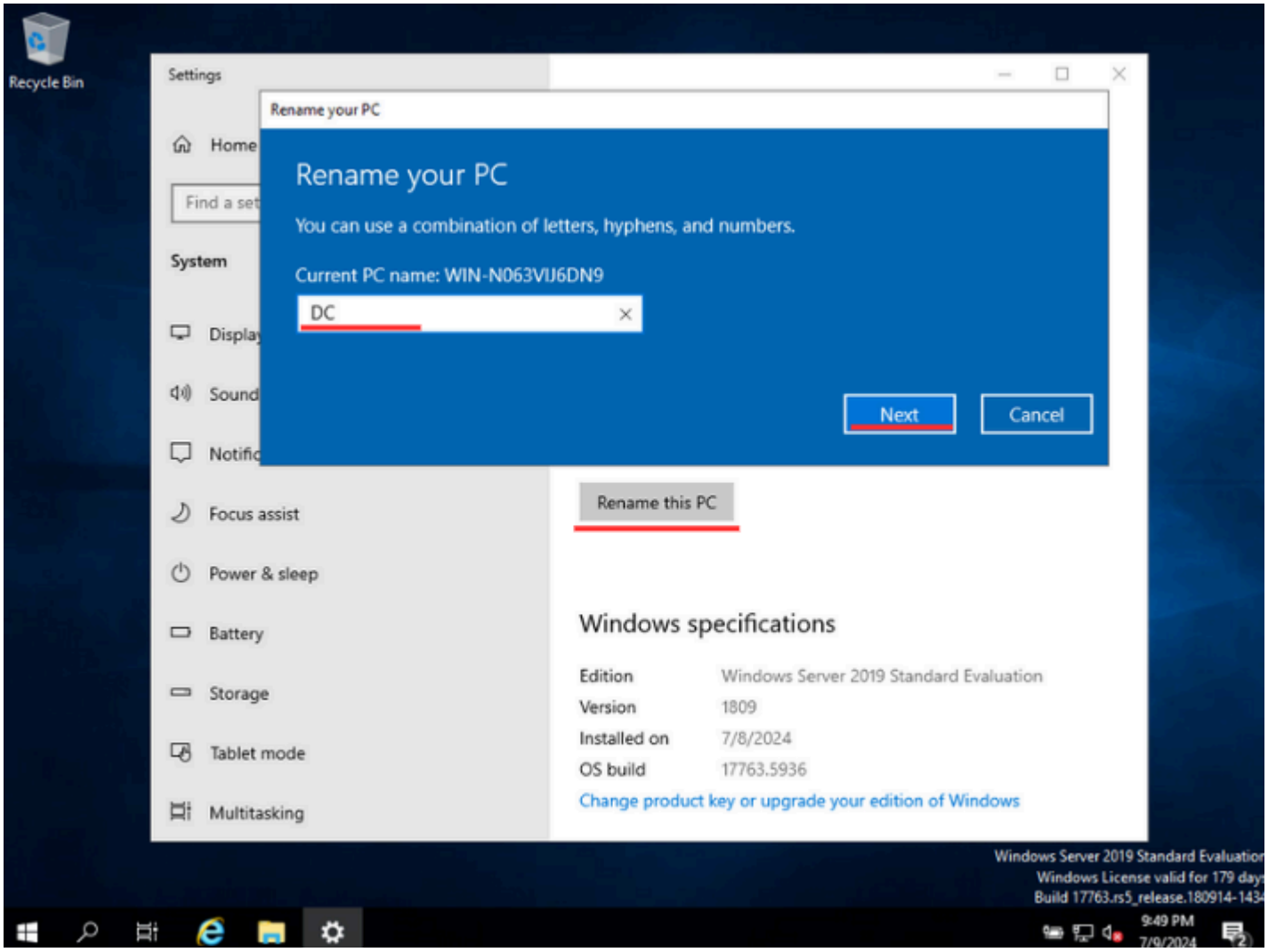
Now we will be creating the IP address for the internal network based on the telemetry.

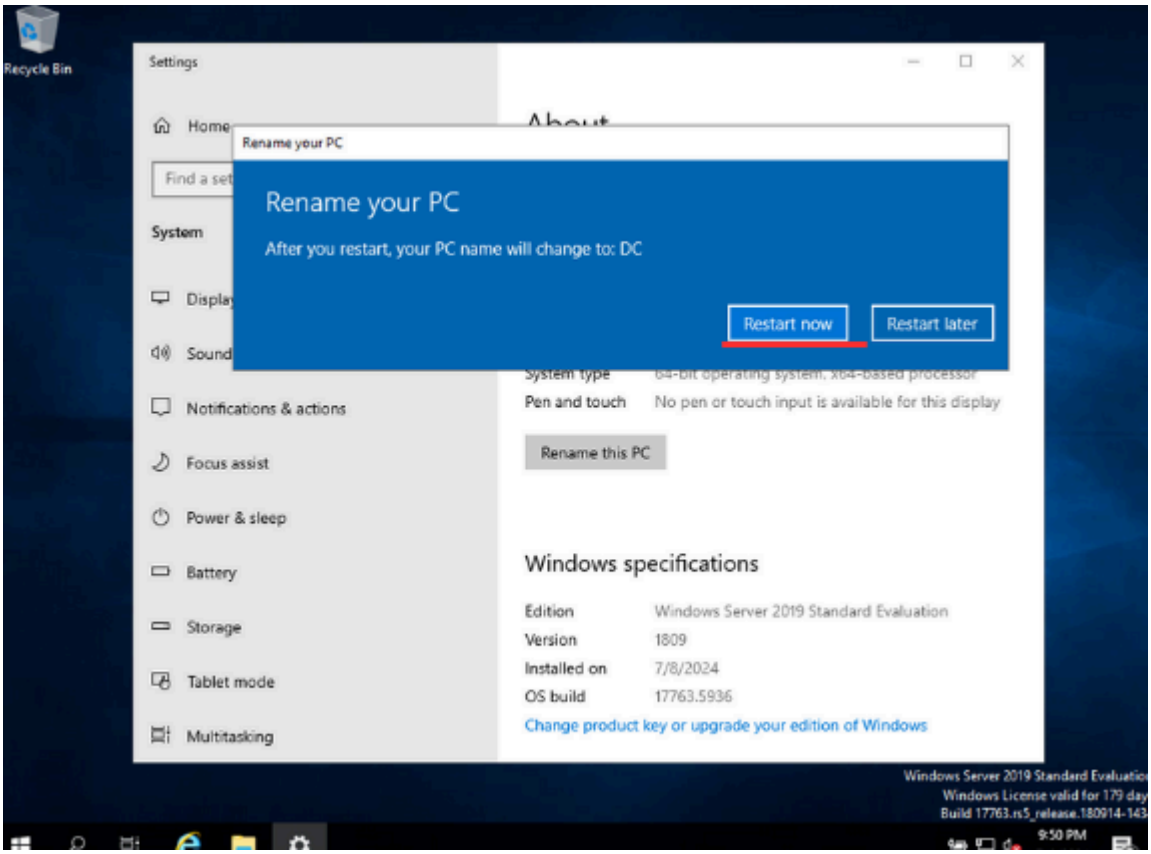



INTERNAL Properties
Networking
Sharing
Connect using:
Intel(R) PRO/1000 MT Desktop Adapter #2
Configure...
This connection uses the following items:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
QoS Packet Scheduler
Internet Protocol Version 4 (TCP/IPv4)
Microsoft Network Adapter Multiplexor Protocol
Microsoft LLDP Protocol Driver
Internet Protocol Version 6 (TCP/IPv6)
Install...
Uninstall
Properties
Description
Allows your computer to access resources on a Microsoft network.
OK
Cancel

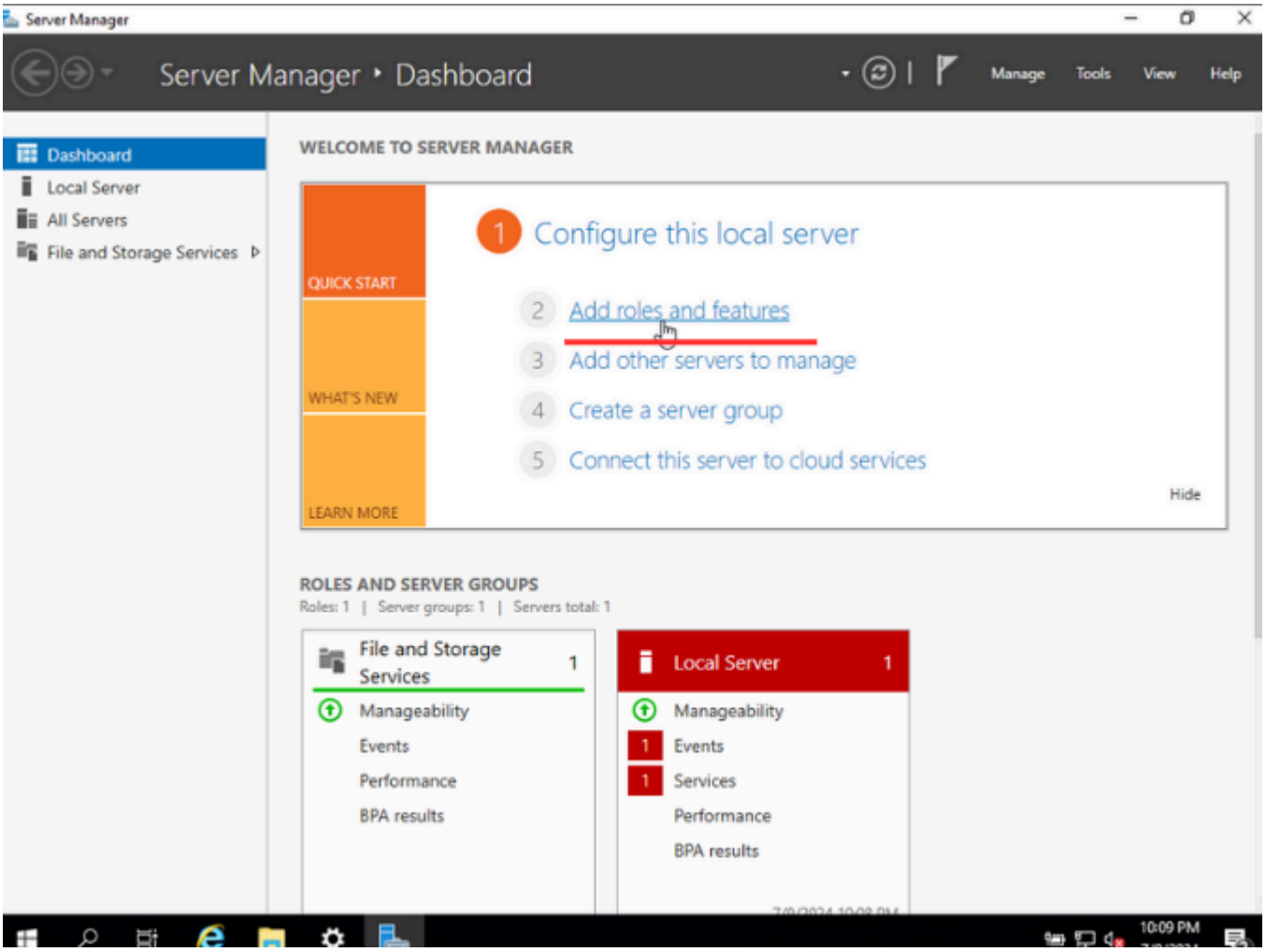

Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 172 . 16 . 0 . 1
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

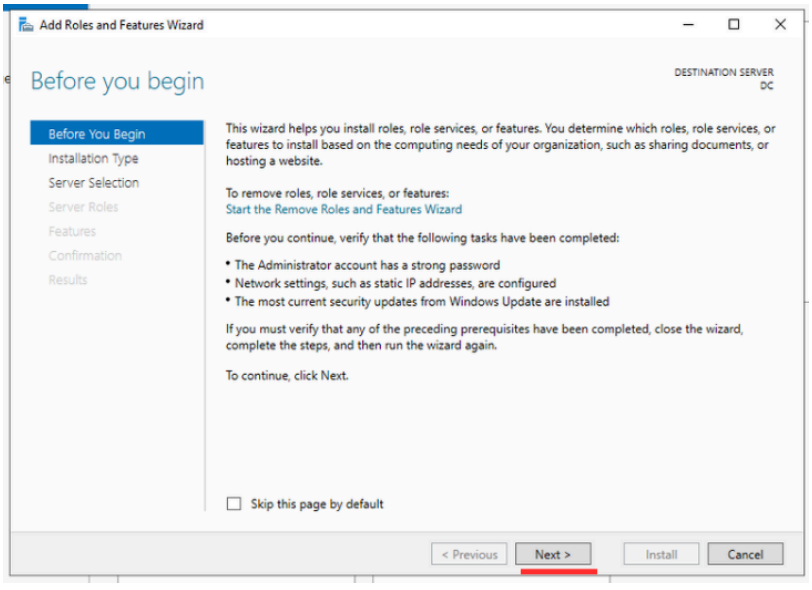

Recycle Bin
Apps and Features
Mobility Center
Power Options
Event Viewer
System
Device Manager
Network Connections
Disk Management
Computer Management
Windows PowerShell
Windows PowerShell (Admin)
Task Manager
Settings
File Explorer
Search
Run
Shut down or sign out
Desktop
Windows Server 2019 Standard Evaluat
Windows License valid for 179 d
Build 17763.rs5_release.180914-1
9:46 PM
7/9/2024

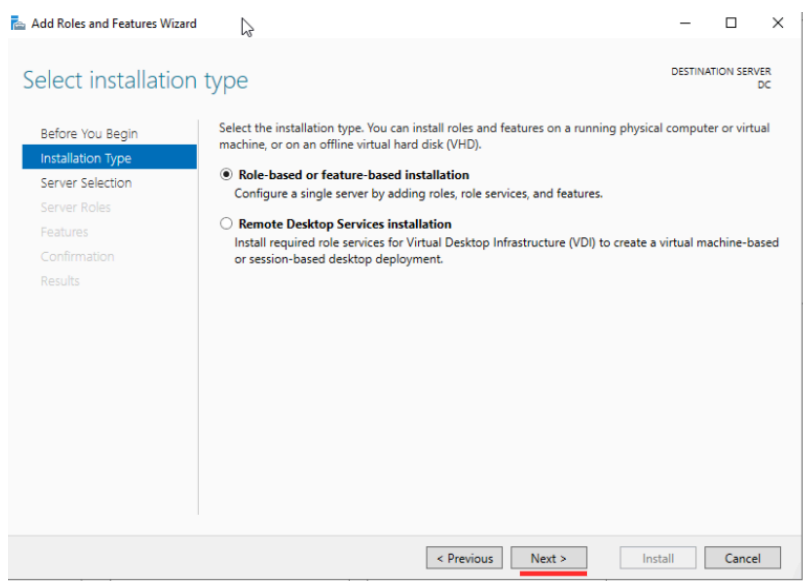

Recycle Bin
Settings
Rename your PC
Rename your PC
You can use a combination of letters, hyphens, and numbers.
Current PC name: WIN-N063VIJ6DN9
DC
Next
Cancel
Home
Find a set
System
Display
Sound
Notific
Focus assist
Power & sleep
Battery
Storage
Tablet mode
Multitasking
Rename this PC
Windows specifications
Edition Windows Server 2019 Standard Evaluation
Version 1809
Installed on 7/8/2024
OS build 17763.5936
Change product key or upgrade your edition of Windows
Windows Server 2019 Standard Evaluation
Windows License valid for 179 day
Build 17763.rs5_release.180914-143
9:49 PM
7/9/2024

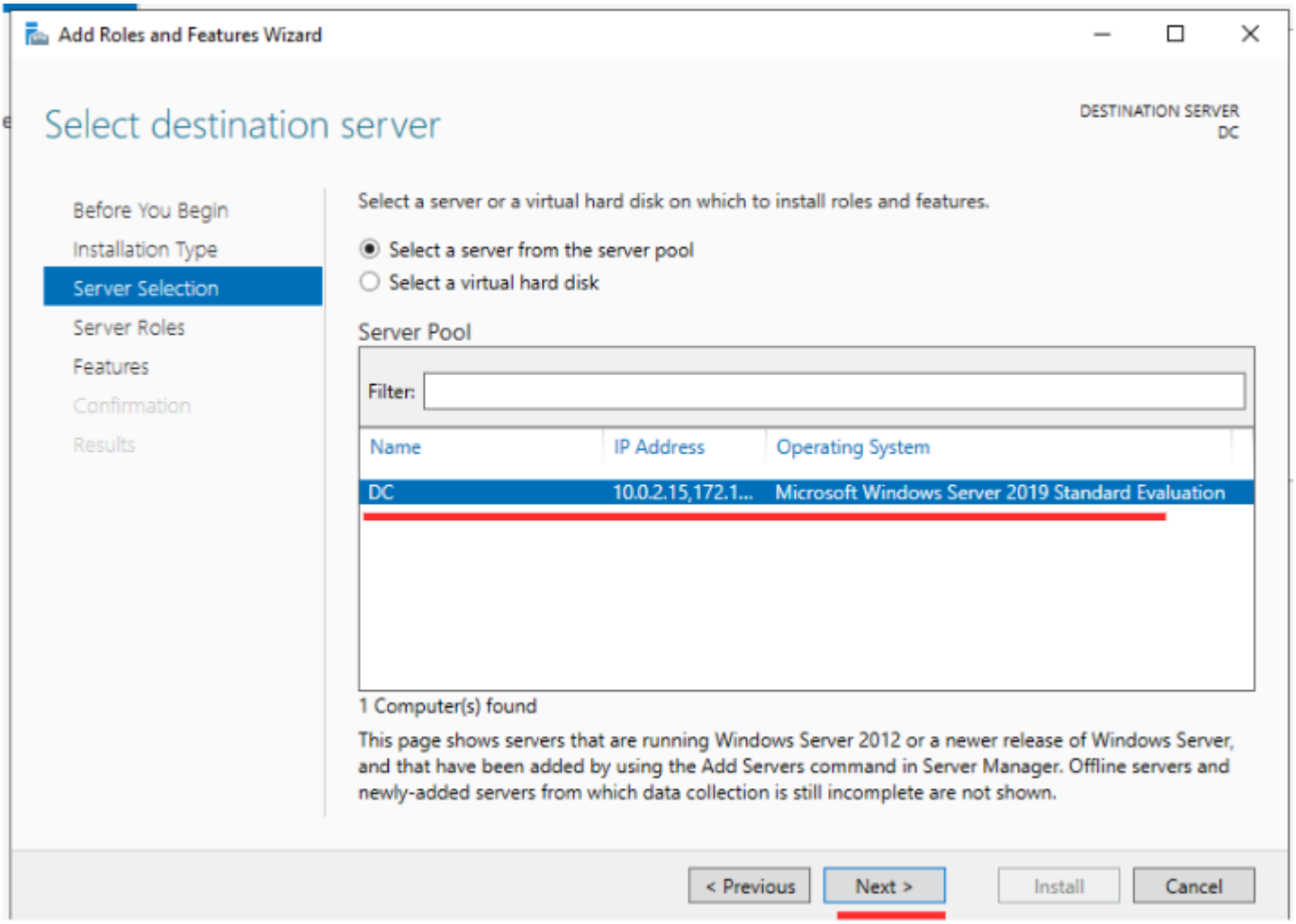

Recycle Bin
Settings
Rename your PC
Rename your PC
After you restart, your PC name will change to: DC
Restart now
Restart later
Home
Find a set
System
Display
Sound
Notifications & actions
Focus assist
Power & sleep
Battery
Storage
Tablet mode
Multitasking
Pen and touch No pen or touch input is available for this display
Rename this PC
Windows specifications
Edition Windows Server 2019 Standard Evaluation
Version 1809
Installed on 7/8/2024
OS build 17763.5936
Change product key or upgrade your edition of Windows
Windows Server 2019 Standard Evaluation
Windows License valid for 179 day
Build 17763.rs5_release.180914-143
9:50 PM

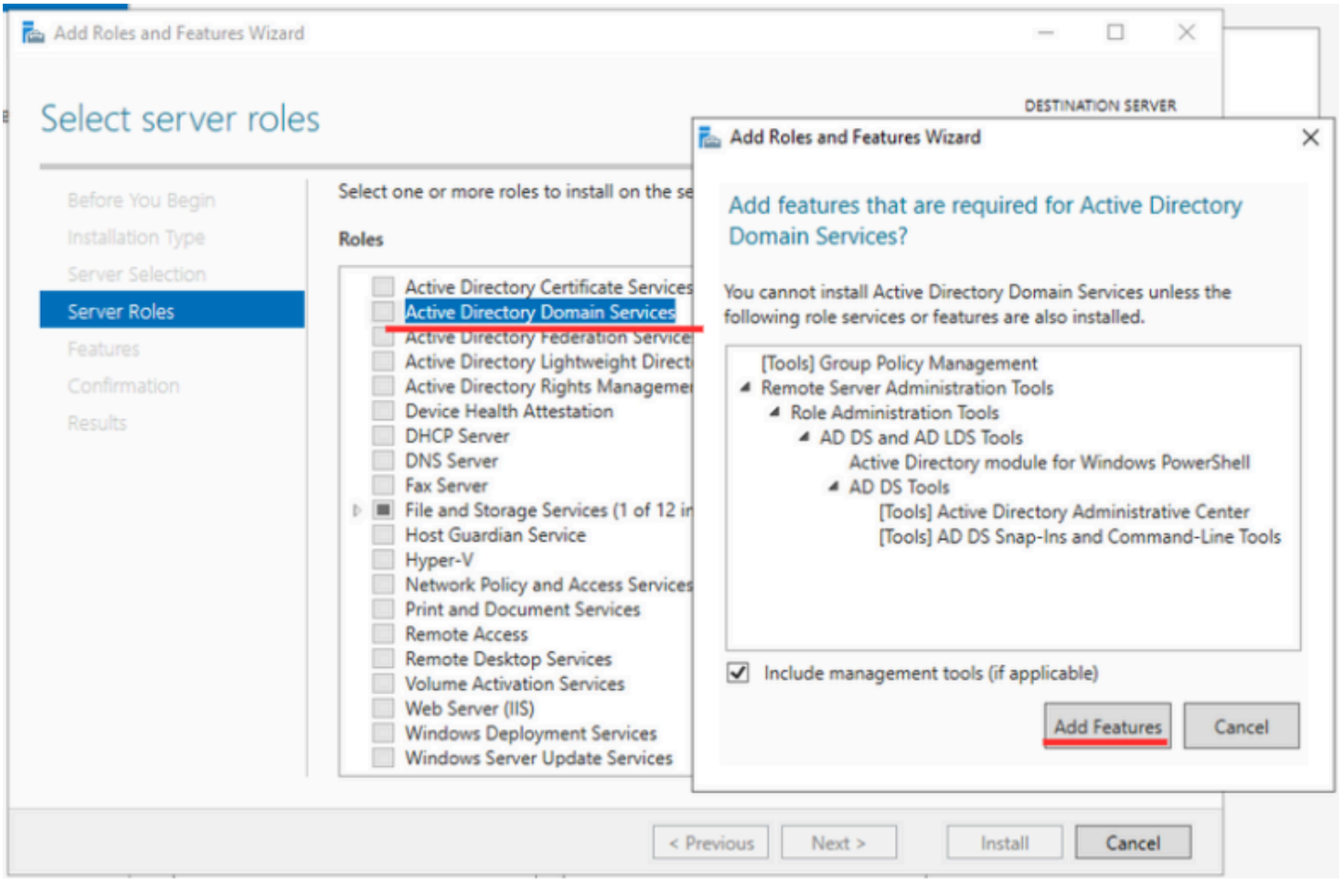
Now installing active directory domains services, to create a domain

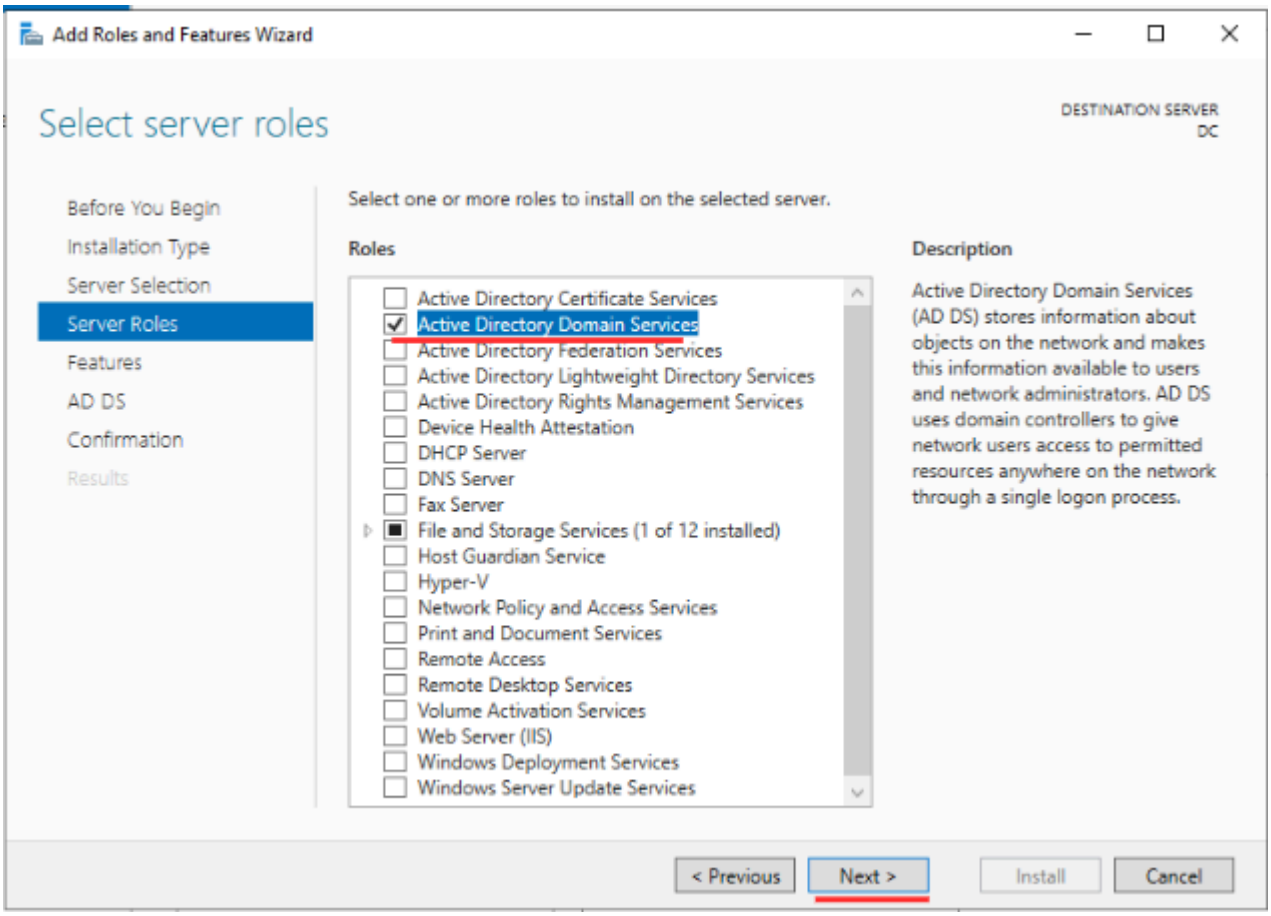


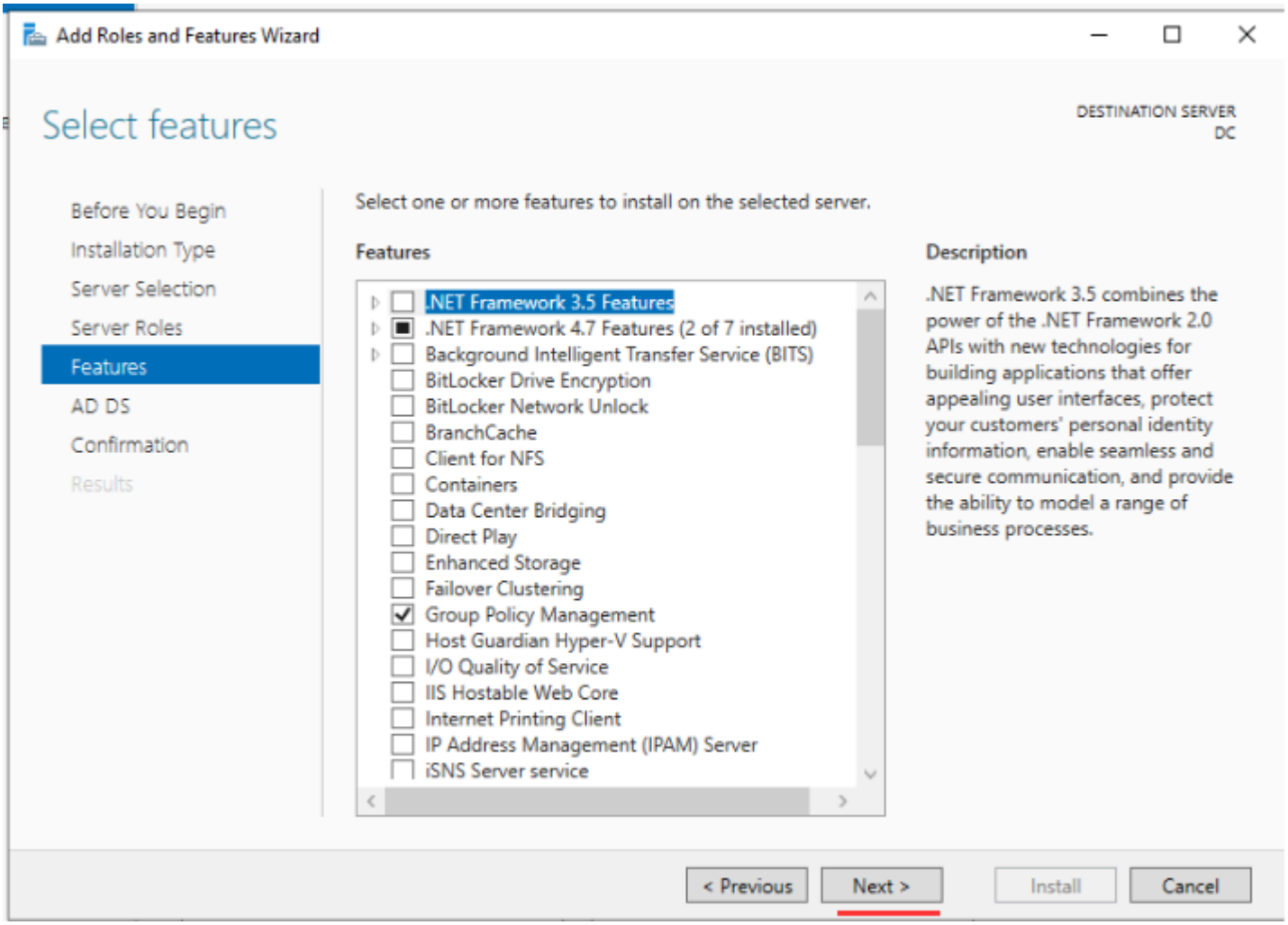


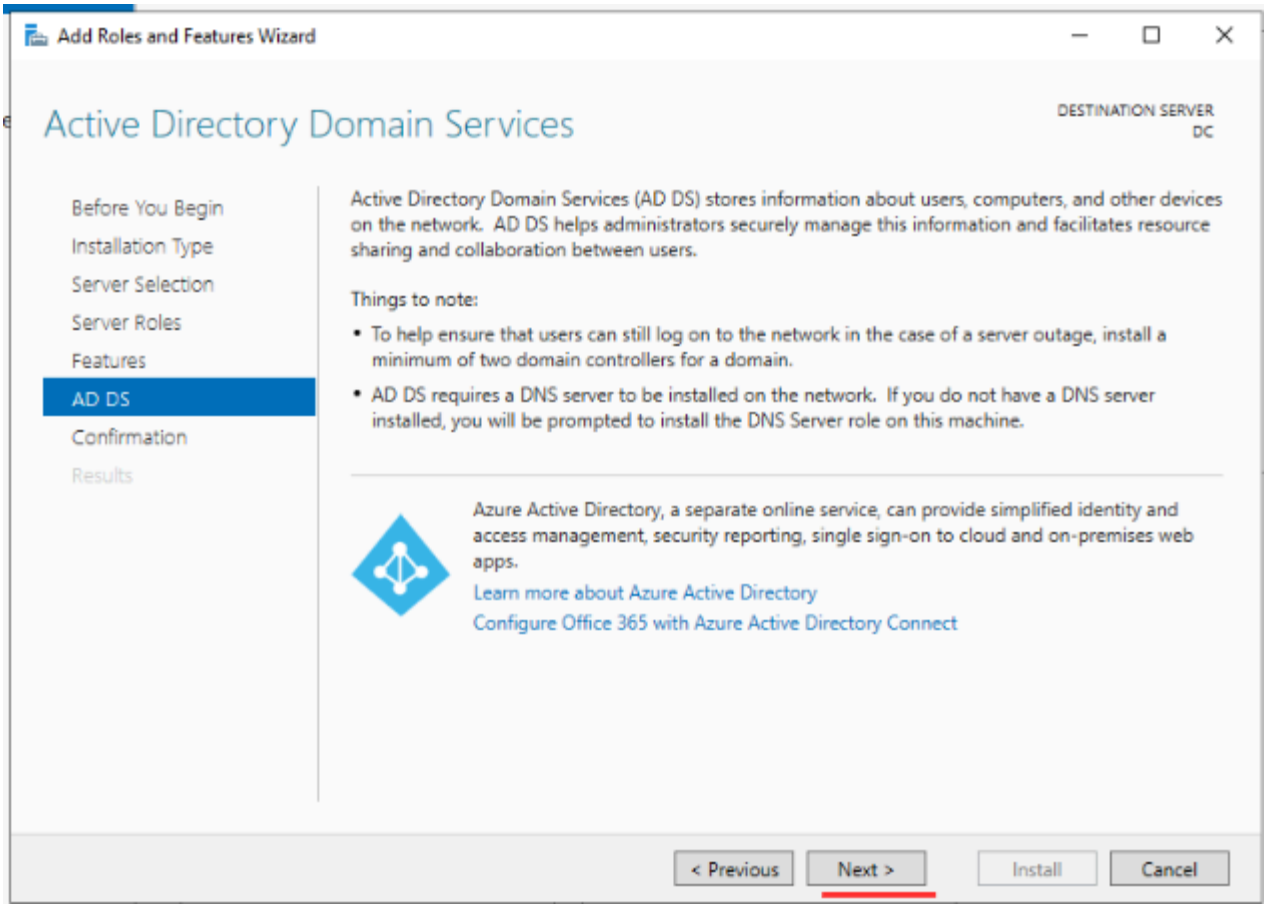


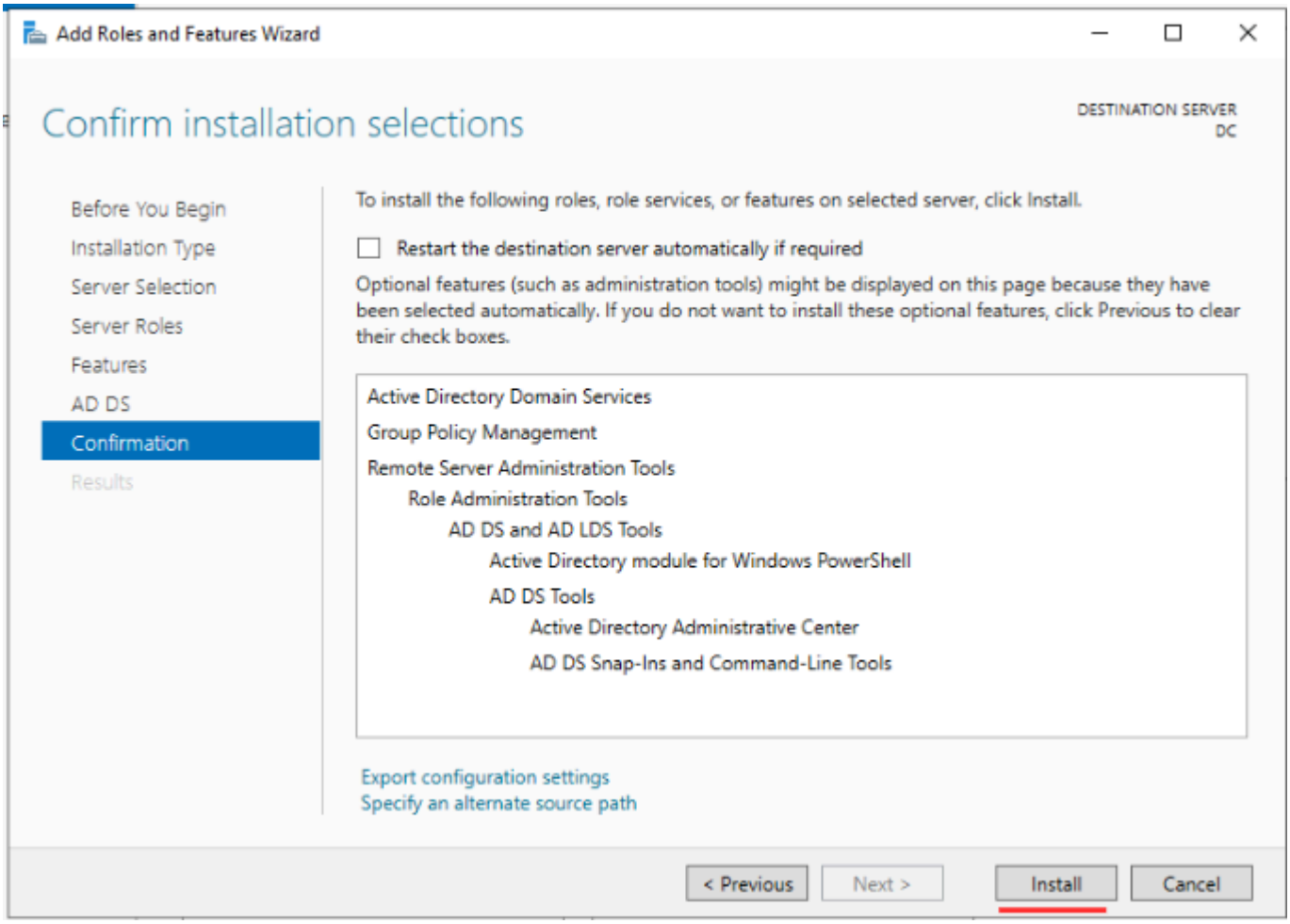

Add Roles and Features Wizard
Select destination server
DESTINATION SERVER
DC
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select a server or a virtual hard disk on which to install roles and features.
Select a server from the server pool
Select a virtual hard disk
Server Pool
Filter:
Name
IP Address
Operating System
DC
10.0.2.15,172.1...
Microsoft Windows Server 2019 Standard 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

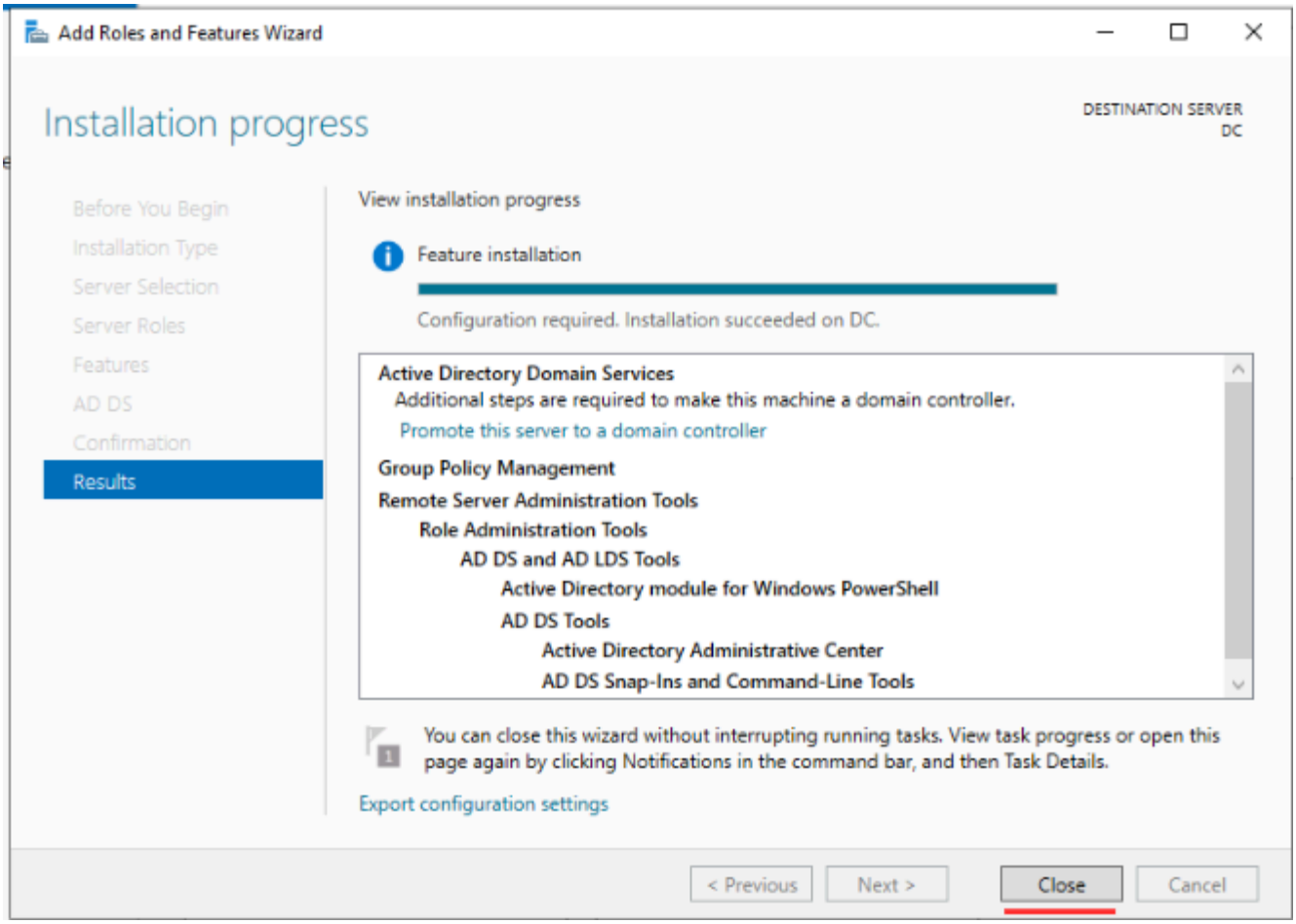

Add Roles and Features Wizard
Select server roles
DESTINATION SERVER
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select one or more roles to install on the se
Roles
Active Directory Certificate Services
Active Directory Domain Services
Active Directory Federation Service
Active Directory Lightweight Direct
Active Directory Rights Manageme
Device Health Attestation
DHCP Server
DNS Server
Fax Server
File and Storage Services (1 of 12 in
Host Guardian Service
Hyper-V
Network Policy and Access Services
Print and Document Services
Remote Access
Remote Desktop Services
Volume Activation Services
Web Server (IIS)
Windows Deployment Services
Windows Server Update Services
Add Roles and Features Wizard
Add features that are required for Active Directory Domain Services?
You cannot install Active Directory Domain Services unless the following role services or features are also installed.
[Tools] 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
[Tools] Active Directory Administrative Center
[Tools] AD DS Snap-Ins and Command-Line Tools
Include management tools (if applicable)
Add Features
Cancel
< Previous
Next >
Install
Cancel

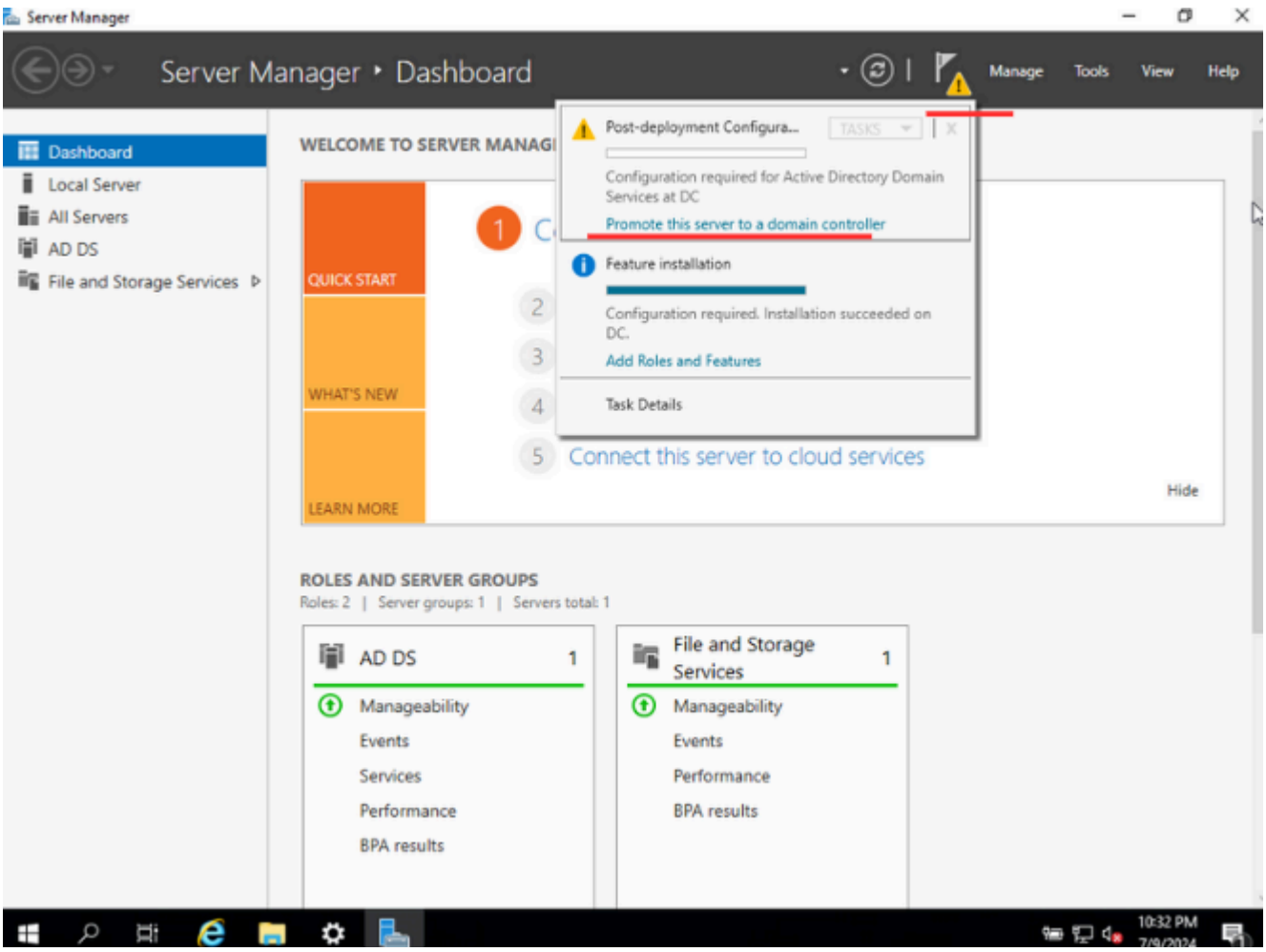

Add Roles and Features Wizard
Select server roles
DESTINATION SERVER
DC
Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD DS
Confirmation
Results
Select one or more roles to install on the selected server.
Roles
Active Directory Certificate Services
Active Directory Domain 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 Policy and Access Services
Print and Document Services
Remote Access
Remote Desktop Services
Volume Activation Services
Web Server (IIS)
Windows Deployment Services
Windows Server Update Services
Description
Active Directory Domain Services (AD DS) stores information about objects on the network and makes this information available to users and network administrators. AD DS uses domain controllers to give network users access to permitted resources anywhere on the network through a single logon process.
< Previous
Next >
Install
Cancel

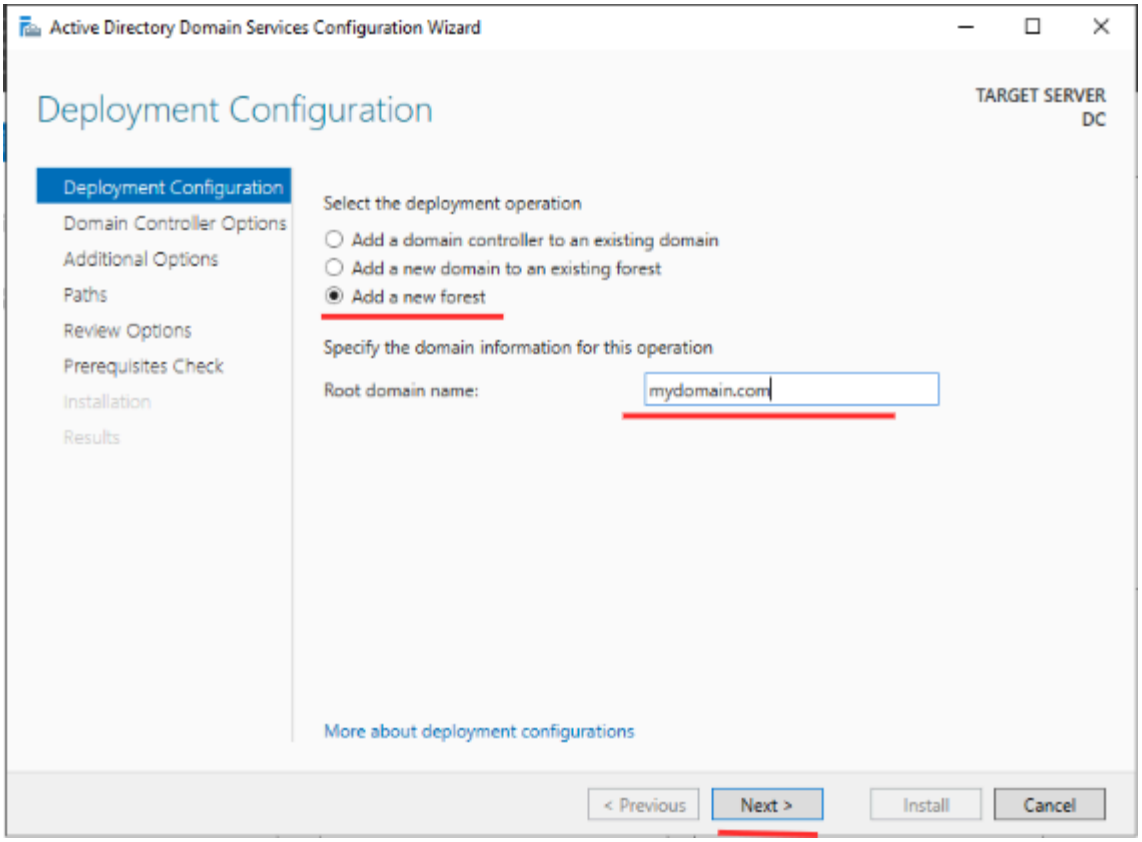

Add Roles and Features Wizard
Select features
DESTINATION SERVER
DC
Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD DS
Confirmation
Results
Select one or more features to install on the selected server.
Features
.NET Framework 3.5 Features
.NET Framework 4.7 Features (2 of 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
iSNS Server service
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

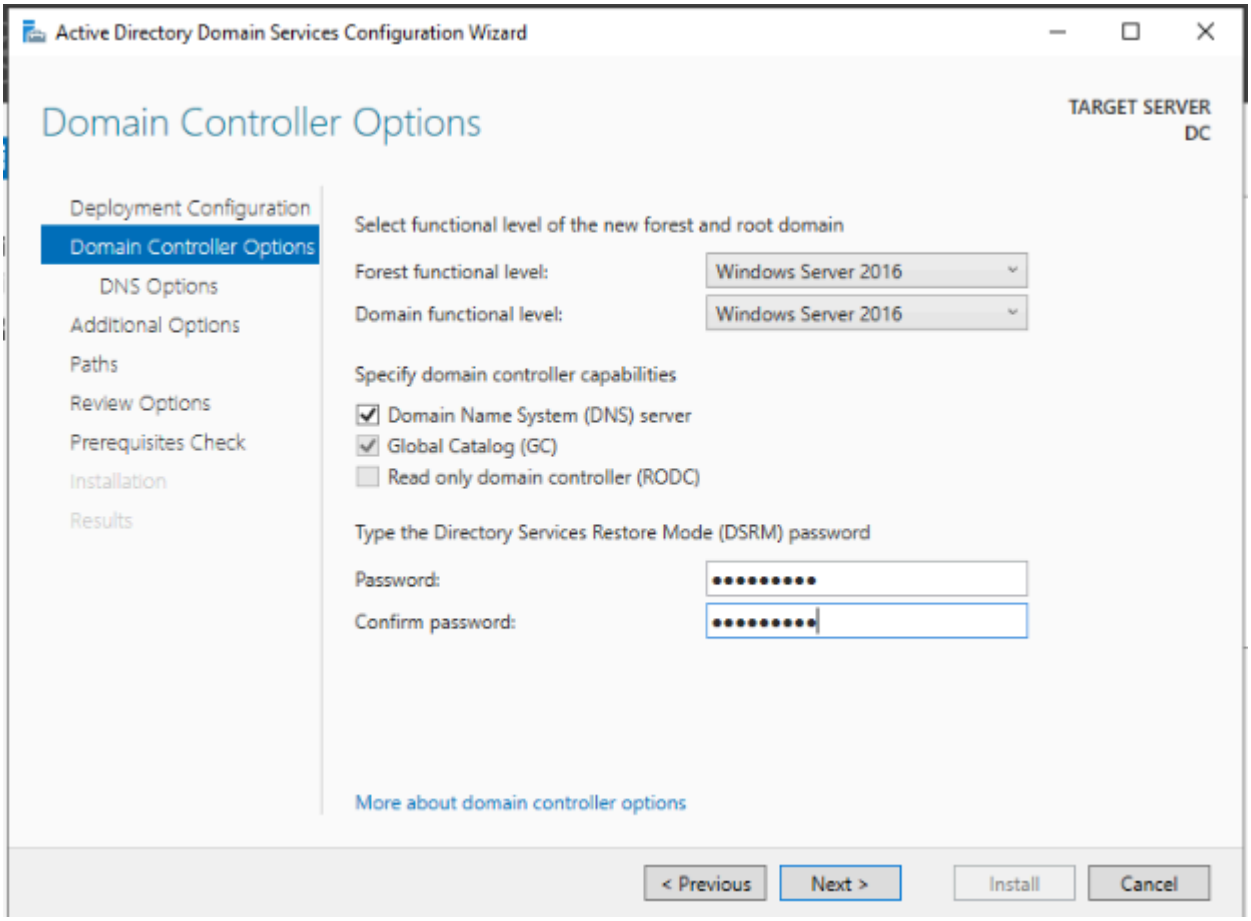

Add Roles and Features Wizard
Active Directory Domain Services
DESTINATION SERVER
DC
Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD DS
Confirmation
Results
Active Directory Domain Services (AD DS) stores information about users, computers, and other devices on the network. 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


Add Roles and Features Wizard
Confirm installation selections
DESTINATION SERVER
DC
Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD DS
Confirmation
Results
To install the following roles, role services, or features on selected server, click Install.
Restart the destination server automatically if required
Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.
Active Directory Domain Services
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
AD DS Snap-Ins and Command-Line Tools
Export configuration settings
Specify an alternate source path
< Previous
Next >
Install
Cancel

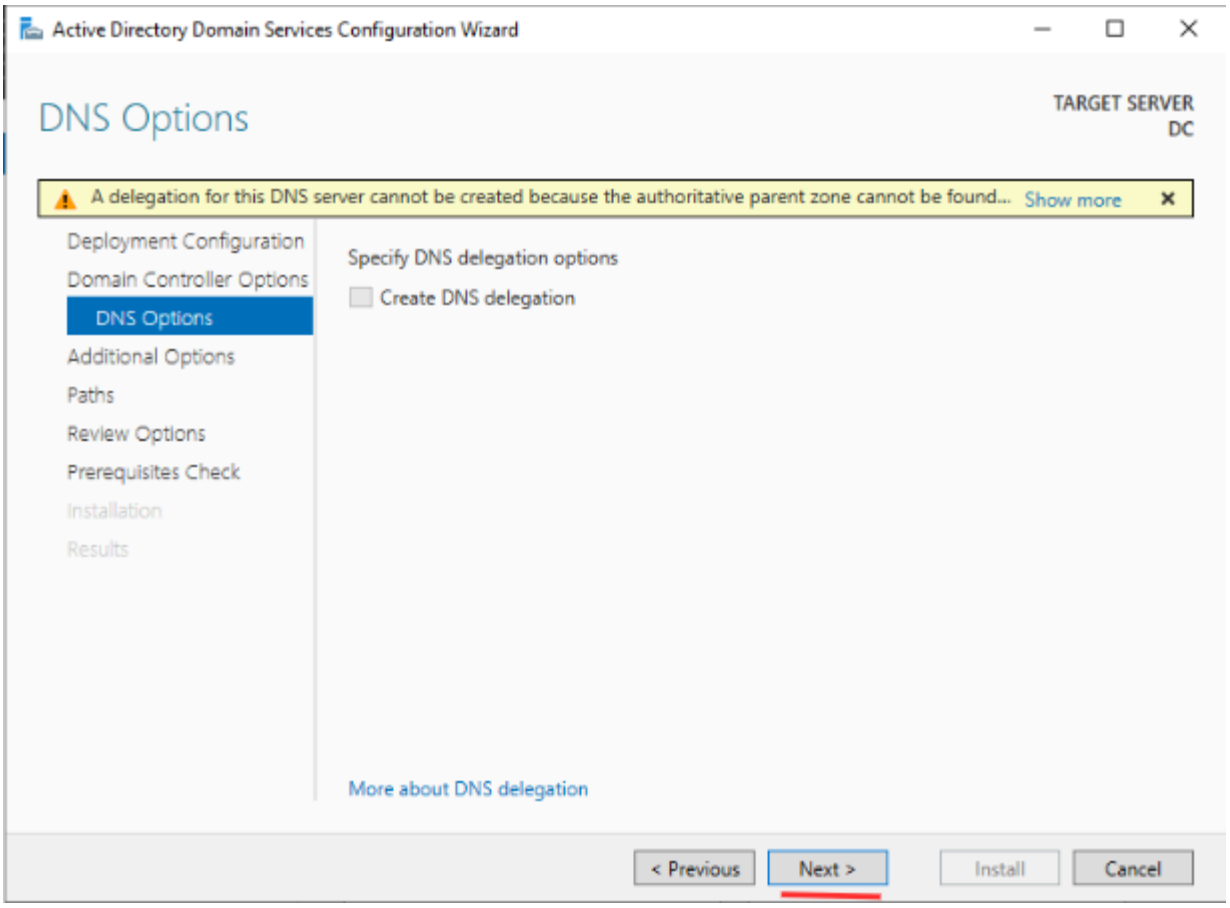

Add Roles and Features Wizard
Installation progress
DESTINATION SERVER
DC
Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD DS
Confirmation
Results
View installation progress
Feature installation
Configuration required. Installation succeeded on DC.
Active Directory Domain Services
Additional steps are required to make this machine a domain controller.
Promote this server to a domain controller
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
AD DS Snap-Ins and Command-Line Tools
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

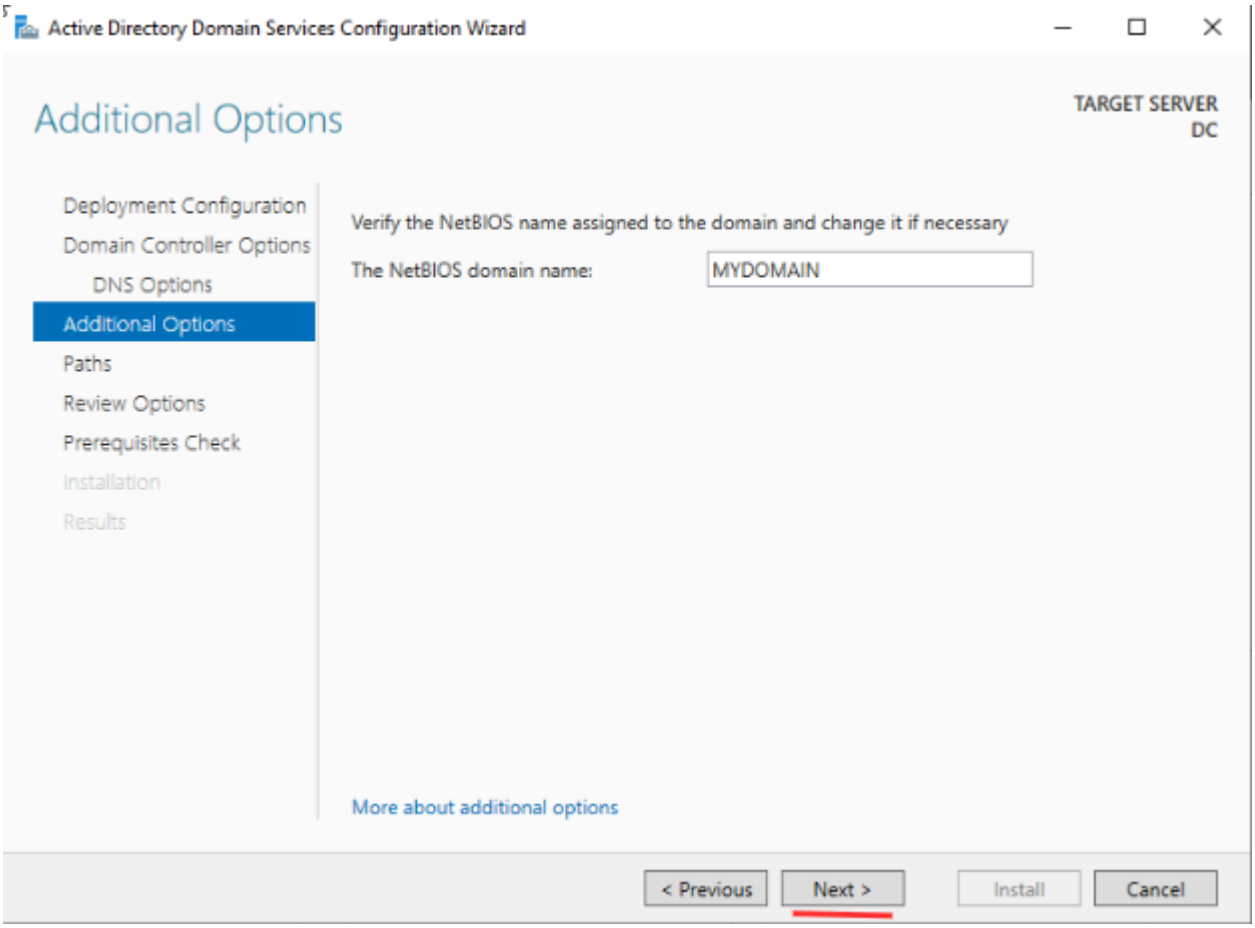

Server Manager
Server Manager • Dashboard
Manage
Tools
View
Help
Dashboard
Local Server
All Servers
AD DS
File and Storage Services
WELCOME TO SERVER MANAGI
QUICK START
WHAT'S NEW
LEARN MORE
Post-deployment Configura...
TASKS
Configuration required for Active Directory Domain Services at DC
Promote this server to a domain controller
Feature installation
Configuration required. Installation succeeded on DC.
Add Roles and Features
Task Details
Connect this server to cloud services
Hide
ROLES AND SERVER GROUPS
Roles: 2 | Server groups: 1 | Servers total: 1
AD DS
1
Manageability
Events
Services
Performance
BPA results
File and Storage Services
1
Manageability
Events
Performance
BPA results
10:32 PM

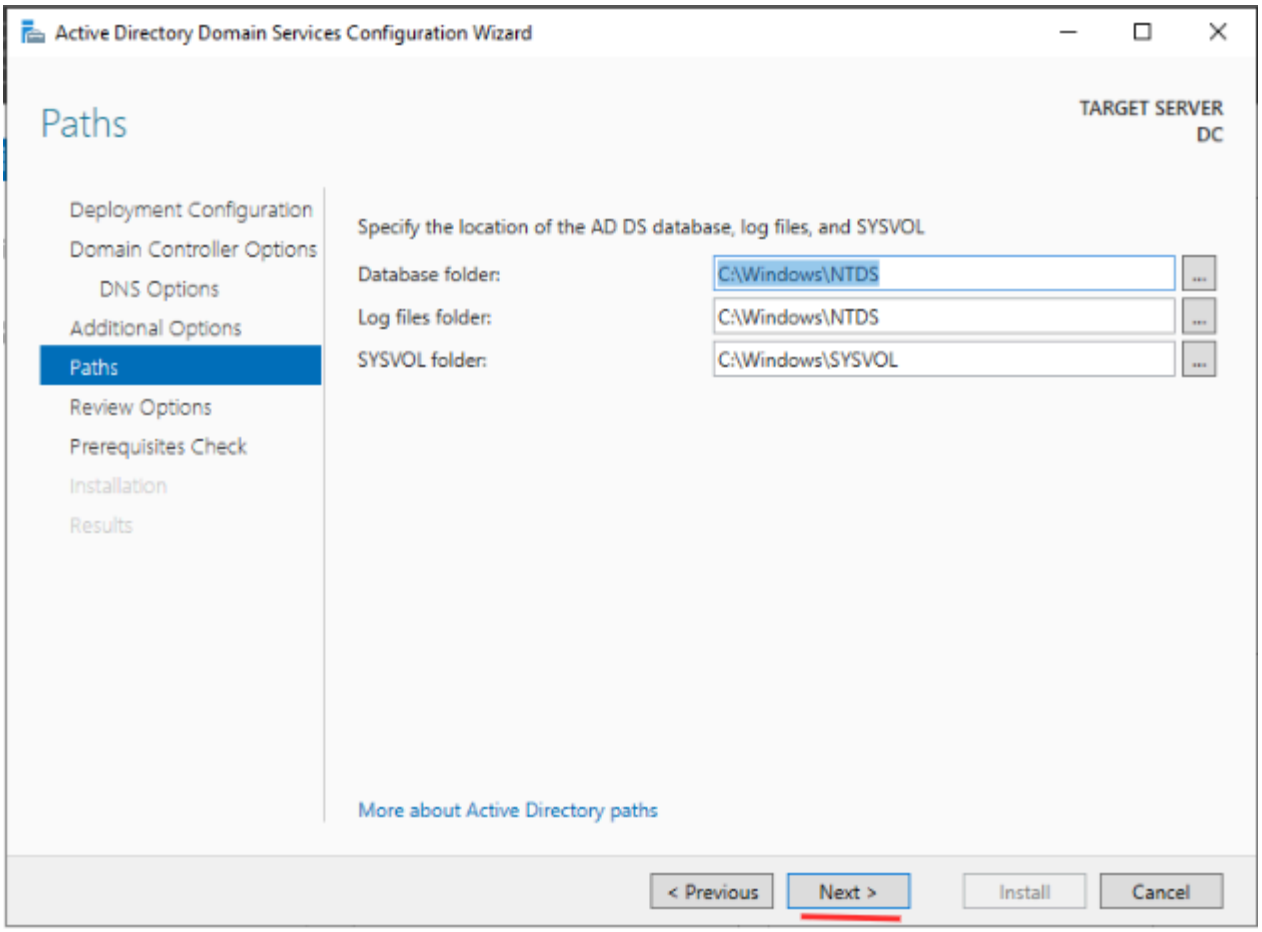

Active Directory Domain Services Configuration Wizard
Deployment Configuration
TARGET SERVER
DC
Deployment Configuration
Domain Controller Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results
Select the deployment operation
Add a domain controller to an existing domain
Add a new domain to an existing forest
Add a new forest
Specify the domain information for this operation
Root domain name:
mydomain.com
More about deployment configurations
< Previous
Next >
Install
Cancel

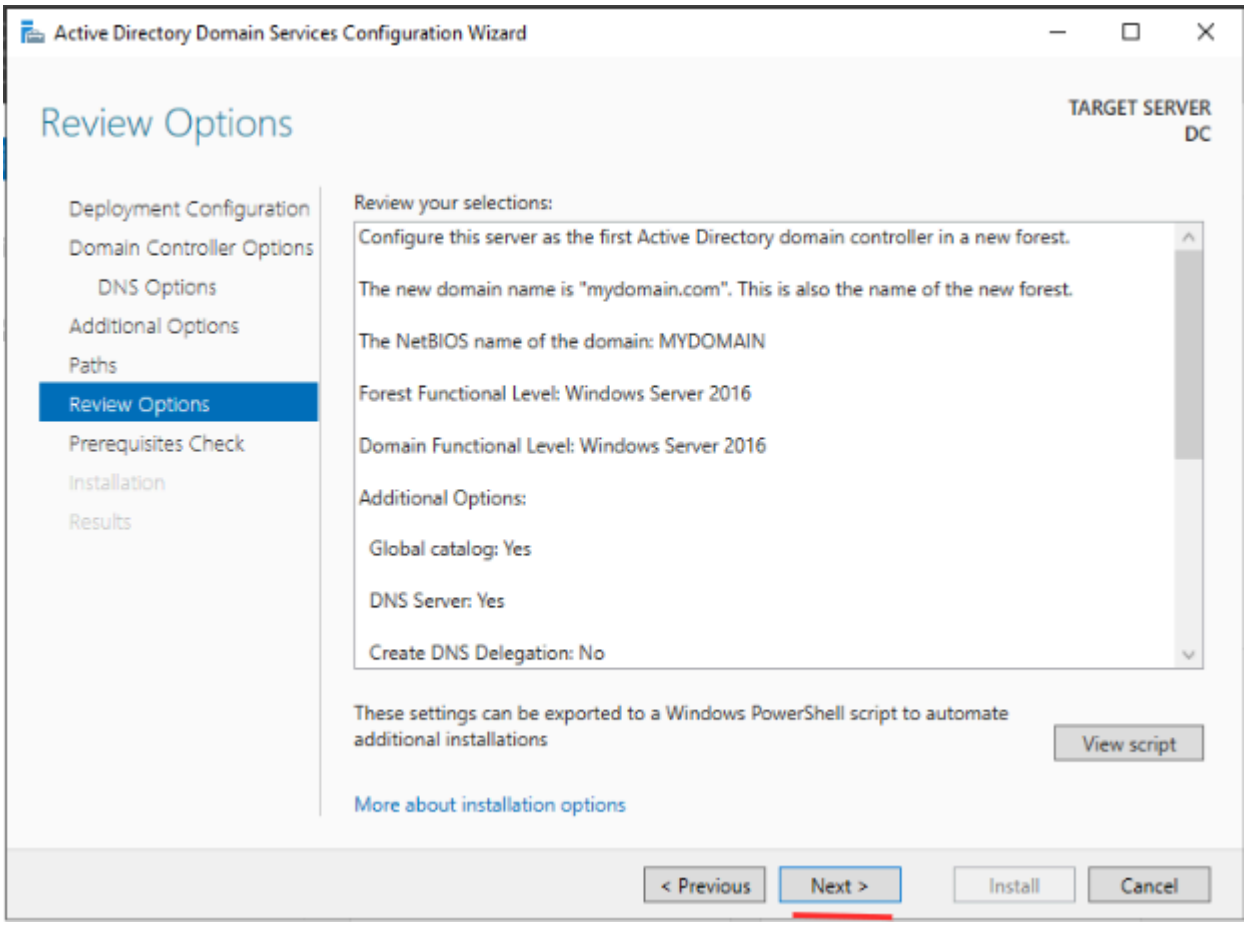

Active Directory Domain Services Configuration Wizard
Domain Controller Options
TARGET SERVER
DC
Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results
Select functional level of the new forest and root domain
Forest functional level:
Windows Server 2016
Domain functional level:
Windows Server 2016
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

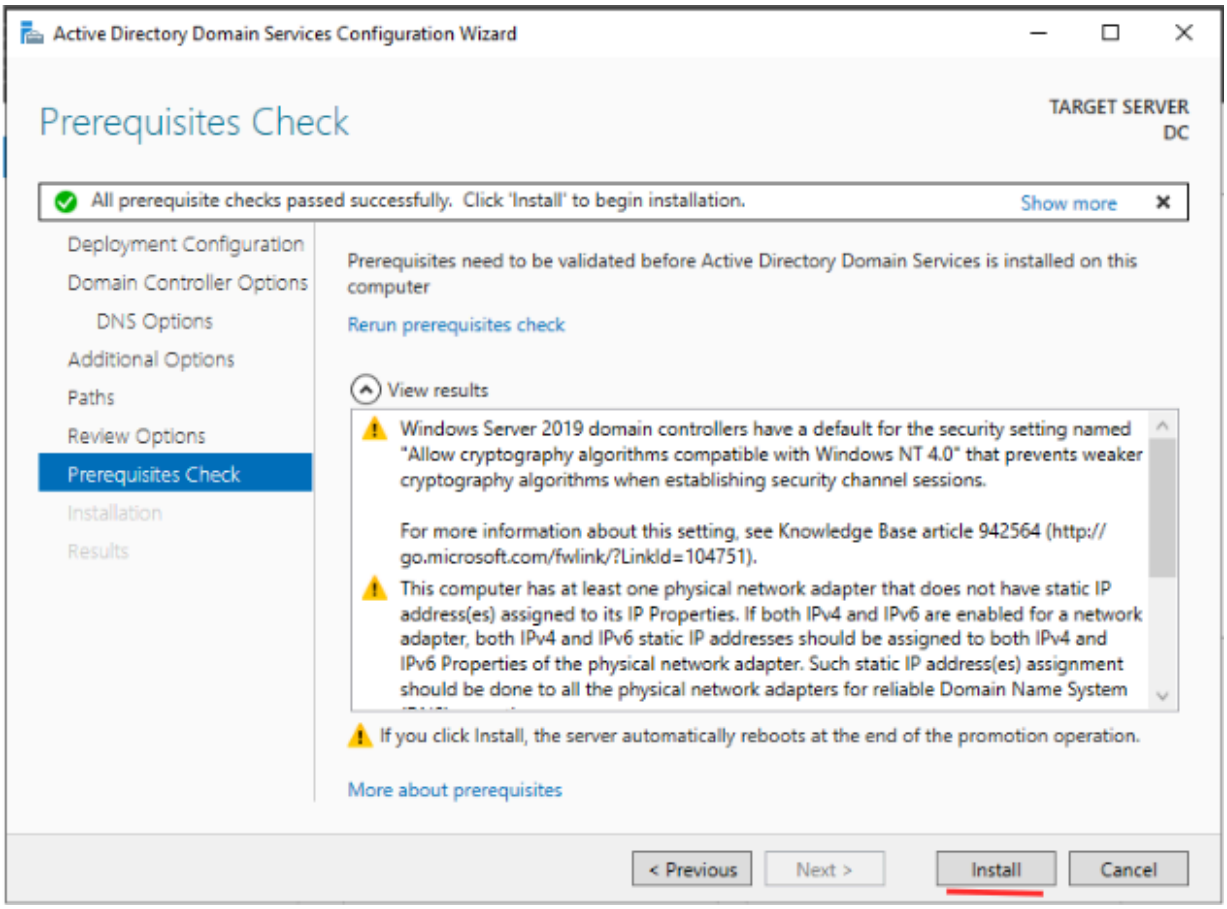
“Password1”

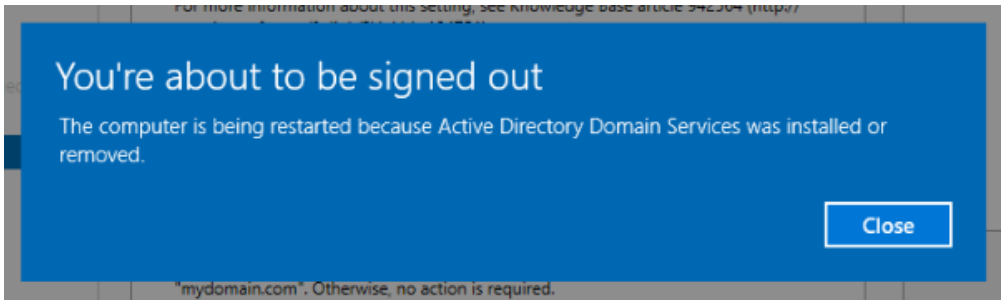

Active Directory Domain Services Configuration Wizard
DNS Options
TARGET SERVER
DC
A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found...
Show more
Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results
Specify DNS delegation options
Create DNS delegation
More about DNS delegation
< Previous
Next >
Install
Cancel

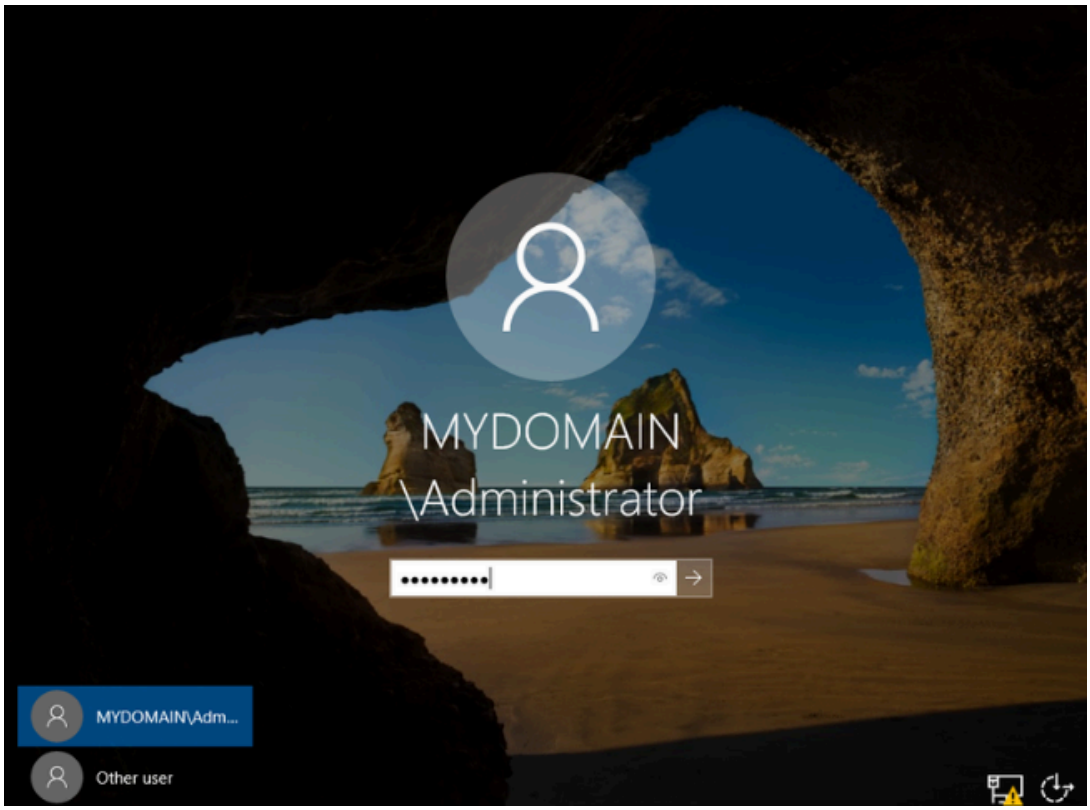

Active Directory Domain Services Configuration Wizard
Additional Options
TARGET SERVER
DC
Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results
Verify the NetBIOS name assigned to the domain and change it if necessary
The NetBIOS domain name:
MYDOMAIN
More about additional options
< Previous
Next >
Install
Cancel


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

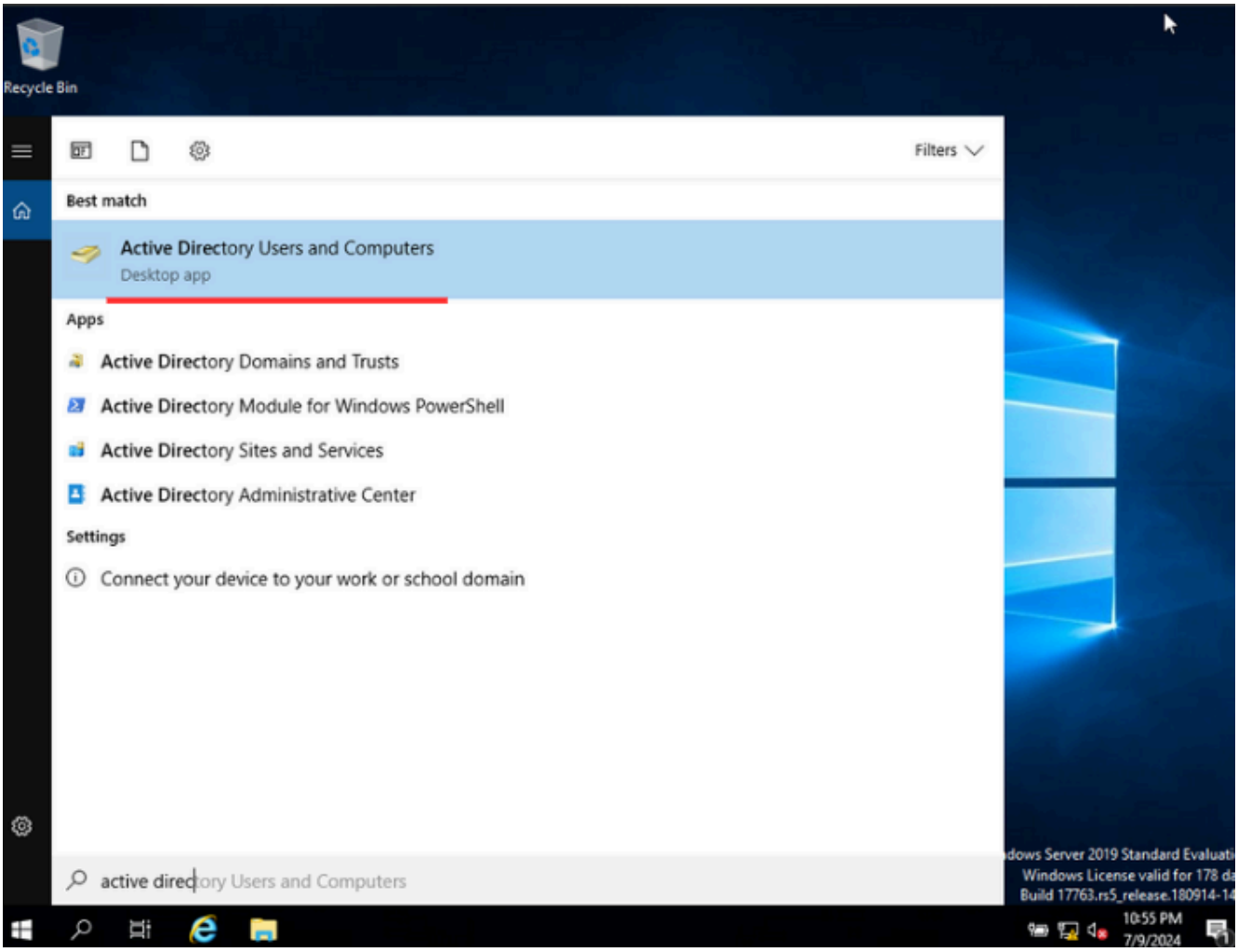

Active Directory Domain Services Configuration Wizard
Review Options
TARGET SERVER
DC
Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results
Review your selections:
Configure this server as the first Active Directory domain controller in a new forest.
The new domain name is "mydomain.com". This is also the name of the new forest.
The NetBIOS name of the domain: MYDOMAIN
Forest Functional Level: Windows Server 2016
Domain Functional Level: Windows Server 2016
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

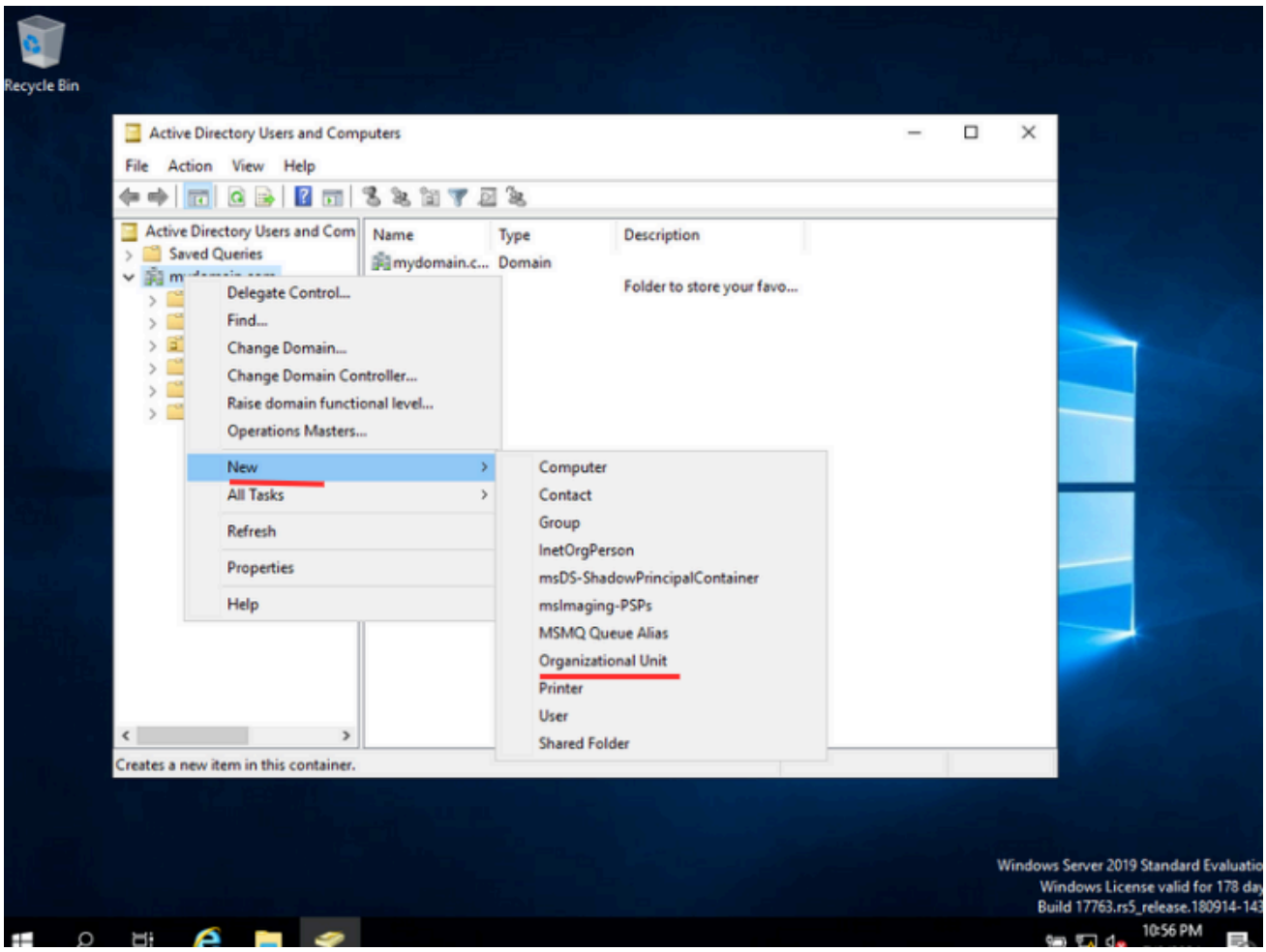

Active Directory Domain Services Configuration Wizard
Prerequisites Check
TARGET SERVER
DC
All prerequisite checks passed successfully. Click 'Install' to begin installation.
Show more
Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites 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 2019 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).
This computer has at least one physical network adapter that does not have static IP address(es) assigned to its IP Properties. If both IPv4 and IPv6 are enabled for a network adapter, both IPv4 and IPv6 static IP addresses should be assigned to both IPv4 and IPv6 Properties of the physical network adapter. Such static IP address(es) assignment should be done to all the physical network adapters for reliable Domain Name System
If you click Install, the server automatically reboots at the end of the promotion operation.
More about prerequisites
< Previous
Next >
Install
Cancel

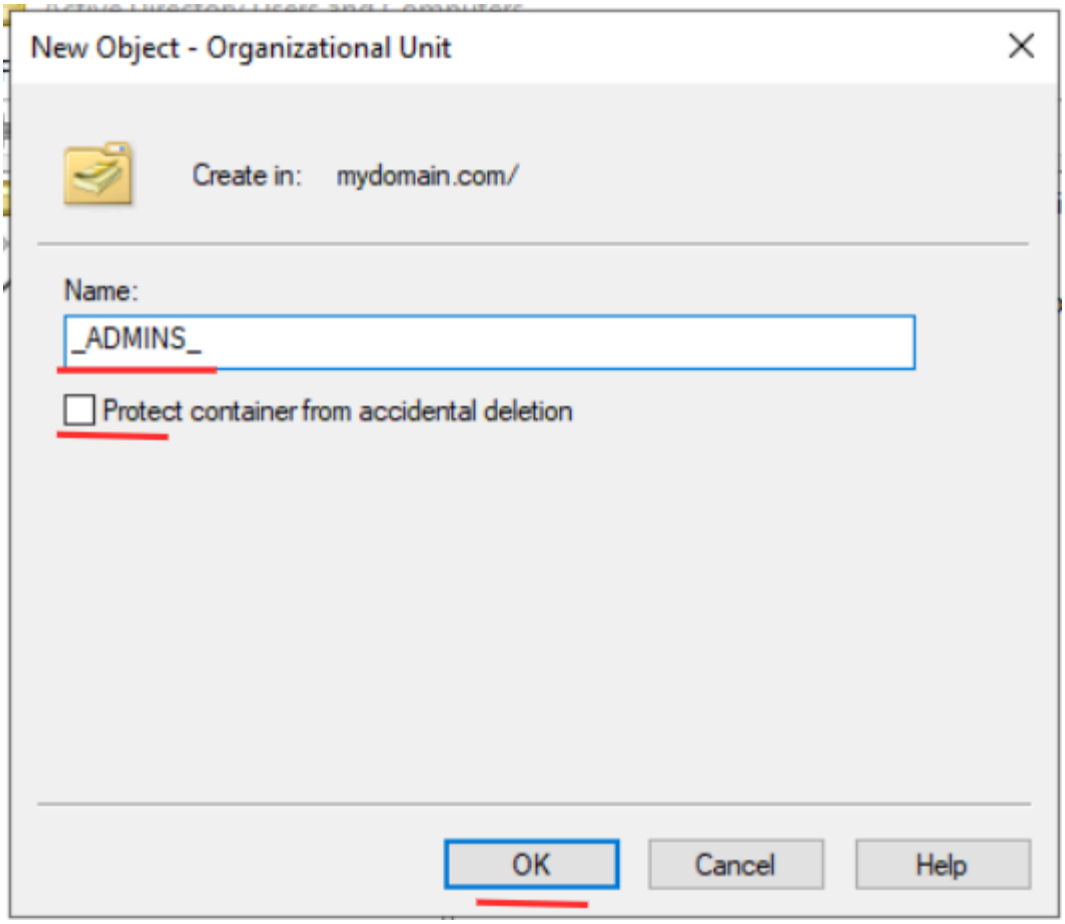

You're about to be signed out
The computer is being restarted because Active Directory Domain Services was installed or removed.
Close
"mydomain.com". Otherwise, no action is required.

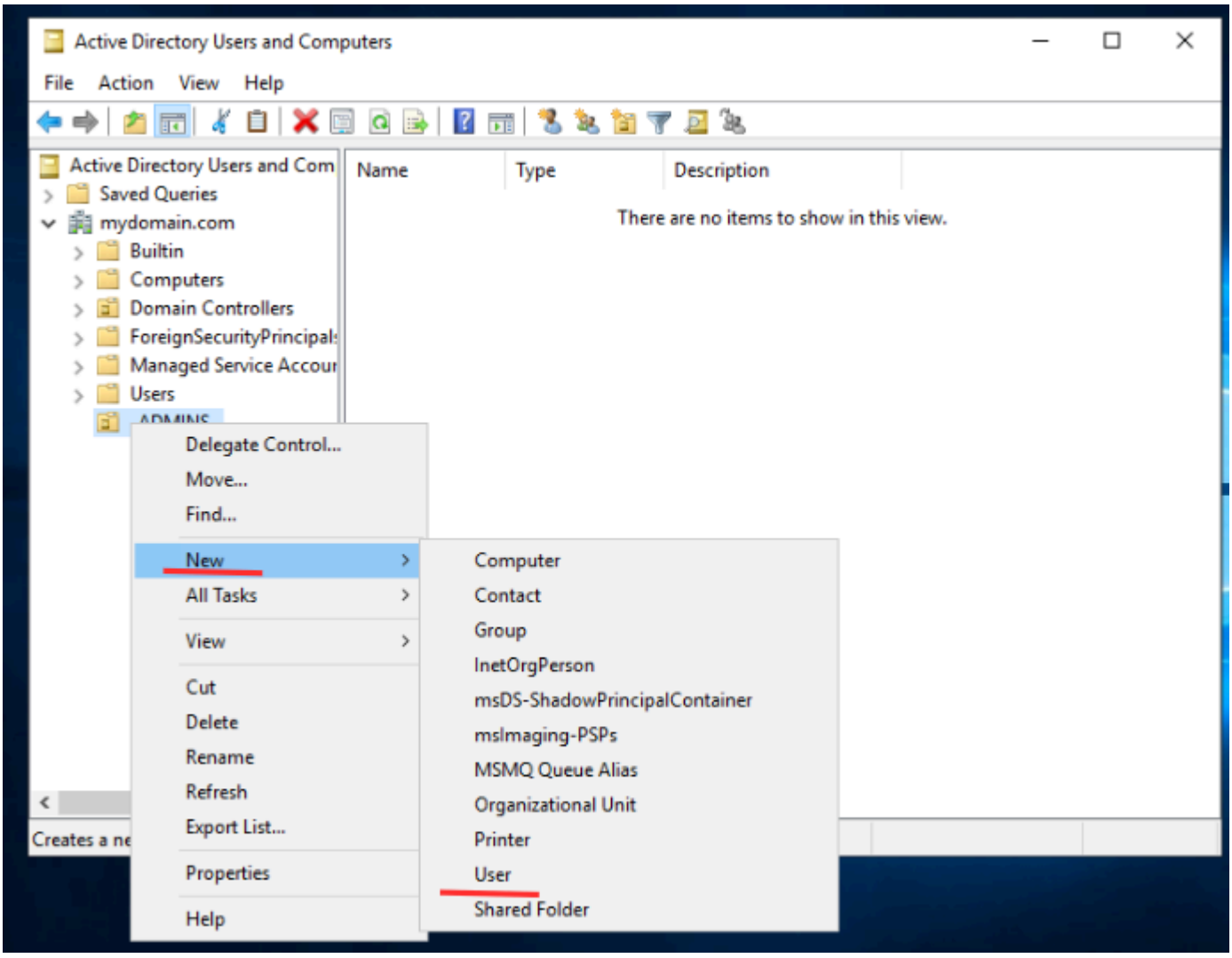

MYDOMAIN
\Administrator
MYDOMAIN\Adm...
Other user

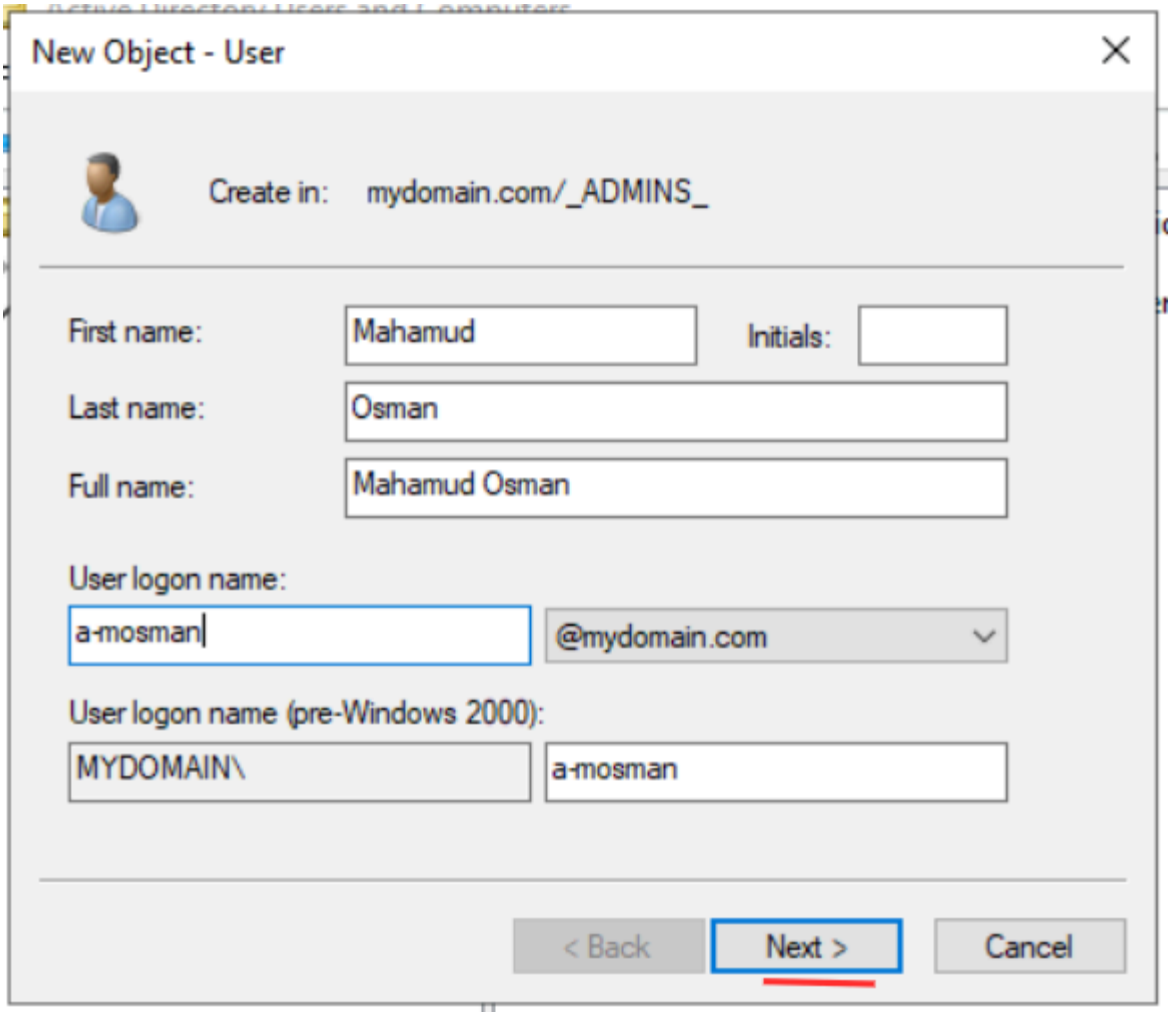
Now we will be creating a dedicated admin account instead of using the built in administrator



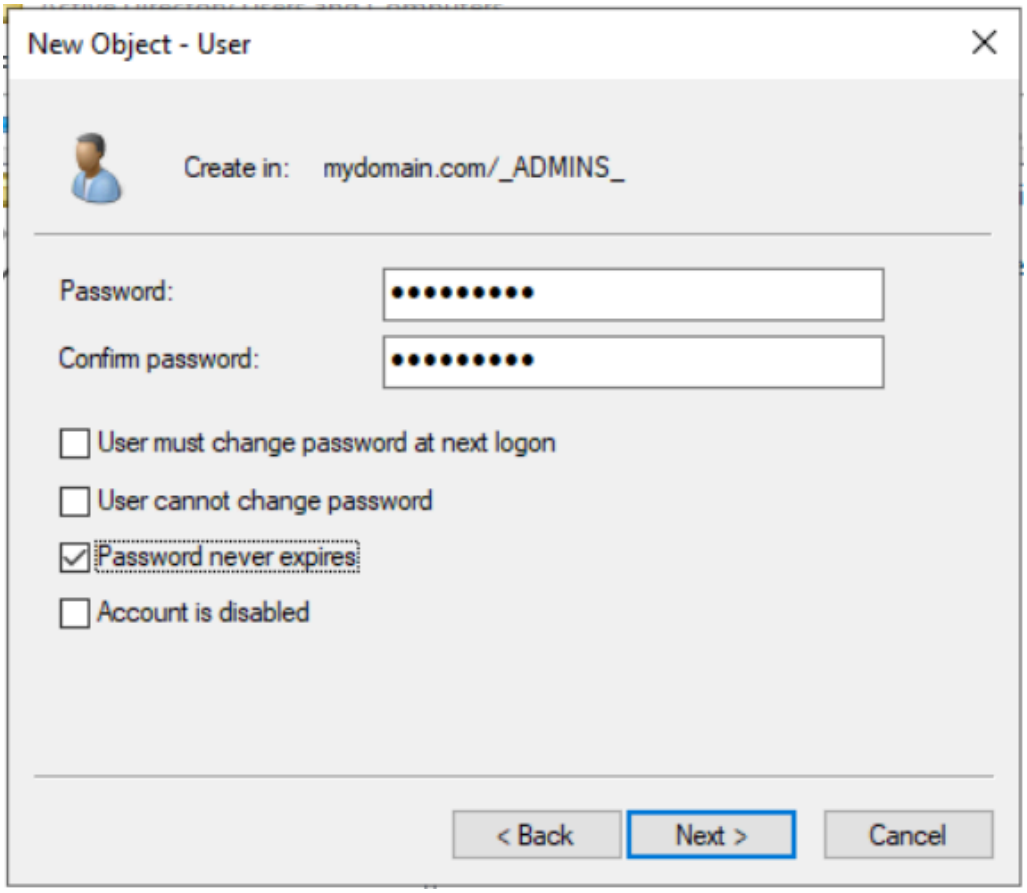



New Object - Organizational Unit
Create in: mydomain.com/
Name:
ADMINS
Protect container from accidental deletion
OK
Cancel
Help

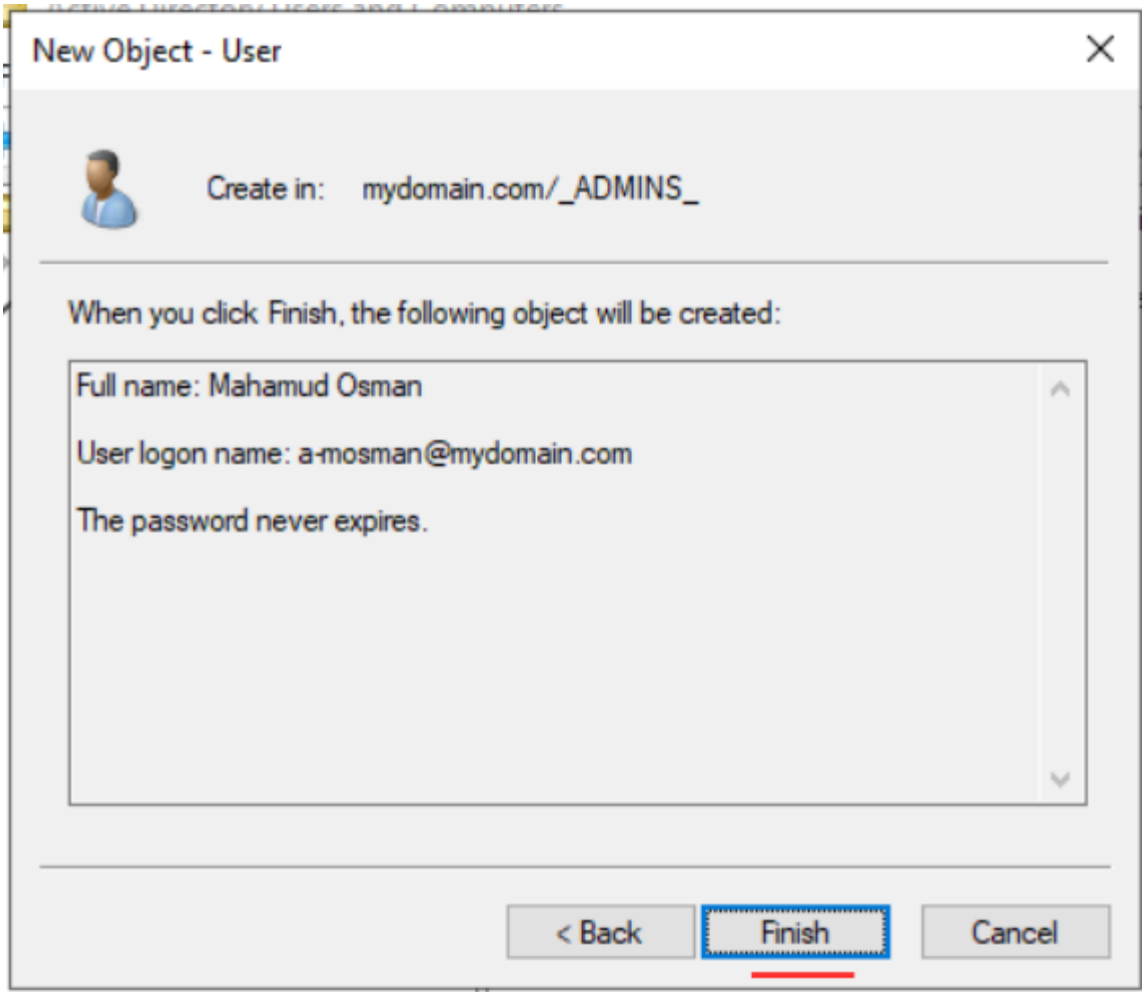

Active Directory Users and Computers
File Action View Help
Active Directory Users and Com
Saved Queries
mydomain.com
Builtin
Computers
Domain Controllers
ForeignSecurityPrincipals
Managed Service Accour
Users
ADMINS
Name
Type
Description
There are no items to show in this view.
Delegate Control...
Move...
Find...
New
All Tasks
View
Cut
Delete
Rename
Refresh
Export List...
Properties
Help
Computer
Contact
Group
InetOrgPerson
msDS-ShadowPrincipalContainer
mslmaging-PSPs
MSMQ Queue Alias
Organizational Unit
Printer
User
Shared Folder

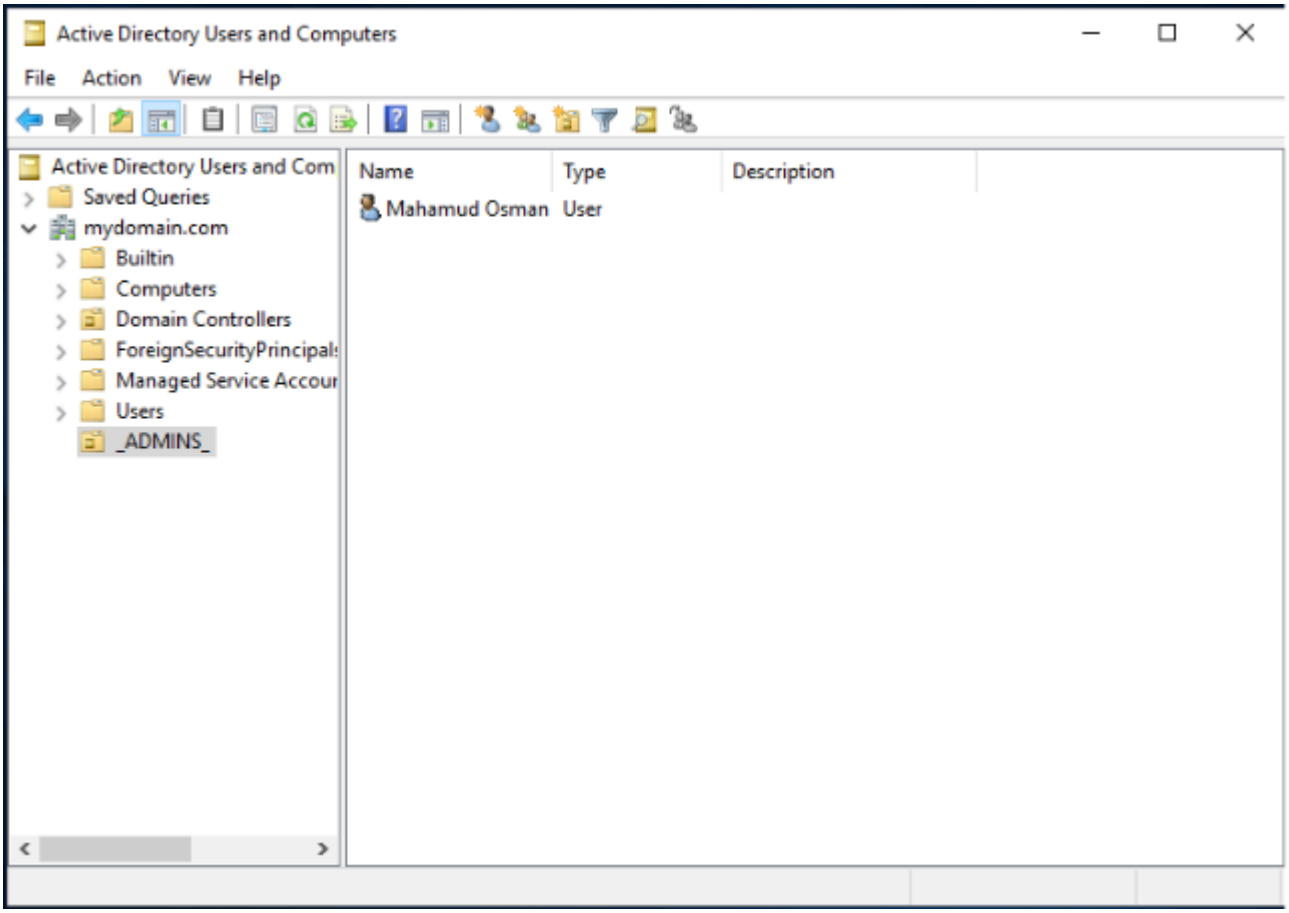


The “User logon name” can be whatever, create name based on your preferred naming convention

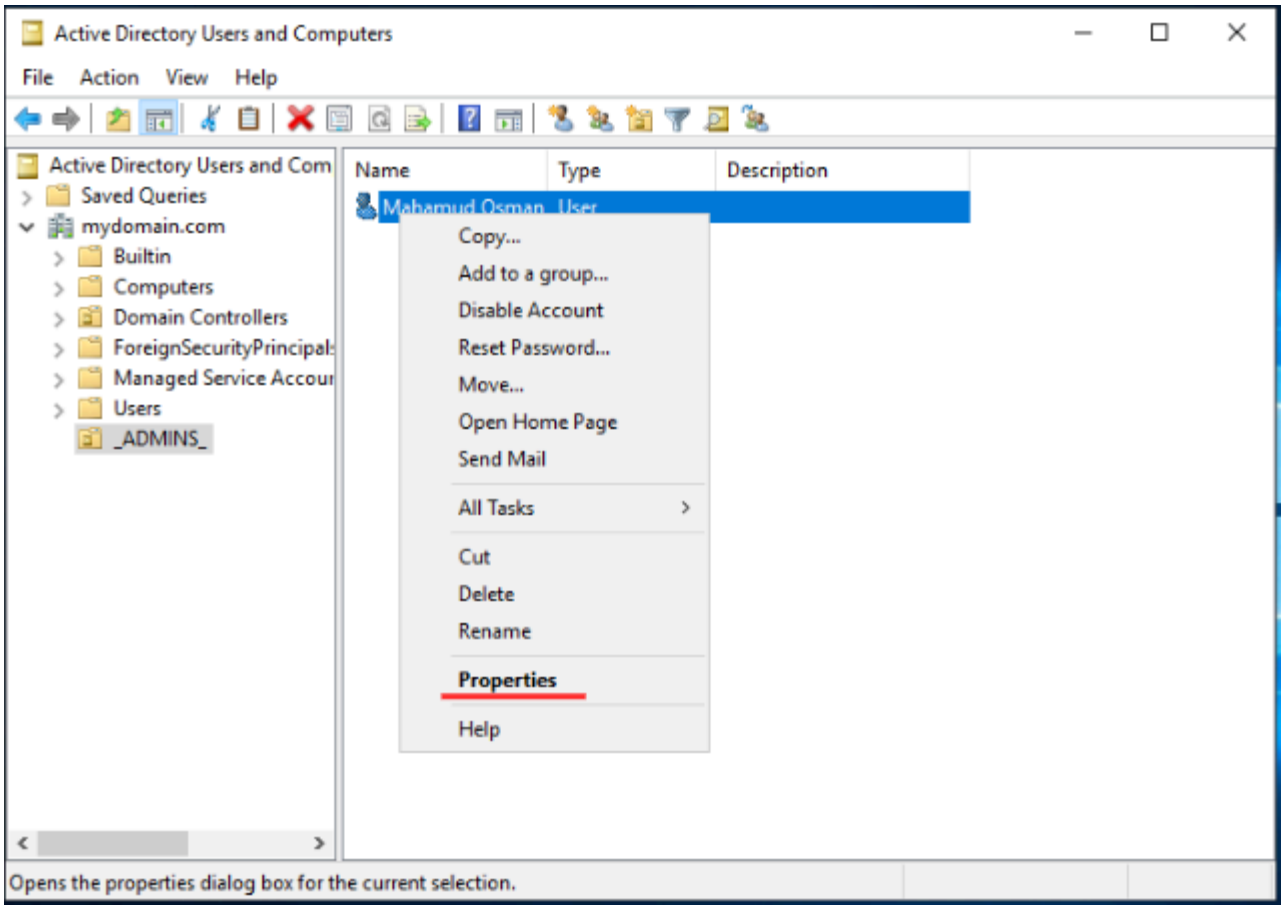


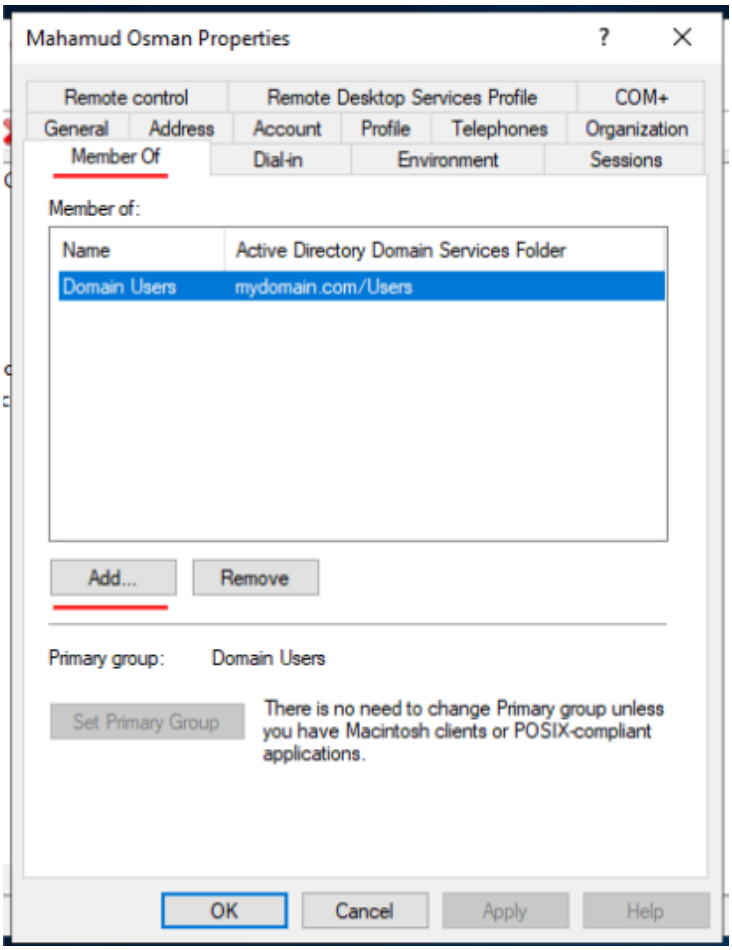
ONLY for lab purposes, I will select a “password never expires”. We can come back later when dealing with password policies

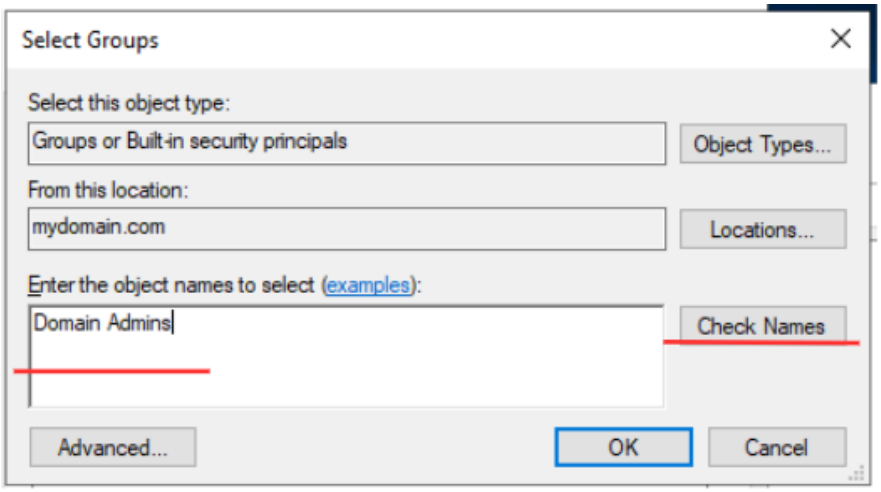


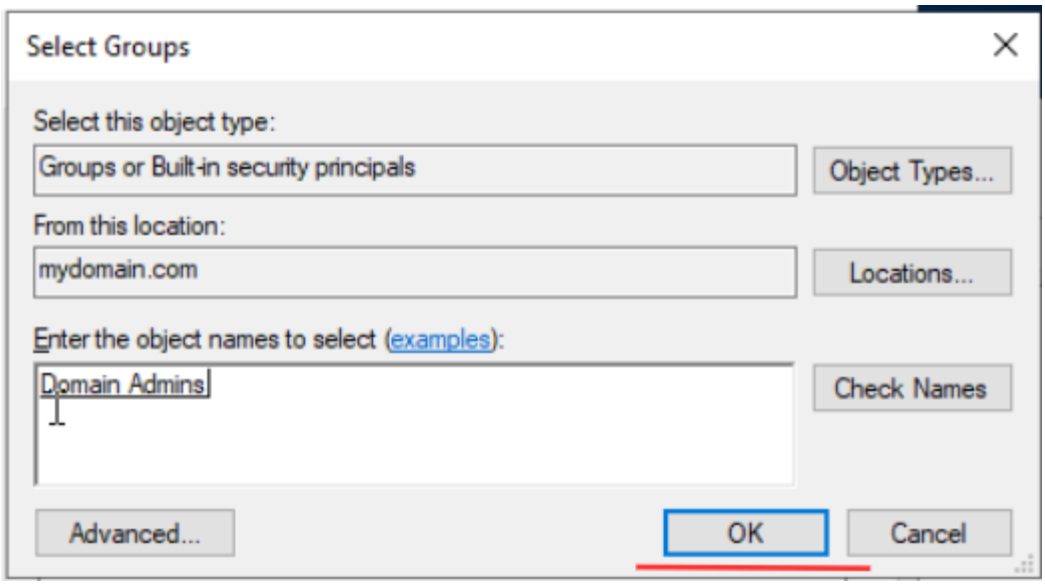


The account was created but it still needs to be turned into an admin account


Active Directory Users and Computers
File Action View Help
Active Directory Users and Com
Saved Queries
mydomain.com
Builtin
Computers
Domain Controllers
ForeignSecurityPrincipal
Managed Service Accou
Users
ADMINS
Name Type Description
Mahamud Osman User
Copy...
Add to a group...
Disable Account
Reset Password...
Move...
Open Home Page
Send Mail
All Tasks
Cut
Delete
Rename
Properties
Help
Opens the properties dialog box for the current selection.


Mahamud Osman Properties
Remote control
Remote Desktop Services Profile
COM+
General
Address
Account
Profile
Telephones
Organization
Member Of
Dial-in
Environment
Sessions
Member of:
Name
Active Directory Domain Services Folder
Domain Users
mydomain.com/Users
Add...
Remove
Primary group:
Domain Users
Set Primary Group
There is no need to change Primary group unless you have Macintosh clients or POSIX-compliant applications.
OK
Cancel
Apply
Help

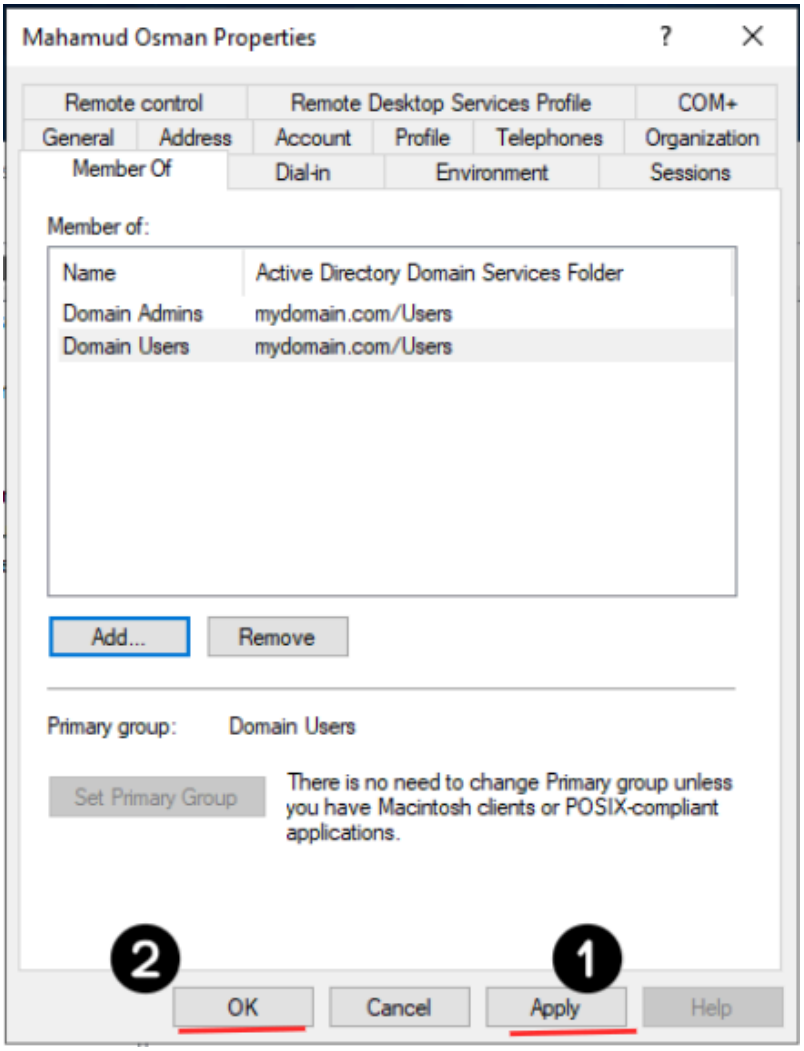

Select Groups
Select this object type:
Groups or Built-in security principals
Object Types...
From this location:
mydomain.com
Locations...
Enter the object names to select (examples):
Domain Admins
Check Names
Advanced...
OK
Cancel

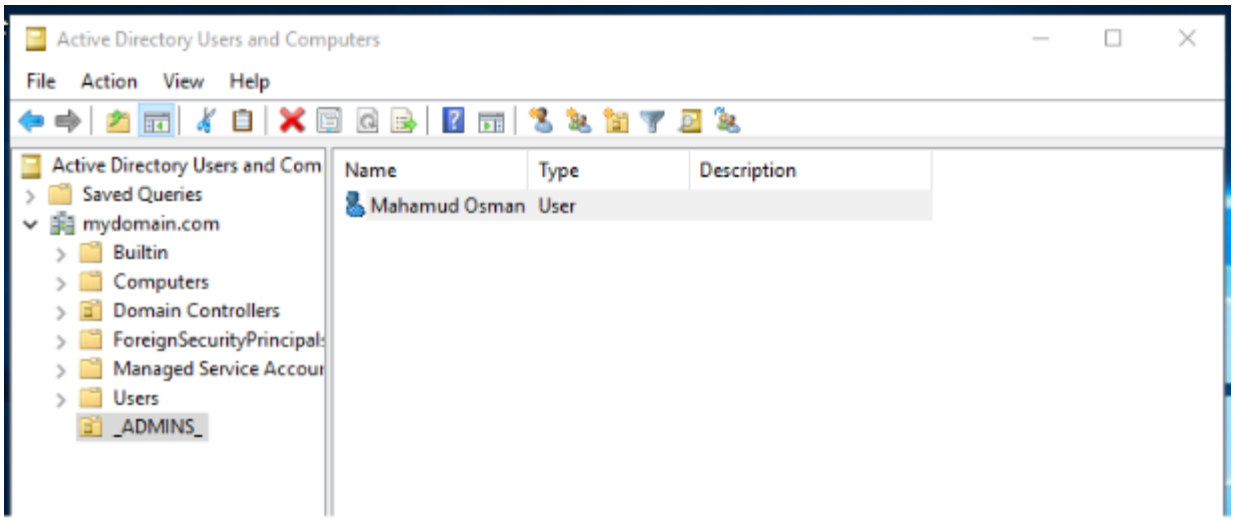


You can see it resolves to domain admin

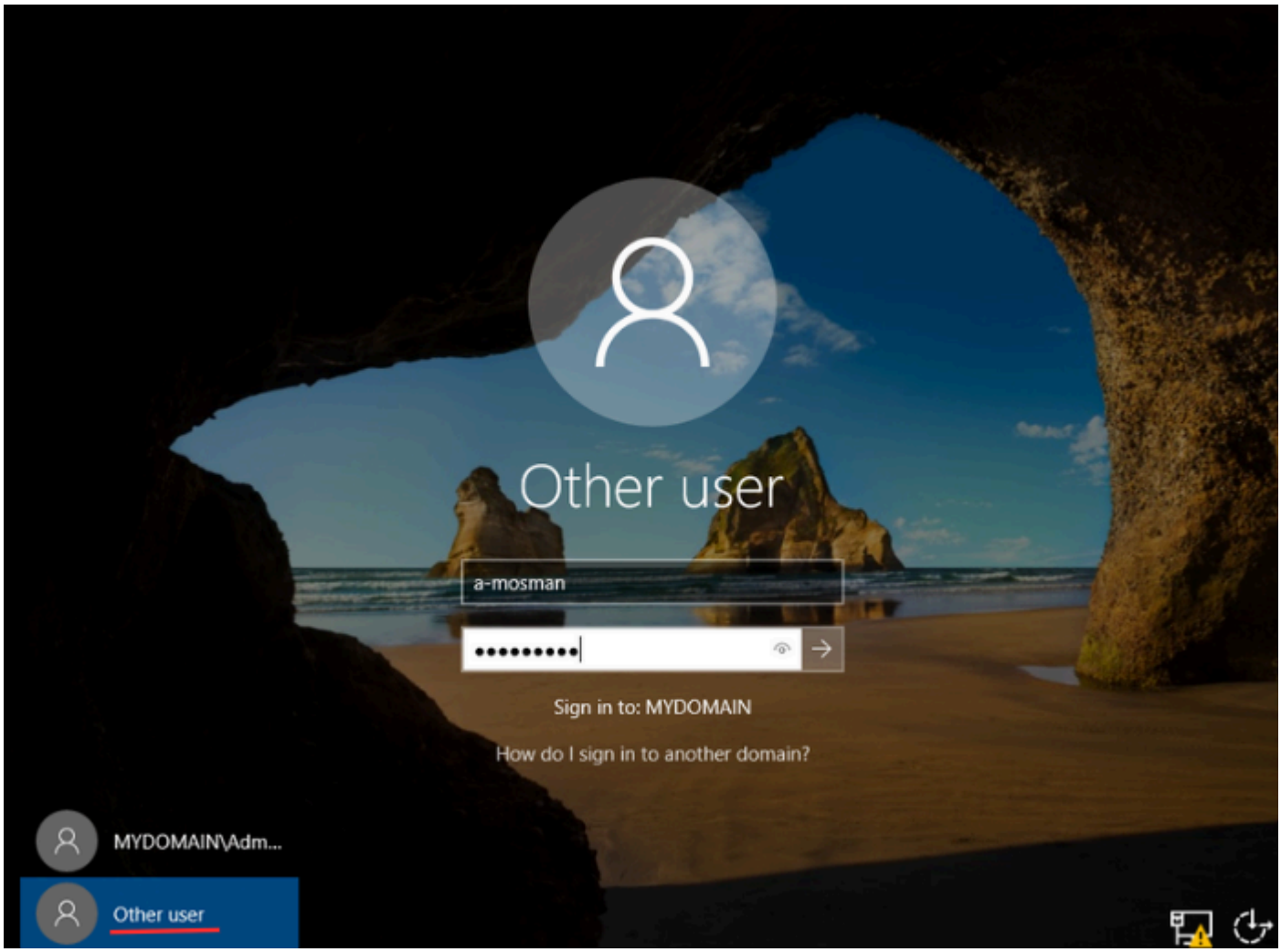
In Active Directory, there are several built-in administrative groups that are recognized by default across domains. These groups have predefined administrative privileges and are crucial for managing various aspects of the Active Directory environment.

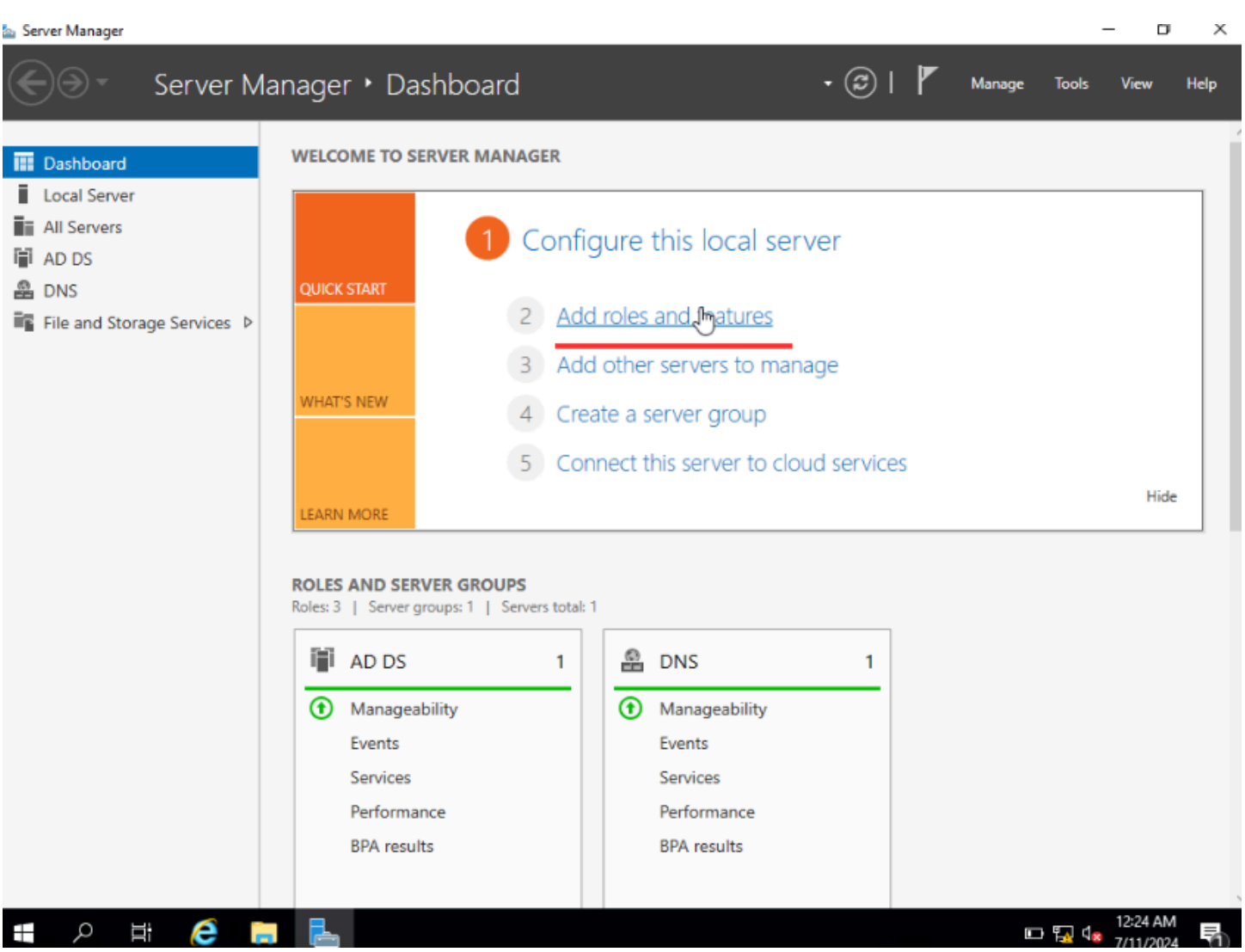
“Domain Admins” - Members of this group have full administrative control over the domain. They can perform all administrative tasks within the domain, including managing domain controllers, creating and managing users and groups, modifying group policies, etc.

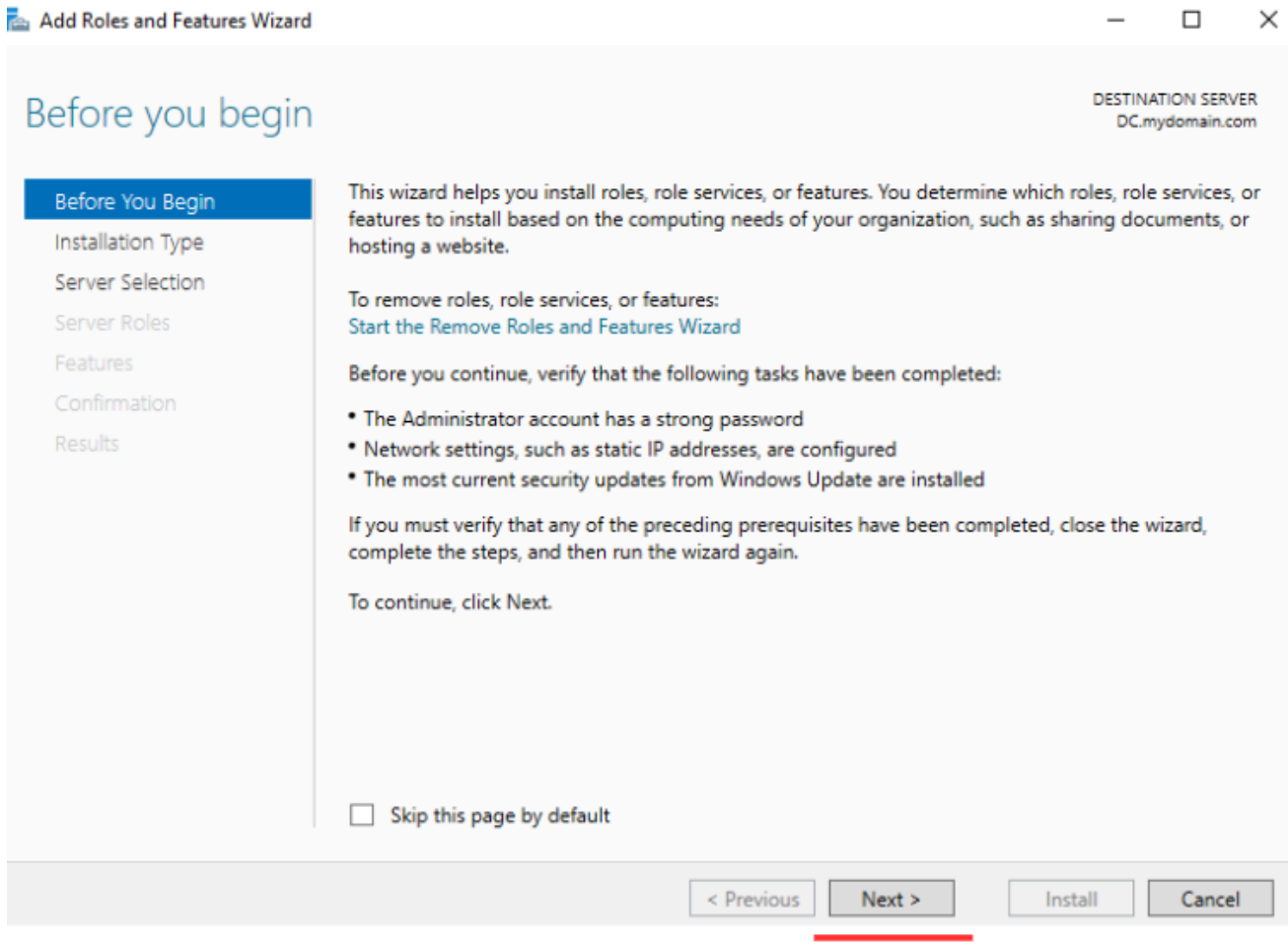


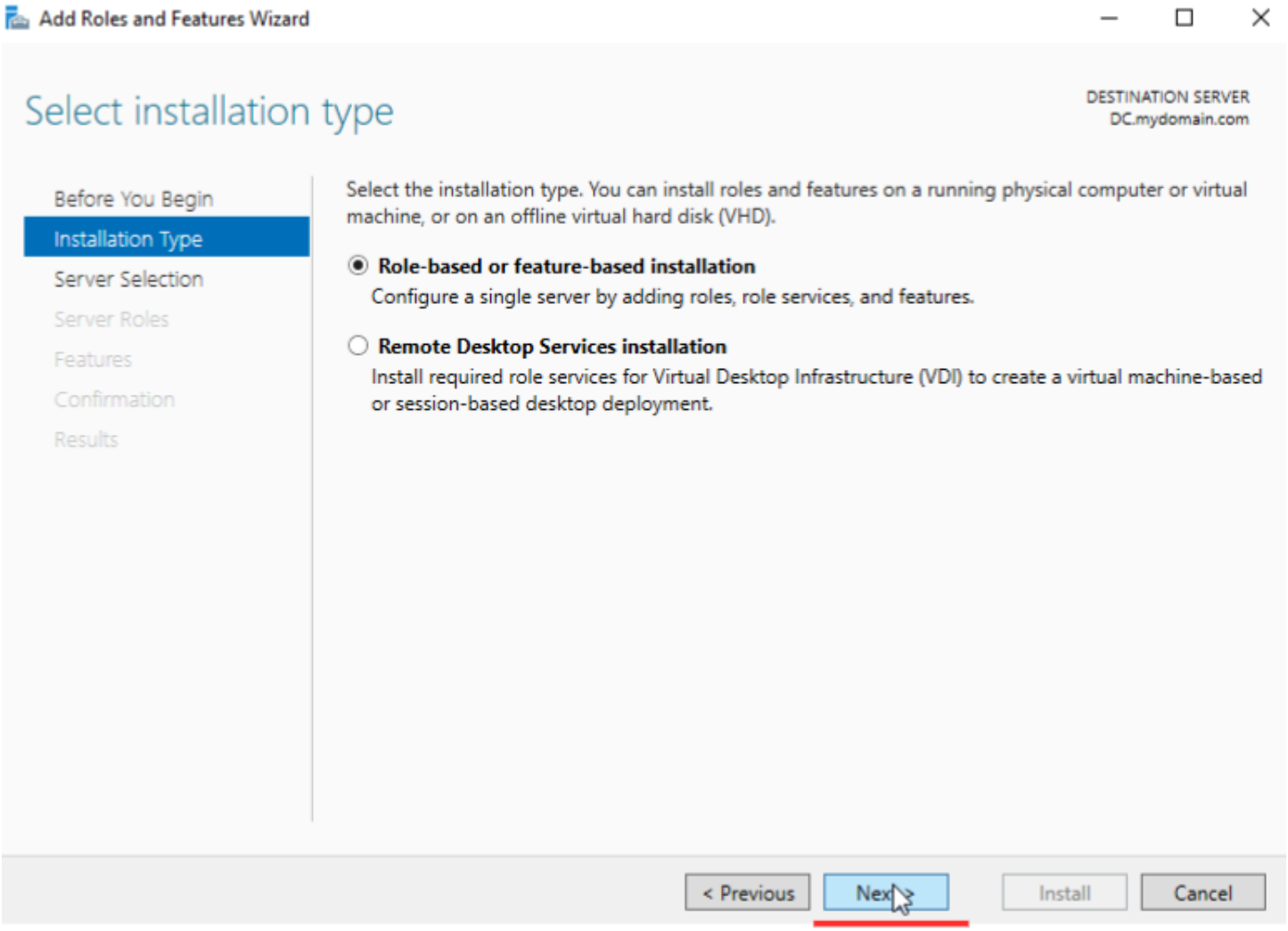


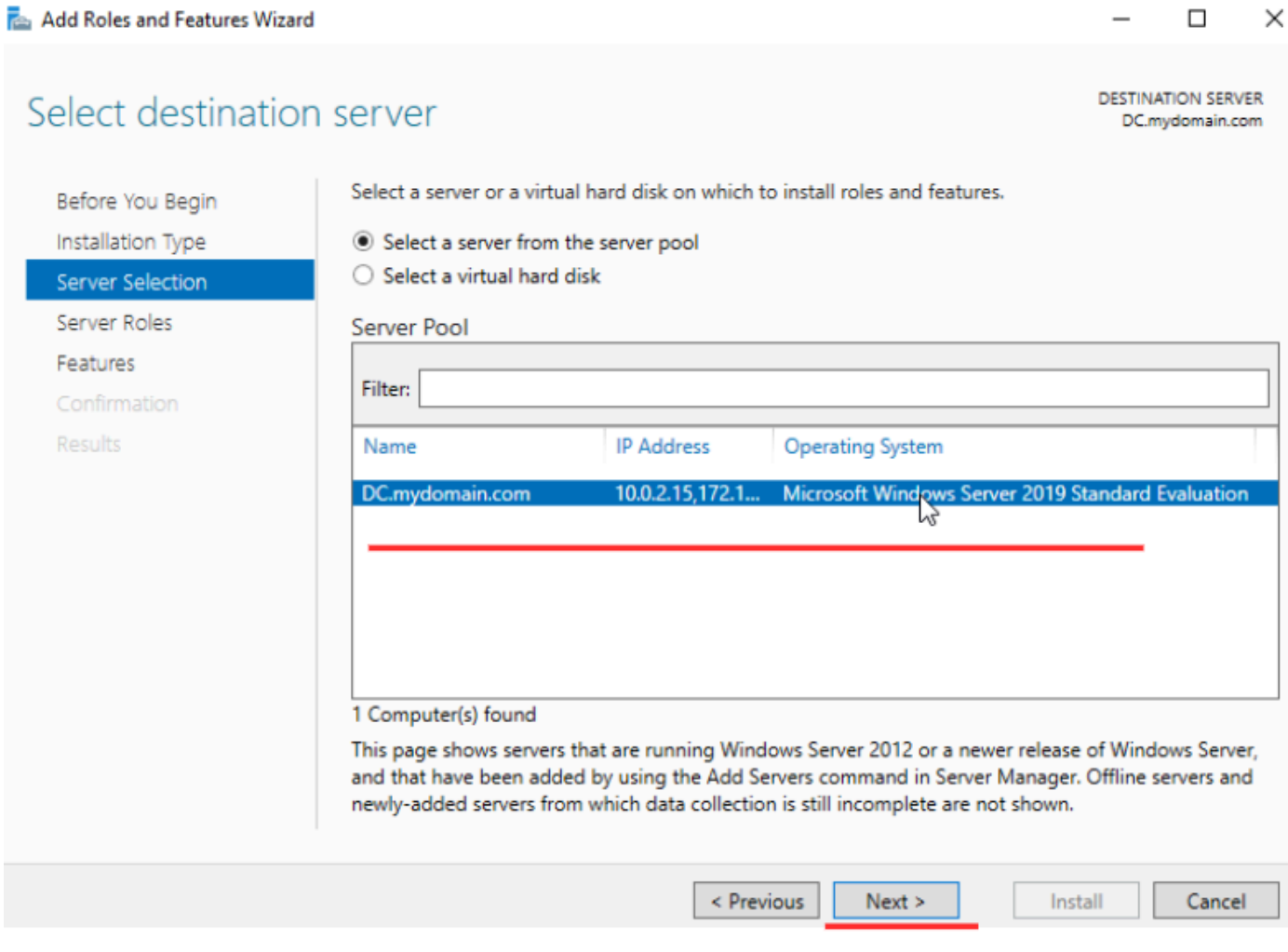
Now you are good to go. You can now sign out and sign back in

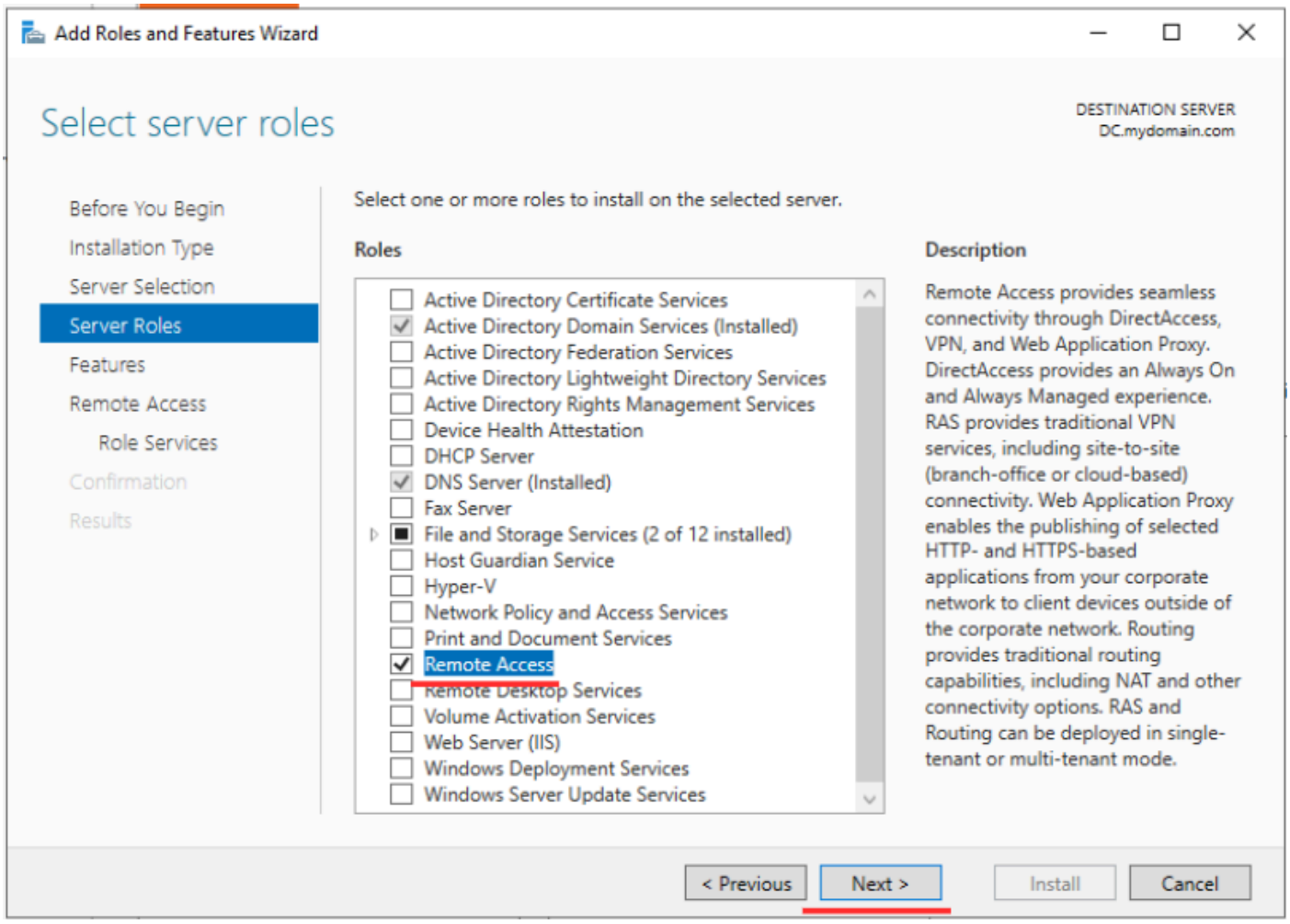


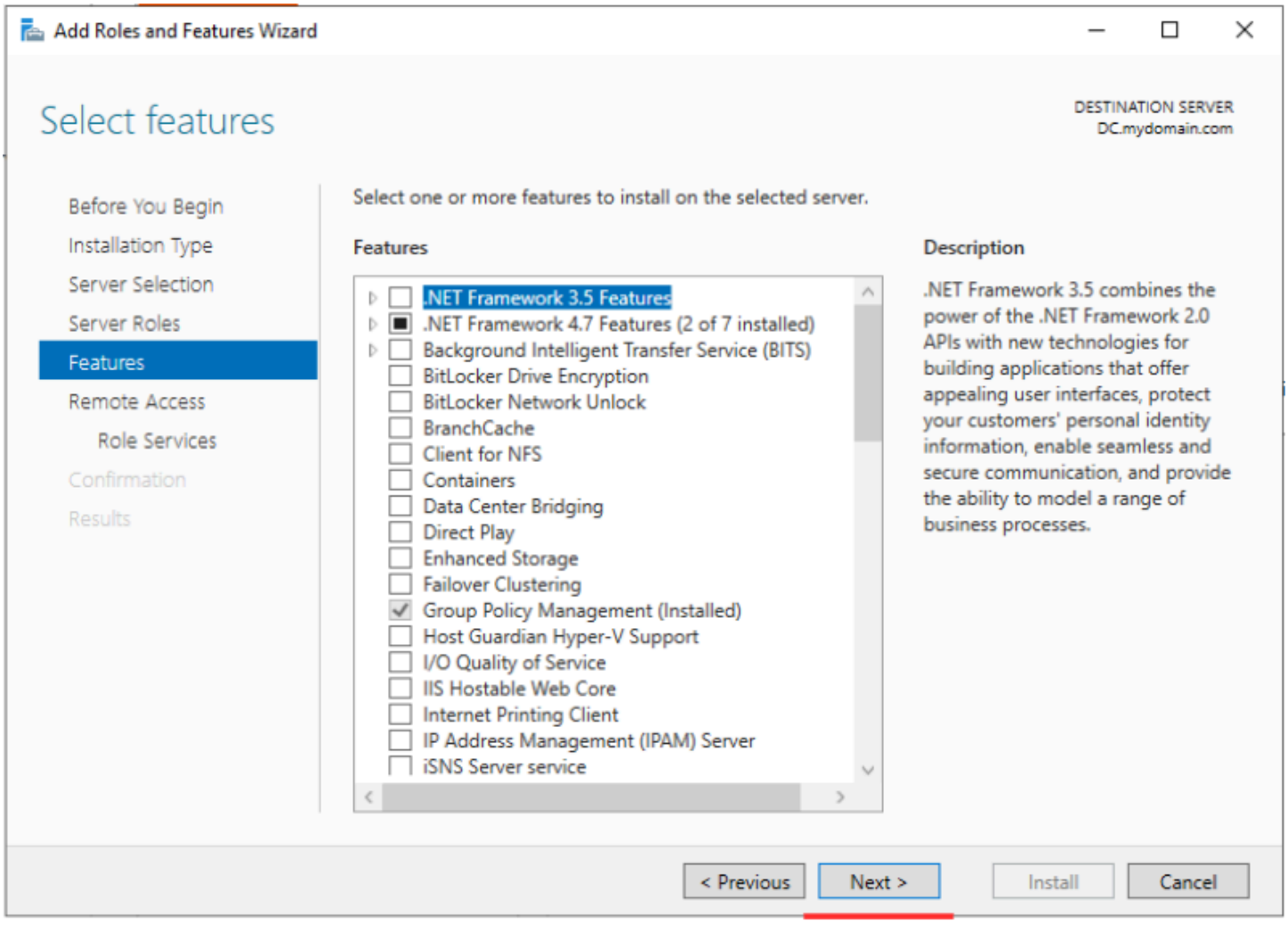

Server Manager
Server Manager ▸ Dashboard
Manage
Tools
View
Help
Dashboard
Local Server
All Servers
AD DS
DNS
File and Storage Services
WELCOME TO SERVER MANAGER
QUICK START
WHAT'S NEW
LEARN MORE
1 Configure this local server
2 Add roles and features
3 Add other servers to manage
4 Create a server group
5 Connect this server to cloud services
Hide
ROLES AND SERVER GROUPS
Roles: 3 | Server groups: 1 | Servers total: 1
AD DS 1
Manageability
Events
Services
Performance
BPA results
DNS 1
Manageability
Events
Services
Performance
BPA results
12:24 AM
7/11/2024

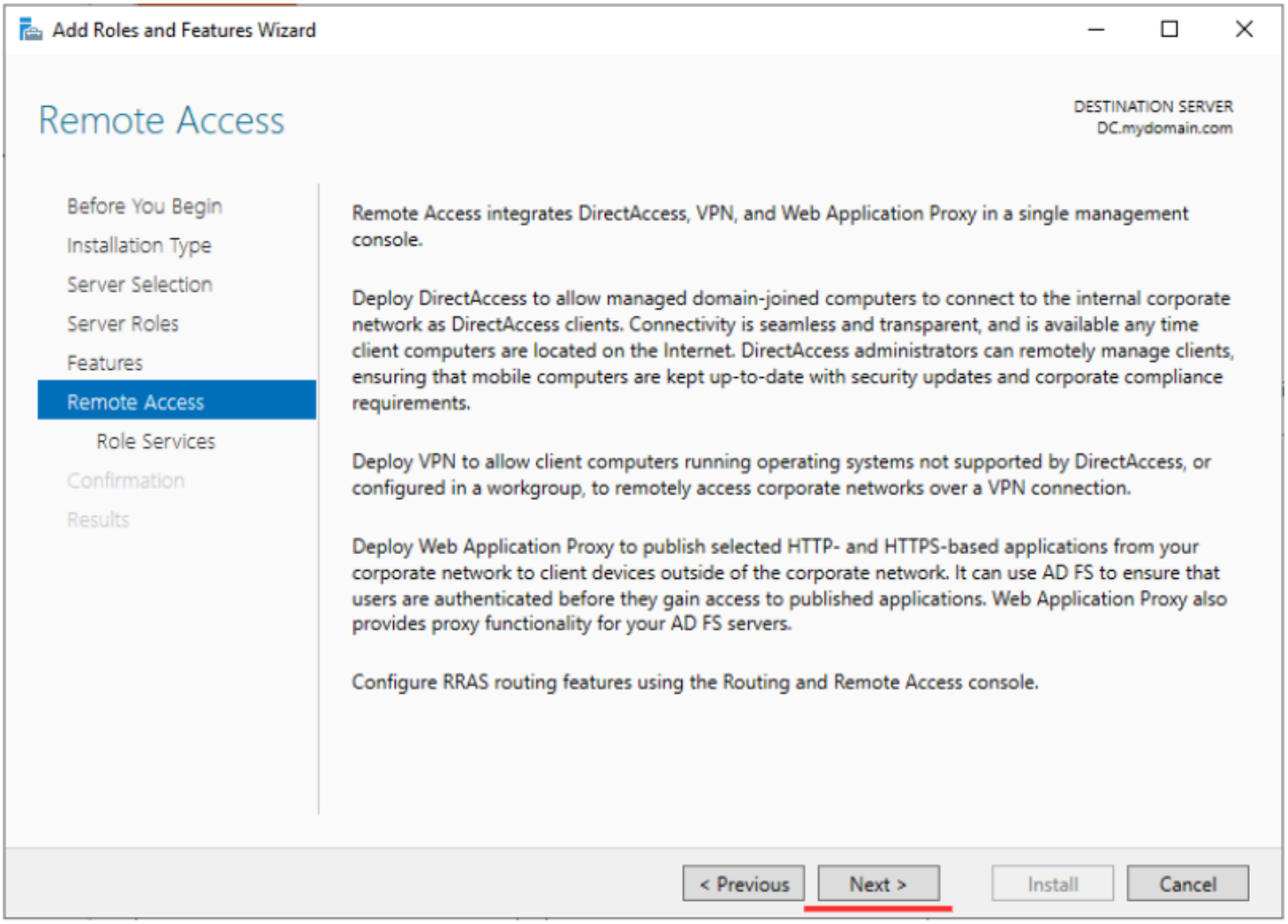

Add Roles and Features Wizard
Before you begin
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install 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

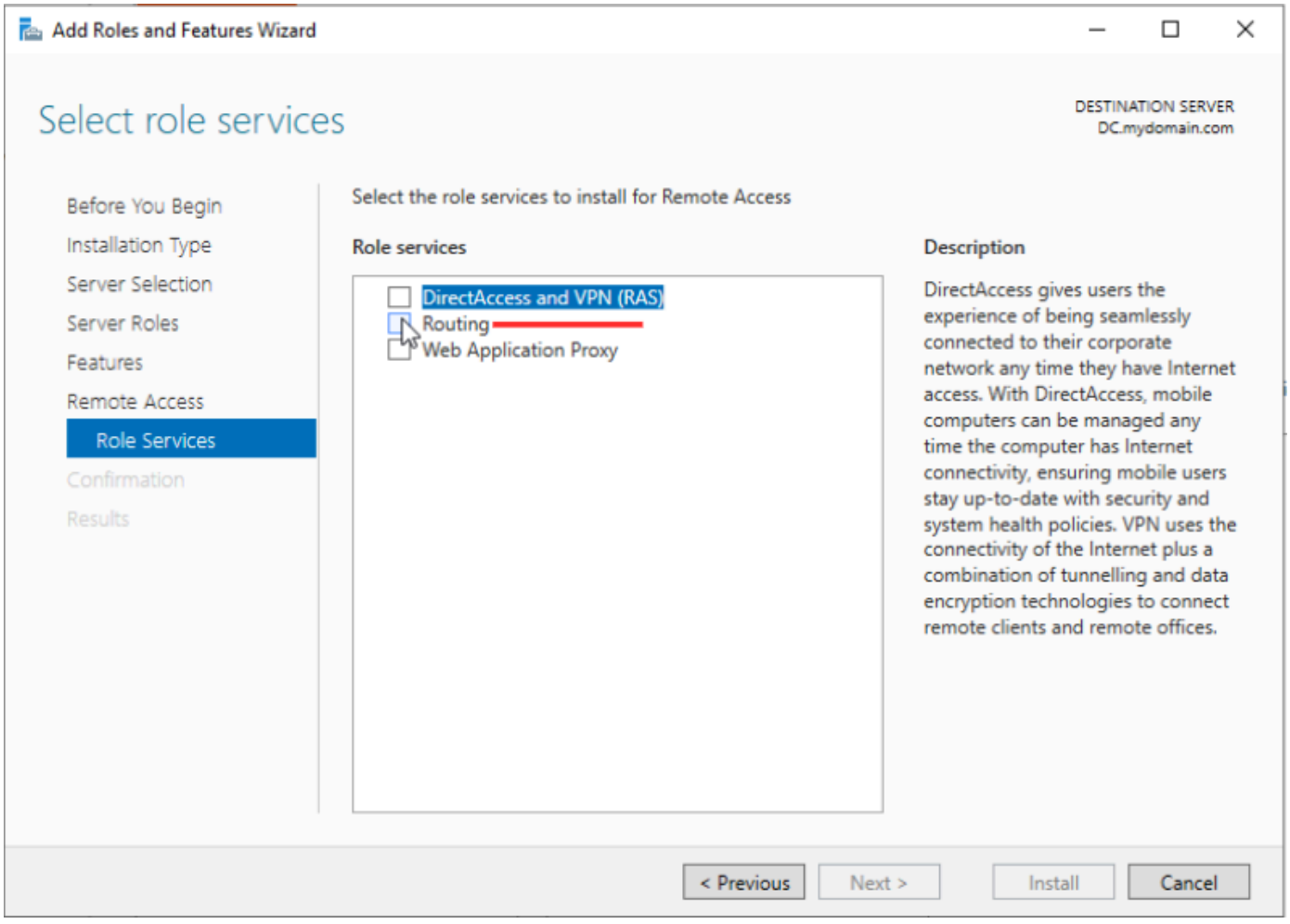

Add Roles and Features Wizard
Select installation type
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select the installation type. You can install roles and features on a running physical computer or virtual machine, 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

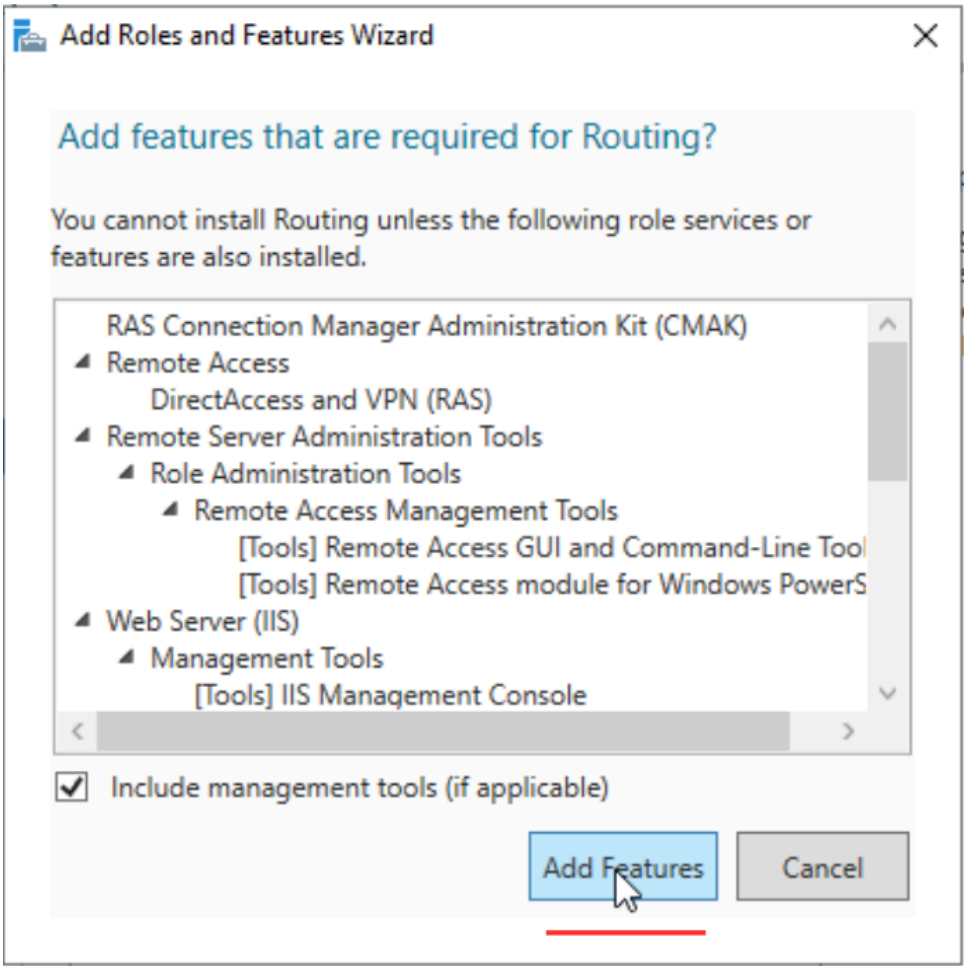

Add Roles and Features Wizard
Select destination server
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select a server or a virtual hard disk on which to install roles and features.
Select a server from the server pool
Select a virtual hard disk
Server Pool
Filter:
Name
IP Address
Operating System
DC.mydomain.com
10.0.2.15,172.1...
Microsoft Windows Server 2019 Standard 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

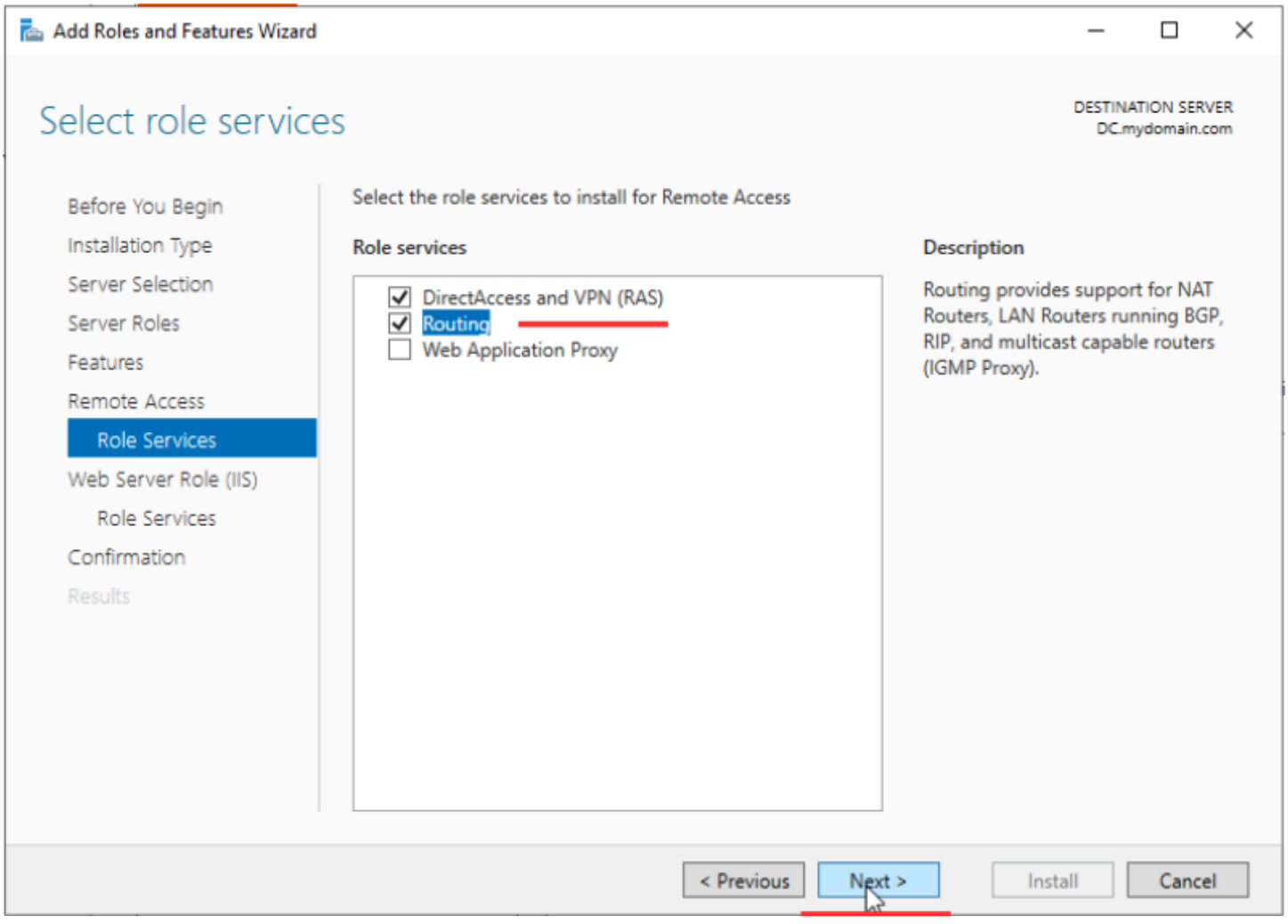

Add Roles and Features Wizard
Select server roles
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Confirmation
Results
Select one or more roles to install on the selected server.
Roles
Active Directory Certificate Services
Active Directory Domain Services (Installed)
Active Directory Federation Services
Active Directory Lightweight Directory Services
Active Directory Rights Management Services
Device Health Attestation
DHCP Server
DNS Server (Installed)
Fax Server
File and Storage Services (2 of 12 installed)
Host Guardian Service
Hyper-V
Network Policy and Access Services
Print and Document Services
Remote Access
Remote Desktop Services
Volume Activation Services
Web Server (IIS)
Windows Deployment Services
Windows Server Update Services
Description
Remote Access provides seamless connectivity through DirectAccess, VPN, and Web Application Proxy. DirectAccess provides an Always On and Always Managed experience. RAS provides traditional VPN services, including site-to-site (branch-office or cloud-based) connectivity. Web Application Proxy enables the publishing of selected HTTP- and HTTPS-based applications from your corporate network to client devices outside of the corporate network. Routing provides traditional routing capabilities, including NAT and other connectivity options. RAS and Routing can be deployed in single-tenant or multi-tenant mode.
< Previous
Next >
Install
Cancel

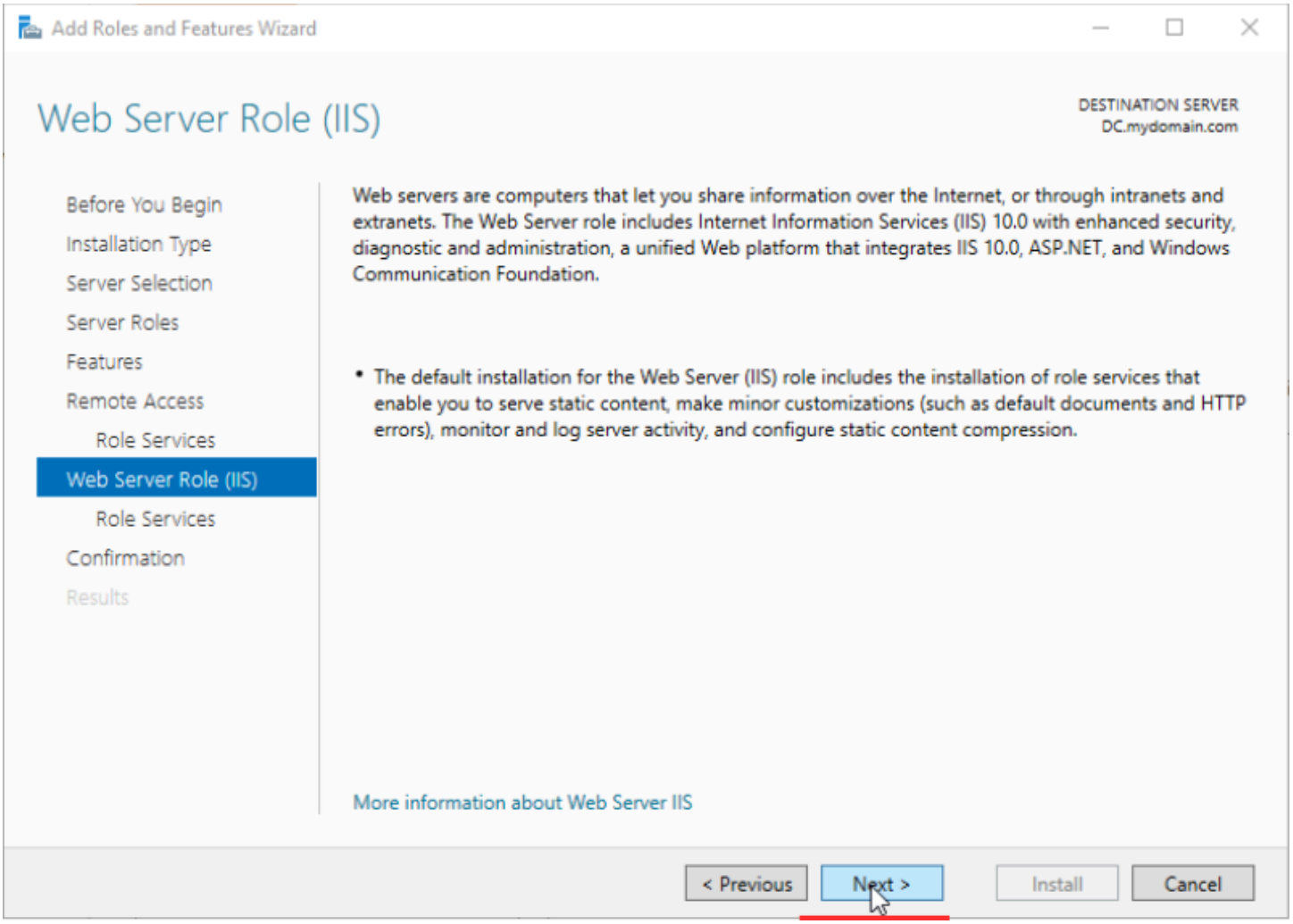

Add Roles and Features Wizard
Select features
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Confirmation
Results
Select one or more features to install on the selected server.
Features
.NET Framework 3.5 Features
.NET Framework 4.7 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 (Installed)
Host Guardian Hyper-V Support
I/O Quality of Service
IIS Hostable Web Core
Internet Printing Client
IP Address Management (IPAM) Server
iSNS Server service
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

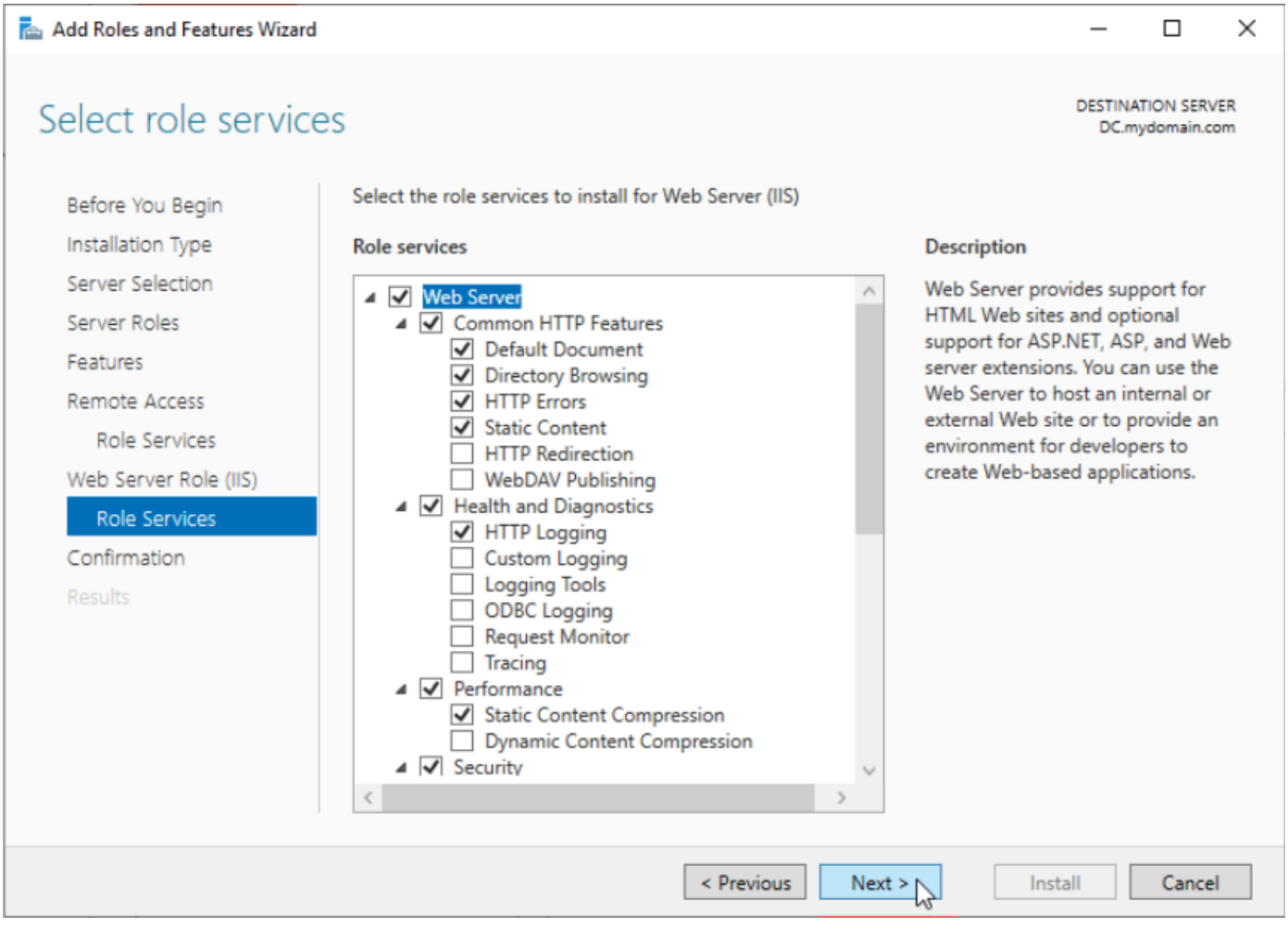

Add Roles and Features Wizard
Remote Access
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Confirmation
Results
Remote Access integrates DirectAccess, VPN, and Web Application Proxy in a single management console.
Deploy DirectAccess to allow managed domain-joined computers to connect to the internal corporate network as DirectAccess clients. Connectivity is seamless and transparent, and is available any time client computers are located on the Internet. DirectAccess administrators can remotely manage clients, ensuring that mobile computers are kept up-to-date with security updates and corporate compliance requirements.
Deploy VPN to allow client computers running operating systems not supported by DirectAccess, or configured in a workgroup, to remotely access corporate networks over a VPN connection.
Deploy Web Application Proxy to publish selected HTTP- and HTTPS-based applications from your corporate network to client devices outside of the corporate network. It can use AD FS to ensure that users are authenticated before they gain access to published applications. Web Application Proxy also provides proxy functionality for your AD FS servers.
Configure RRAS routing features using the Routing and Remote Access console.
< Previous
Next >
Install
Cancel

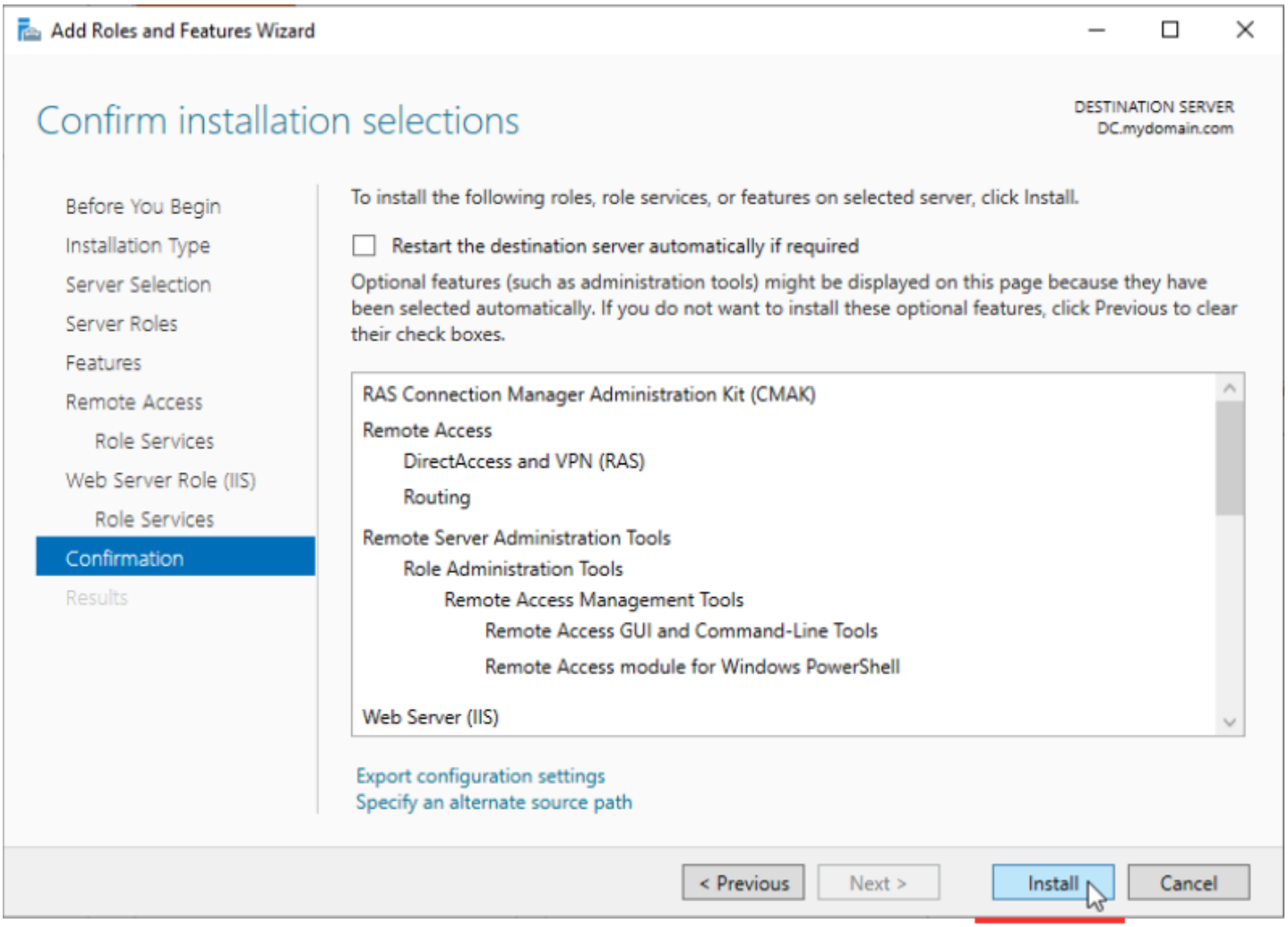

Add Roles and Features Wizard
Select role services
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Confirmation
Results
Select the role services to install for Remote Access
Role services
DirectAccess and VPN (RAS)
Routing
Web Application Proxy
Description
DirectAccess gives users the experience of being seamlessly connected to their corporate network any time they have Internet access. With DirectAccess, mobile computers can be managed any time the computer has Internet connectivity, ensuring mobile users stay up-to-date with security and system health policies. VPN uses the connectivity of the Internet plus a combination of tunnelling and data encryption technologies to connect remote clients and remote offices.
< Previous
Next >
Install
Cancel

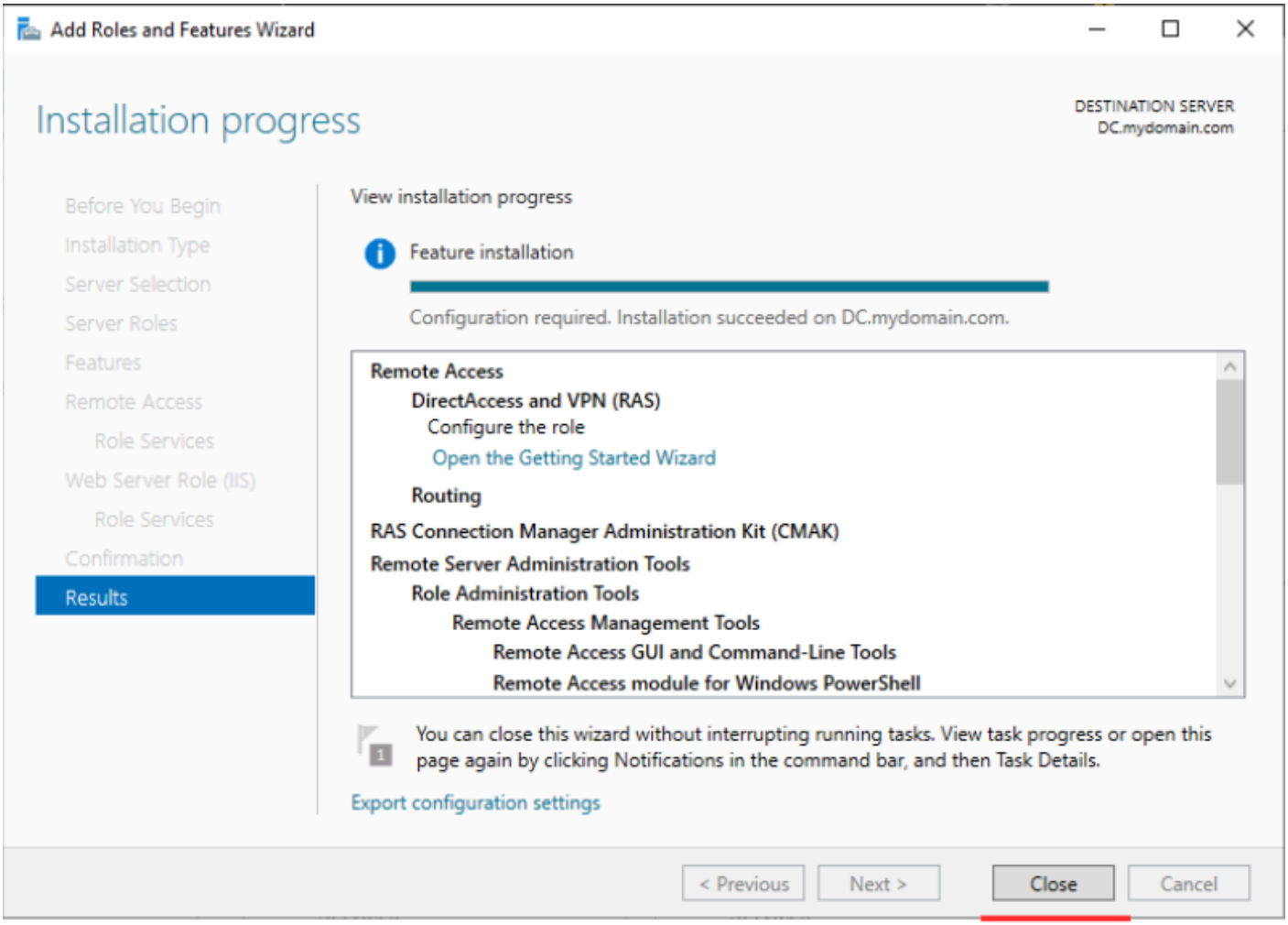

Add Roles and Features Wizard
Add features that are required for Routing?
You cannot install Routing unless the following role services or features are also installed.
RAS Connection Manager Administration Kit (CMAK)
Remote Access
DirectAccess and VPN (RAS)
Remote Server Administration Tools
Role Administration Tools
Remote Access Management Tools
[Tools] Remote Access GUI and Command-Line Tool
[Tools] Remote Access module for Windows PowerS
Web Server (IIS)
Management Tools
[Tools] IIS Management Console
Include management tools (if applicable)
Add Features
Cancel

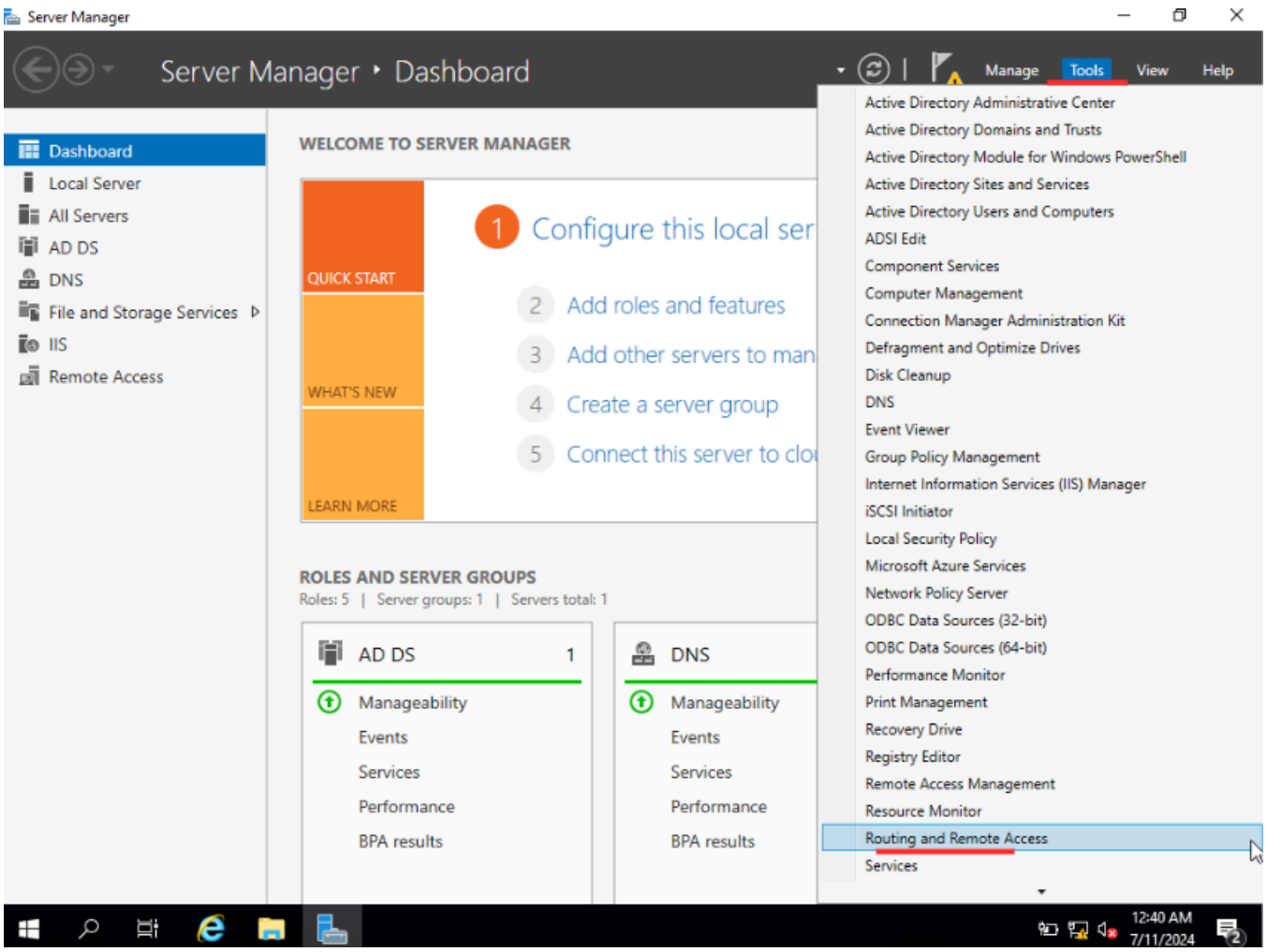

Add Roles and Features Wizard
Select role services
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Web Server Role (IIS)
Role Services
Confirmation
Results
Select the role services to install for Remote Access
Role services
DirectAccess and VPN (RAS)
Routing
Web Application Proxy
Description
Routing provides support for NAT Routers, LAN Routers running BGP, RIP, and multicast capable routers (IGMP Proxy).
< Previous
Next >
Install
Cancel

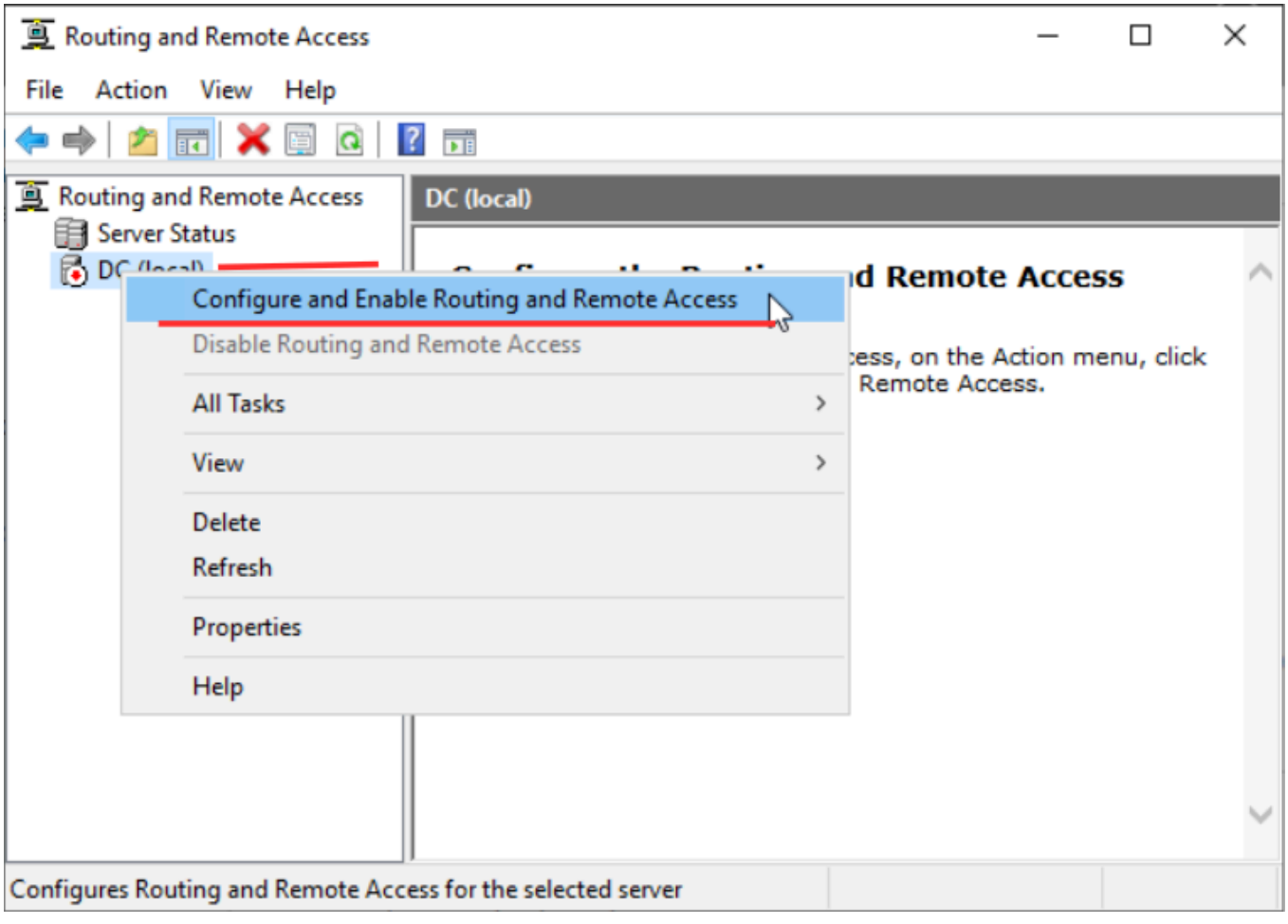

Add Roles and Features Wizard
Web Server Role (IIS)
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Web Server Role (IIS)
Role Services
Confirmation
Results
Web servers are computers that let you share information over the Internet, or through intranets and extranets. The Web Server role includes Internet Information Services (IIS) 10.0 with enhanced security, diagnostic and administration, a unified Web platform that integrates IIS 10.0, ASP.NET, and Windows Communication Foundation.
The default installation for the Web Server (IIS) role includes the installation of role services that enable you to serve static content, make minor customizations (such as default documents and HTTP errors), monitor and log server activity, and configure static content compression.
More information about Web Server IIS
< Previous
Next >
Install
Cancel

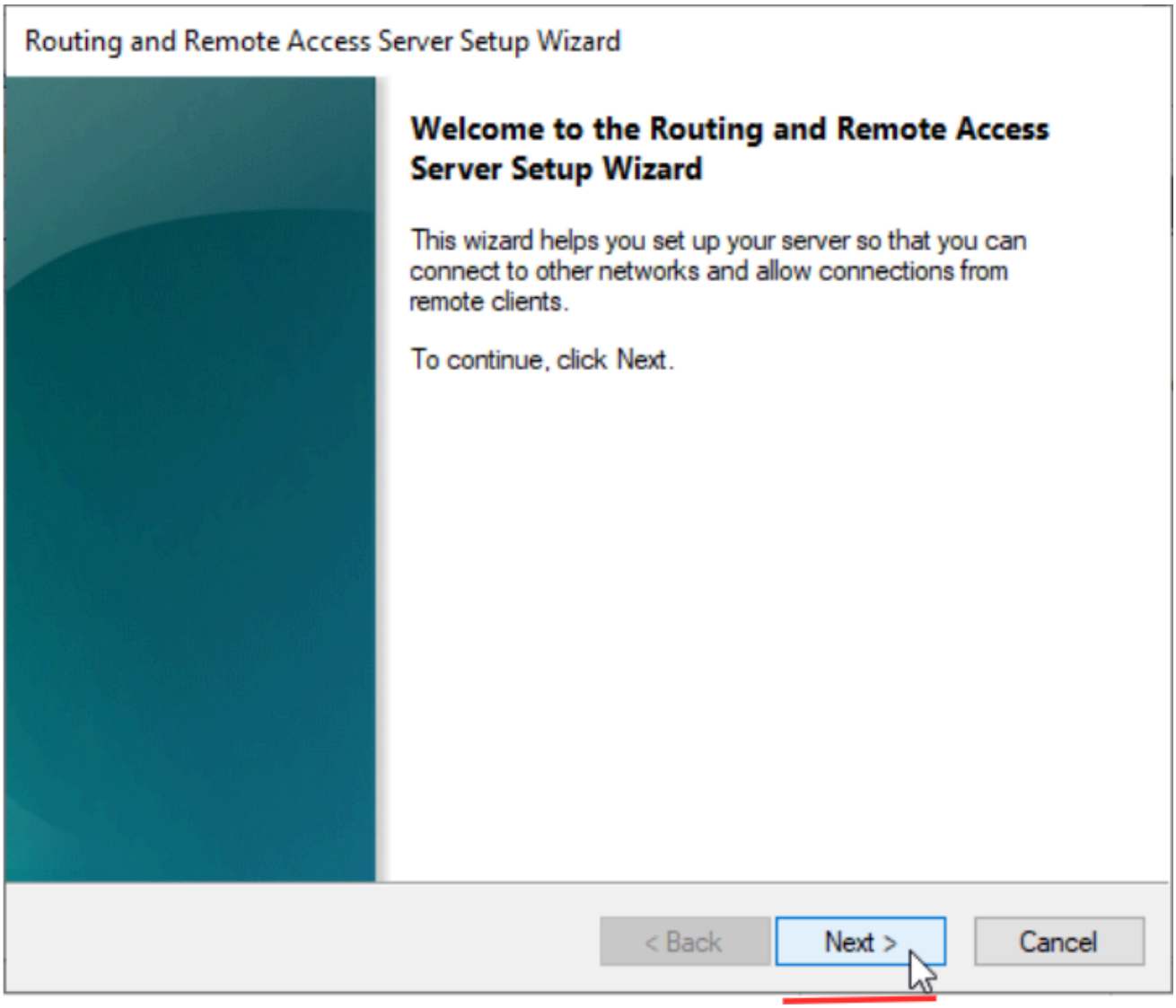

Add Roles and Features Wizard
Select role services
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Web Server Role (IIS)
Role Services
Confirmation
Results
Select the role services to install for Web Server (IIS)
Role services
Web Server
Common HTTP Features
Default Document
Directory Browsing
HTTP Errors
Static Content
HTTP Redirection
WebDAV Publishing
Health and Diagnostics
HTTP Logging
Custom Logging
Logging Tools
ODBC Logging
Request Monitor
Tracing
Performance
Static Content Compression
Dynamic Content Compression
Security
Description
Web Server provides support for HTML Web sites and optional support for ASP.NET, ASP, and Web server extensions. You can use the Web Server to host an internal or external Web site or to provide an environment for developers to create Web-based applications.
< Previous
Next >
Install
Cancel

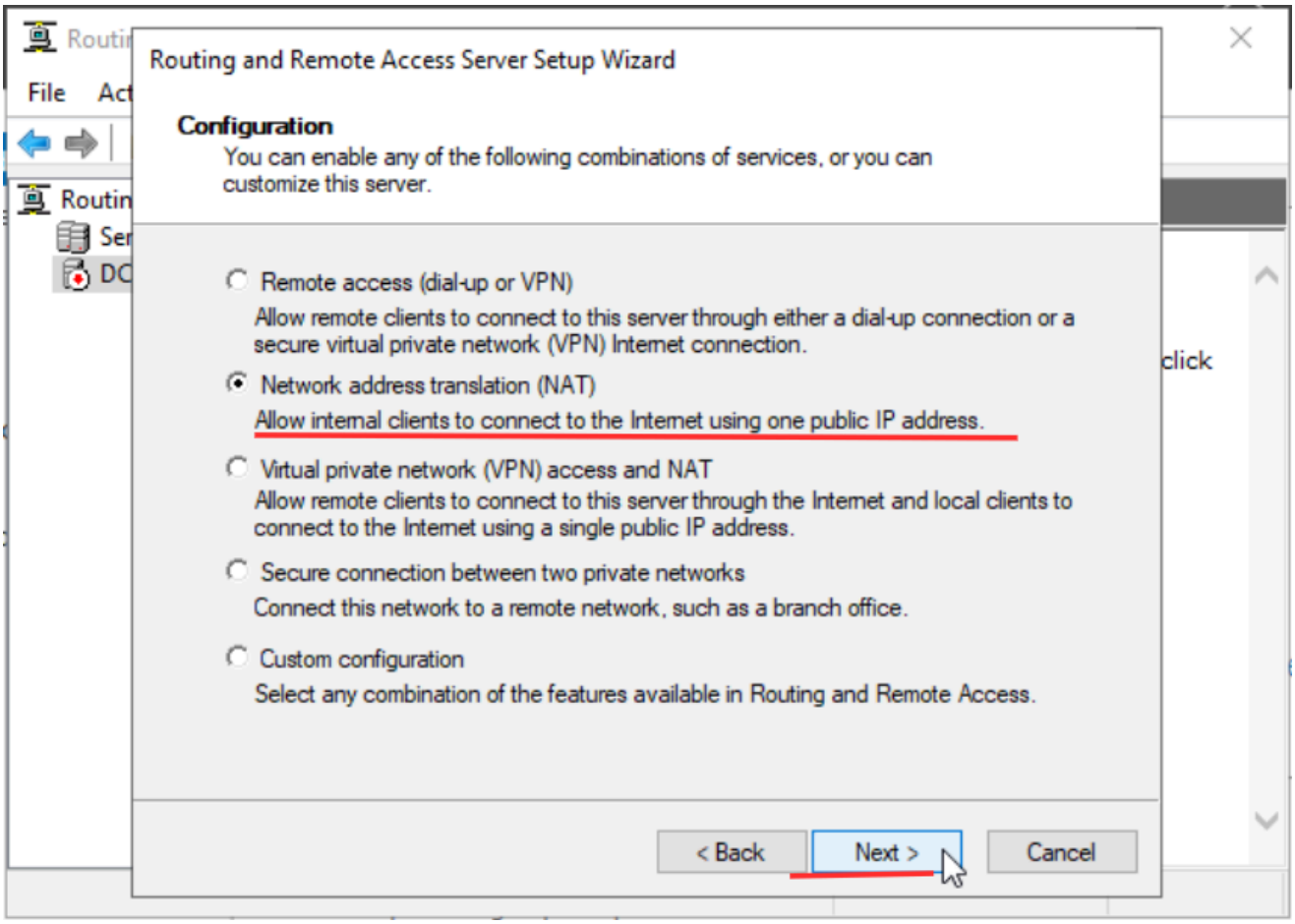

Add Roles and Features Wizard
Confirm installation selections
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Web Server Role (IIS)
Role Services
Confirmation
Results
To install the following roles, role services, or features on selected server, click Install.
Restart the destination server automatically if required
Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.
RAS Connection Manager Administration Kit (CMAK)
Remote Access
DirectAccess and VPN (RAS)
Routing
Remote Server Administration Tools
Role Administration Tools
Remote Access Management Tools
Remote Access GUI and Command-Line Tools
Remote Access module for Windows PowerShell
Web Server (IIS)
Export configuration settings
Specify an alternate source path
< Previous
Next >
Install
Cancel

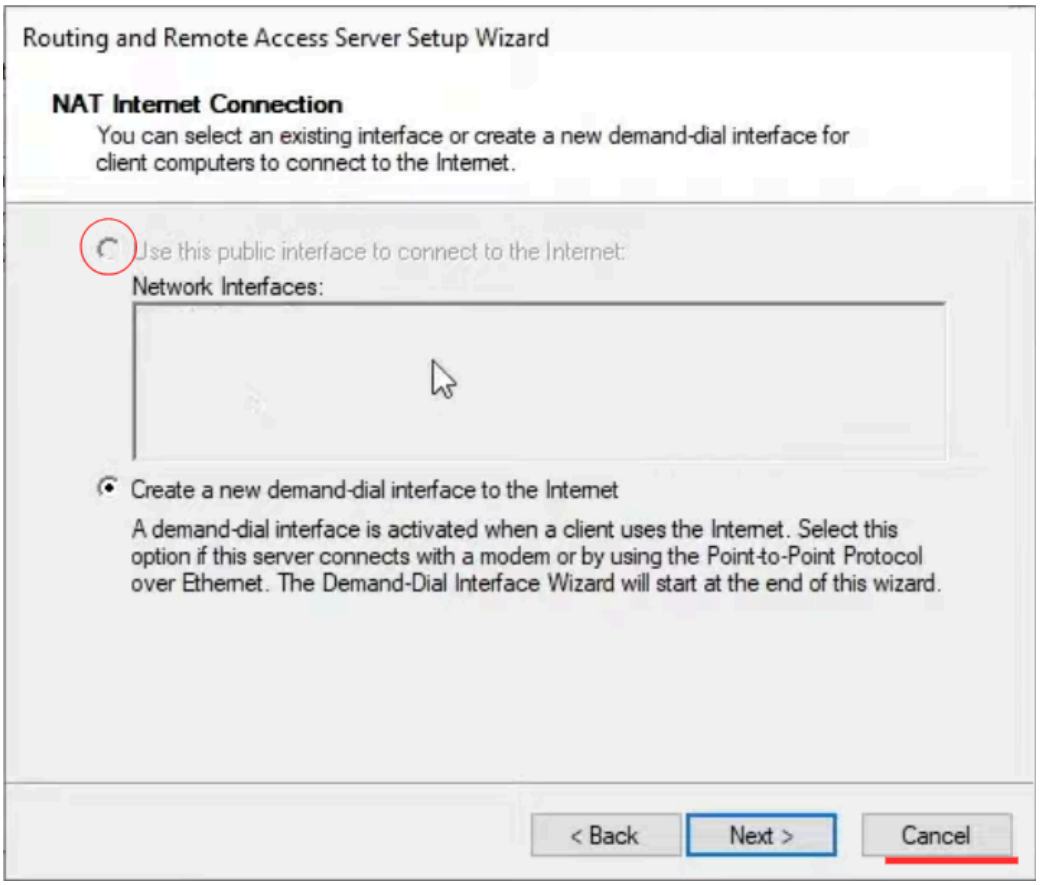

Add Roles and Features Wizard
Installation progress
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Remote Access
Role Services
Web Server Role (IIS)
Role Services
Confirmation
Results
View installation progress
Feature installation
Configuration required. Installation succeeded on DC.mydomain.com.
Remote Access
DirectAccess and VPN (RAS)
Configure the role
Open the Getting Started Wizard
Routing
RAS Connection Manager Administration Kit (CMAK)
Remote Server Administration Tools
Role Administration Tools
Remote Access Management Tools
Remote Access GUI and Command-Line Tools
Remote Access module for Windows PowerShell
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


Server Manager
Server Manager • Dashboard
Manage
Tools
View
Help
Dashboard
Local Server
All Servers
AD DS
DNS
File and Storage Services
IIS
Remote Access
WELCOME TO SERVER MANAGER
QUICK START
WHAT'S NEW
LEARN MORE
1 Configure this local ser
2 Add roles and features
3 Add other servers to man
4 Create a server group
5 Connect this server to clo
ROLES AND SERVER GROUPS
Roles: 5 | Server groups: 1 | Servers total: 1
AD DS 1
Manageability
Events
Services
Performance
BPA results
DNS
Manageability
Events
Services
Performance
BPA results
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
Connection Manager Administration Kit
Defragment and Optimize Drives
Disk Cleanup
DNS
Event Viewer
Group Policy Management
Internet Information Services (IIS) Manager
iSCSI Initiator
Local Security Policy
Microsoft Azure Services
Network Policy Server
ODBC Data Sources (32-bit)
ODBC Data Sources (64-bit)
Performance Monitor
Print Management
Recovery Drive
Registry Editor
Remote Access Management
Resource Monitor
Routing and Remote Access
Services
12:40 AM
7/11/2024


Routing and Remote Access
File Action View Help
Routing and Remote Access
Server Status
DC (local)
DC (local)
Configure and Enable Routing and Remote Access
Disable Routing and Remote Access
All Tasks
View
Delete
Refresh
Properties
Help
d Remote Access
ess, on the Action menu, click
Remote Access.
Configures Routing and Remote Access for the selected server

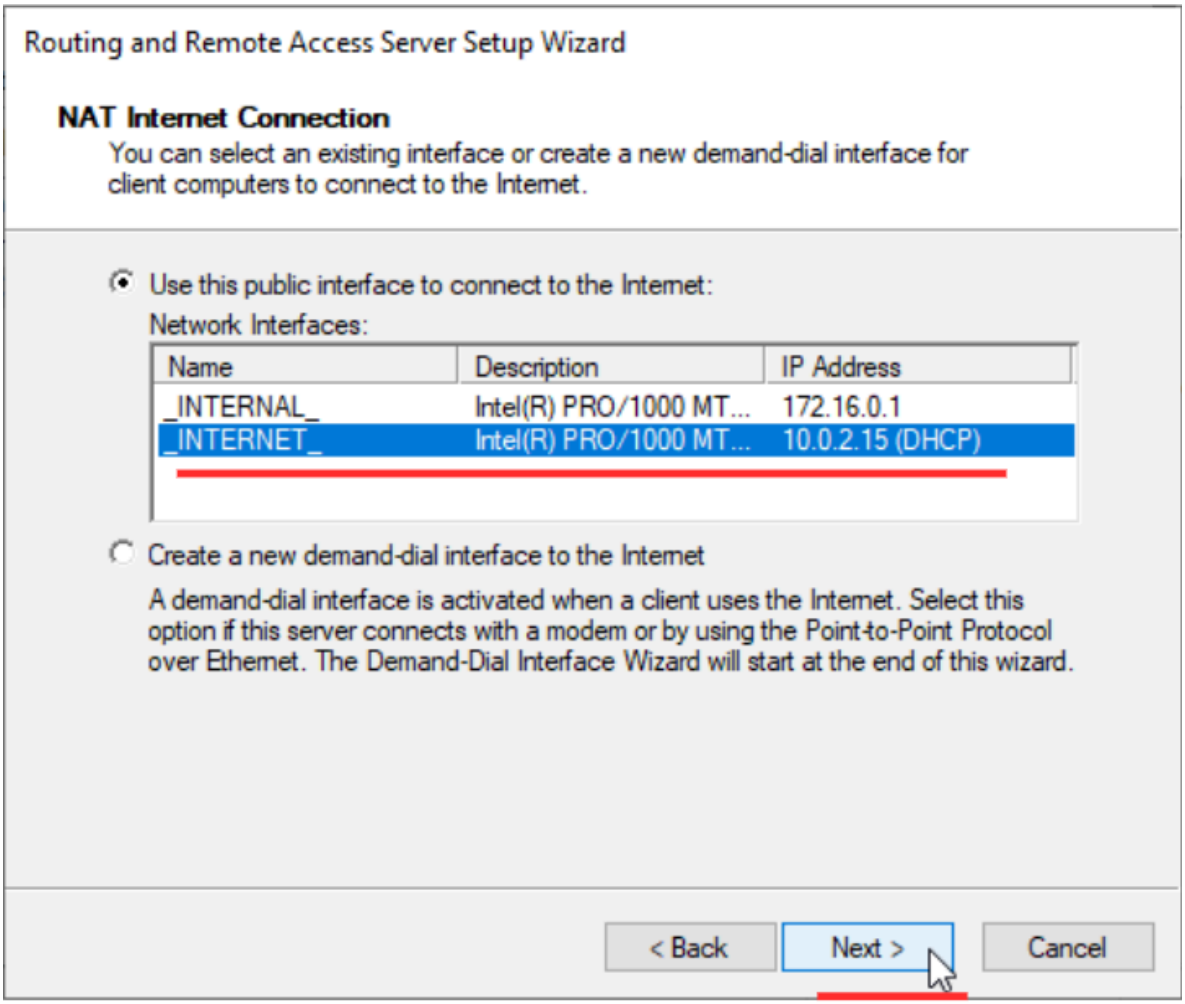

Routing and Remote Access Server Setup Wizard
Welcome to the Routing and Remote Access Server Setup Wizard
This wizard helps you set up your server so that you can connect to other networks and allow connections from remote clients.
To continue, click Next.
< Back
Next >
Cancel

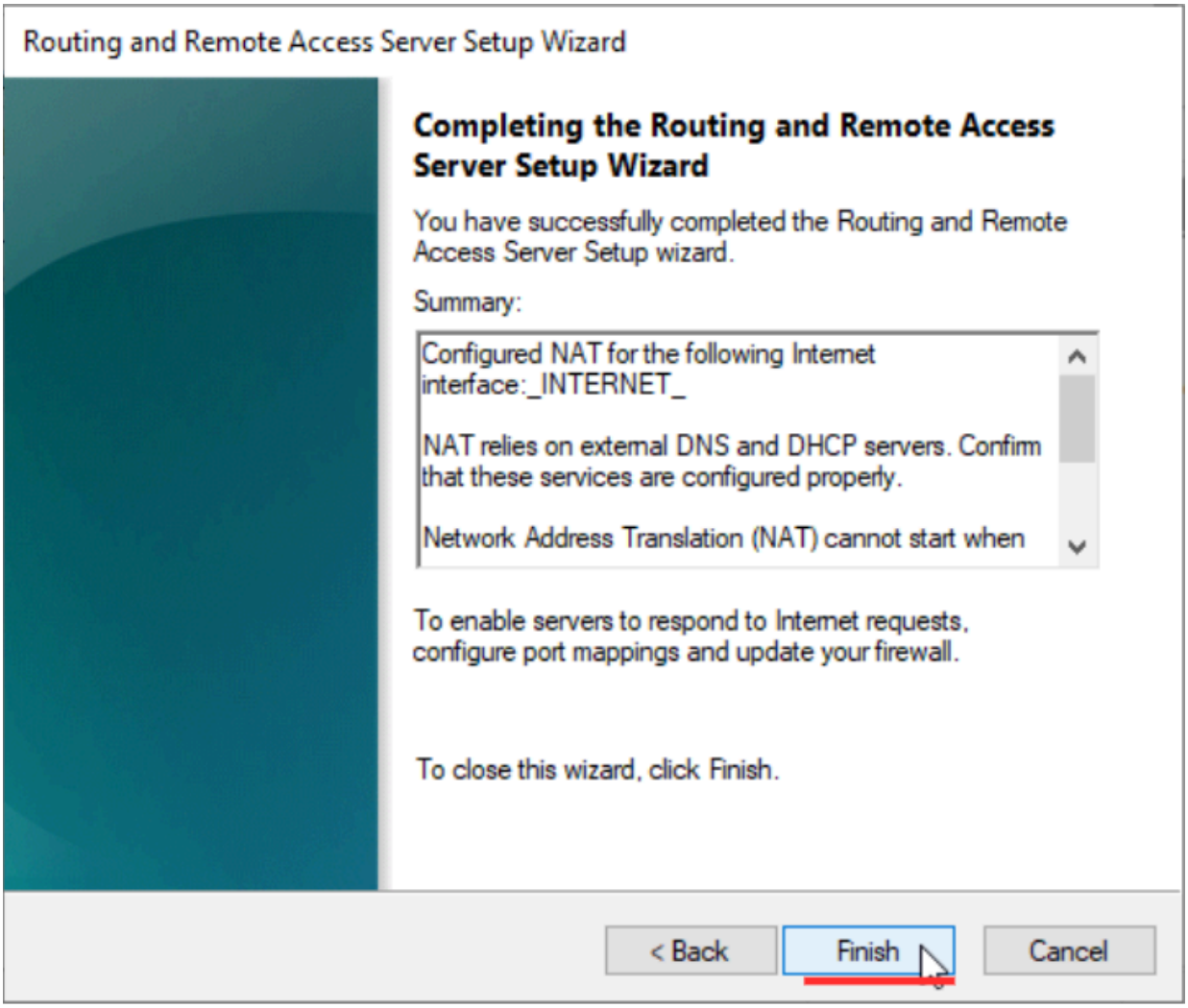

Routing and Remote Access Server Setup Wizard
Configuration
You can enable any of the following combinations of services, or you can customize this server.
Remote access (dial-up or VPN)
Allow remote clients to connect to this server through either a dial-up connection or a secure virtual private network (VPN) Internet connection.
Network address translation (NAT)
Allow internal clients to connect to the Internet using one public IP address.
Virtual private network (VPN) access and NAT
Allow remote clients to connect to this server through the Internet and local clients to connect to the Internet using a single public IP address.
Secure connection between two private networks
Connect this network to a remote network, such as a branch office.
Custom configuration
Select any combination of the features available in Routing and Remote Access.
< Back
Next >
Cancel

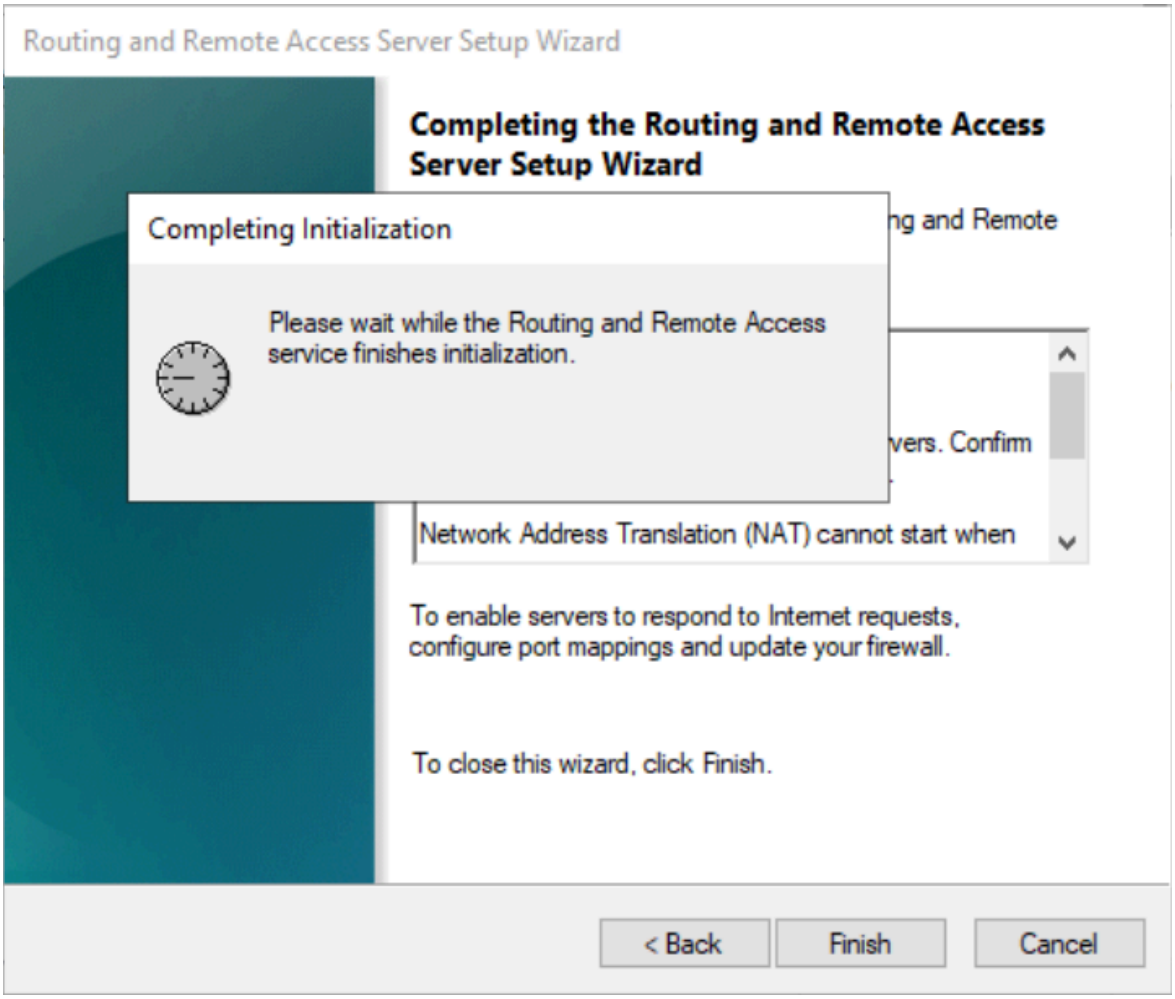


If you are not able to select the top radio button, cancel out and try again

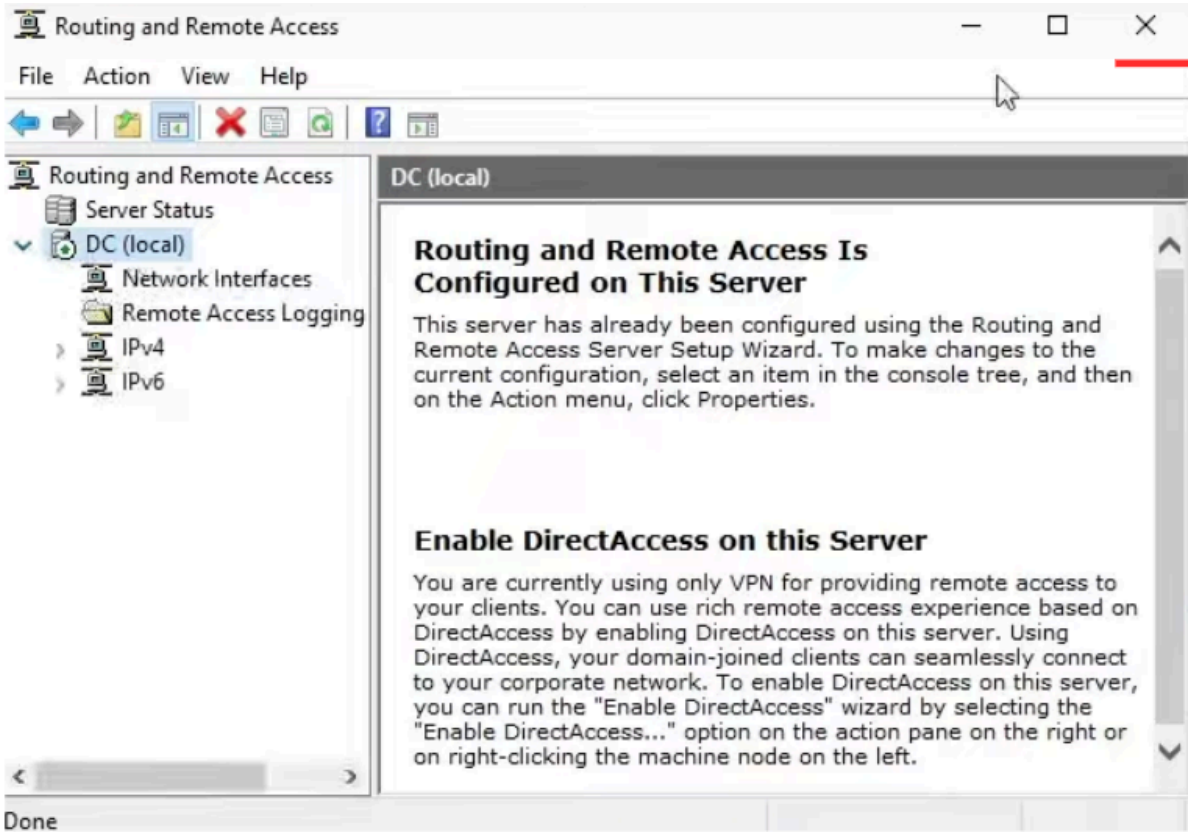
It should look like this



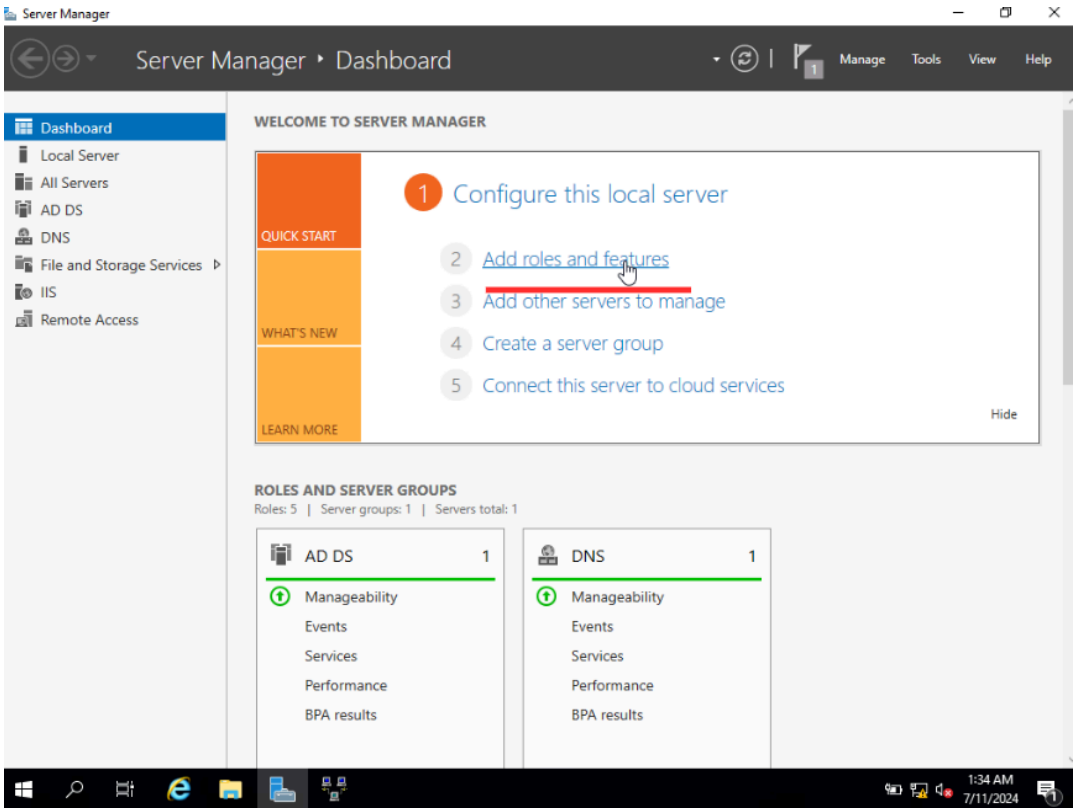

Routing and Remote Access Server Setup Wizard
Completing the Routing and Remote Access Server Setup Wizard
You have successfully completed the Routing and Remote Access Server Setup wizard.
Summary:
Configured NAT for the following Internet interface:_INTERNET_
NAT relies on external DNS and DHCP servers. Confirm that these services are configured properly.
Network Address Translation (NAT) cannot start when
To enable servers to respond to Internet requests, configure port mappings and update your firewall.
To close this wizard, click Finish.
< Back
Finish
Cancel

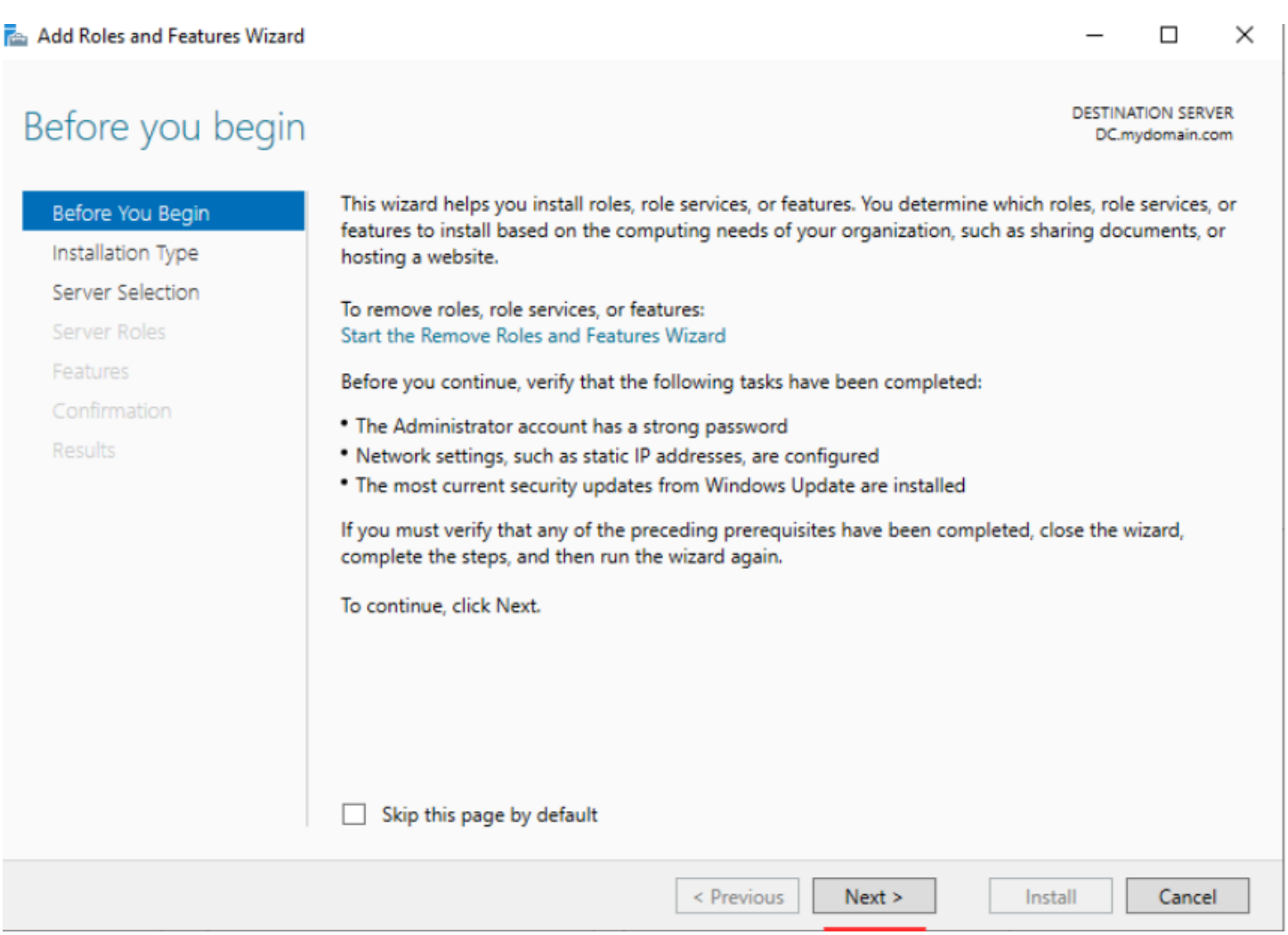

Routing and Remote Access Server Setup Wizard
Completing the Routing and Remote Access Server Setup Wizard
Completing Initialization
Please wait while the Routing and Remote Access service finishes initialization.
Network Address Translation (NAT) cannot start when
To enable servers to respond to Internet requests, configure port mappings and update your firewall.
To close this wizard, click Finish.
< Back
Finish
Cancel

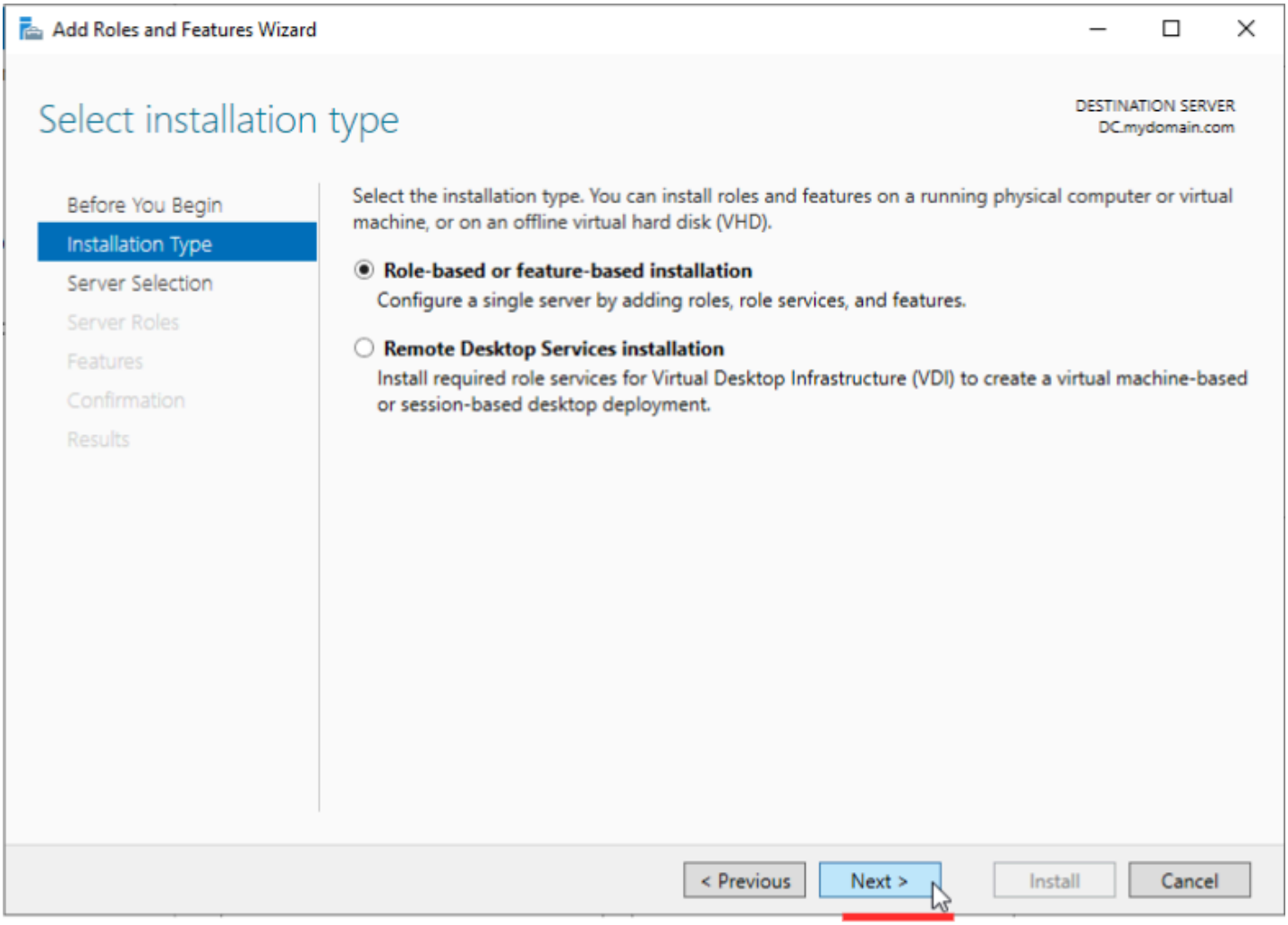
This part of configuring the Domain Controller (DC) with RRAS (Routing and Remote Access Service) is to enable NAT (Network Address Translation) for your internal network. This configuration allows devices on your internal network, such as the Windows 10 VM that will be created soon, to access the internet through the DC.

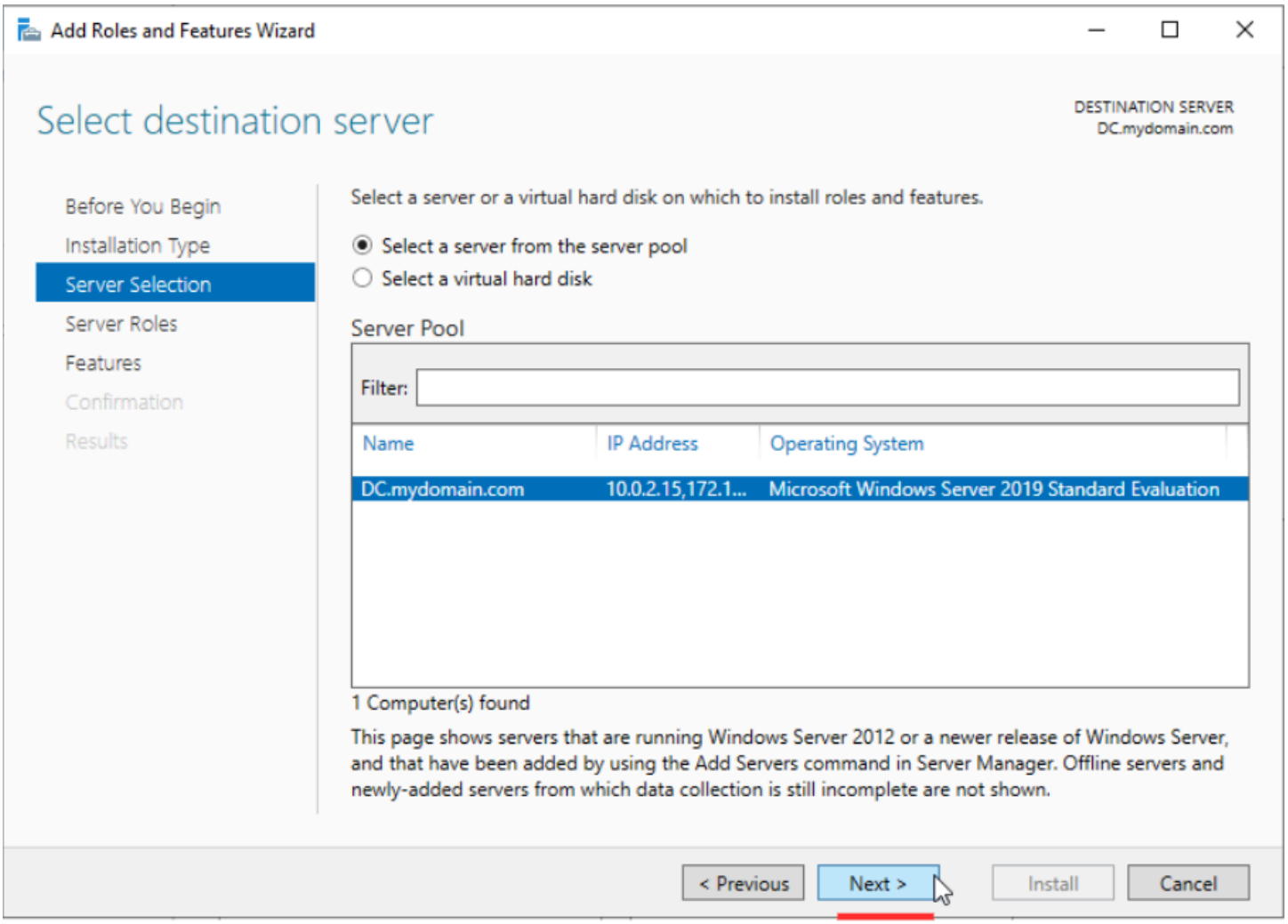


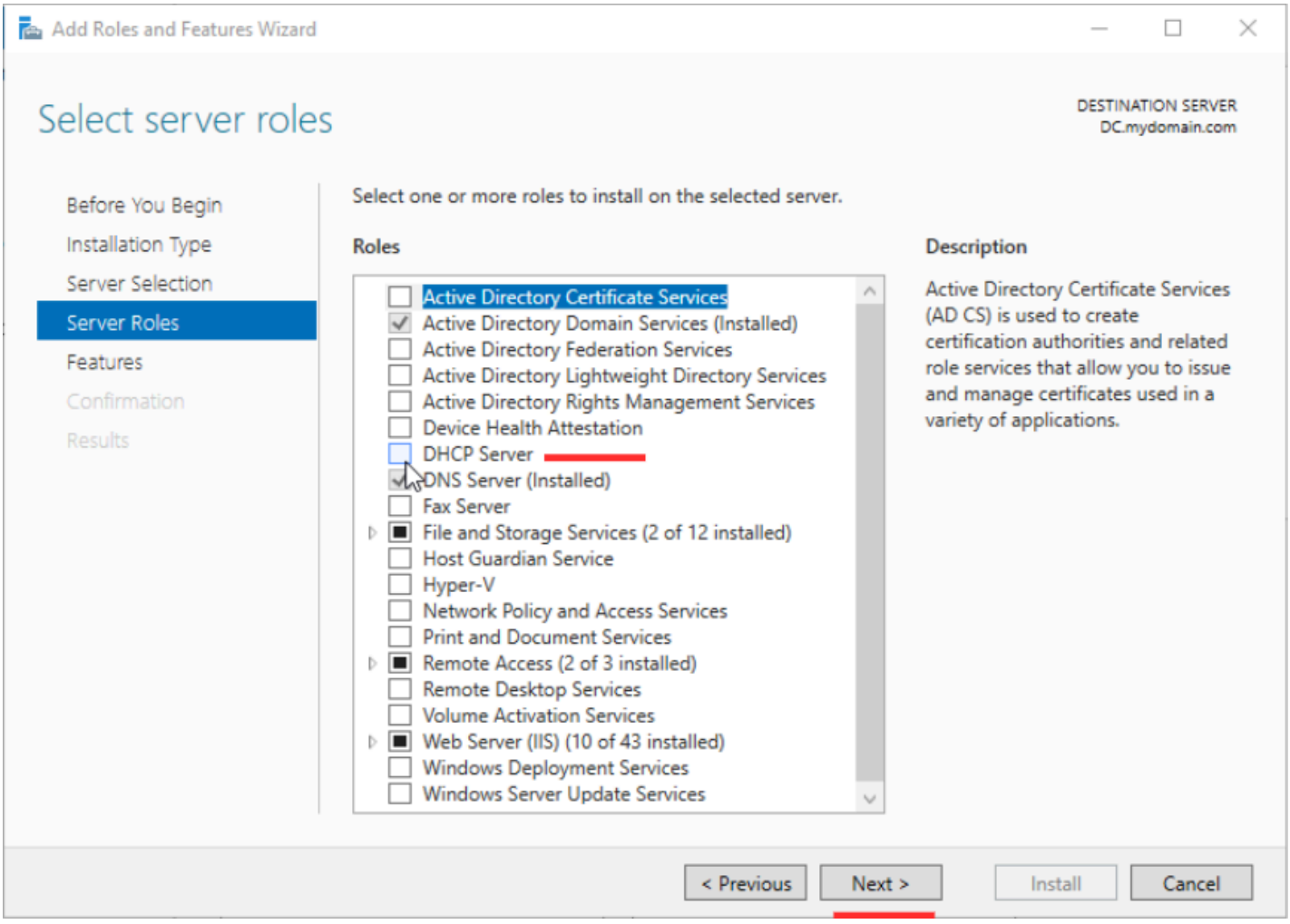
Now we will create the DHCP. This will allow client computers to get an IP address and connect to the internet even though they will be in a private/ internal network.

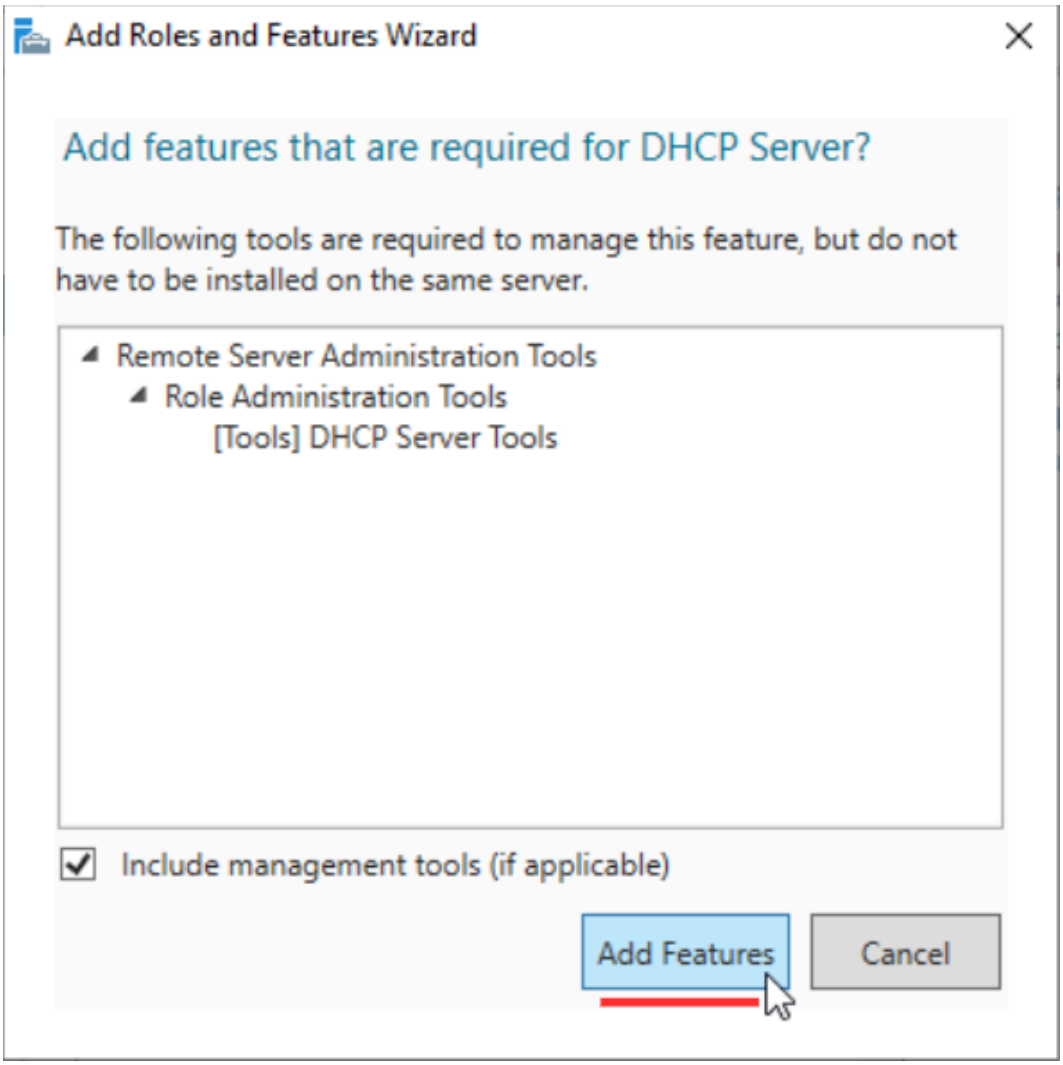


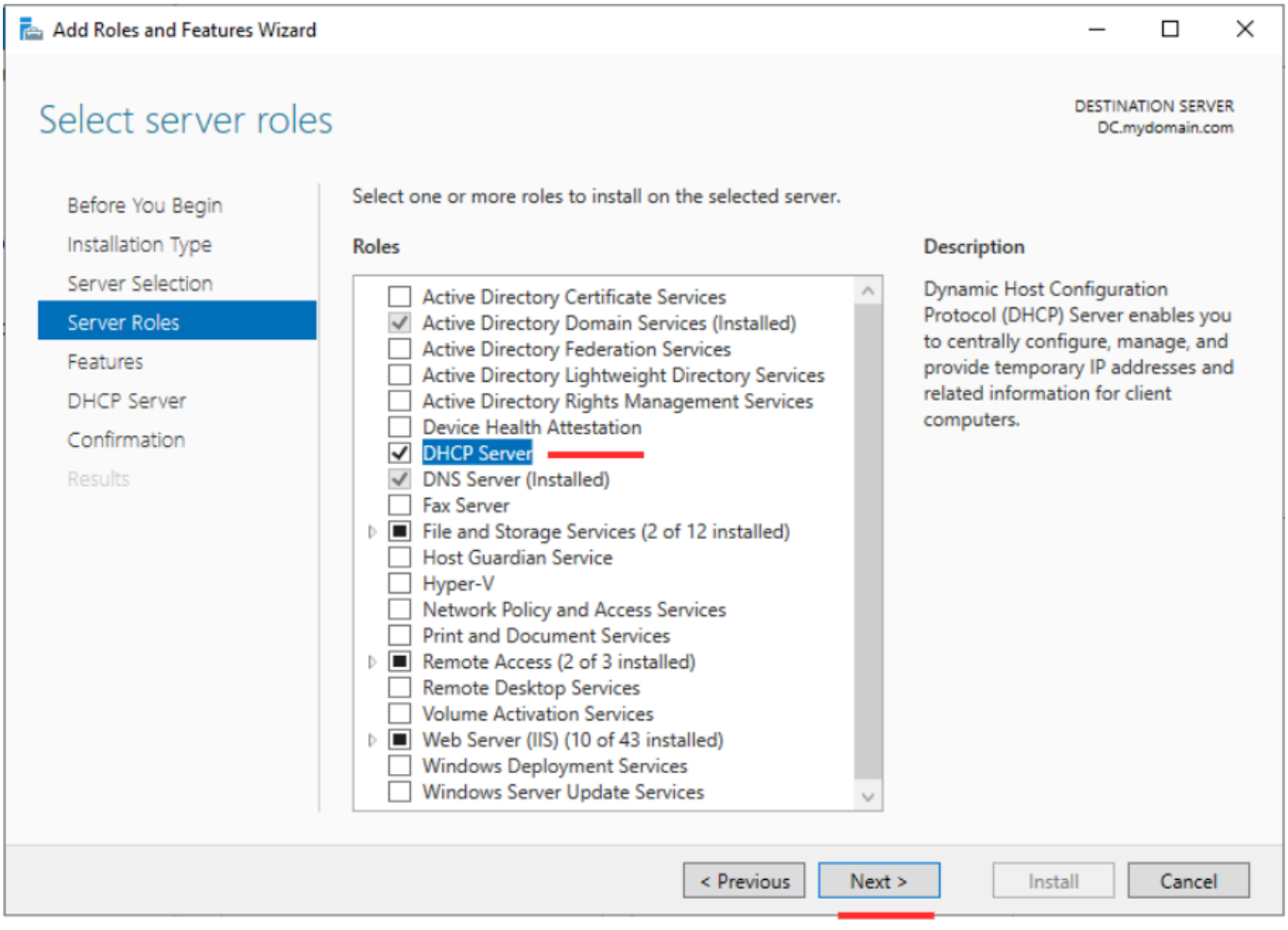

Add Roles and Features Wizard
Before you begin
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install 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

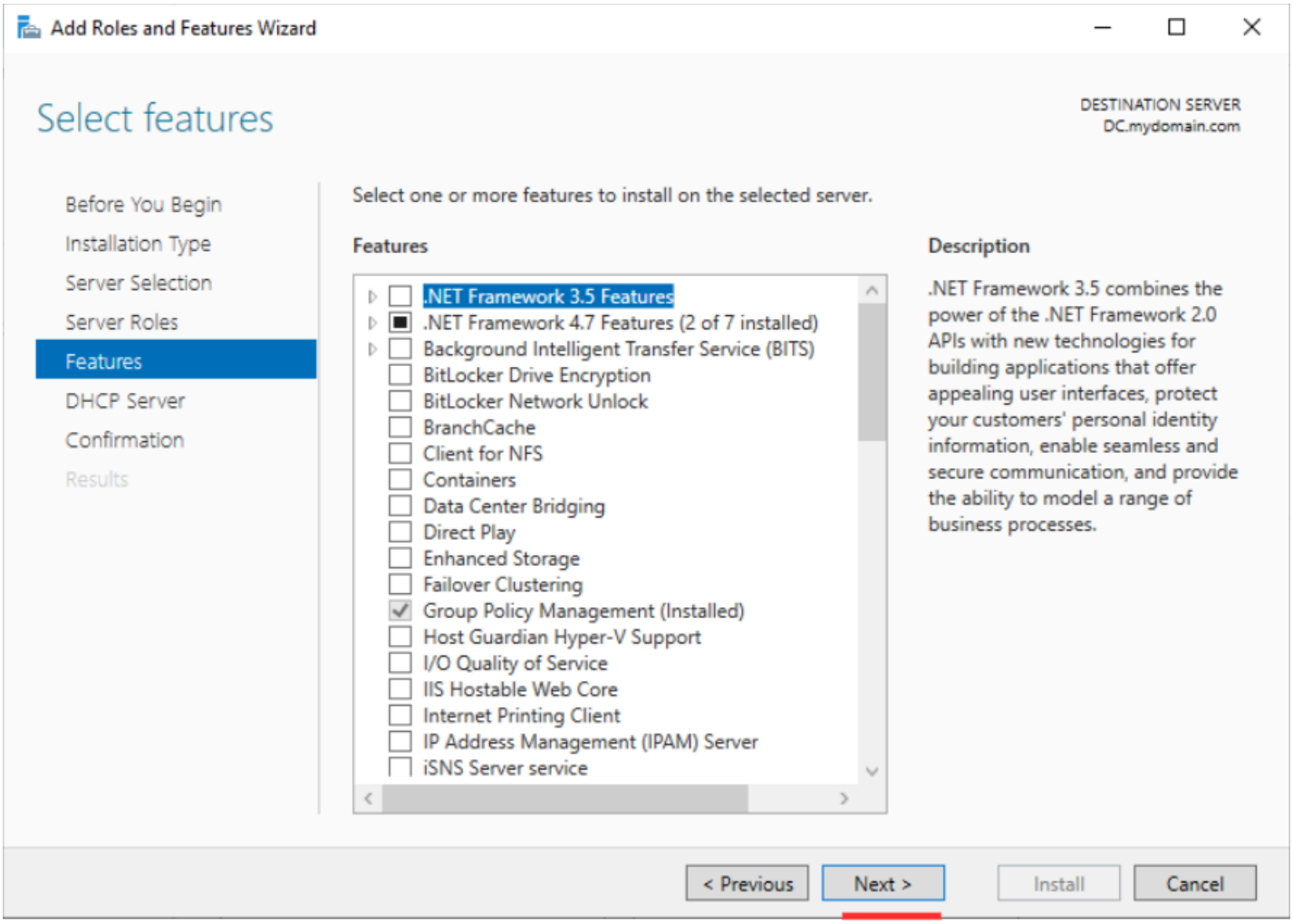

Add Roles and Features Wizard
Select installation type
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select the installation type. You can install roles and features on a running physical computer or virtual machine, 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

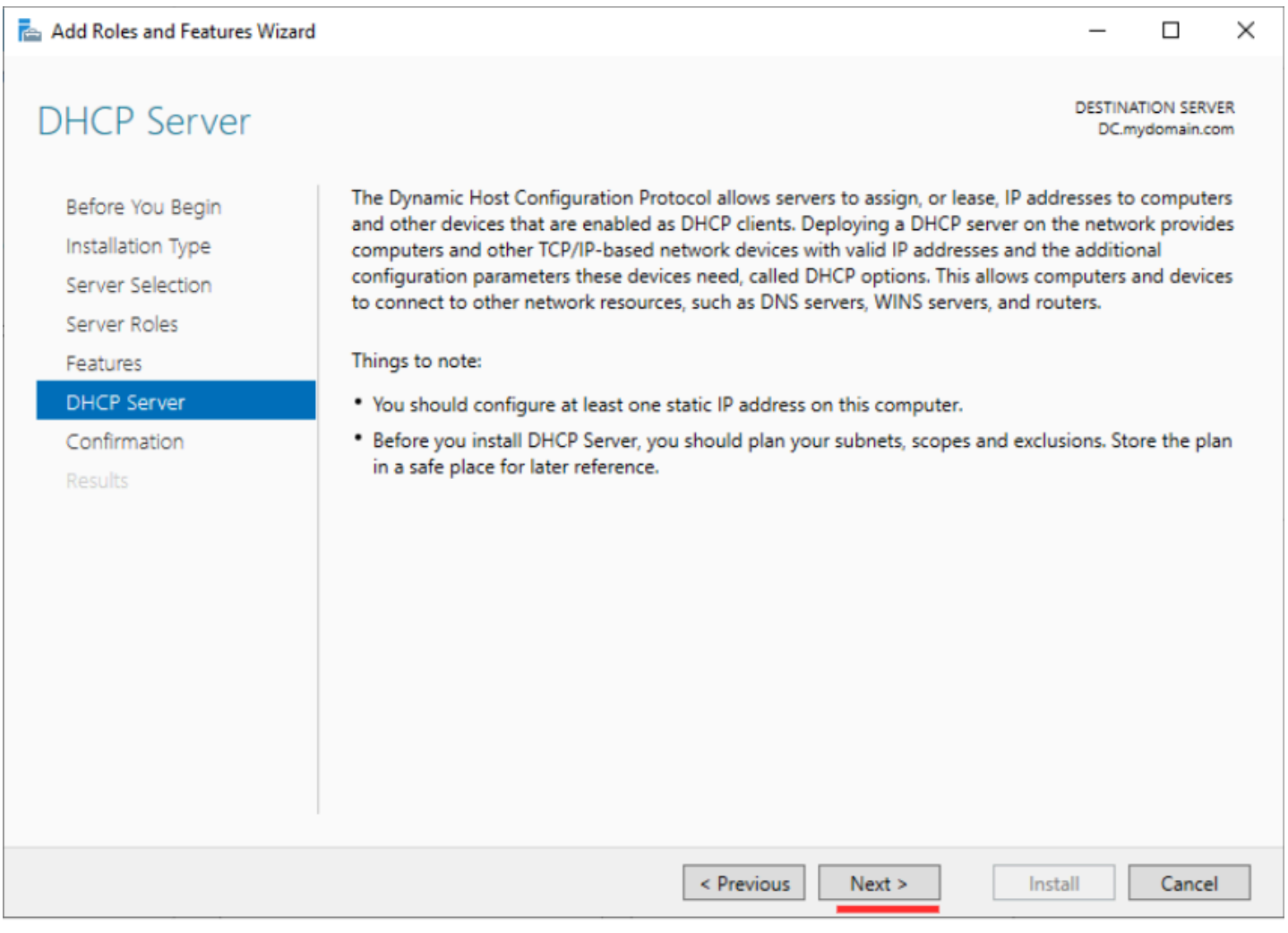

Add Roles and Features Wizard
Select destination server
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select a server or a virtual hard disk on which to install roles and features.
Select a server from the server pool
Select a virtual hard disk
Server Pool
Filter:
Name
IP Address
Operating System
DC.mydomain.com
10.0.2.15,172.1...
Microsoft Windows Server 2019 Standard 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

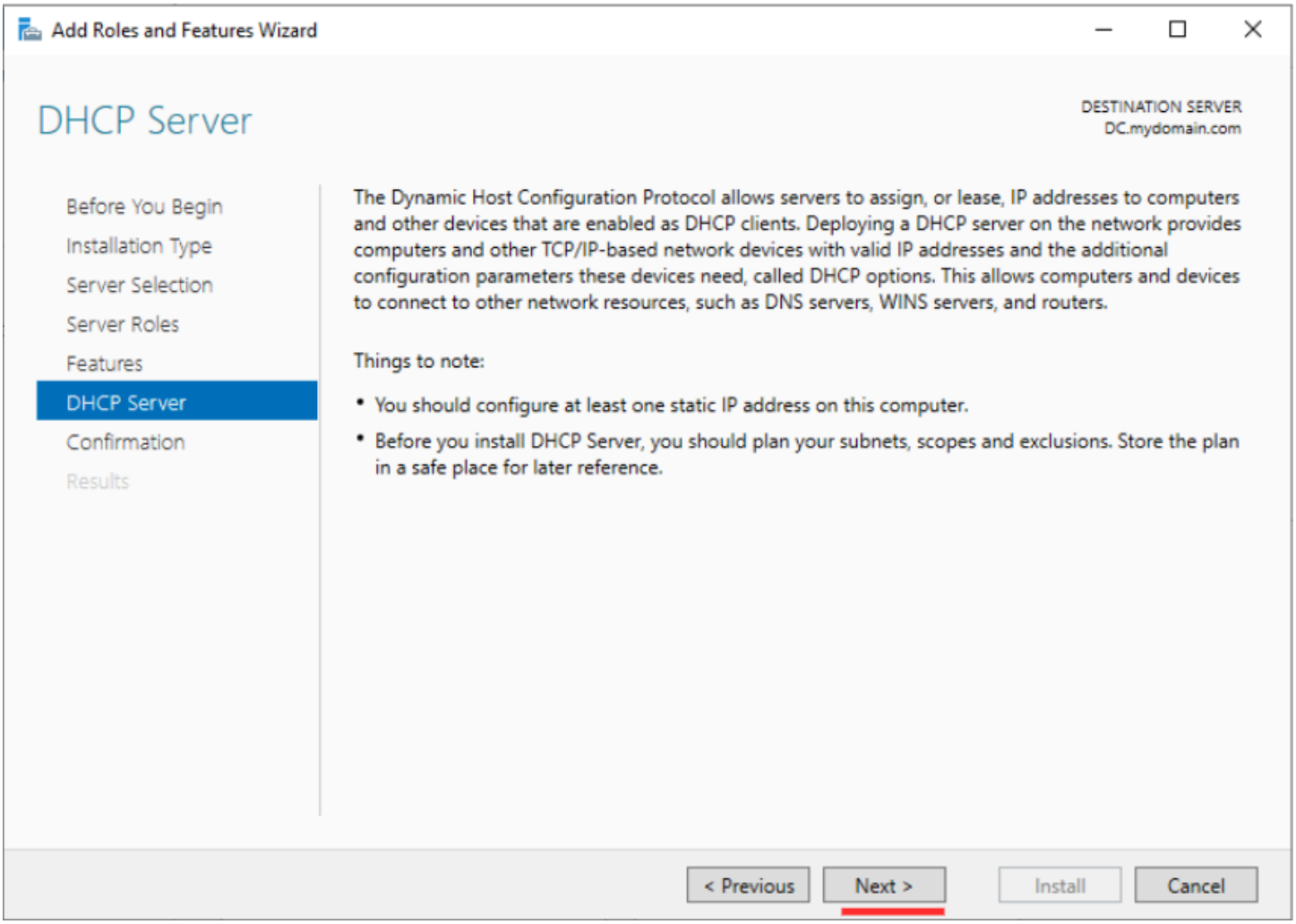

Add Roles and Features Wizard
Select server roles
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select one or more roles to install on the selected server.
Roles
Active Directory Certificate Services
Active Directory Domain Services (Installed)
Active Directory Federation Services
Active Directory Lightweight Directory Services
Active Directory Rights Management Services
Device Health Attestation
DHCP Server
DNS Server (Installed)
Fax Server
File and Storage Services (2 of 12 installed)
Host Guardian Service
Hyper-V
Network Policy and Access Services
Print and Document Services
Remote Access (2 of 3 installed)
Remote Desktop Services
Volume Activation Services
Web Server (IIS) (10 of 43 installed)
Windows Deployment Services
Windows Server Update 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


Add Roles and Features Wizard
Add features that are required for DHCP Server?
The following tools are required to manage this feature, but do not have to be installed on the same server.
Remote Server Administration Tools
Role Administration Tools
[Tools] DHCP Server Tools
Include management tools (if applicable)
Add Features
Cancel


Add Roles and Features Wizard
Select server roles
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results
Select one or more roles to install on the selected server.
Roles
Active Directory Certificate Services
Active Directory Domain Services (Installed)
Active Directory Federation Services
Active Directory Lightweight Directory Services
Active Directory Rights Management Services
Device Health Attestation
DHCP Server
DNS Server (Installed)
Fax Server
File and Storage Services (2 of 12 installed)
Host Guardian Service
Hyper-V
Network Policy and Access Services
Print and Document Services
Remote Access (2 of 3 installed)
Remote Desktop Services
Volume Activation Services
Web Server (IIS) (10 of 43 installed)
Windows Deployment Services
Windows Server Update Services
Description
Dynamic Host Configuration Protocol (DHCP) Server enables you to centrally configure, manage, and provide temporary IP addresses and related information for client computers.
< Previous
Next >
Install
Cancel


Add Roles and Features Wizard
Select features
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results
Select one or more features to install on the selected server.
Features
.NET Framework 3.5 Features
.NET Framework 4.7 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 (Installed)
Host Guardian Hyper-V Support
I/O Quality of Service
IIS Hostable Web Core
Internet Printing Client
IP Address Management (IPAM) Server
iSNS Server service
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


Add Roles and Features Wizard
DHCP Server
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results
The Dynamic Host Configuration Protocol allows servers to assign, or lease, IP addresses to computers and other devices that are enabled as DHCP clients. Deploying a DHCP server on the network provides computers and other TCP/IP-based network devices with valid IP addresses and the additional configuration parameters these devices need, called DHCP options. This allows computers and devices to connect to other network resources, such as DNS servers, WINS servers, and routers.
Things to note:
• You should configure at least one static IP address on this computer.
• Before you install DHCP Server, you should plan your subnets, scopes and exclusions. Store the plan in a safe place for later reference.
< Previous
Next >
Install
Cancel


Add Roles and Features Wizard
DHCP Server
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results
The Dynamic Host Configuration Protocol allows servers to assign, or lease, IP addresses to computers and other devices that are enabled as DHCP clients. Deploying a DHCP server on the network provides computers and other TCP/IP-based network devices with valid IP addresses and the additional configuration parameters these devices need, called DHCP options. This allows computers and devices to connect to other network resources, such as DNS servers, WINS servers, and routers.
Things to note:
• You should configure at least one static IP address on this computer.
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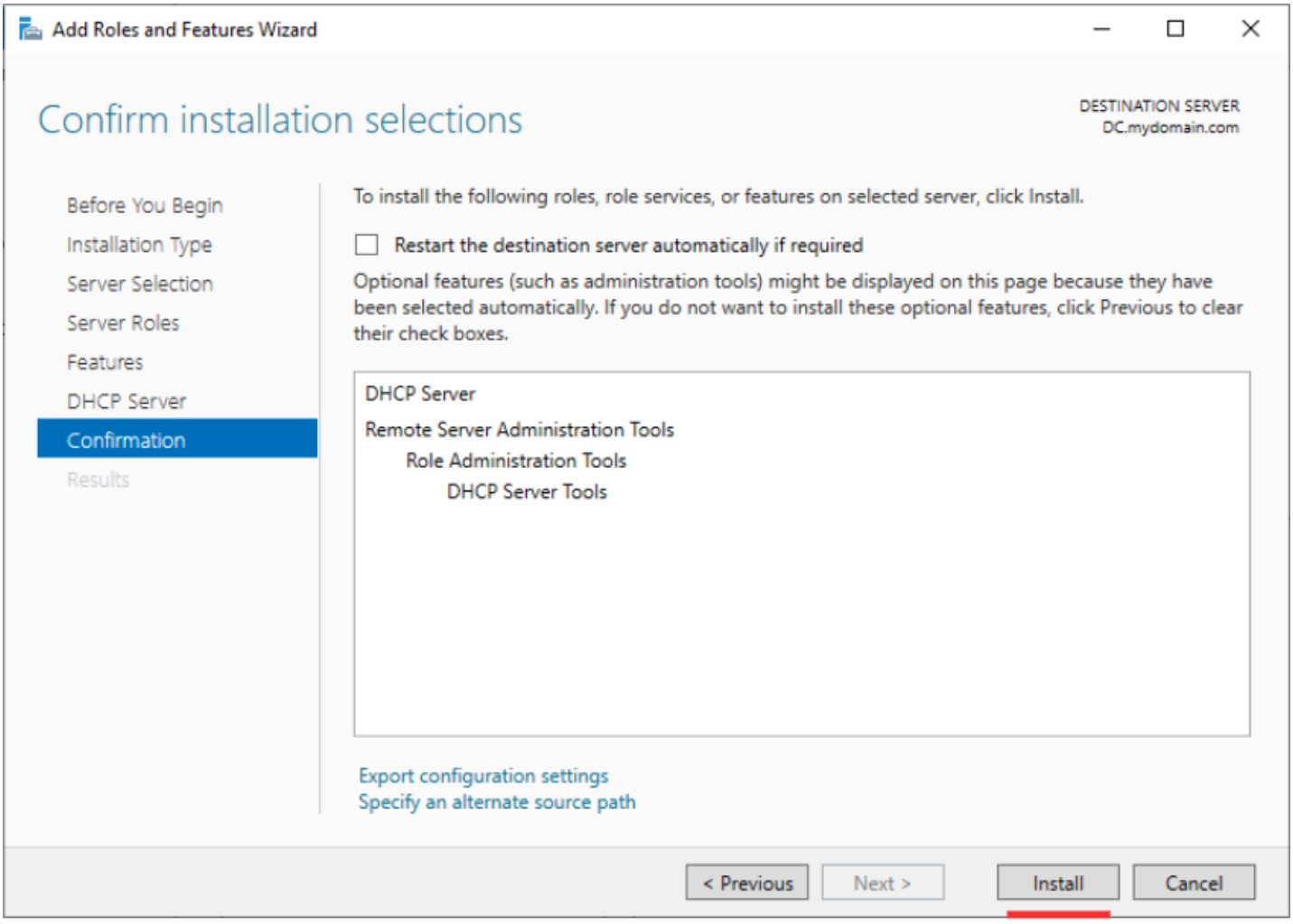
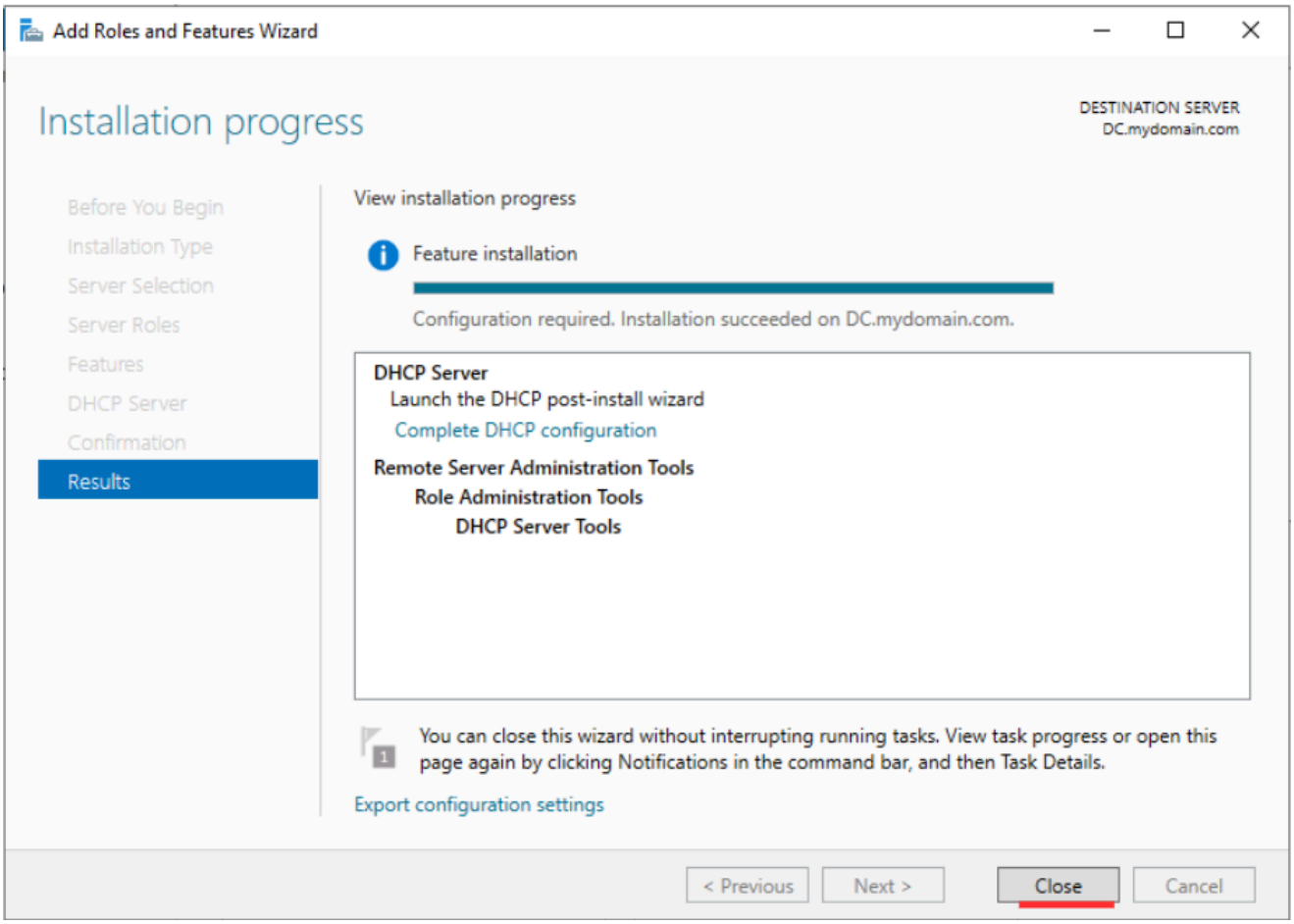
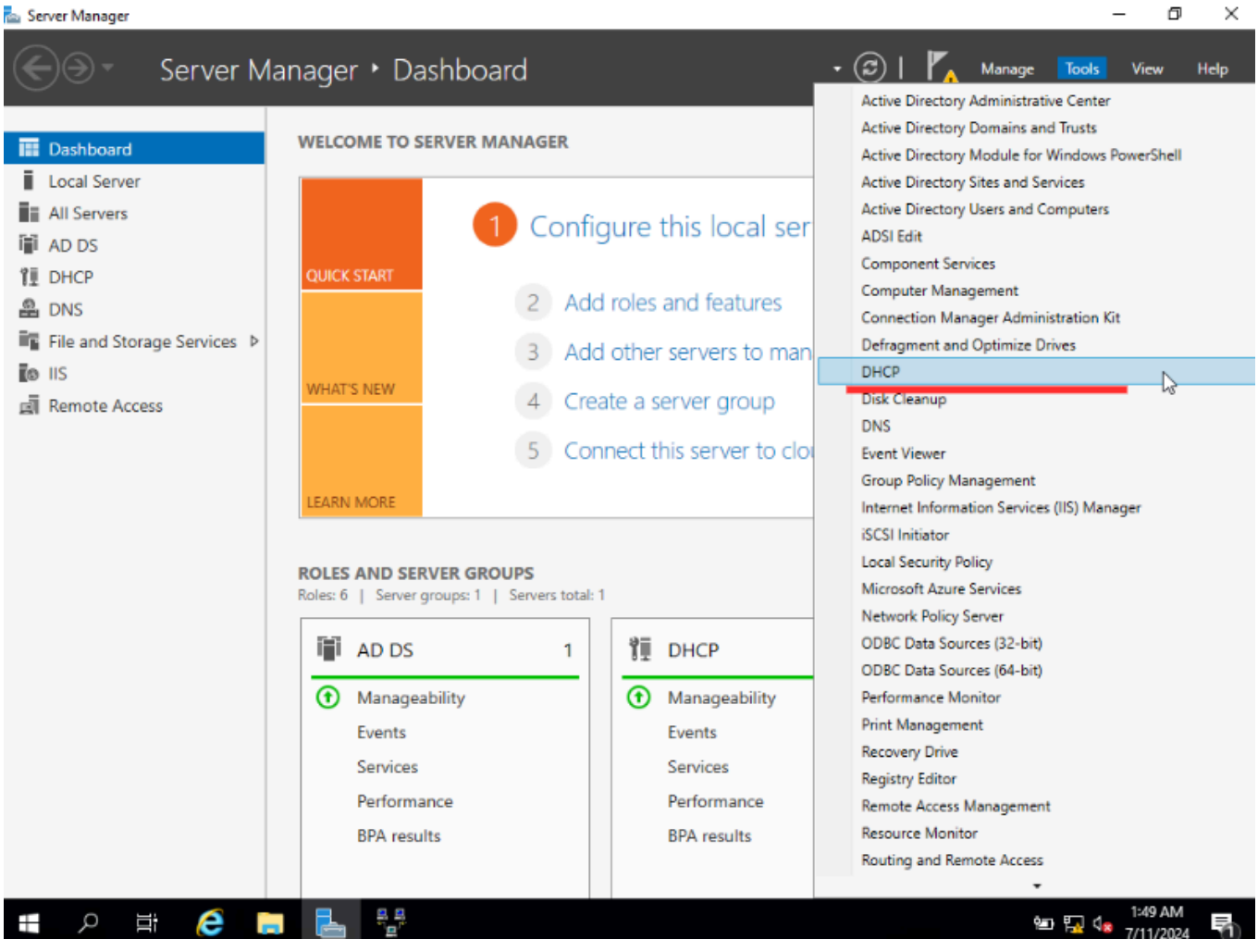
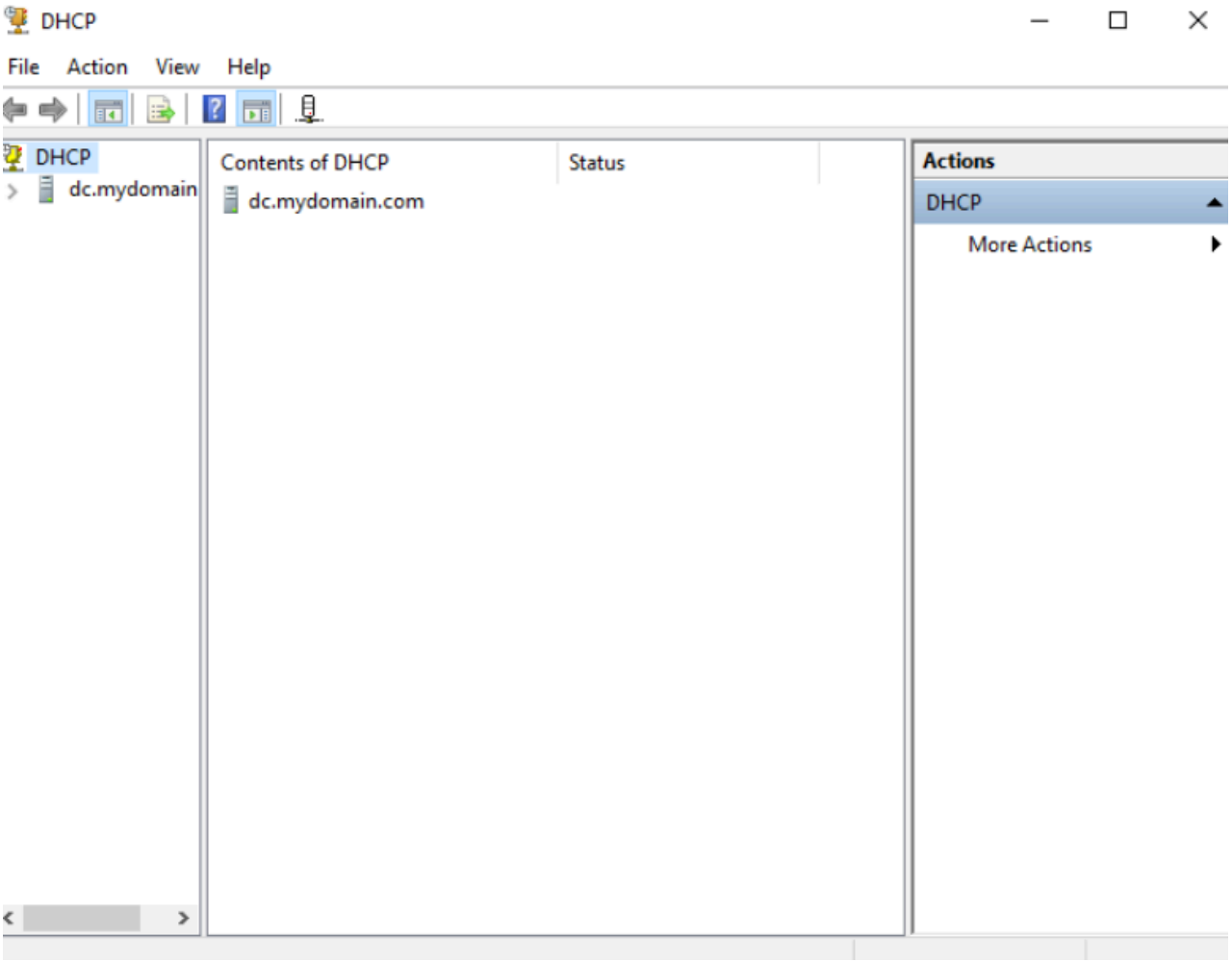
< Previous
Next >
Install
Cancel

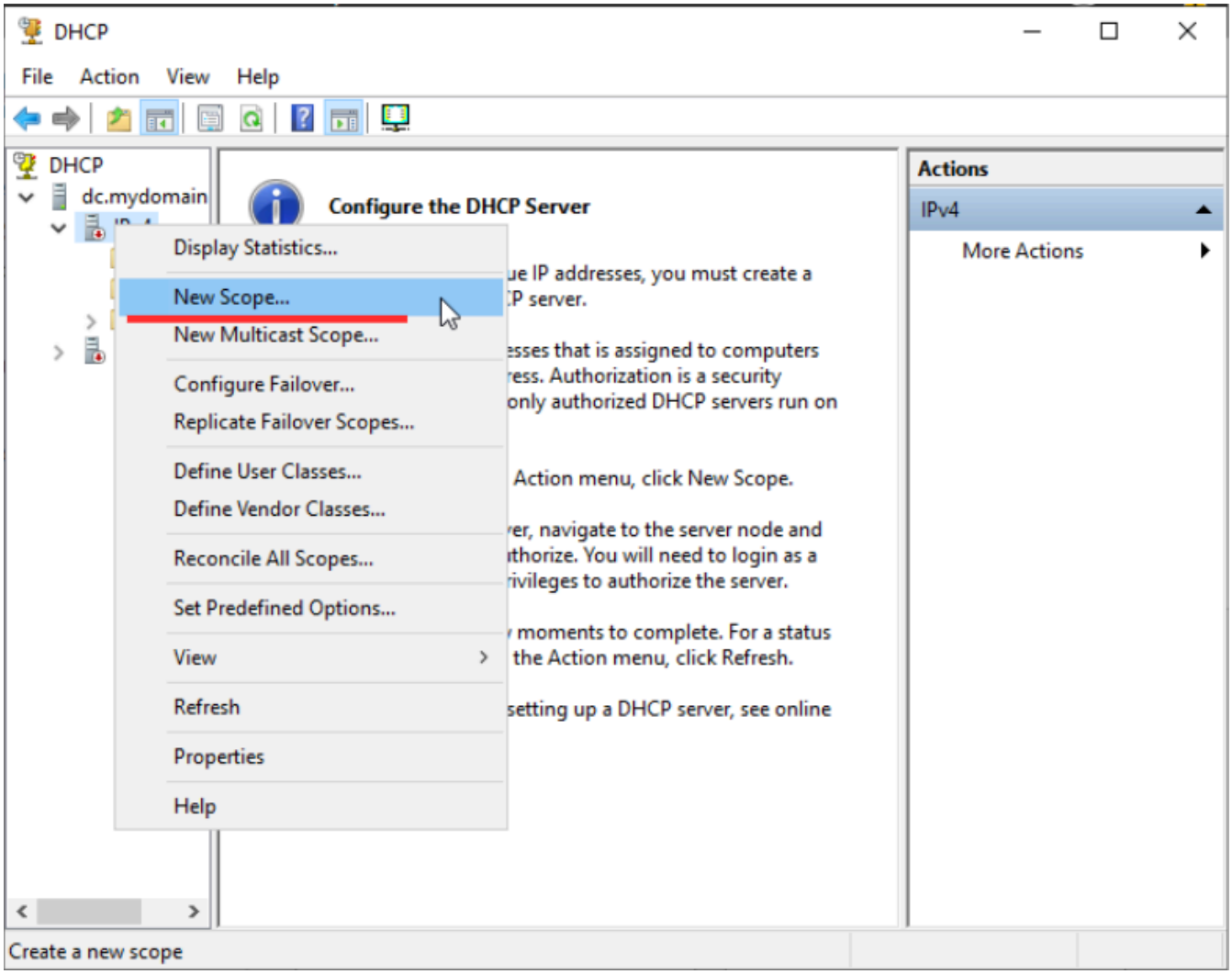

Add Roles and Features Wizard
Confirm installation selections
DESTINATION SERVER
DC.mydomain.com
Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results
To install the following roles, role services, or features on selected server, click Install.
Restart the destination server automatically if required
Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.
DHCP Server
Remote Server Administration Tools
Role Administration Tools
DHCP Server Tools
Export configuration settings
Specify an alternate source path
< Previous
Next >
Install
Cancel

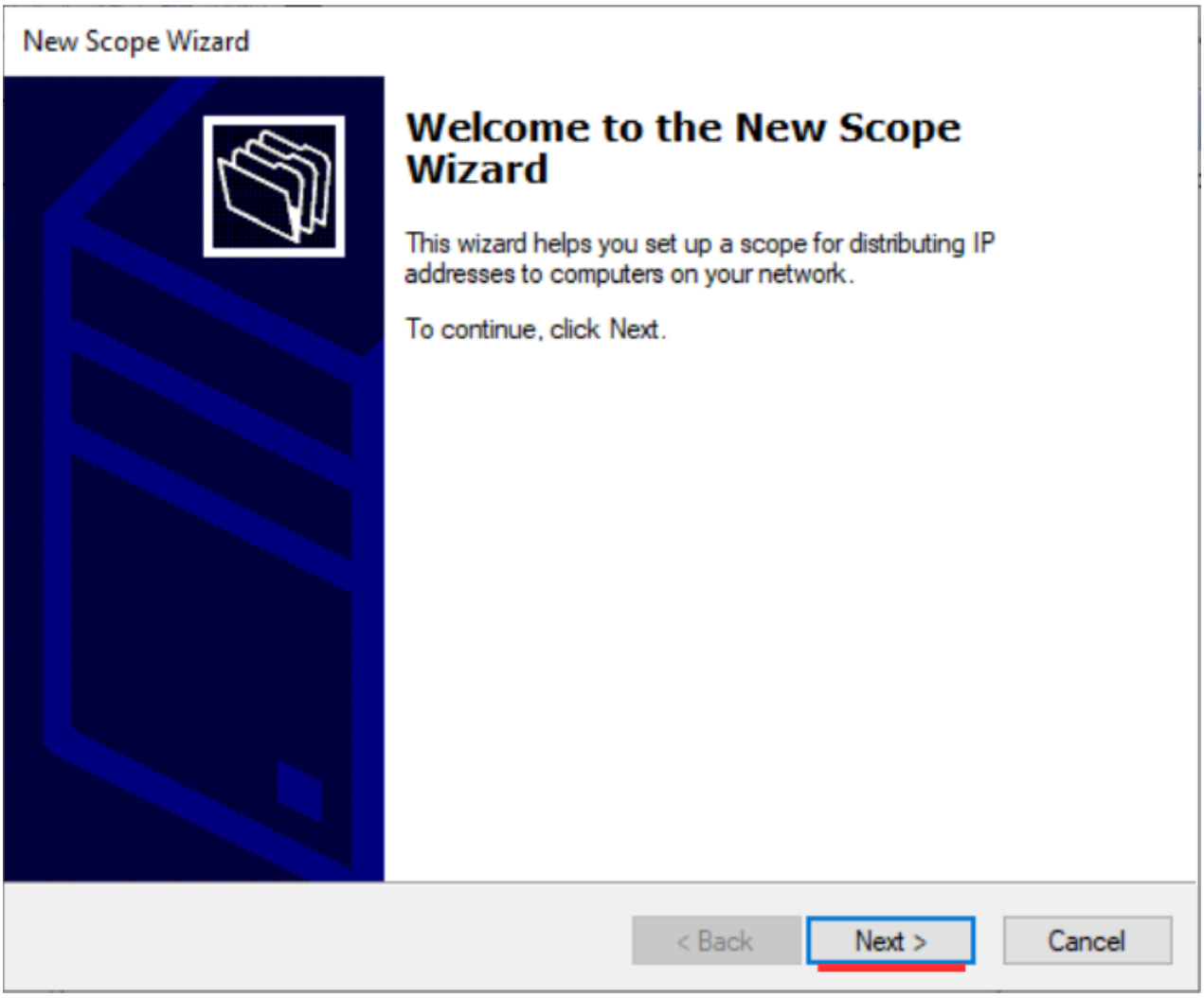


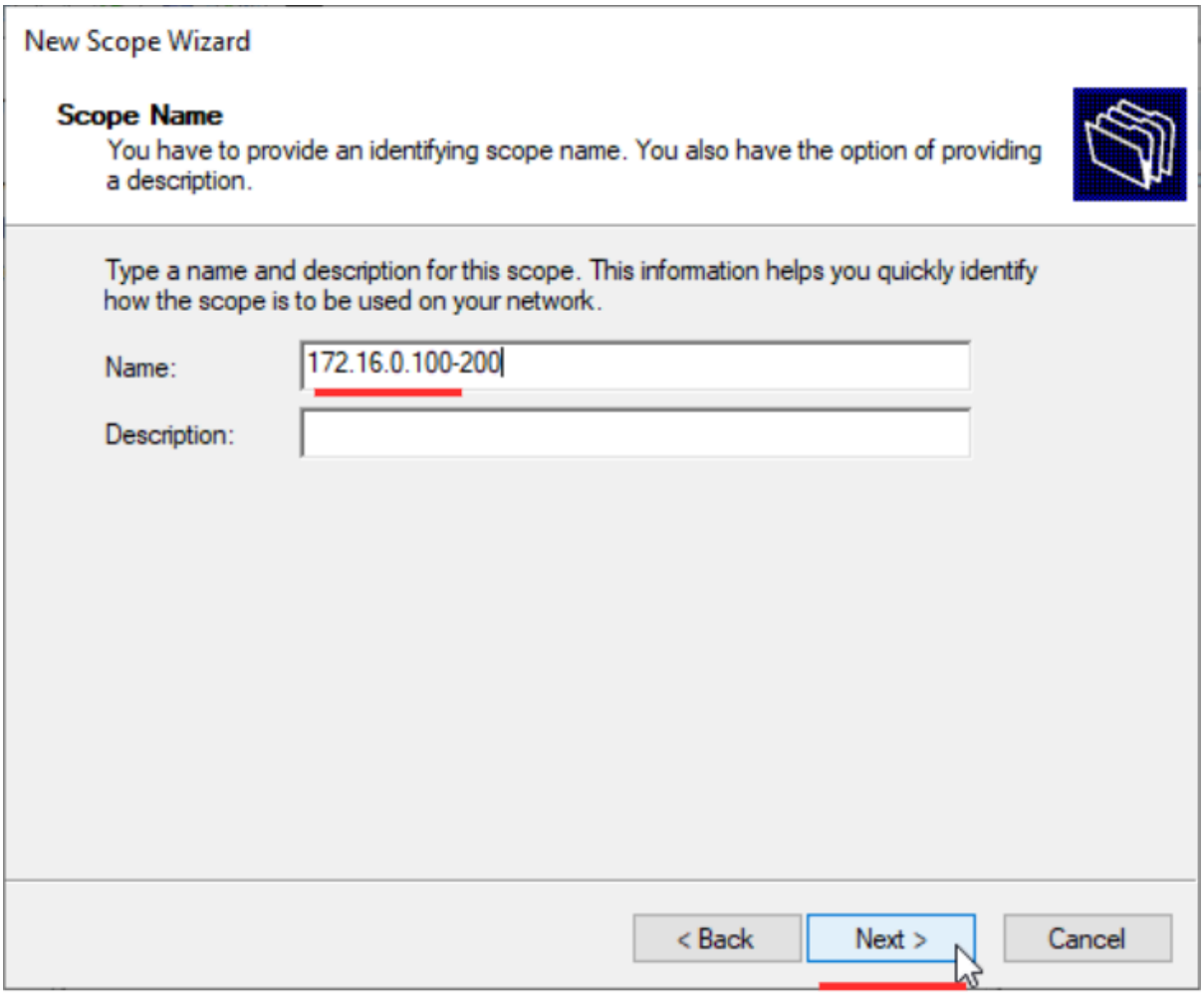
DHCP installation is complete, now he will configure it

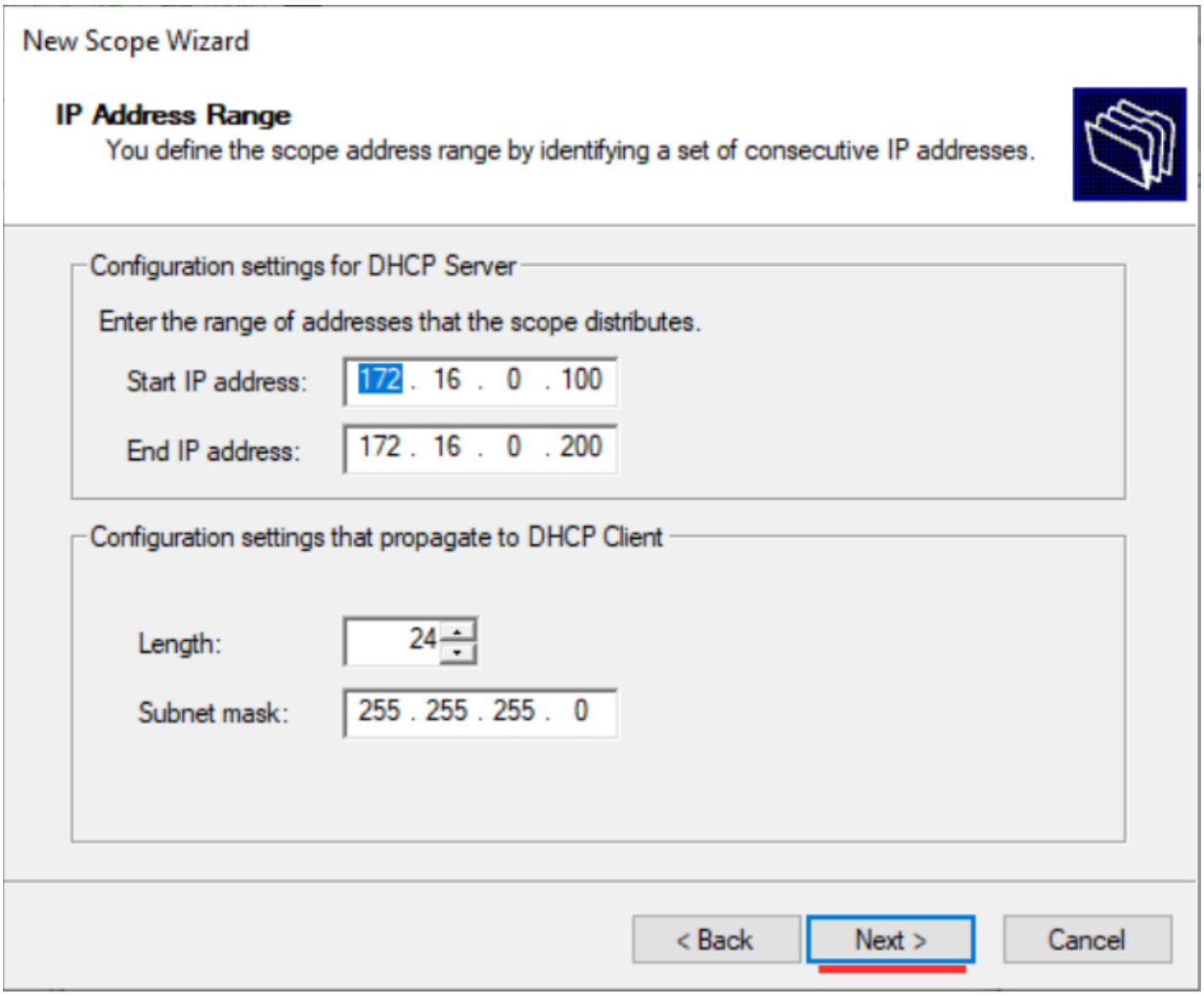


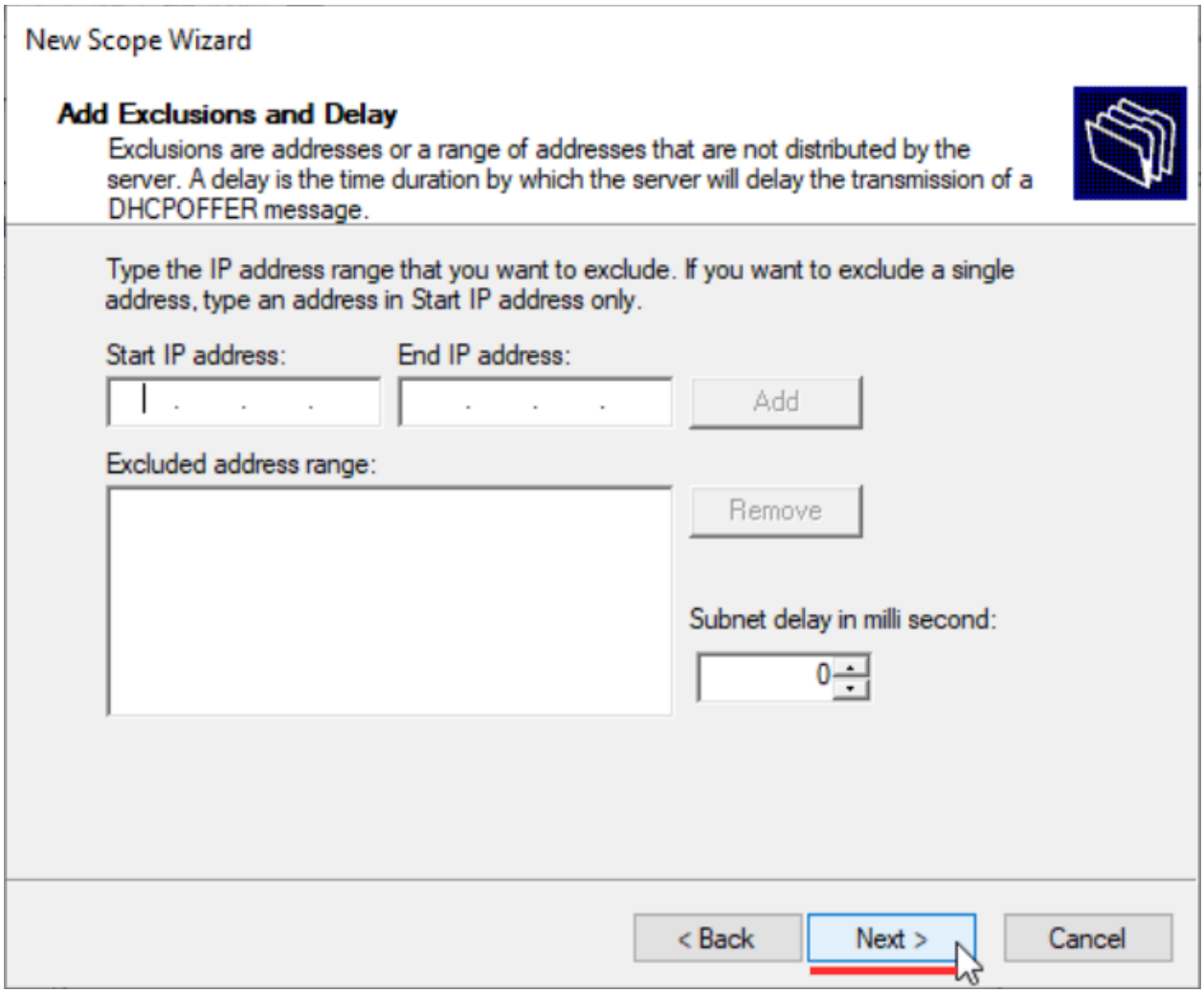

DHCP
File Action View Help
DHCP
dc.mydomain
Contents of DHCP
Status
dc.mydomain.com
Actions
DHCP
More Actions

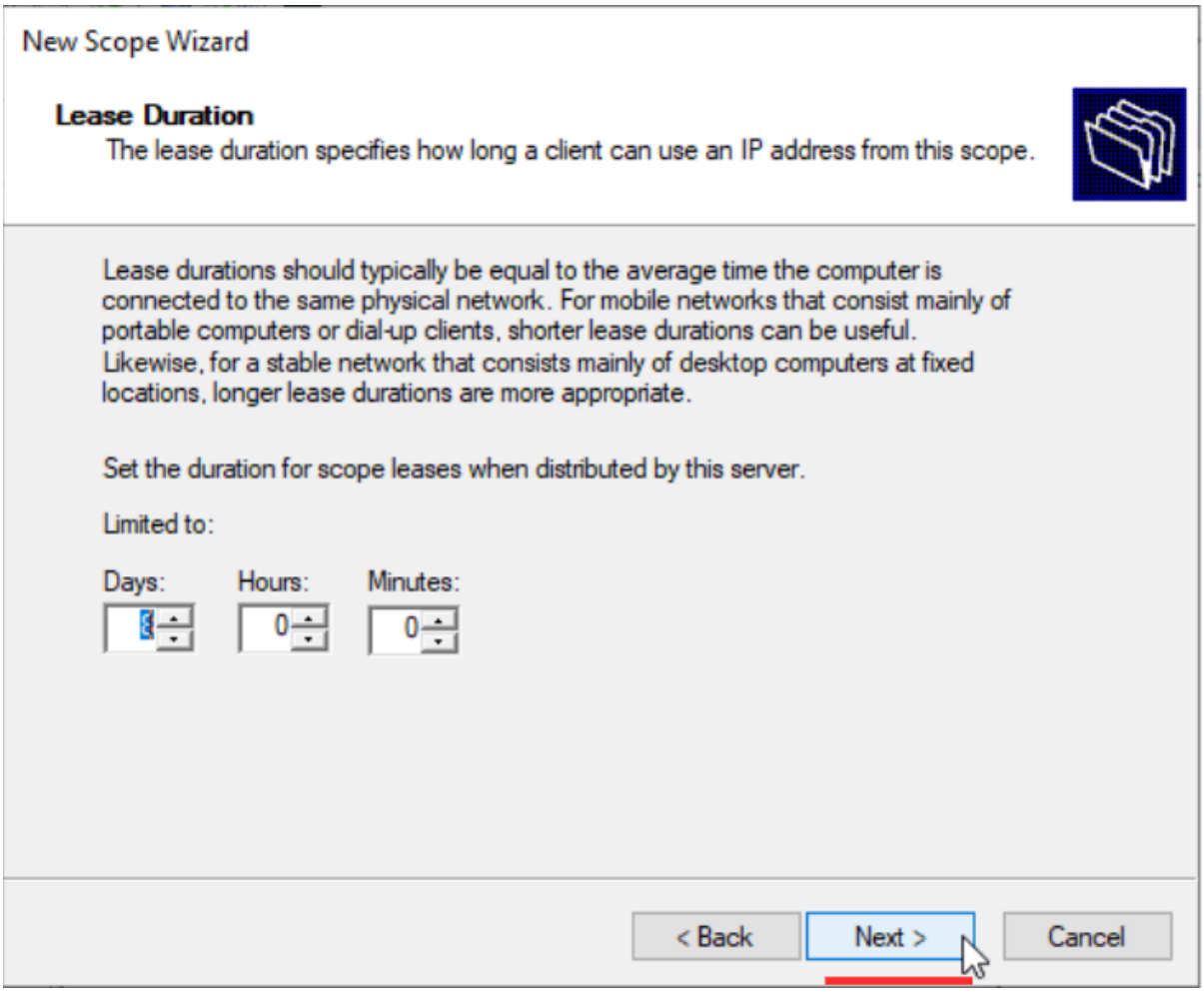

DHCP
File Action View Help
DHCP
dc.mydomain
Configure the DHCP Server
Display Statistics...
New Scope...
New Multicast Scope...
Configure Failover...
Replicate Failover Scopes...
Define User Classes...
Define Vendor Classes...
Reconcile All Scopes...
Set Predefined Options...
View
Refresh
Properties
Help
Actions
IPv4
More Actions
Create a new scope

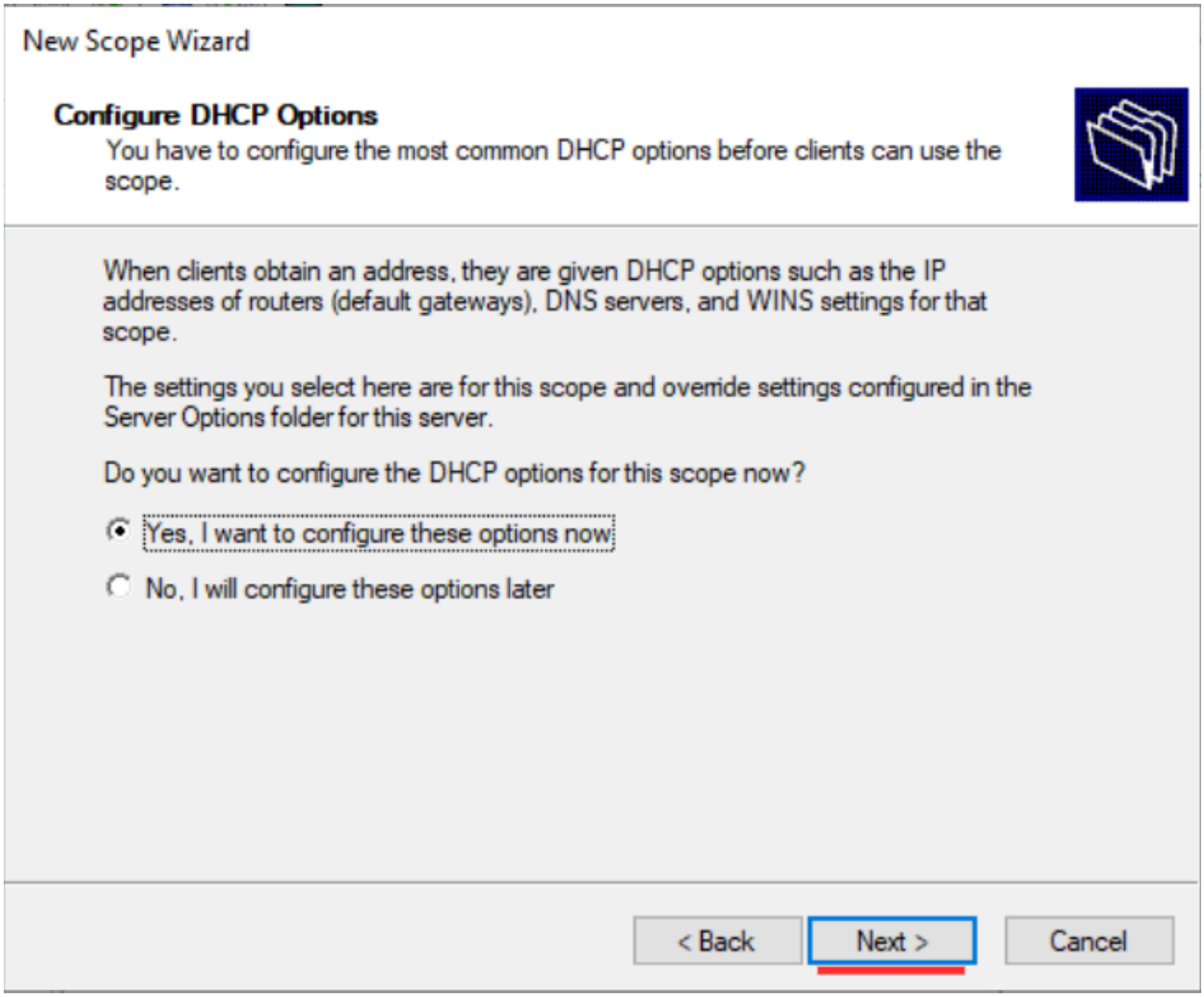

New Scope Wizard
Welcome to the New Scope Wizard
This wizard helps you set up a scope for distributing IP addresses to computers on your network.
To continue, click Next.
< Back
Next >
Cancel

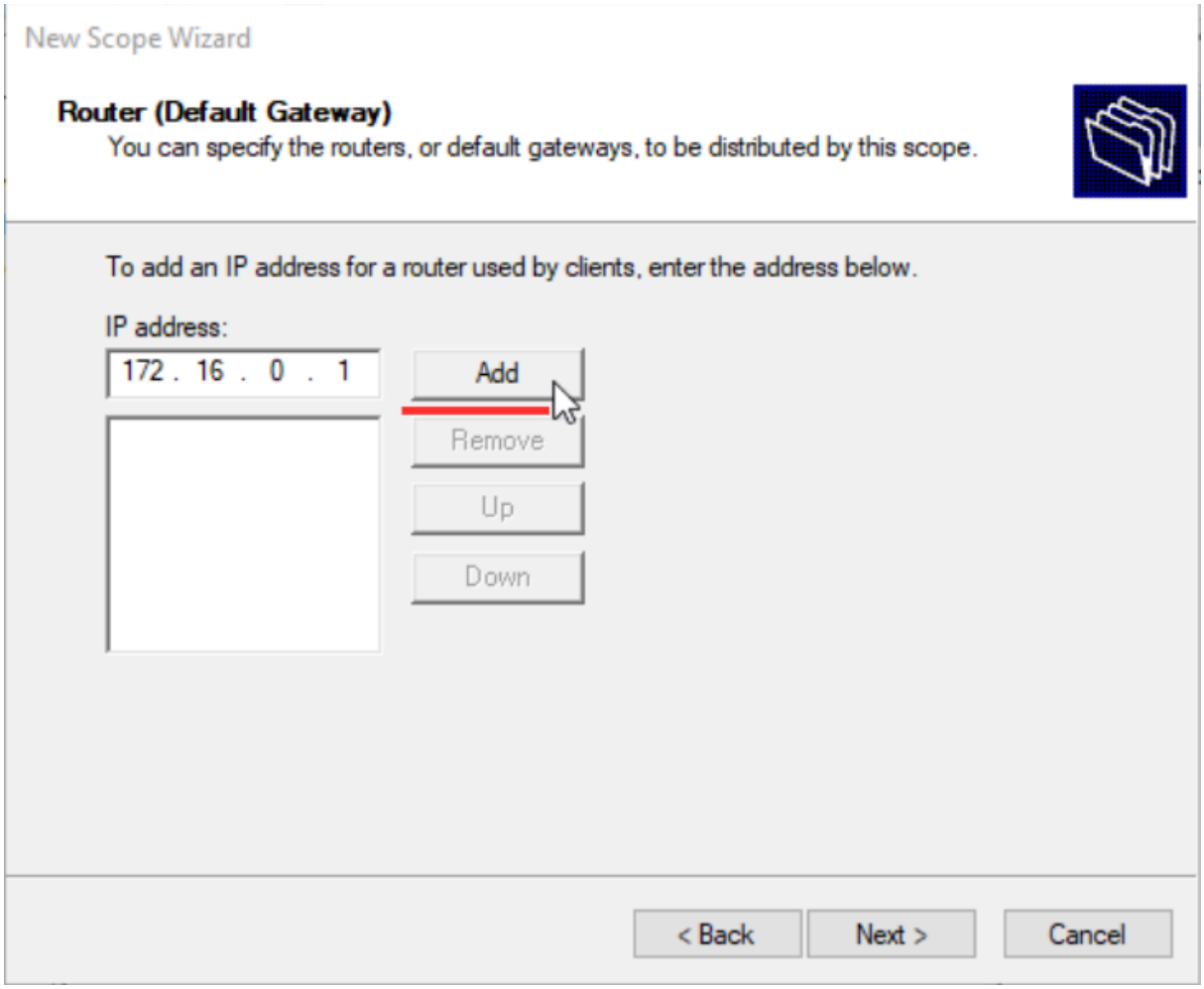

New Scope Wizard
Scope Name
You have to provide an identifying scope name. You also have the option of providing a description.
Type a name and description for this scope. This information helps you quickly identify how the scope is to be used on your network.
Name:
172.16.0.100-200
Description:
< Back
Next >
Cancel

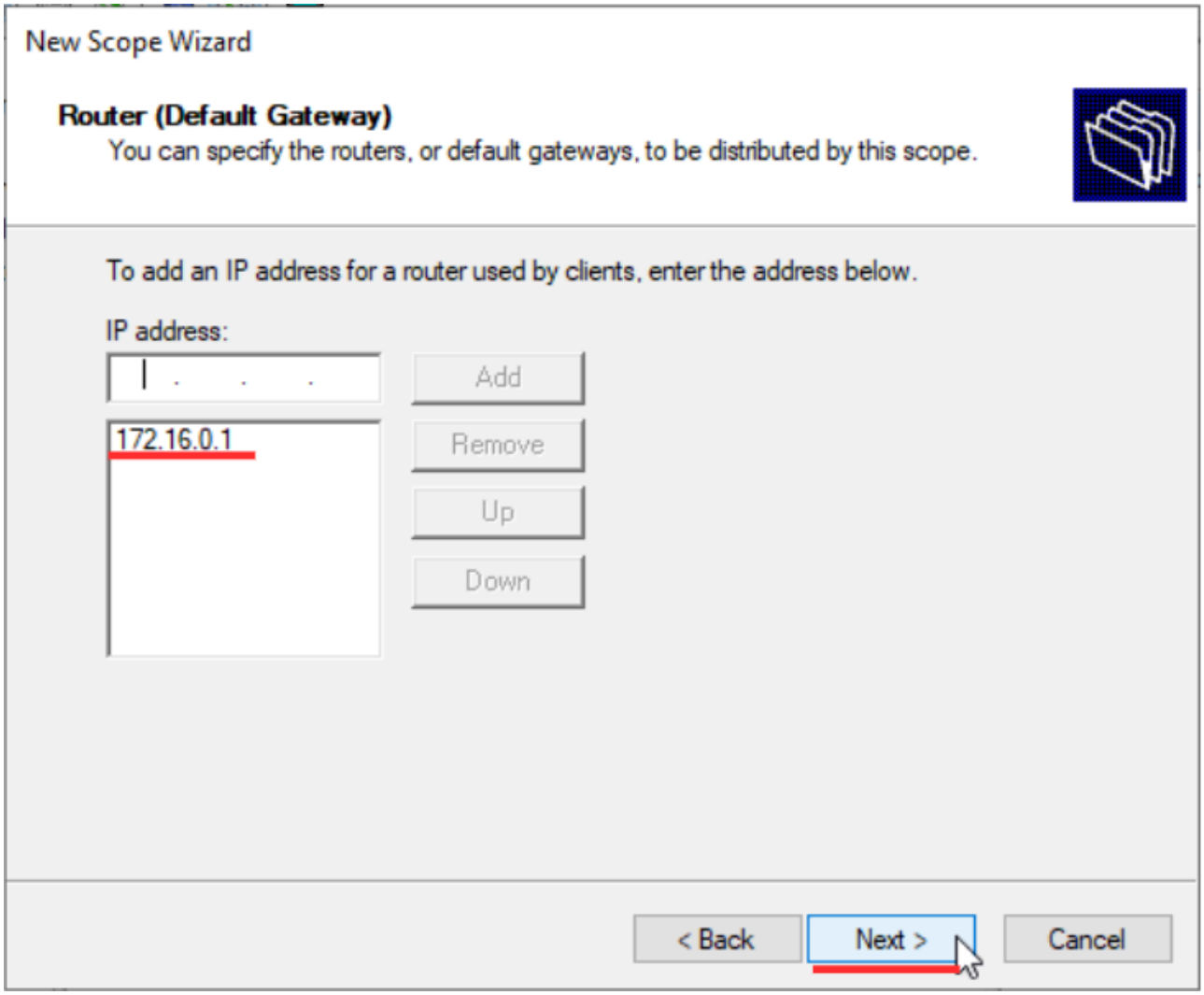

New Scope Wizard
IP Address Range
You define the scope address range by identifying a set of consecutive IP addresses.
Configuration settings for DHCP Server
Enter the range of addresses that the scope distributes.
Start IP address: 172 . 16 . 0 . 100
End IP address: 172 . 16 . 0 . 200
Configuration settings that propagate to DHCP Client
Length: 24
Subnet mask: 255 . 255 . 255 . 0
< Back
Next >
Cancel

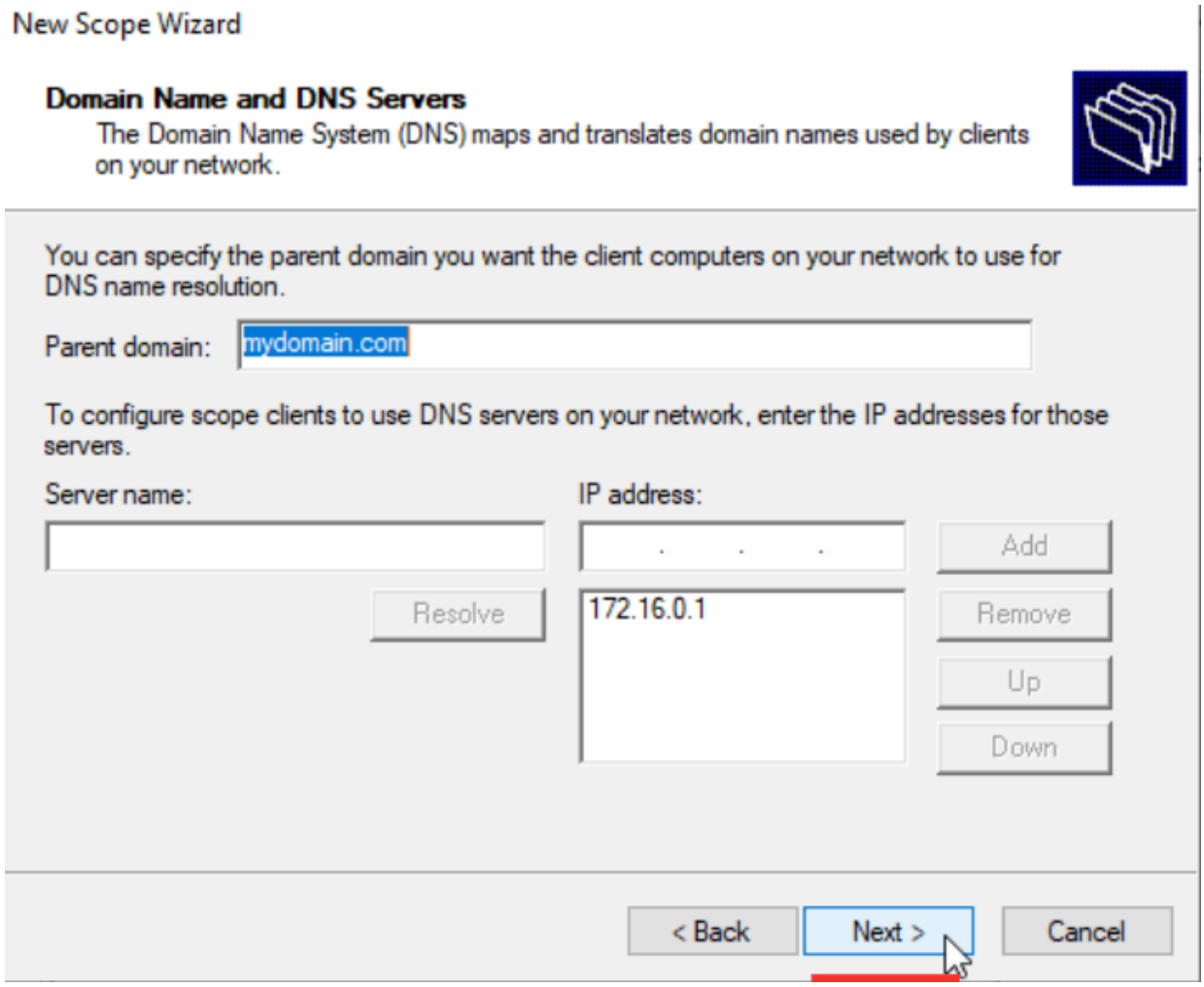

New Scope Wizard
Add Exclusions and Delay
Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCPOFFER message.
Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.
Start IP address:
End IP address:
Add
Excluded address range:
Remove
Subnet delay in milli second:
0
< Back
Next >
Cancel

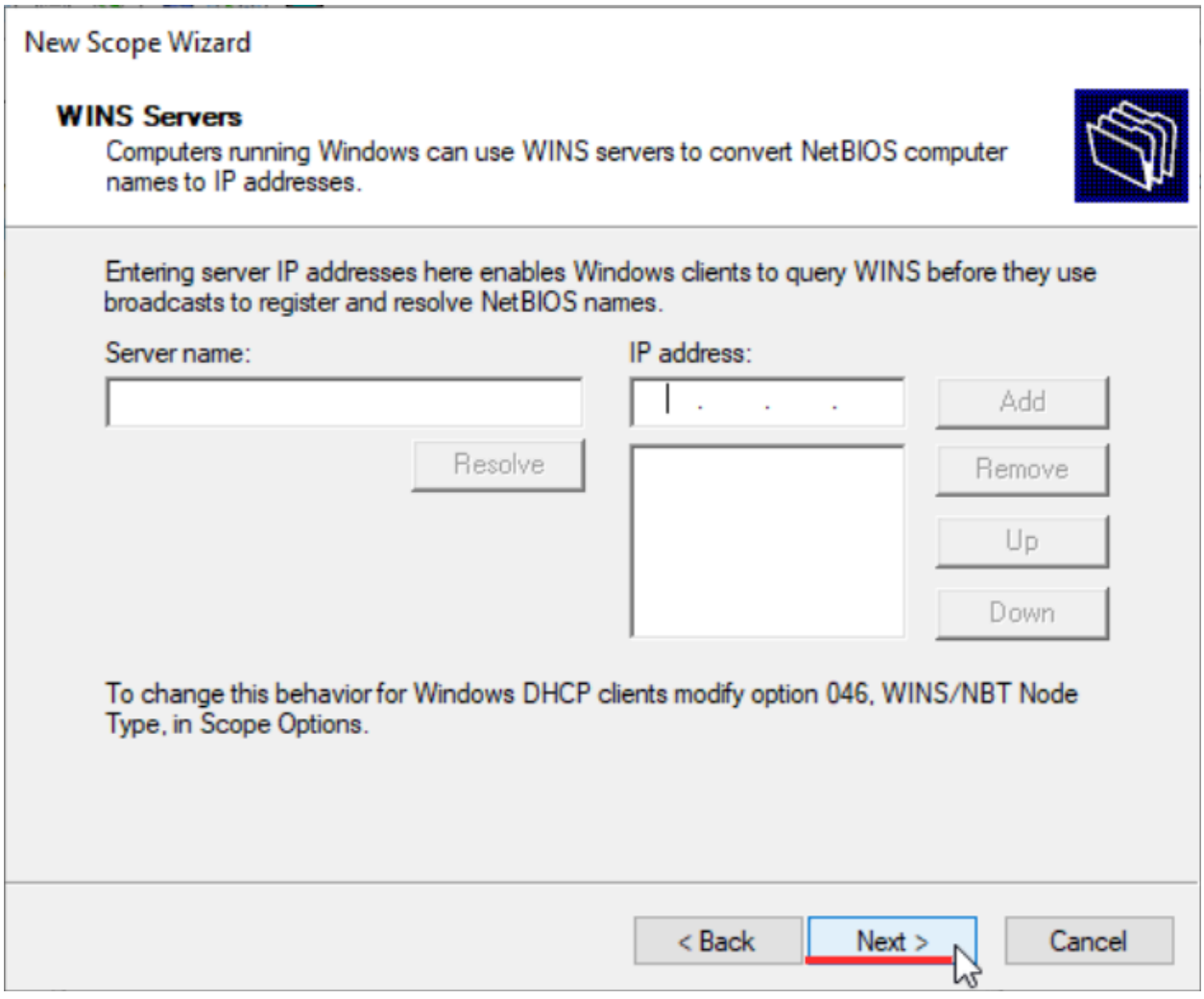

New Scope Wizard
Lease Duration
The lease duration specifies how long a client can use an IP address from this scope.
Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate.
Set the duration for scope leases when distributed by this server.
Limited to:
Days:
Hours:
Minutes:
0
0
< Back
Next >
Cancel

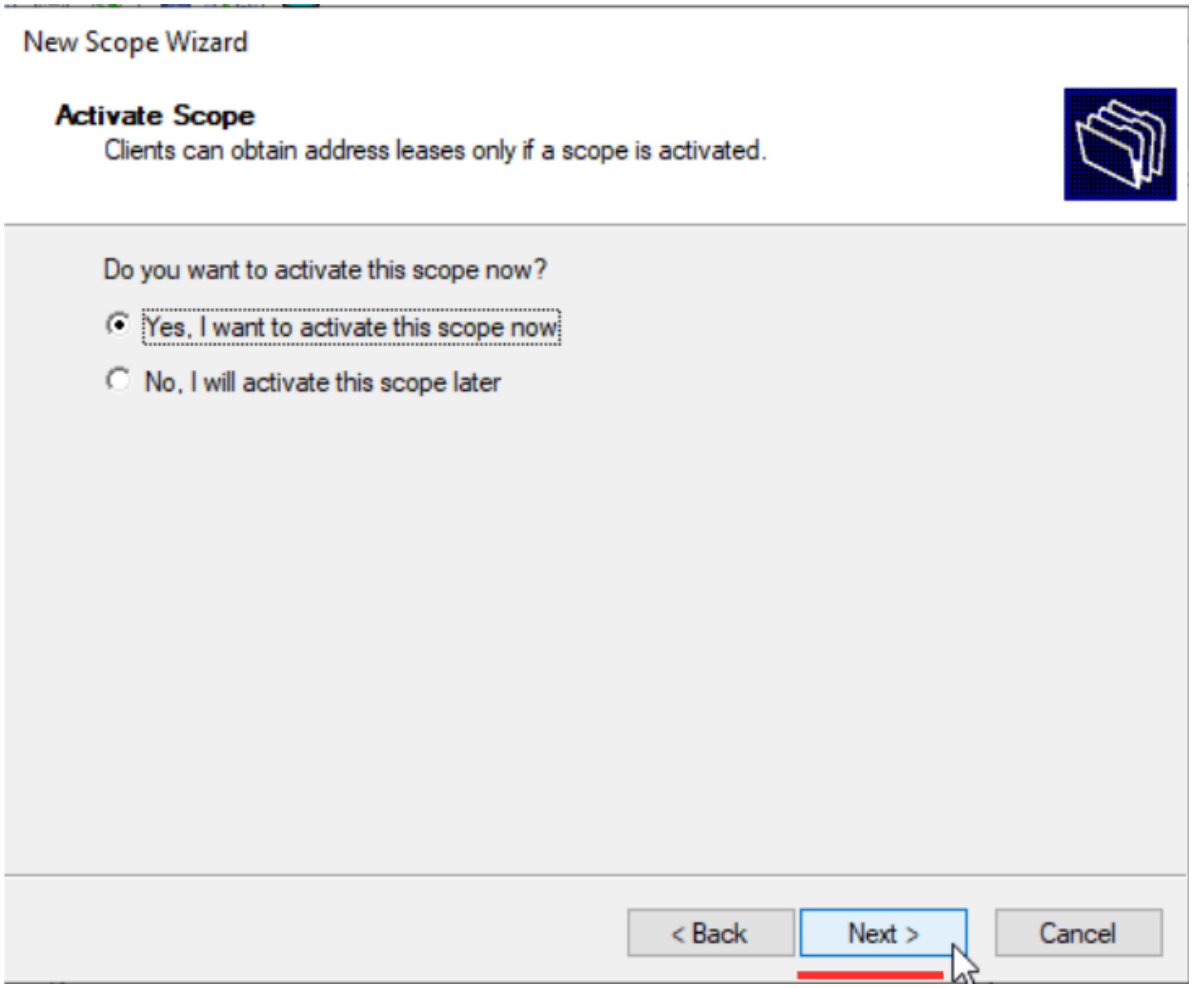

New Scope Wizard
Configure DHCP Options
You have to configure the most common DHCP options before clients can use the scope.
When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope.
The settings you select here are for this scope and override settings configured in the Server Options folder for this server.
Do you want to configure the DHCP options for this scope now?
Yes, I want to configure these options now
No, I will configure these options later
< Back
Next >
Cancel

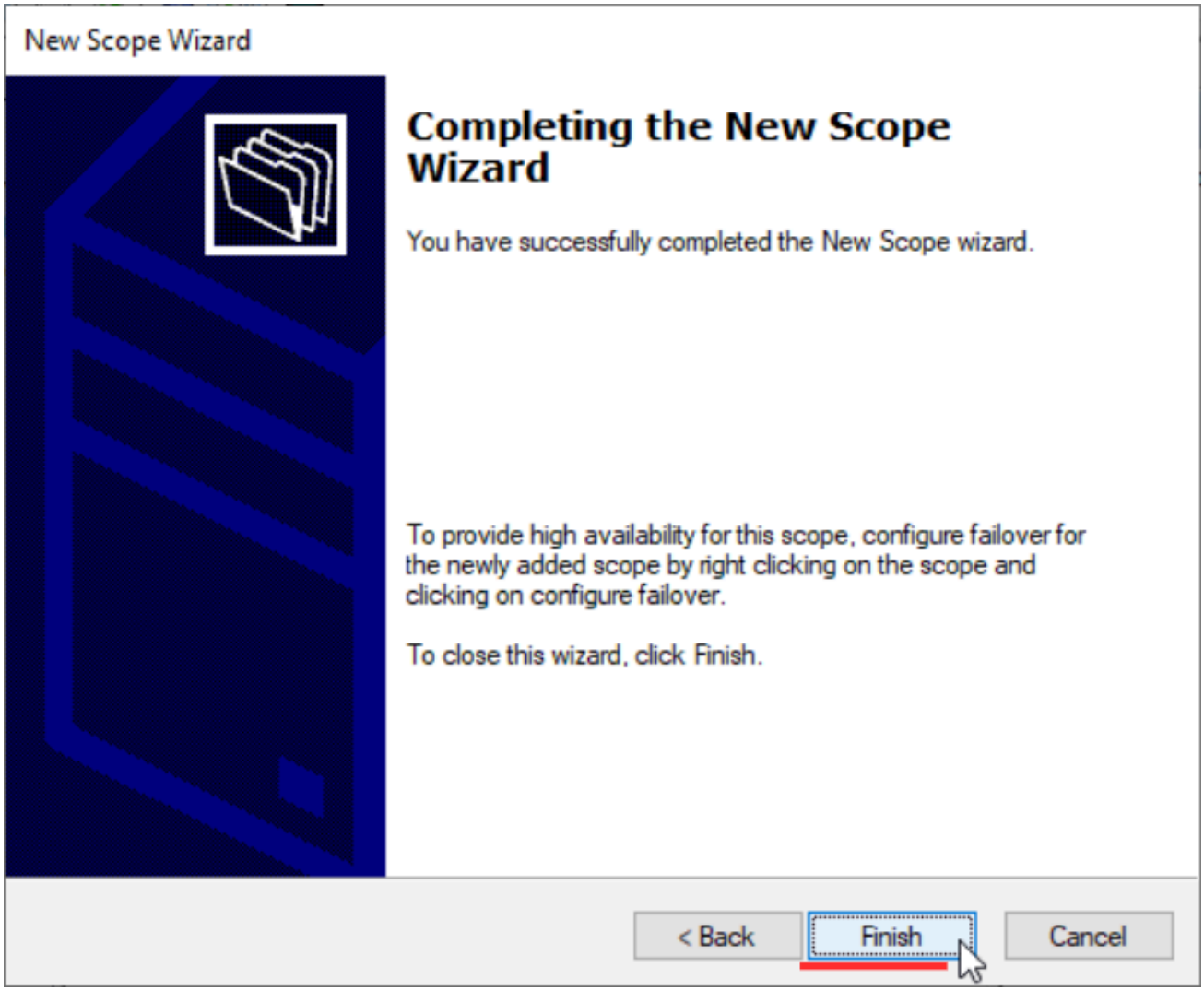

New Scope Wizard
Router (Default Gateway)
You can specify the routers, or default gateways, to be distributed by this scope.
To add an IP address for a router used by clients, enter the address below.
IP address:
172 . 16 . 0 . 1
Add
Remove
Up
Down
< Back
Next >
Cancel

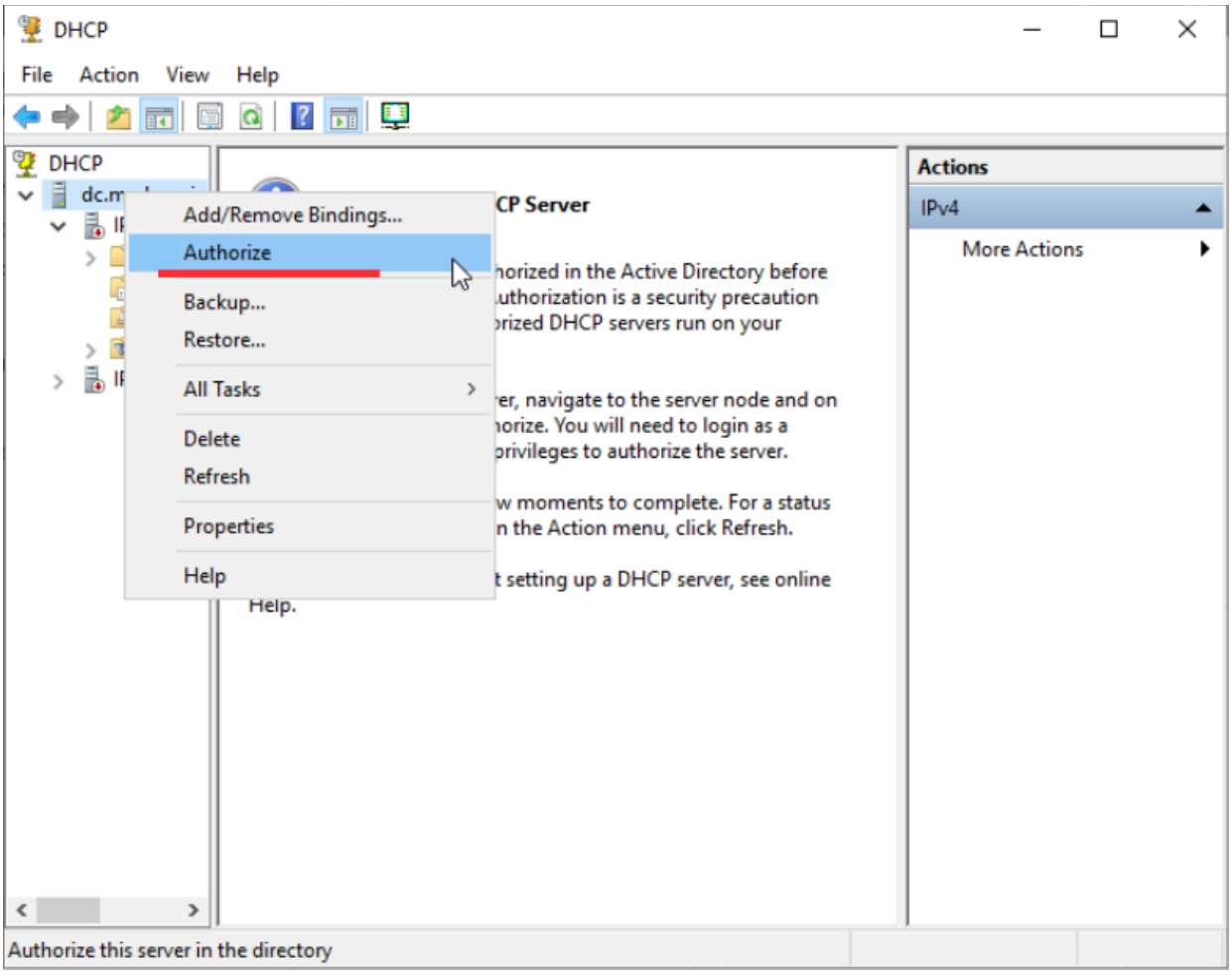

New Scope Wizard
Router (Default Gateway)
You can specify the routers, or default gateways, to be distributed by this scope.
To add an IP address for a router used by clients, enter the address below.
IP address:
Add
172.16.0.1
Remove
Up
Down
< Back
Next >
Cancel

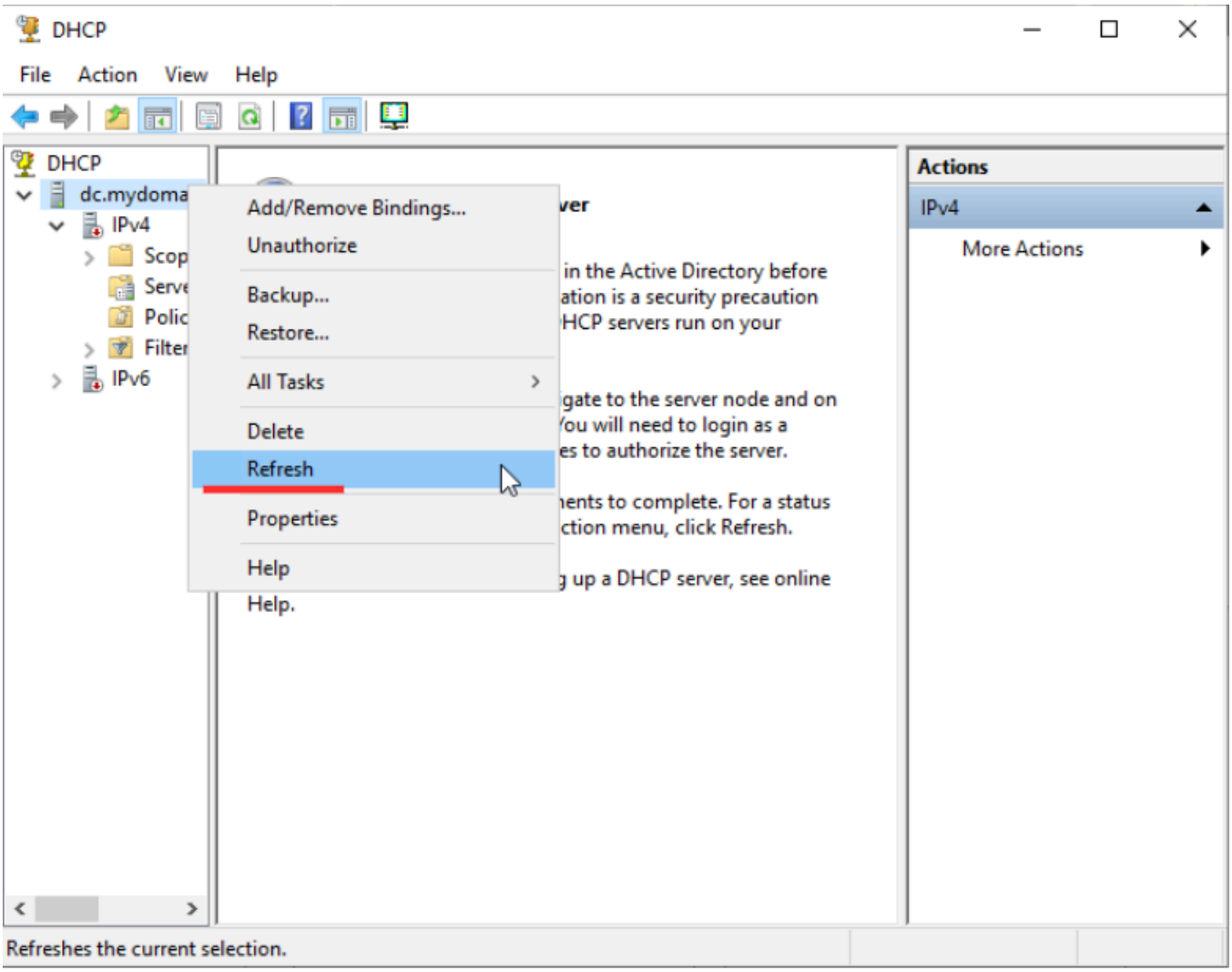

New Scope Wizard
Domain Name and DNS Servers
The Domain Name System (DNS) maps and translates domain names used by clients on your network.
You can specify the parent domain you want the client computers on your network to use for DNS name resolution.
Parent domain:
mydomain.com
To configure scope clients to use DNS servers on your network, enter the IP addresses for those servers.
Server name:
IP address:
Add
Resolve
172.16.0.1
Remove
Up
Down
< Back
Next >
Cancel

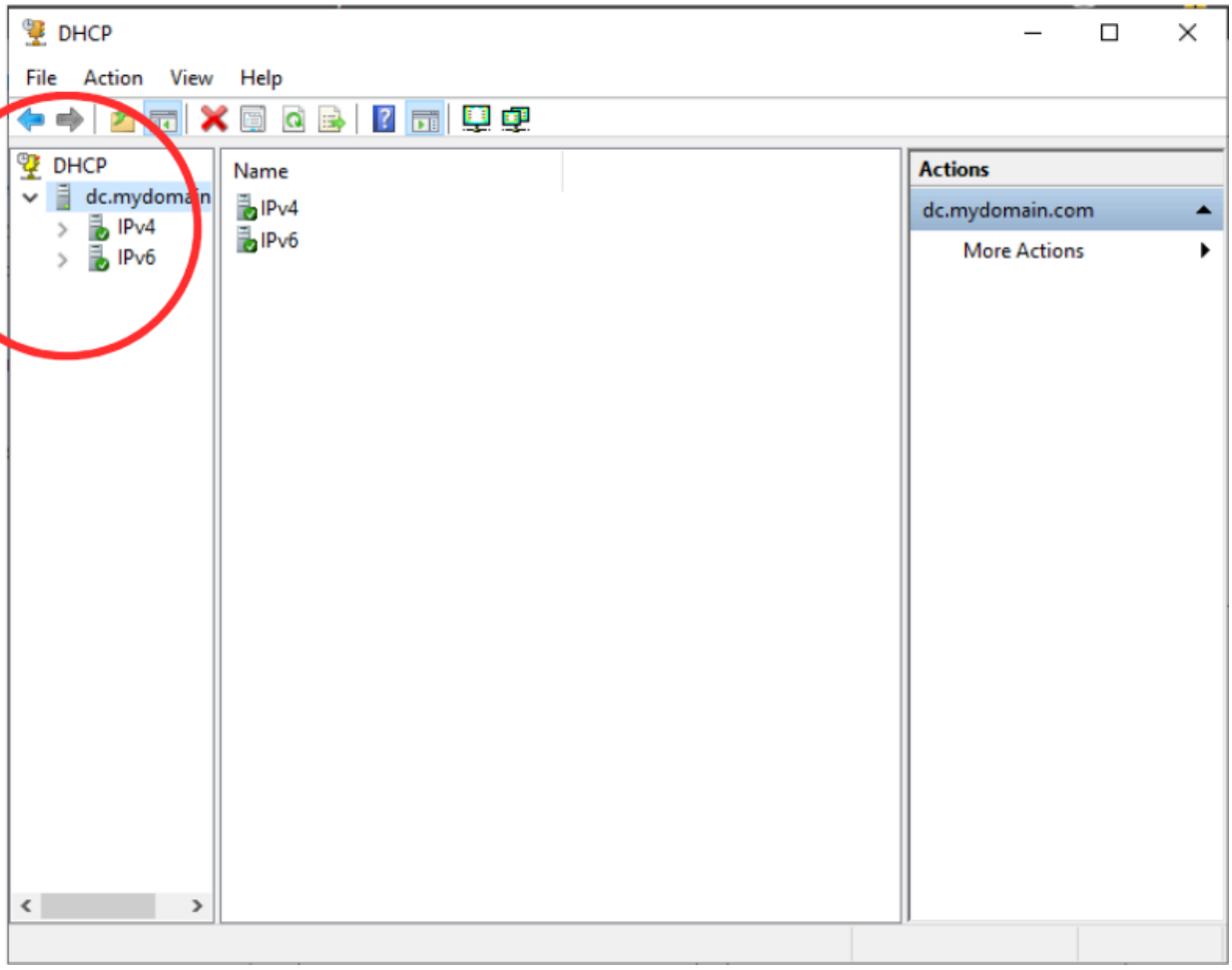

New Scope Wizard
WINS Servers
Computers running Windows can use WINS servers to convert NetBIOS computer names to IP addresses.
Entering server IP addresses here enables Windows clients to query WINS before they use broadcasts to register and resolve NetBIOS names.
Server name:
IP address:
Add
Resolve
Remove
Up
Down
To change this behavior for Windows DHCP clients modify option 046, WINS/NBT Node Type, in Scope Options.
< Back
Next >
Cancel


New Scope Wizard
Activate Scope
Clients can obtain address leases only if a scope is activated.
Do you want to activate this scope now?
Yes, I want to activate this scope now
No, I will activate this scope later
< Back
Next >
Cancel

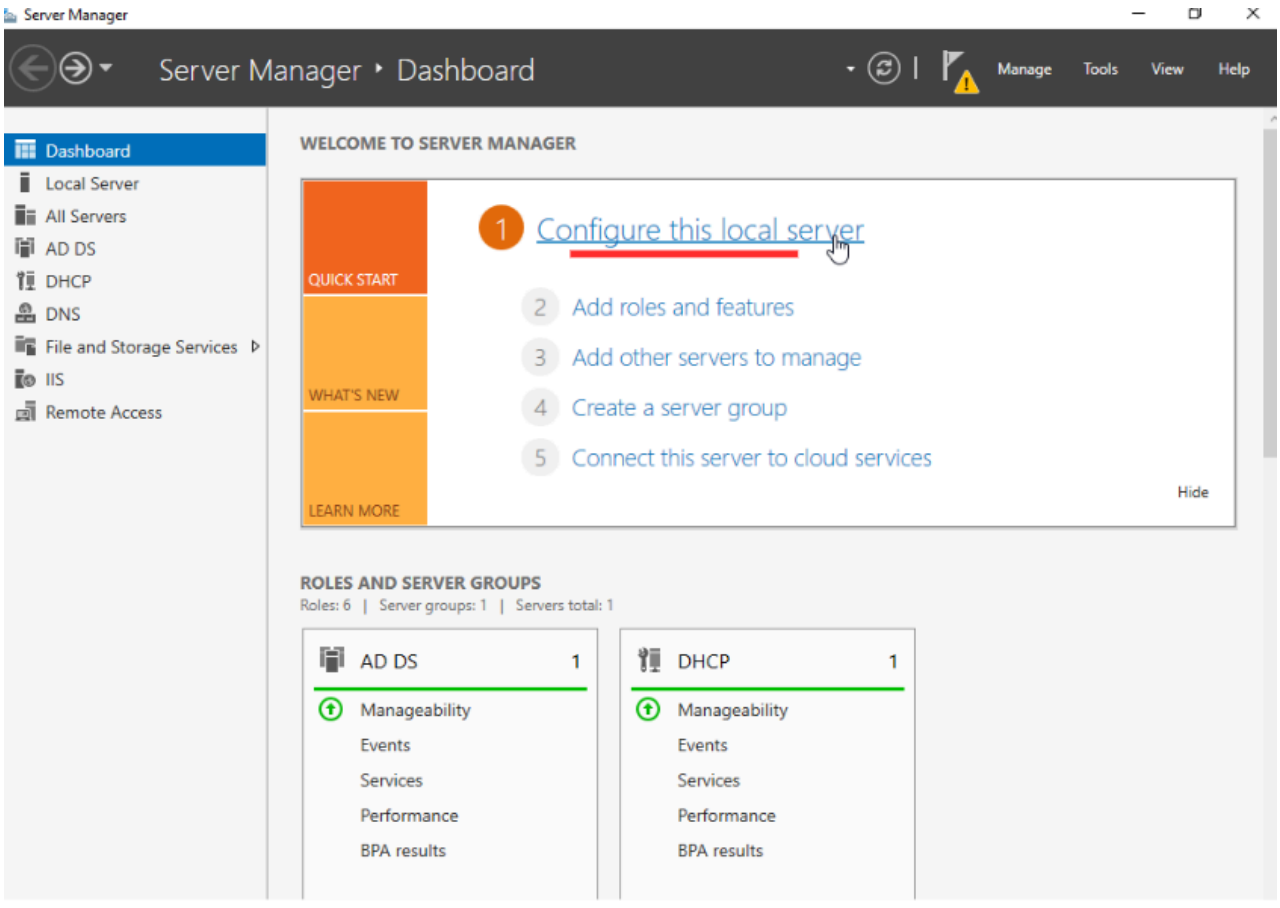

New Scope Wizard
Completing the New Scope Wizard
You have successfully completed the New Scope wizard.
To provide high availability for this scope, configure failover for the newly added scope by right clicking on the scope and clicking on configure failover.
To close this wizard, click Finish.
< Back
Finish
Cancel

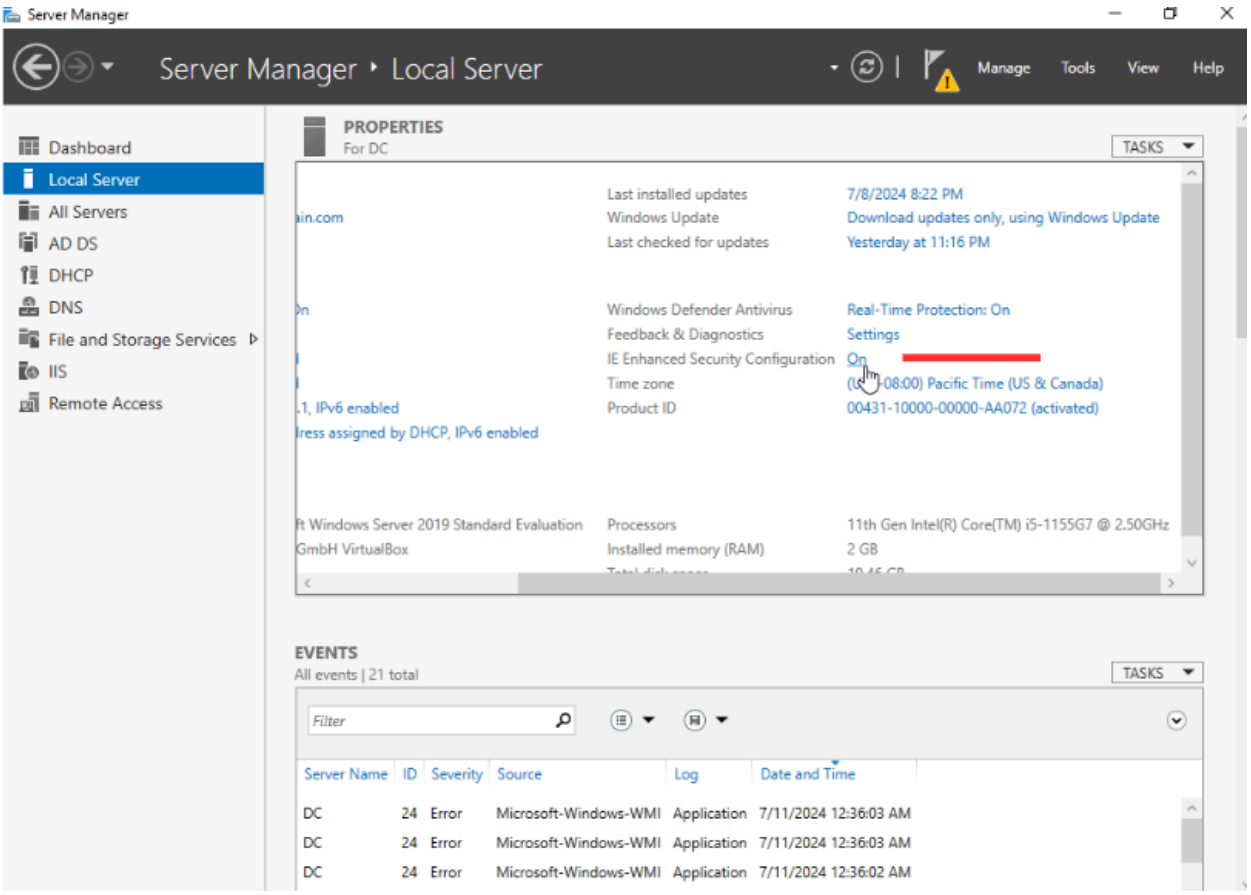

DHCP
File Action View Help
DHCP
Add/Remove Bindings...
Authorize
Backup...
Restore...
All Tasks
Delete
Refresh
Properties
Help
Actions
IPv4
More Actions
Authorize this server in the directory


DHCP
File Action View Help
DHCP
dc.mydoma
IPv4
IPv6
Add/Remove Bindings...
Unauthorize
Backup...
Restore...
All Tasks
Delete
Refresh
Properties
Help
Actions
IPv4
More Actions
Refreshes the current selection.

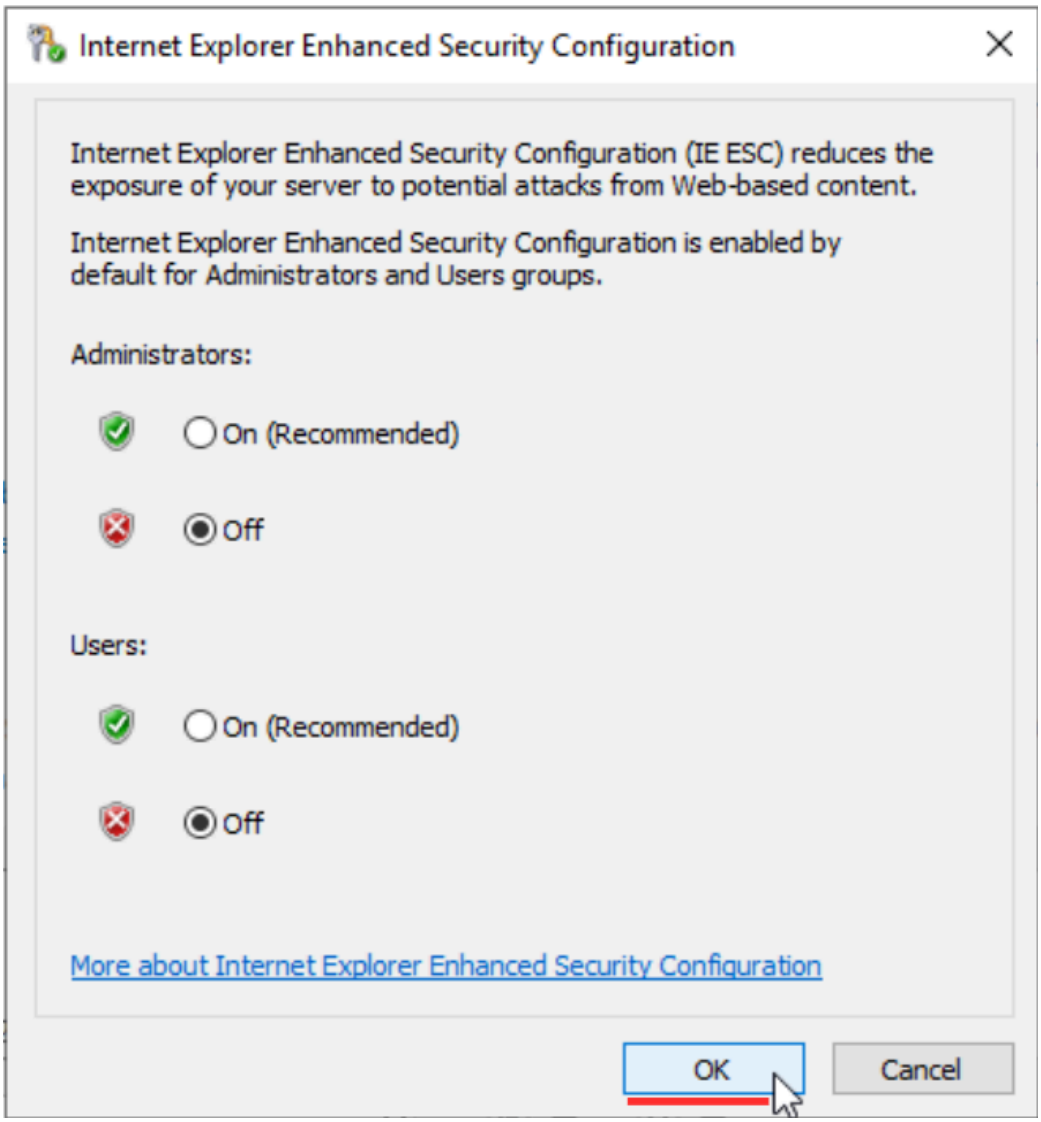


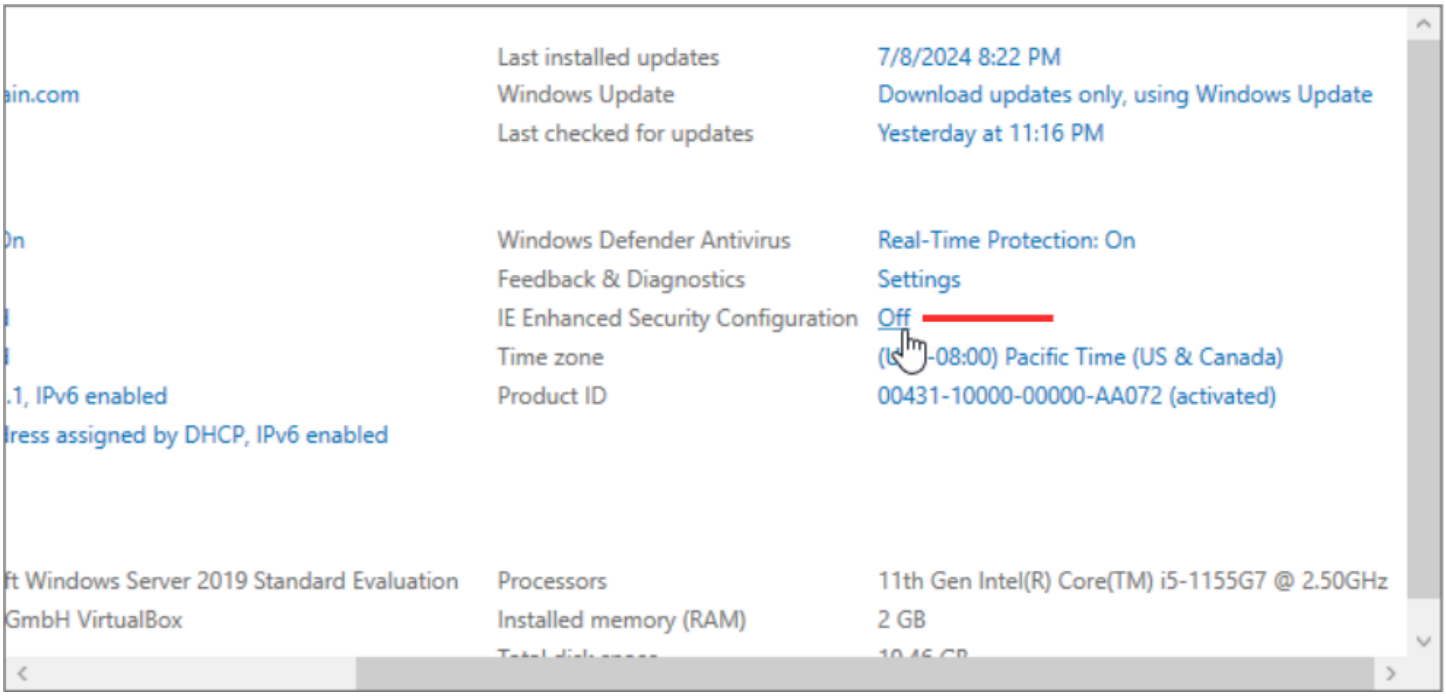
Now we will allow the server to browse the internet, this is NOT recommend on a production environment



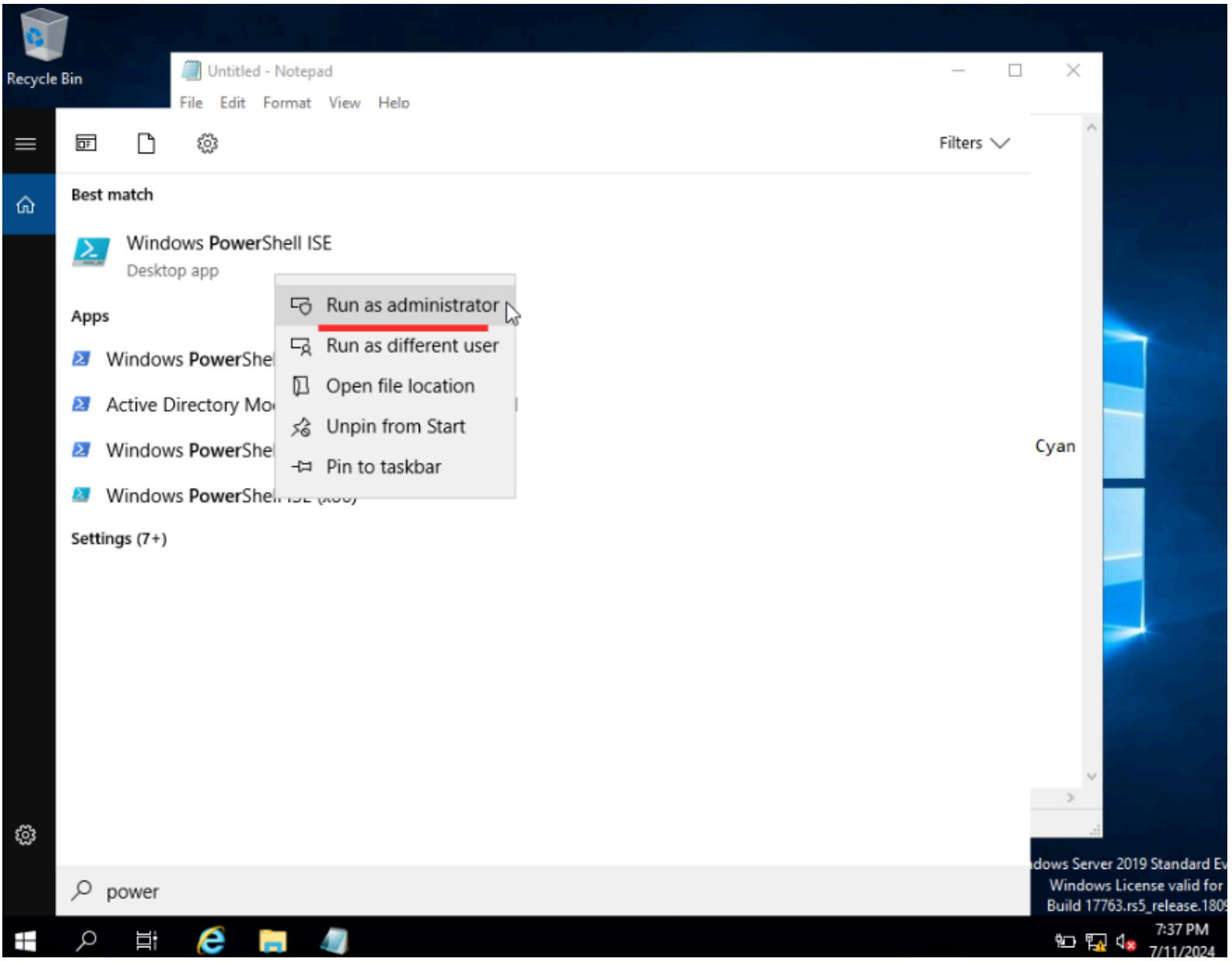


I am turning it off so I can access the list of names to add to the domain, I will turn it back on later experiments

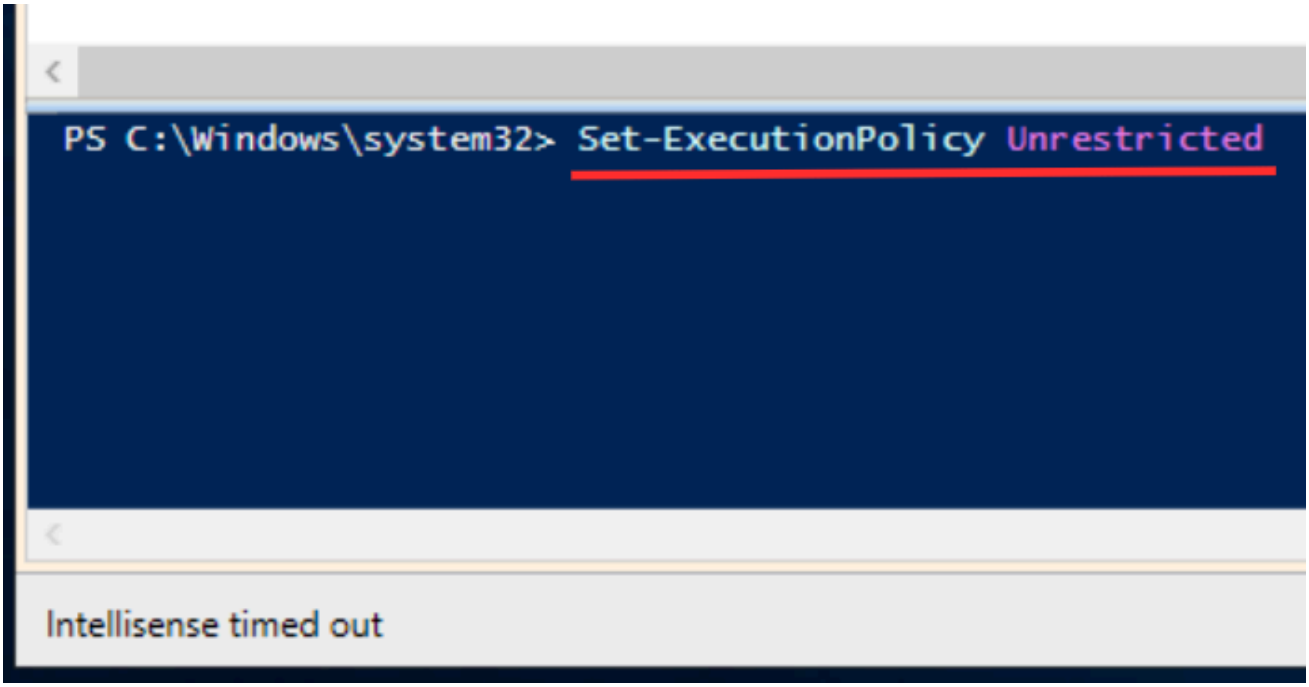


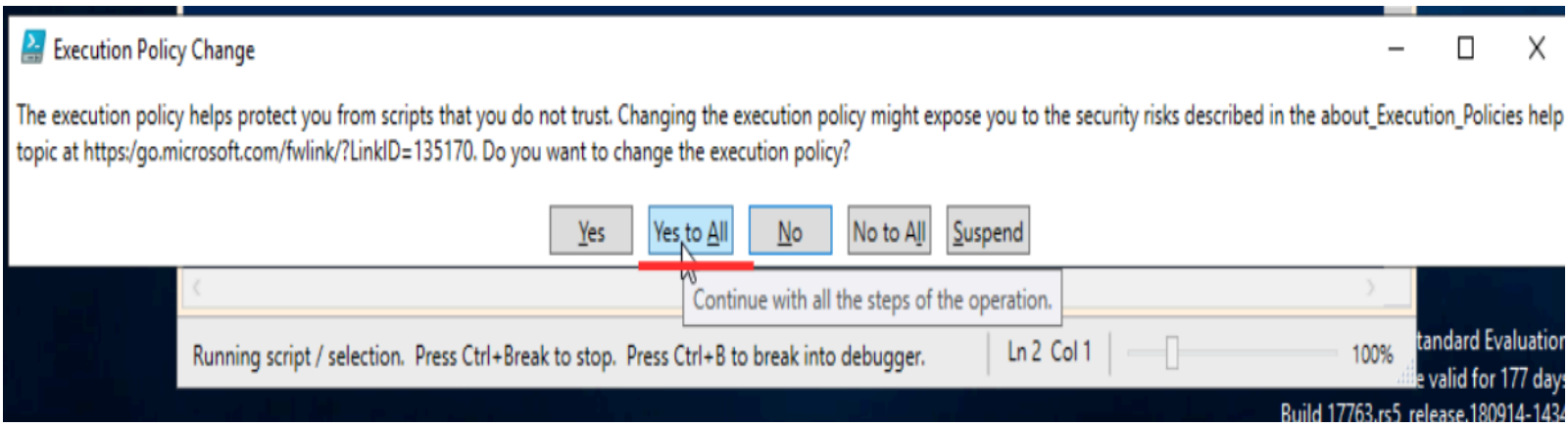


Now we will use powershell to run the script to create users for the active directory




User Account Control
Do you want to allow this app to make changes to your device?
Windows PowerShell ISE
Verified publisher: Microsoft Windows
Show more details
Yes
No


PS C:\Windows\system32> Set-ExecutionPolicy Unrestricted
Intellisense timed out


Execution Policy Change
The execution policy helps protect you from scripts that you do not trust. Changing the execution policy might expose you to the security risks described in the about_Execution_Policies help topic at https:/go.microsoft.com/fwlink/?LinkID=135170. Do you want to change the execution policy?
Yes
Yes to All
No
No to All
Suspend
Continue with all the steps of the operation.
Running script / selection. Press Ctrl+Break to stop. Press Ctrl+B to break into debugger.
Ln 2 Col 1
100%

```
PS C:\Windows\system32> Set-ExecutionPolicy Unrestricted

PS C:\Windows\system32>
```

Completed

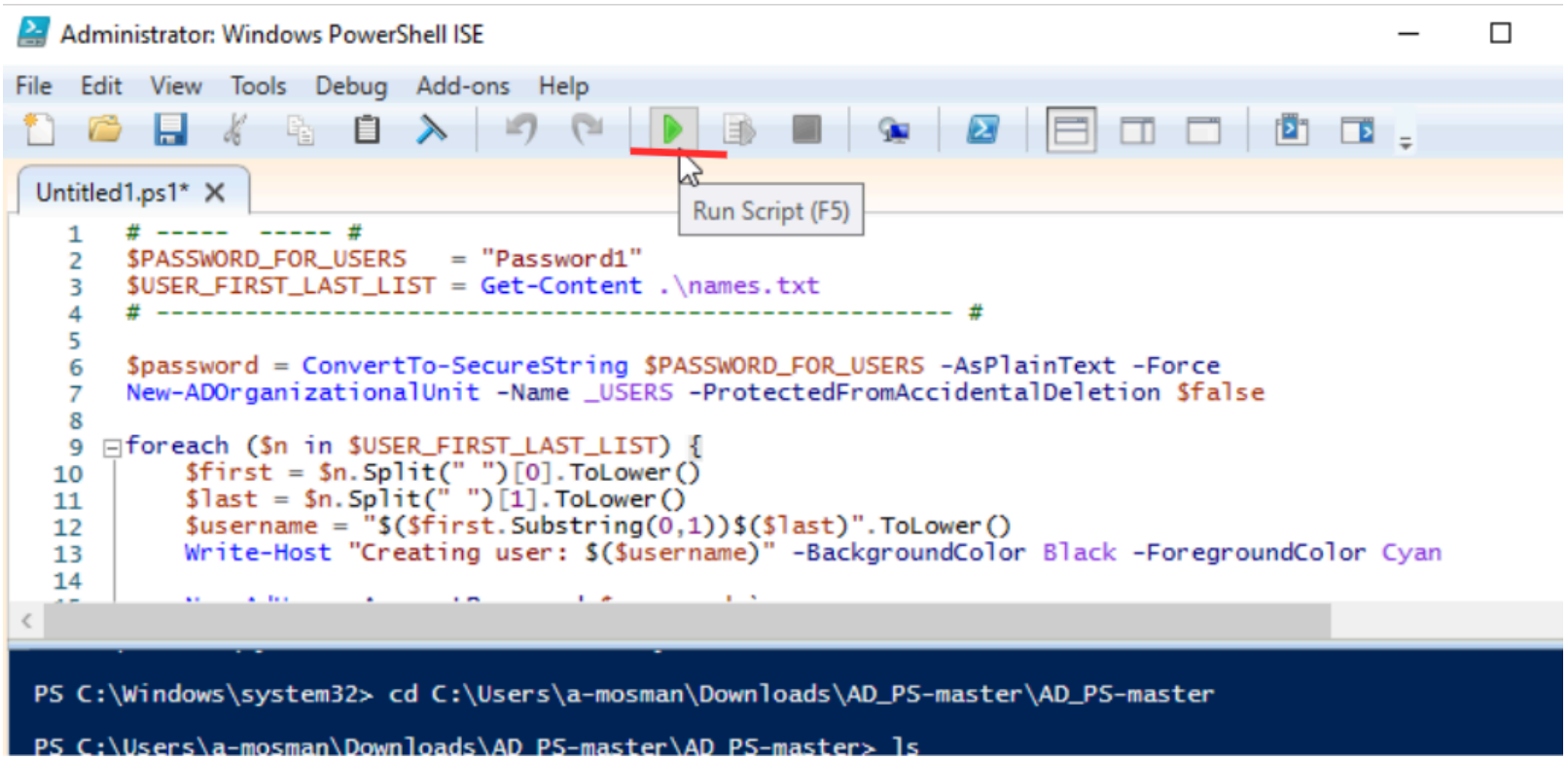
```
PS C:\Windows\system32> Set-ExecutionPolicy Unrestricted

PS C:\Windows\system32> cd C:\Users\a-mosman\Downloads\AD_PS-master\AD_PS-master
```

Ln 3 Col 81

```
PS C:\Windows\system32> Set-ExecutionPolicy Unrestricted

PS C:\Windows\system32> cd C:\Users\a-mosman\Downloads\AD_PS-master\AD_PS-master

PS C:\Users\a-mosman\Downloads\AD_PS-master\AD_PS-master> ls
```

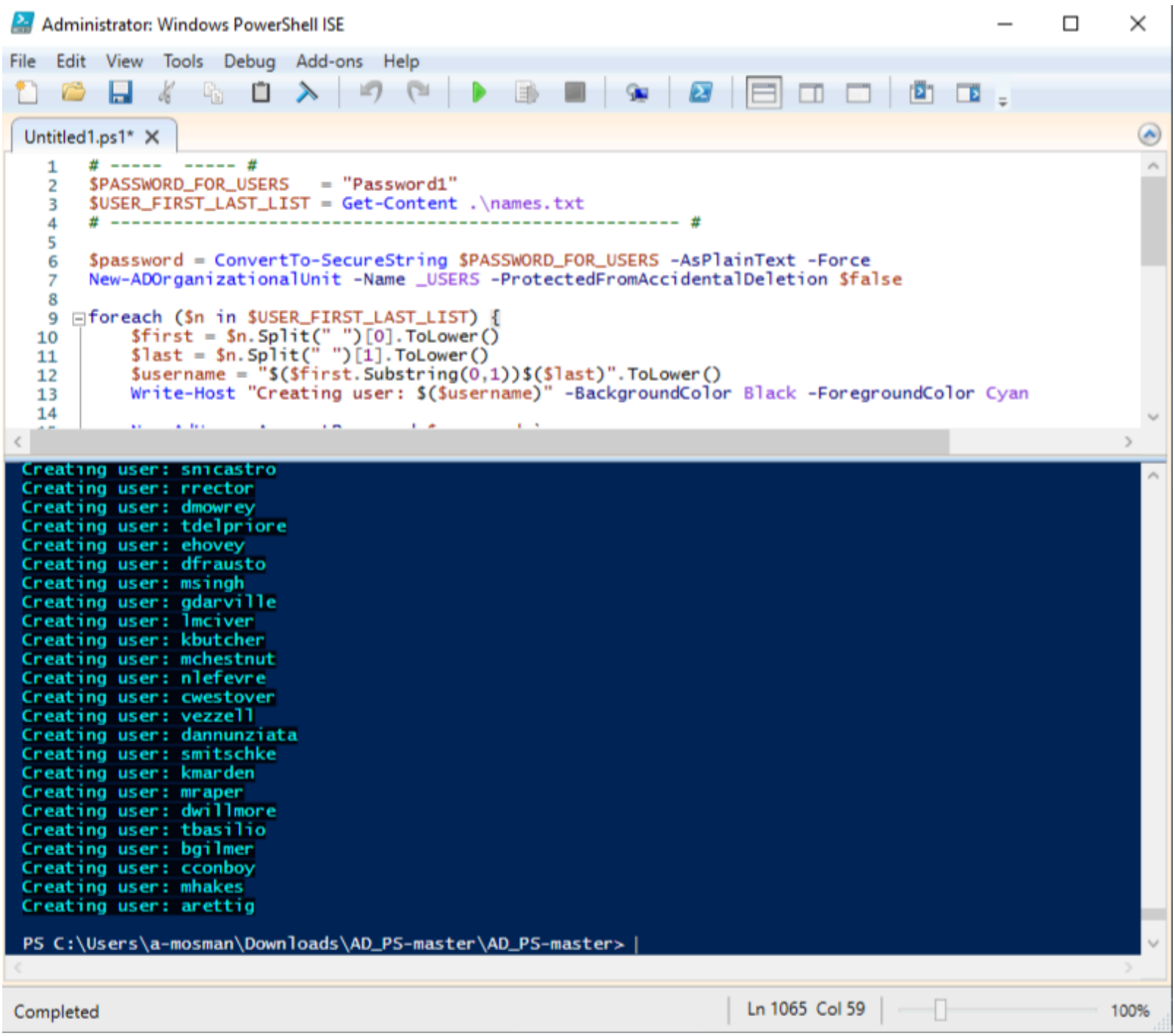
Ln 5 Col 61

```
PS C:\Windows\system32> cd C:\Users\a-mosman\Downloads\AD_PS-master\AD_PS-master

PS C:\Users\a-mosman\Downloads\AD_PS-master\AD_PS-master> ls


    Directory: C:\Users\a-mosman\Downloads\AD_PS-master\AD_PS-master


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
-a----         7/11/2024   2:40 AM           1811 .gitignore
-a----         7/11/2024   2:40 AM           1025 1_CREATE_USERS.ps1
-a----         7/11/2024   2:40 AM           1532 Generate-Names-Create-Users.ps1
-a----         7/11/2024   3:15 AM          15583 names.txt


PS C:\Users\a-mosman\Downloads\AD_PS-master\AD_PS-master>
```



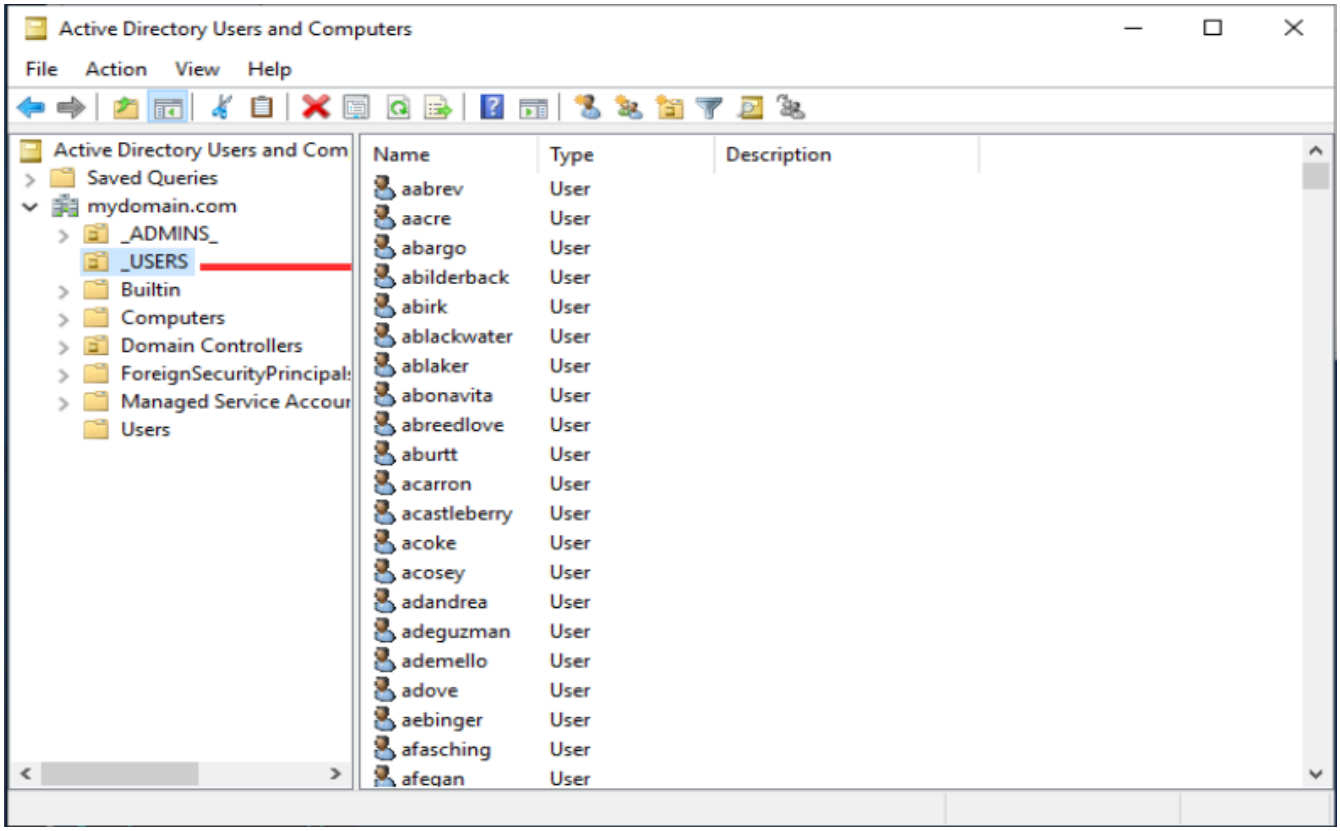
```
PS C:\WINDOWS\system32> # Define the default password for the users
$PASSWORD_FOR_USERS = "Password1"

# Read the list of user names (first and last names) from the file 'names.txt'
$USER_FIRST_LAST_LIST = Get-Content .\names.txt

# Convert the plain text password to a secure string
$password = ConvertTo-SecureString $PASSWORD_FOR_USERS -AsPlainText -Force

# Create a new Active Directory Organizational Unit (OU) named '_USERS'
# and make it unprotected from accidental deletion
New-ADOrganizationalUnit -Name _USERS -ProtectedFromAccidentalDeletion $false

# Loop through each name in the list of user names
foreach ($n in $USER_FIRST_LAST_LIST) {
    # Extract the first name and convert it to lowercase
    $first = $n.Split(" ")[0].ToLower()
    # Extract the last name and convert it to lowercase
    $last = $n.Split(" ")[1].ToLower()
    # Create a username by combining the first initial and the last name,
    # then convert it to lowercase
    $username = "$($first.Substring(0,1))$($last)".ToLower()
    # Output the username being created to the console
    Write-Host "Creating user: $($username)" -BackgroundColor Black -ForegroundColor Cyan

    # Create a new Active Directory user with the specified properties
    New-AdUser -AccountPassword $password `  # Set the account password
               -GivenName $first `          # Set the given name (first name)
               -Surname $last `             # Set the surname (last name)
               -DisplayName $username `     # Set the display name to the username
               -Name $username `            # Set the name to the username
               -EmployeeID $username `      # Set the employee ID to the username
               -PasswordNeverExpires $true `# Set the password to never expire
               -Path "ou=_USERS,$(([ADSI]`"").distinguishedName)" ` # Set the path to the new
OU
               -Enabled $true               # Enable the user account
}
```

This is the script used in the PowerShell script with explanation

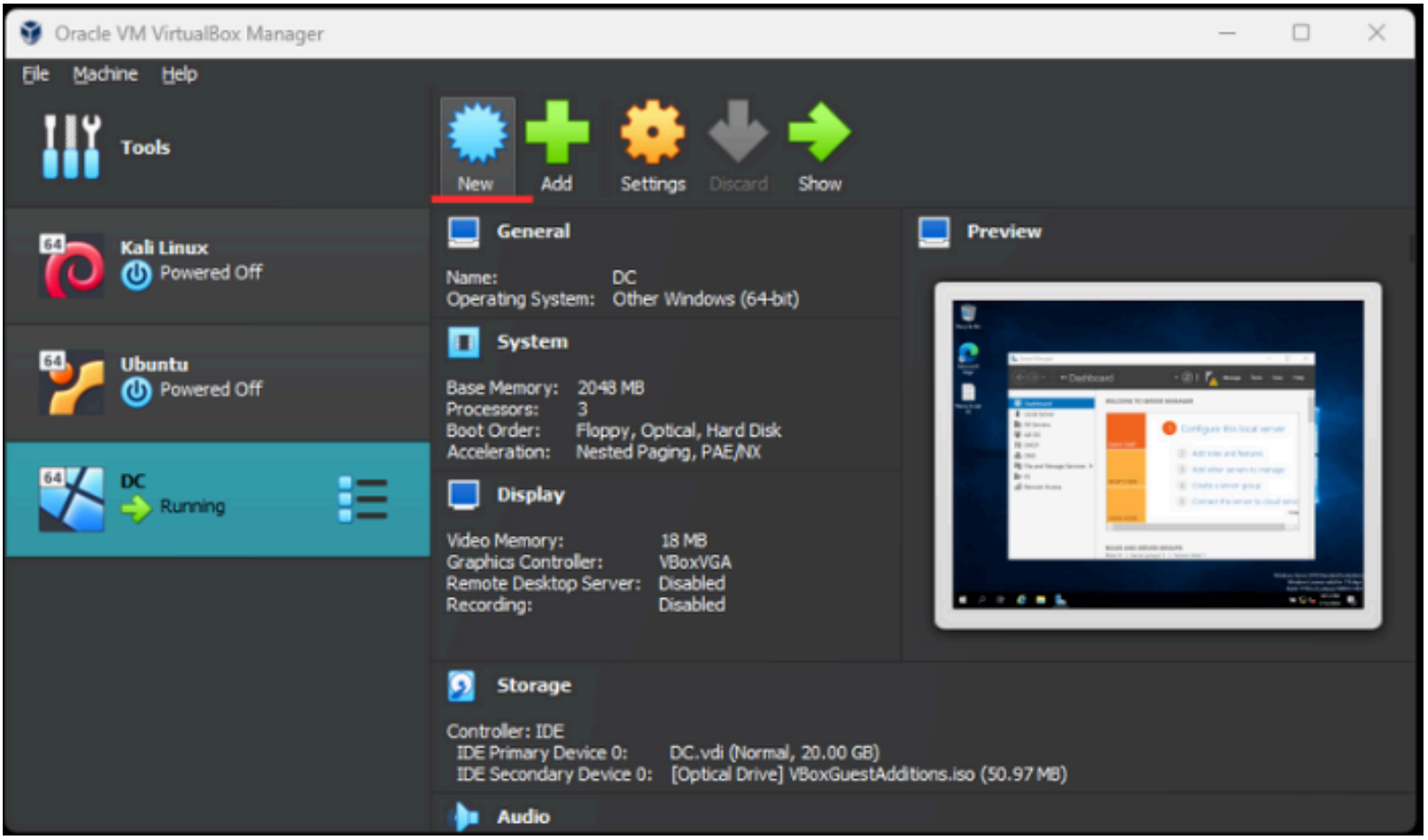

Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
Untitled1.ps1*
----- -----
$PASSWORD_FOR_USERS = "Password1"
$USER_FIRST_LAST_LIST = Get-Content .\names.txt

$password = ConvertTo-SecureString $PASSWORD_FOR_USERS -AsPlainText -Force
New-ADOrganizationalUnit -Name _USERS -ProtectedFromAccidentalDeletion $false
foreach ($n in $USER_FIRST_LAST_LIST) {
$first = $n.Split(" ")[0].ToLower()
$last = $n.Split(" ")[1].ToLower()
$username = "$($first.Substring(0,1))$($last)".ToLower()
Write-Host "Creating user: $($username)" -BackgroundColor Black -ForegroundColor Cyan
Creating user: snicastro
Creating user: rrector
Creating user: dmowrey
Creating user: tdelpriore
Creating user: ehovey
Creating user: dfrausto
Creating user: msingh
Creating user: gdarville
Creating user: lmciver
Creating user: kbutcher
Creating user: mchestnut
Creating user: nlefevre
Creating user: cwestover
Creating user: vezzell
Creating user: dannunziata
Creating user: smitschke
Creating user: kmarden
Creating user: mraper
Creating user: dwillmore
Creating user: tbasilio
Creating user: bgilmer
Creating user: cconboy
Creating user: mhakes
Creating user: arettig
PS C:\Users\a-mosman\Downloads\AD_PS-master\AD_PS-master>
Completed
Ln 1065 Col 59
100%

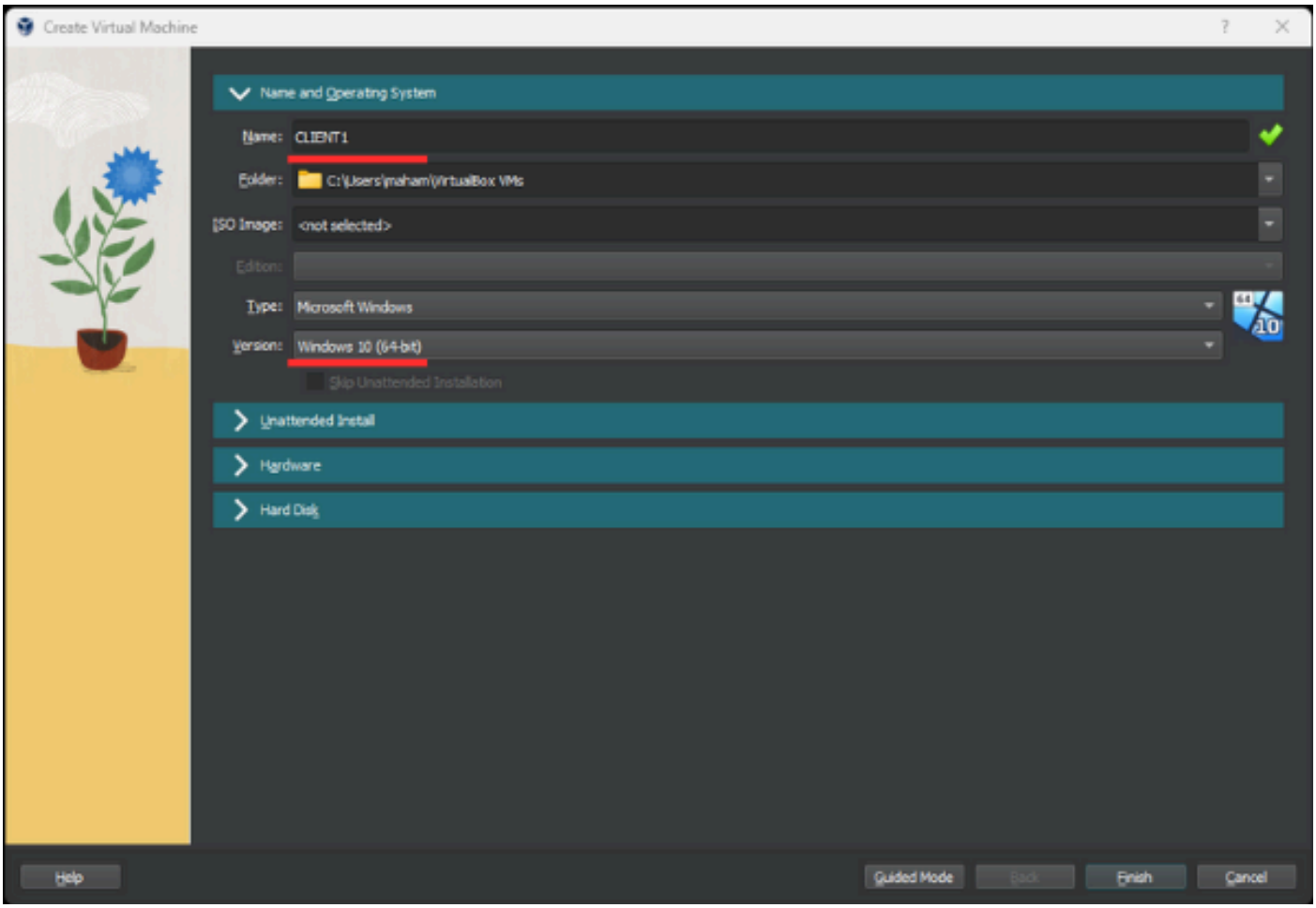

names - Notepad
File Edit Format View Help
Mahamud Osman
Monroe Mcelroy
Annamaria Loy
Corliss Levett
Merilyn Escovedo
Danica Pulsifer
Carolee Philbrook
Dannette Mouton
Guadalupe Joachim
Wiley Capella
Mayra Warring
Alberto Deguzman
Inga Larochelle
Carmelia Bruen
Chanda Zemlicka
Yun Picard
Sofia Dike
Brigid Smalls
Ma Robinett
Norma Larkey
Carlo Larger
Arica Gannon
Ara Molino
Latarsha Finlay
Chery Raber
Jere Satterwhite
Latonya Westover
Calandra Hetrick
Mechelle Liechty
Allie Maske
Louella Beumer
Betty Abshire
Verlie Schuler
Le Olson
Windov Ln 1, C(100%


Active Directory Users and Computers
File Action View Help
Active Directory Users and Com
Saved Queries
mydomain.com
ADMINS
_USERS
Builtin
Computers
Domain Controllers
ForeignSecurityPrincipals
Managed Service Accour
Users
Name Type Description
aabrev User
aacre User
abargo User
abilderback User
abirk User
ablackwater User
ablaker User
abonavita User
abreedlove User
aburtt User
acarron User
acastleberry User
acoke User
acosey User
adandrea User
adeguzman User
ademello User
adove User
aebinger User
afasching User
afegan User

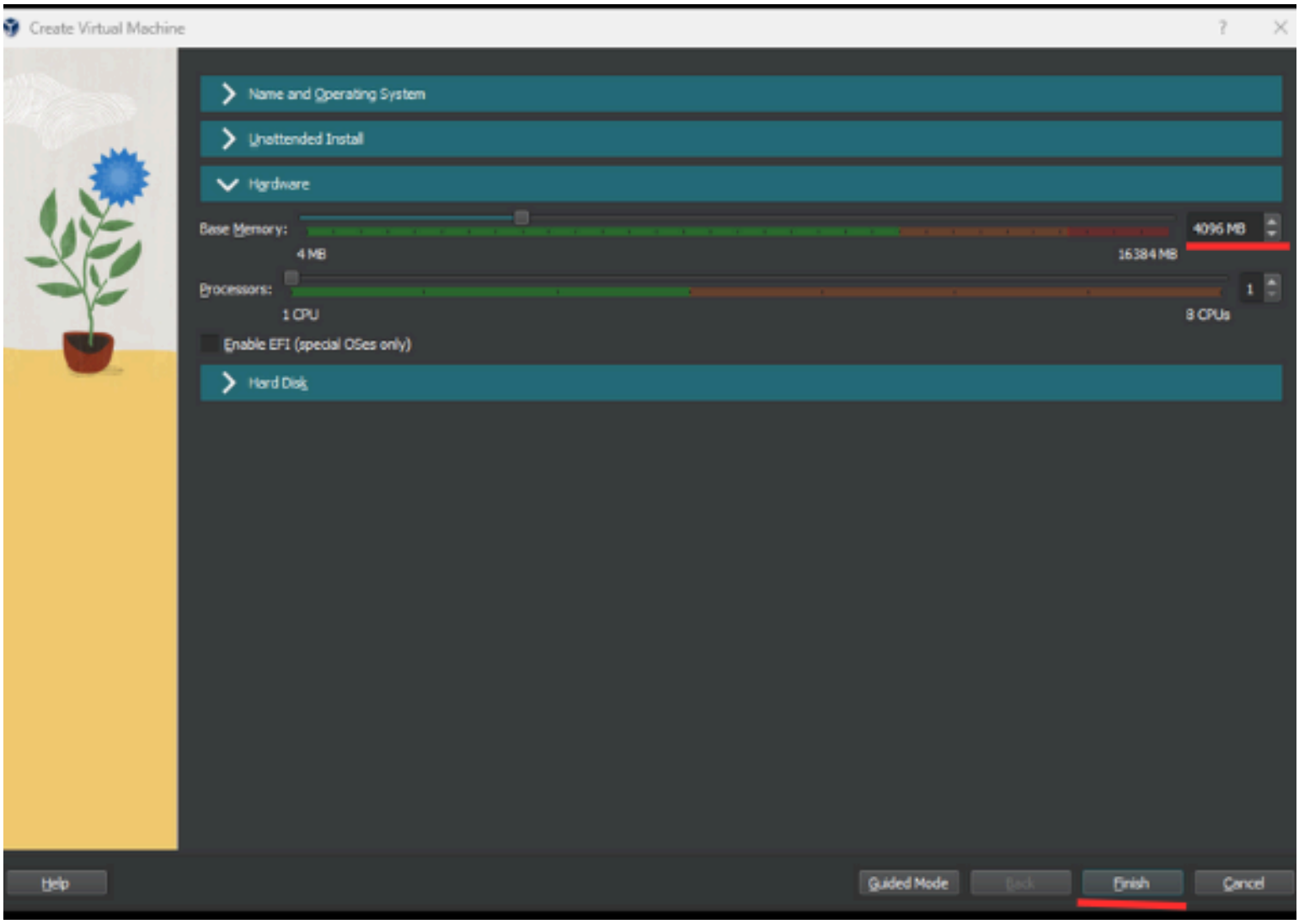
Now we will create a client computer that will connect to the internet through the domain controller.

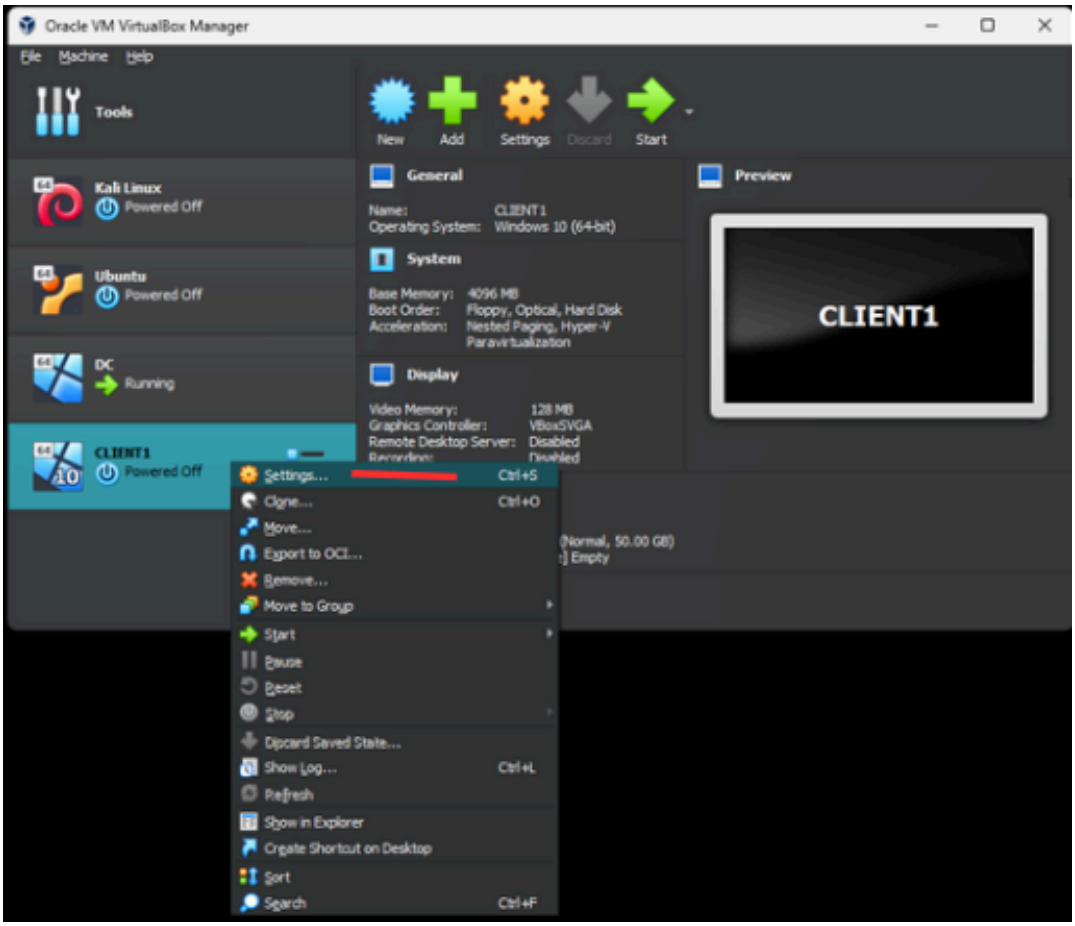


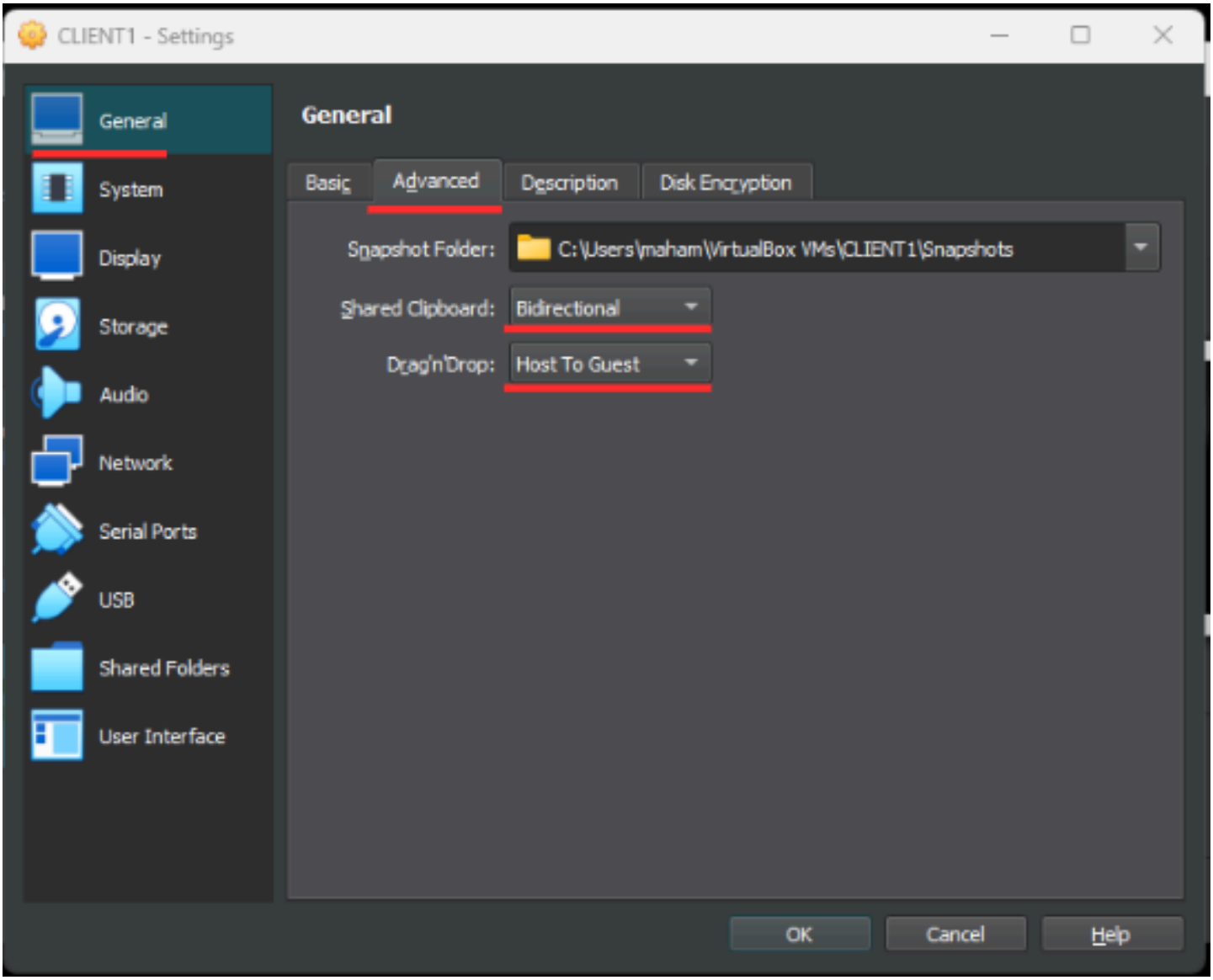
CLIENT1

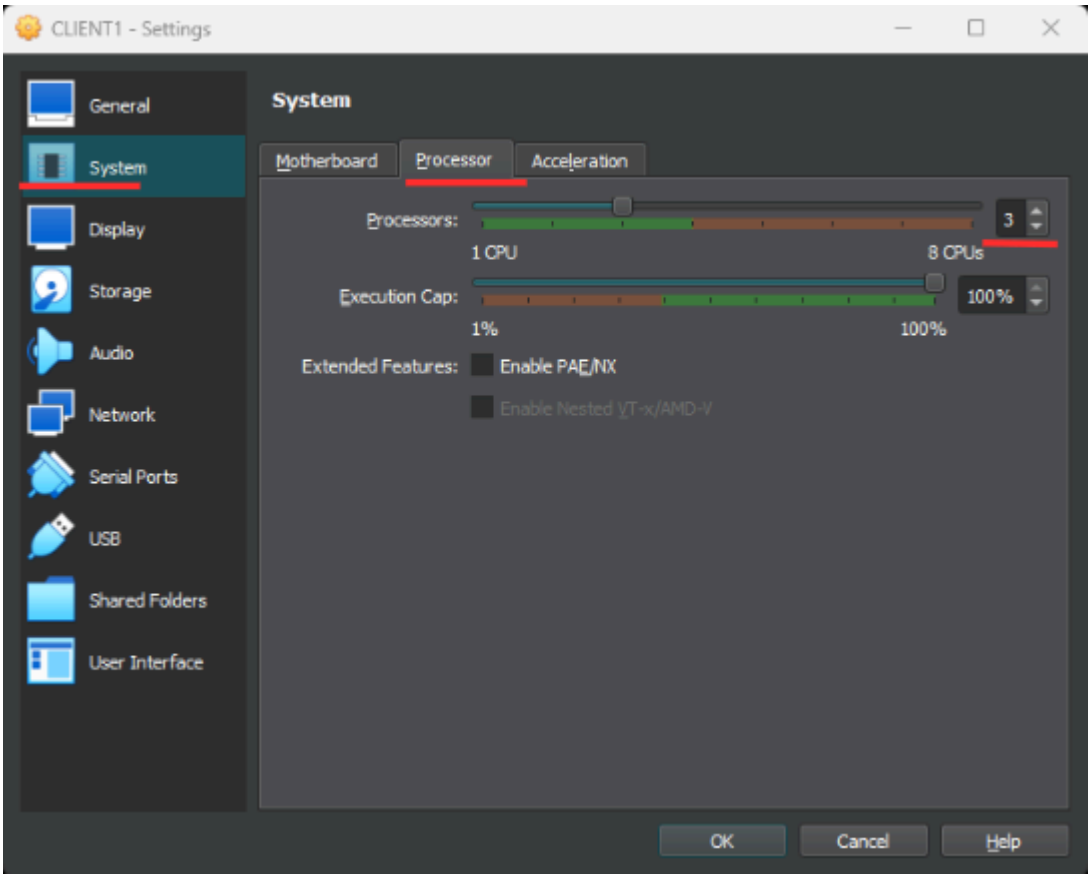


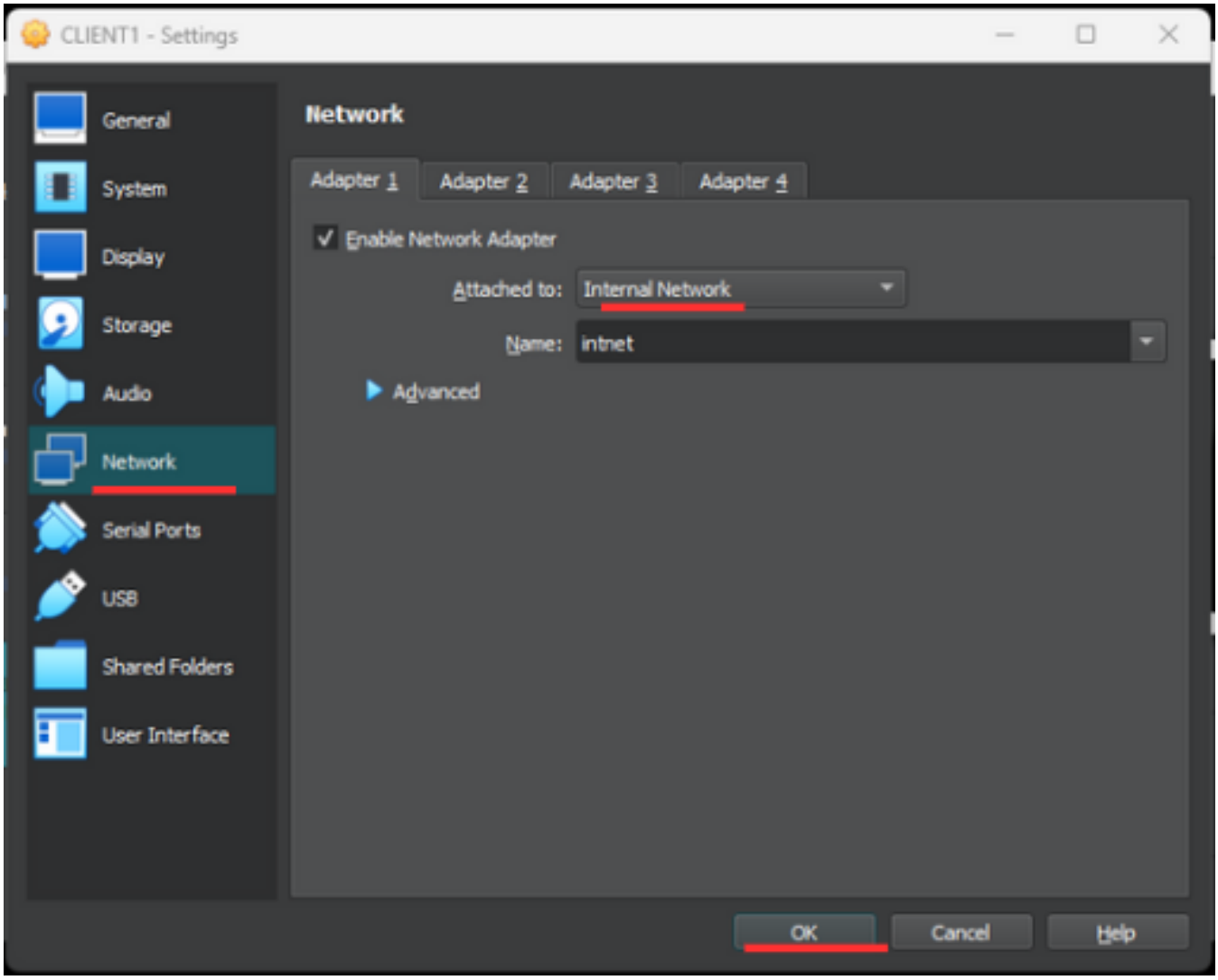
4095 MB


Create Virtual Machine
Name and Operating System
Unattended Install
Hardware
Base Memory:
4096 MB
4 MB
16384 MB
Processors:
1
1 CPU
8 CPUs
Enable EFI (special OSes only)
Hard Disk
Help
Guided Mode
Back
Finish
Cancel

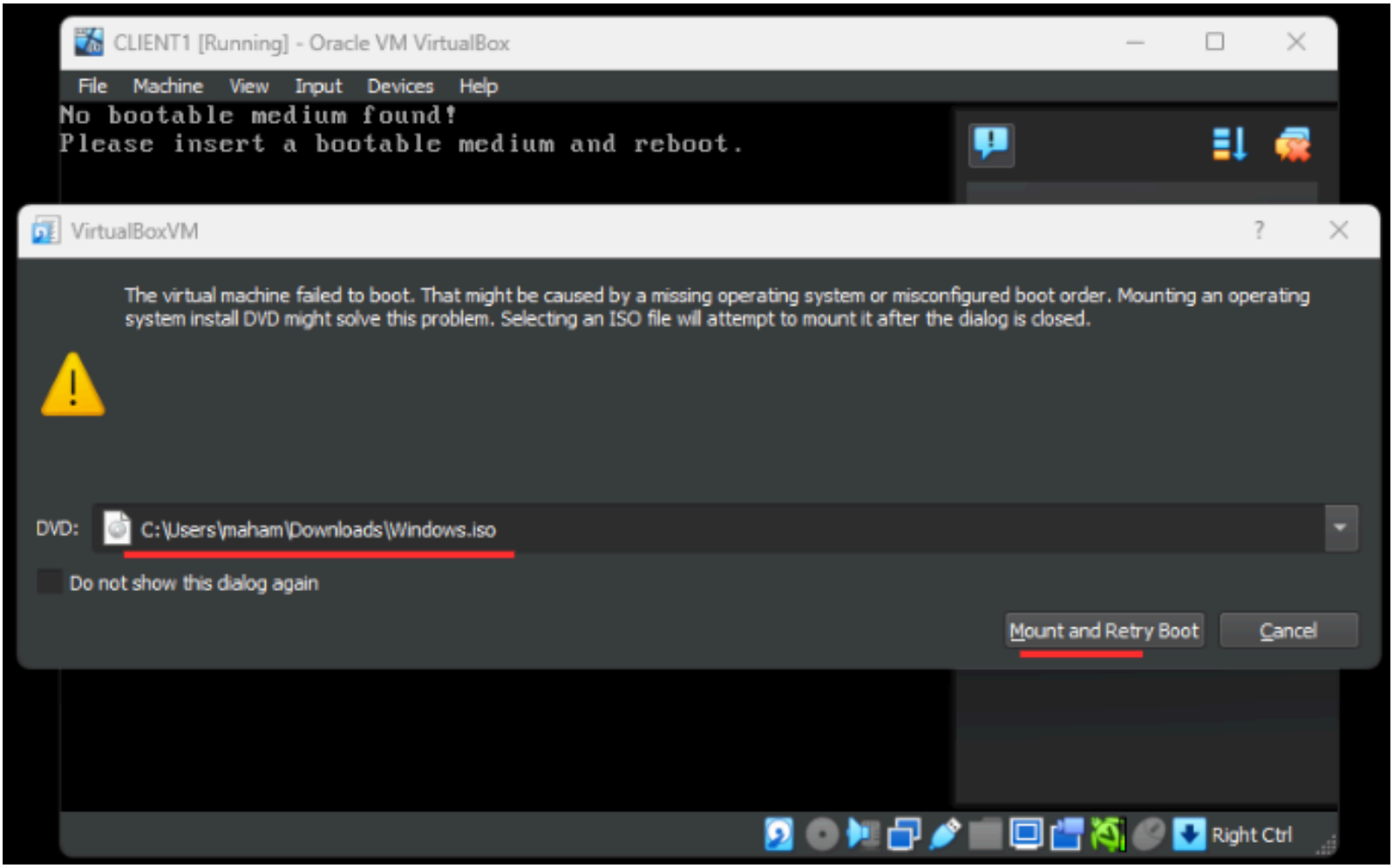

Oracle VM VirtualBox Manager
File
Machine
Help
Tools
New
Add
Settings
Discard
Start
Kali Linux
Powered Off
Ubuntu
Powered Off
DC
Running
CLIENT1
Powered Off
General
Name: CLIENT1
Operating System: Windows 10 (64-bit)
System
Base Memory: 4096 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, Hyper-V
Paravirtualization
Display
Video Memory: 128 MB
Graphics Controller: VBoxSVGA
Remote Desktop Server: Disabled
Preview
CLIENT1
Settings... Ctrl+S
Clone... Ctrl+O
Move...
Export to OCI...
Remove...
Move to Group
Start
Pause
Reset
Stop
Discard Saved State...
Show Log... Ctrl+L
Refresh
Show in Explorer
Create Shortcut on Desktop
Sort
Search Ctrl+F

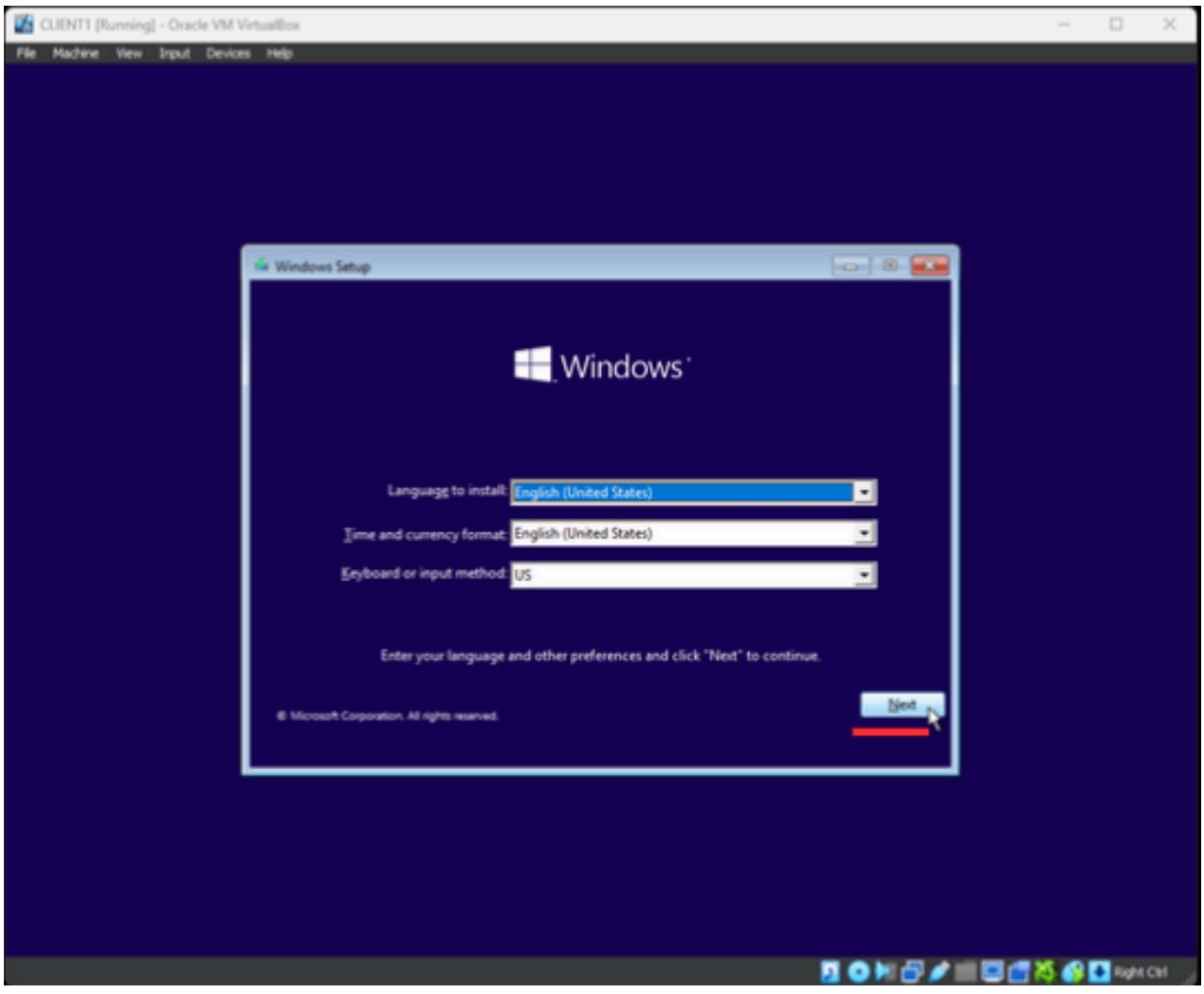

CLIENT1 - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
General
Basic
Advanced
Description
Disk Encryption
Snapshot Folder:
C:\Users\maham\VirtualBox VMs\CLIENT1\Snapshots
Shared Clipboard:
Bidirectional
Drag'n'Drop:
Host To Guest
OK
Cancel
Help

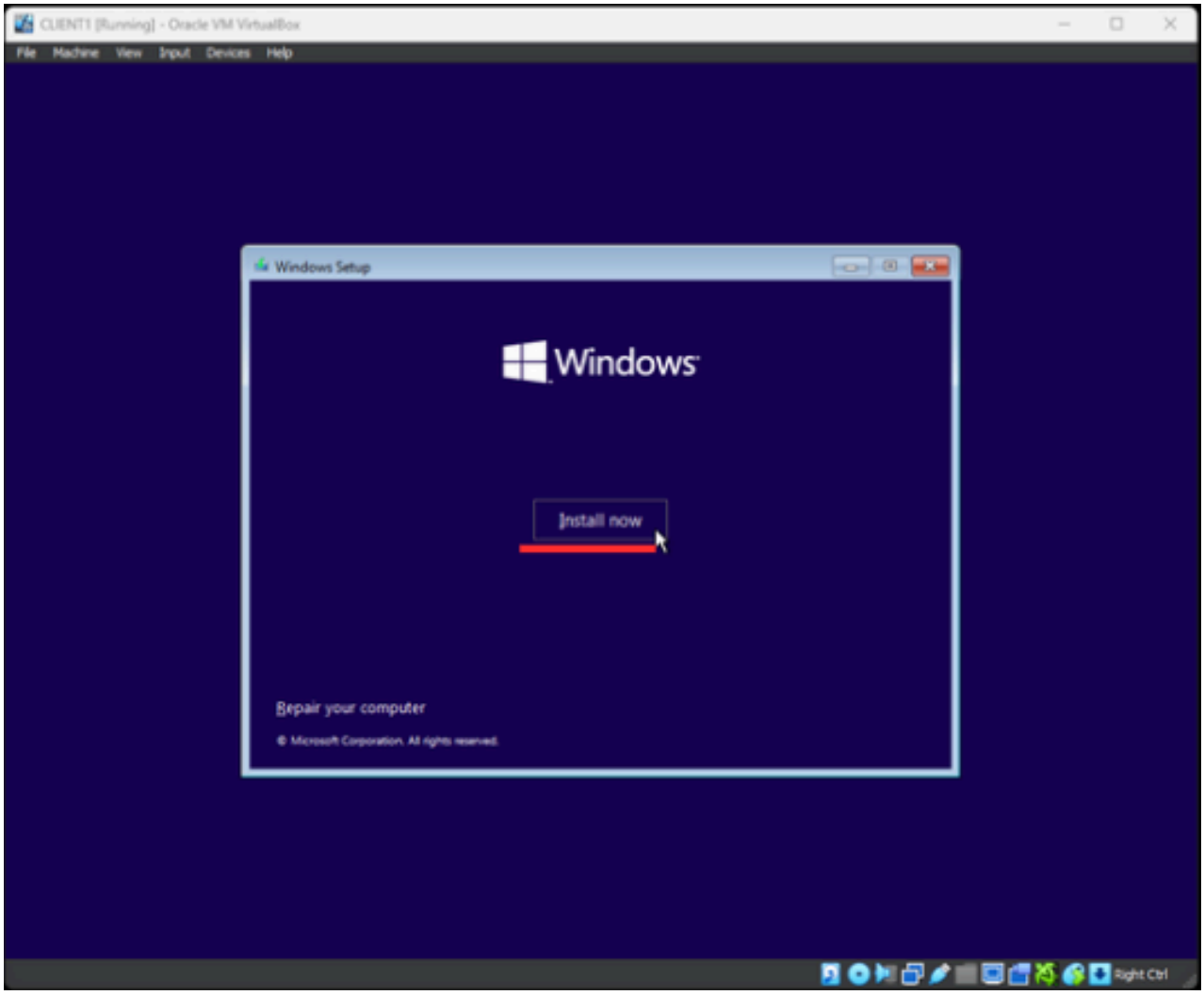

CLIENT1 - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
System
Motherboard
Processor
Acceleration
Processors:
3
1 CPU
8 CPUs
Execution Cap:
100%
1%
100%
Extended Features:
Enable PAE/NX
Enable Nested VT-x/AMD-V
OK
Cancel
Help

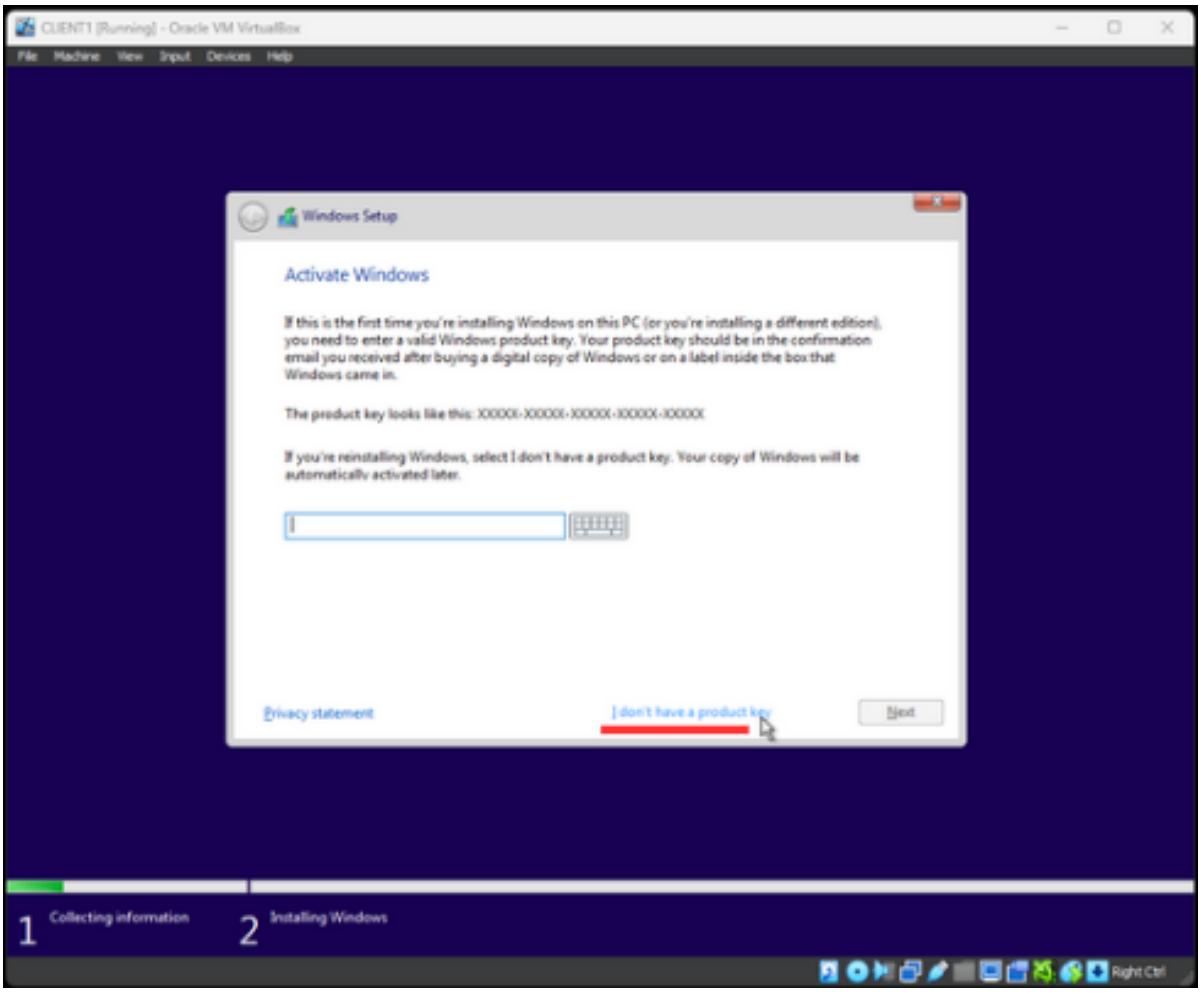

CLIENT1 - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Network
Adapter 1
Adapter 2
Adapter 3
Adapter 4
Enable Network Adapter
Attached to:
Internal Network
Name:
intnet
Advanced
OK
Cancel
Help

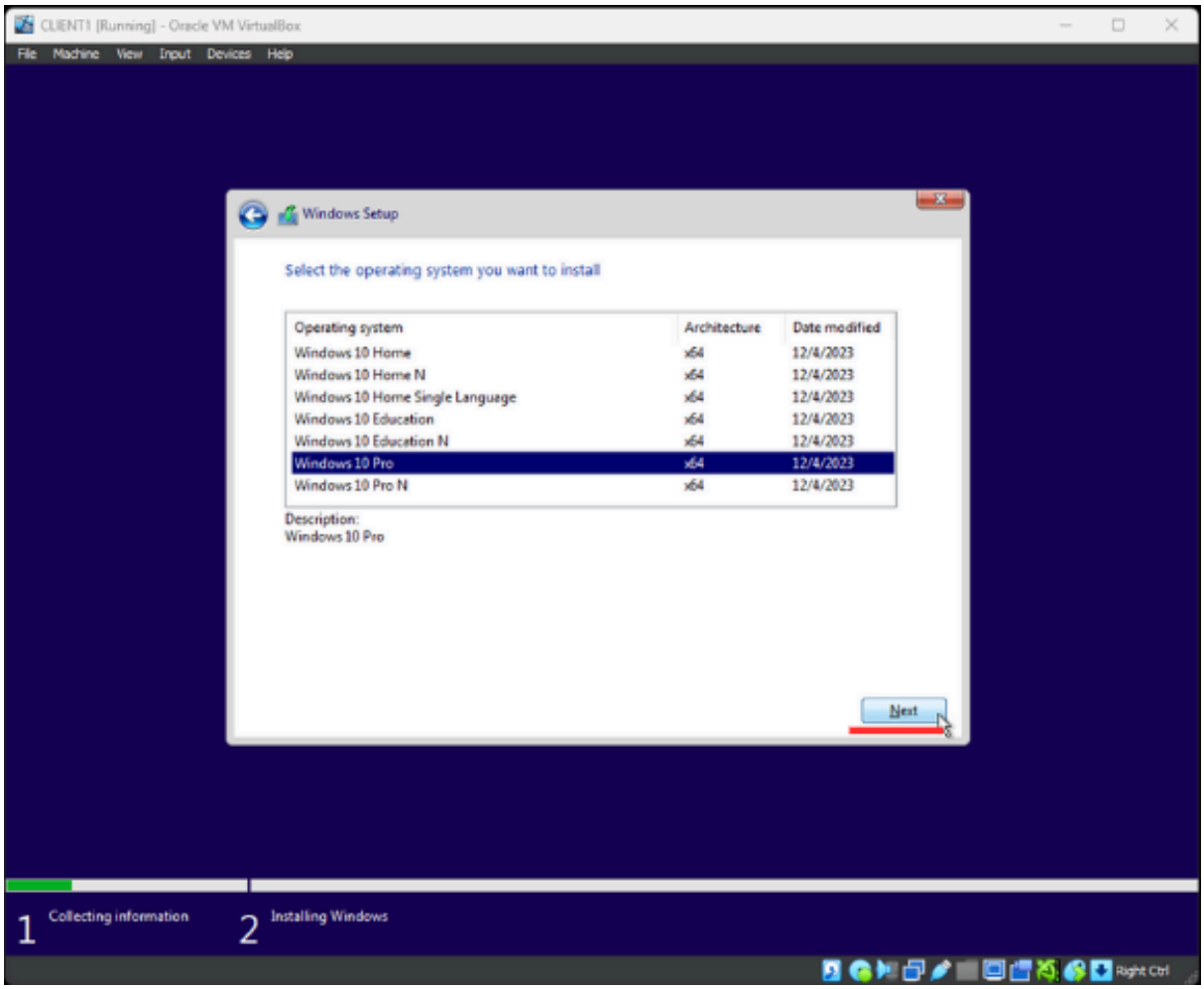

Oracle VM VirtualBox Manager
File
Machine
Help
Tools
New
Add
Settings
Discard
Start
Kali Linux
Powered Off
Ubuntu
Powered Off
DC
Running
CLIENT1
Powered Off
General
Name: CLIENT1
Operating System: Windows 10 (64-bit)
System
Base Memory: 4096 MB
Processors: 3
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, Hyper-V Paravirtualization
Display
Video Memory: 128 MB
Graphics Controller: VBoxSVGA
Remote Desktop Server: Disabled
Recording: Disabled
Storage
Controller: SATA
SATA Port 0: CLIENT1.vdi (Normal, 50.00 GB)
SATA Port 1: [Optical Drive] Empty
Audio
Preview
CLIENT1

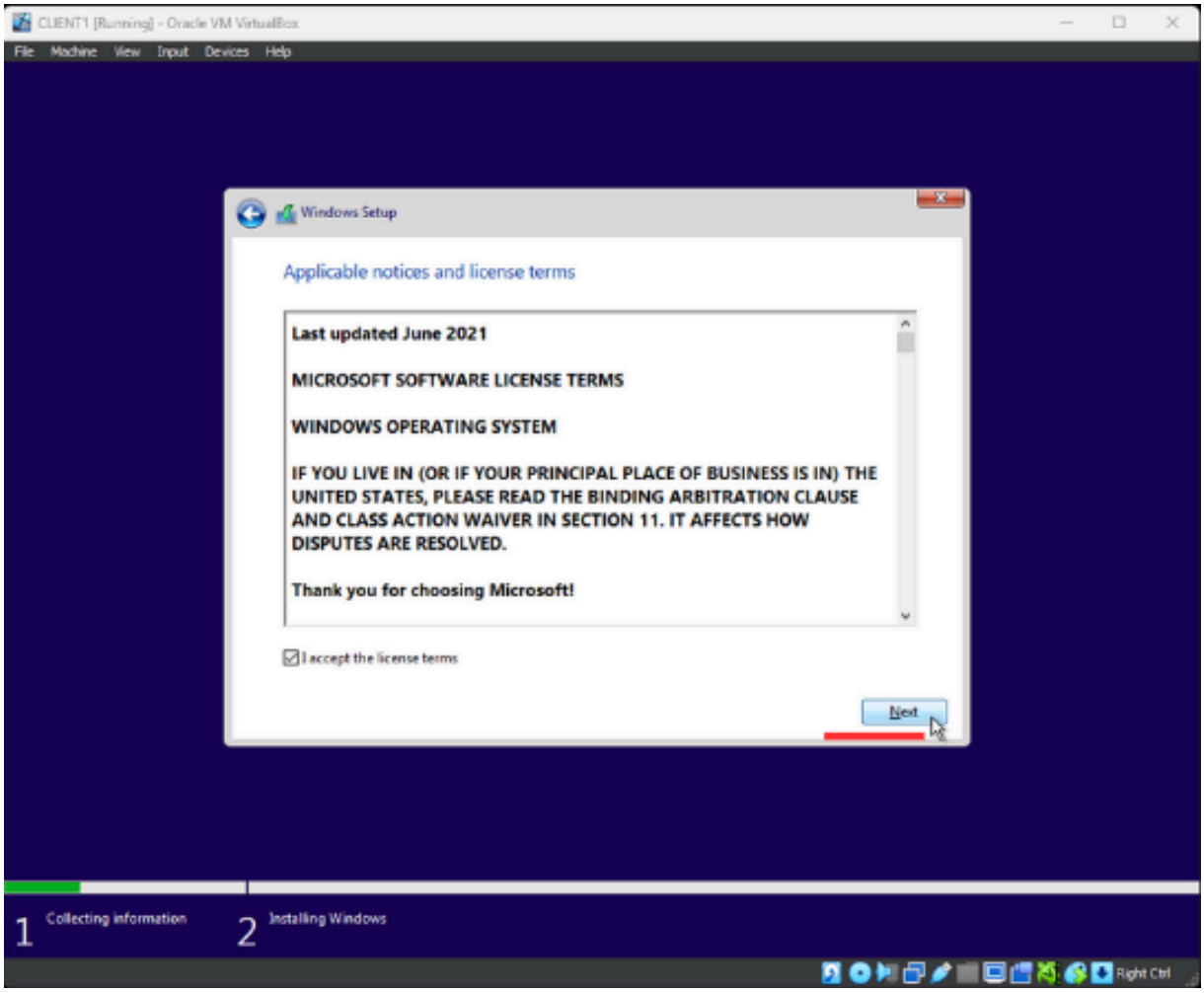

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
No bootable medium found!
Please insert a bootable medium and reboot.
VirtualBoxVM
The virtual machine failed to boot. That might be caused by a missing operating system or misconfigured boot order. Mounting an operating system install DVD might solve this problem. Selecting an ISO file will attempt to mount it after the dialog is closed.
DVD:
C:\Users\maham\Downloads\Windows.iso
Do not show this dialog again
Mount and Retry Boot
Cancel
Right Ctrl

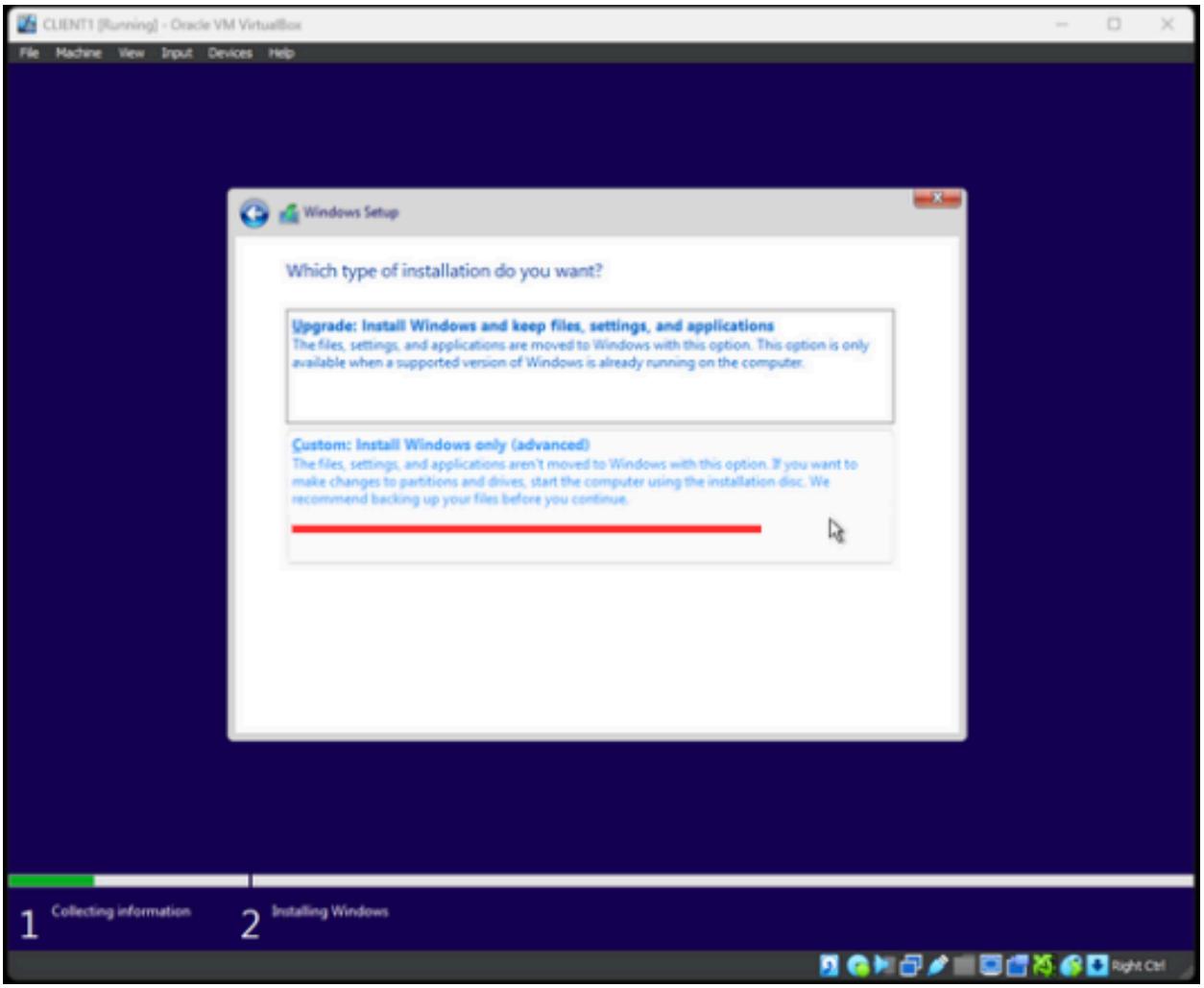

Windows Setup
Windows
Language to install: English (United States)
Time and currency format: English (United States)
Keyboard or input method: US
Enter your language and other preferences and click "Next" to continue.
Next

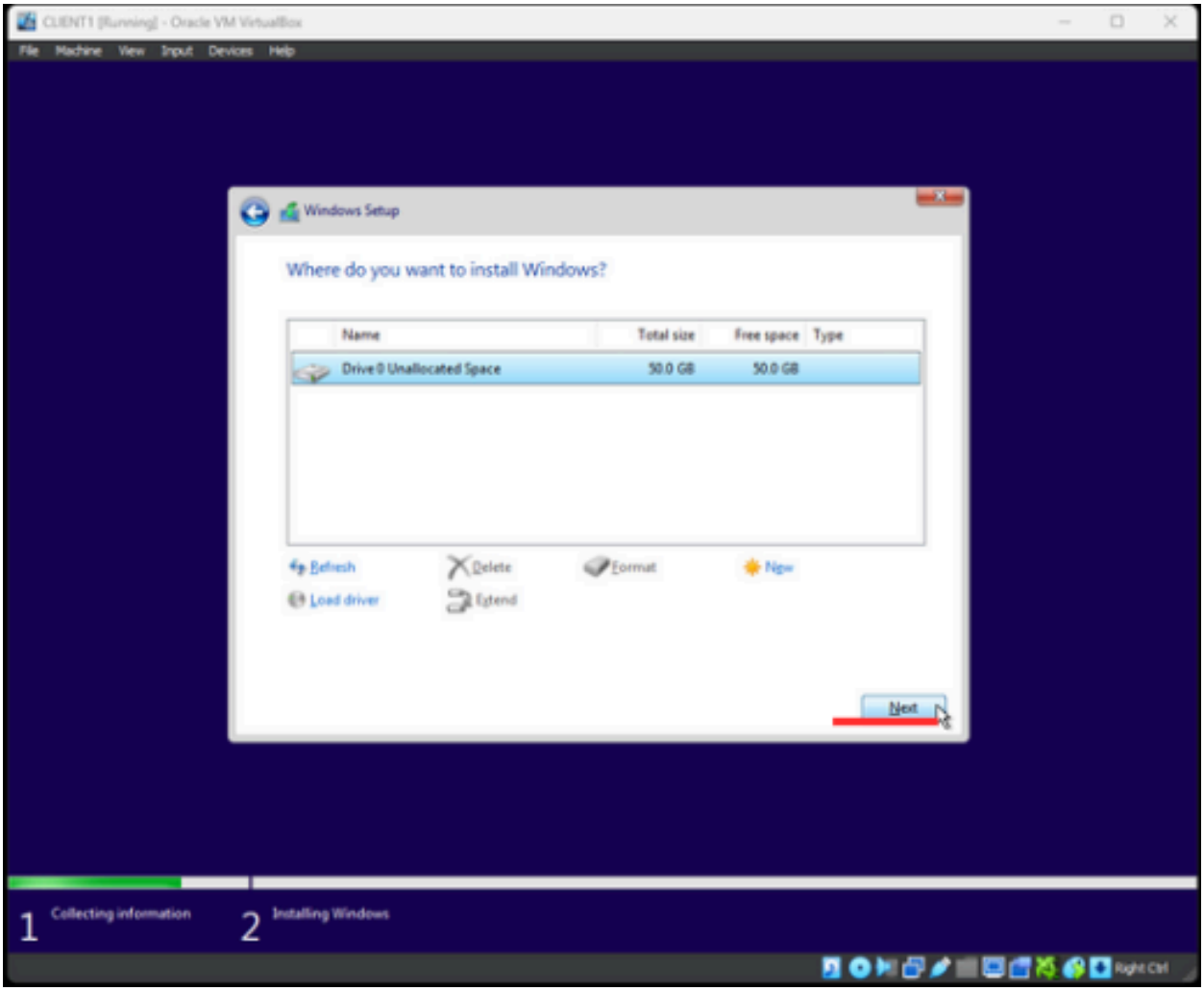

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Windows Setup
Windows
Install now
Repair your computer
© Microsoft Corporation. All rights reserved.
Right Ctrl

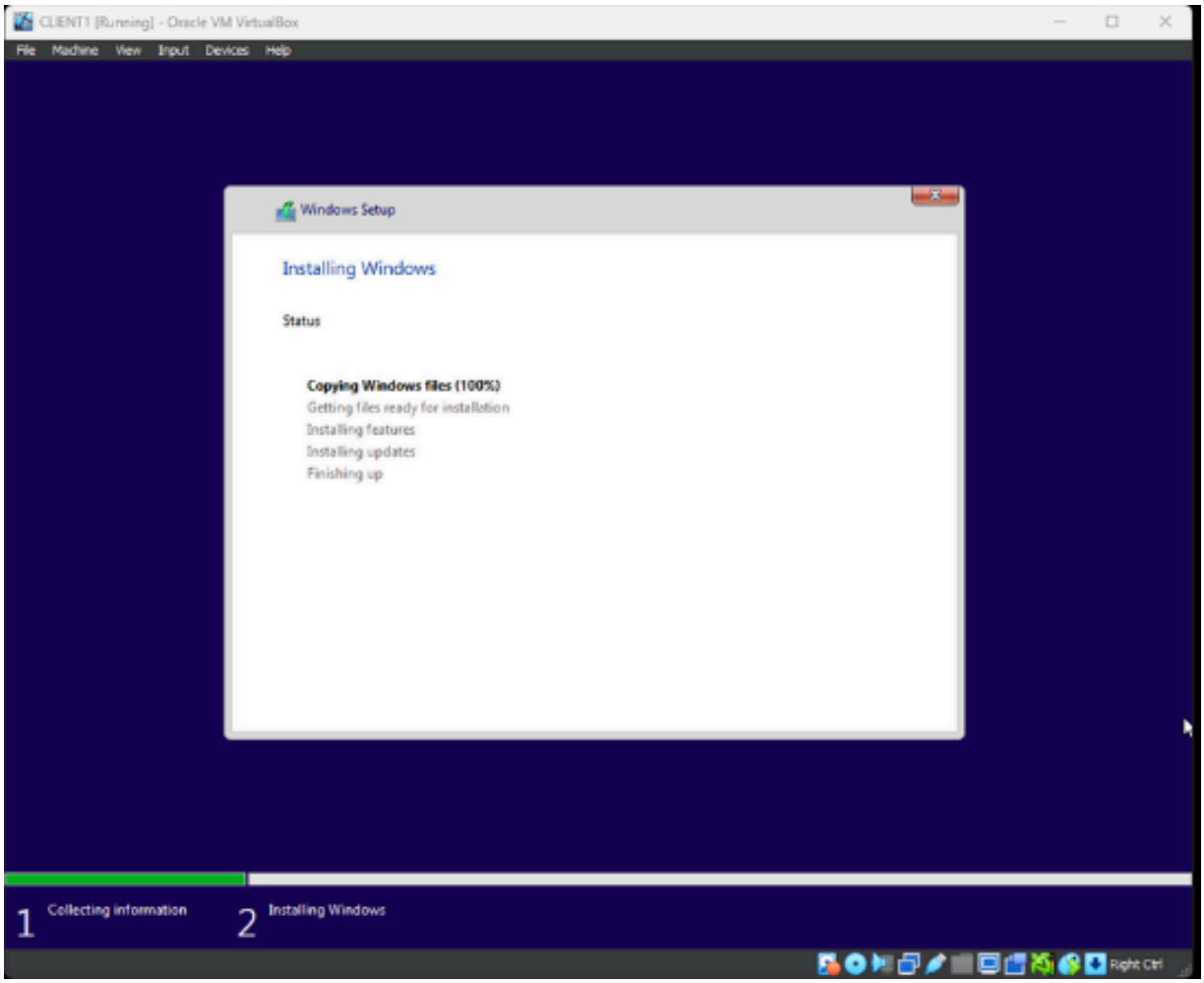

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Windows Setup
Activate Windows
If this is the first time you're installing Windows on this PC (or you're installing a different edition), you need to enter a valid Windows product key. Your product key should be in the confirmation email you received after buying a digital copy of Windows or on a label inside the box that Windows came in.
The product key looks like this: XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
If you're reinstalling Windows, select I don't have a product key. Your copy of Windows will be automatically activated later.
Privacy statement
I don't have a product key
Next
1 Collecting information
2 Installing Windows
Right Ctrl

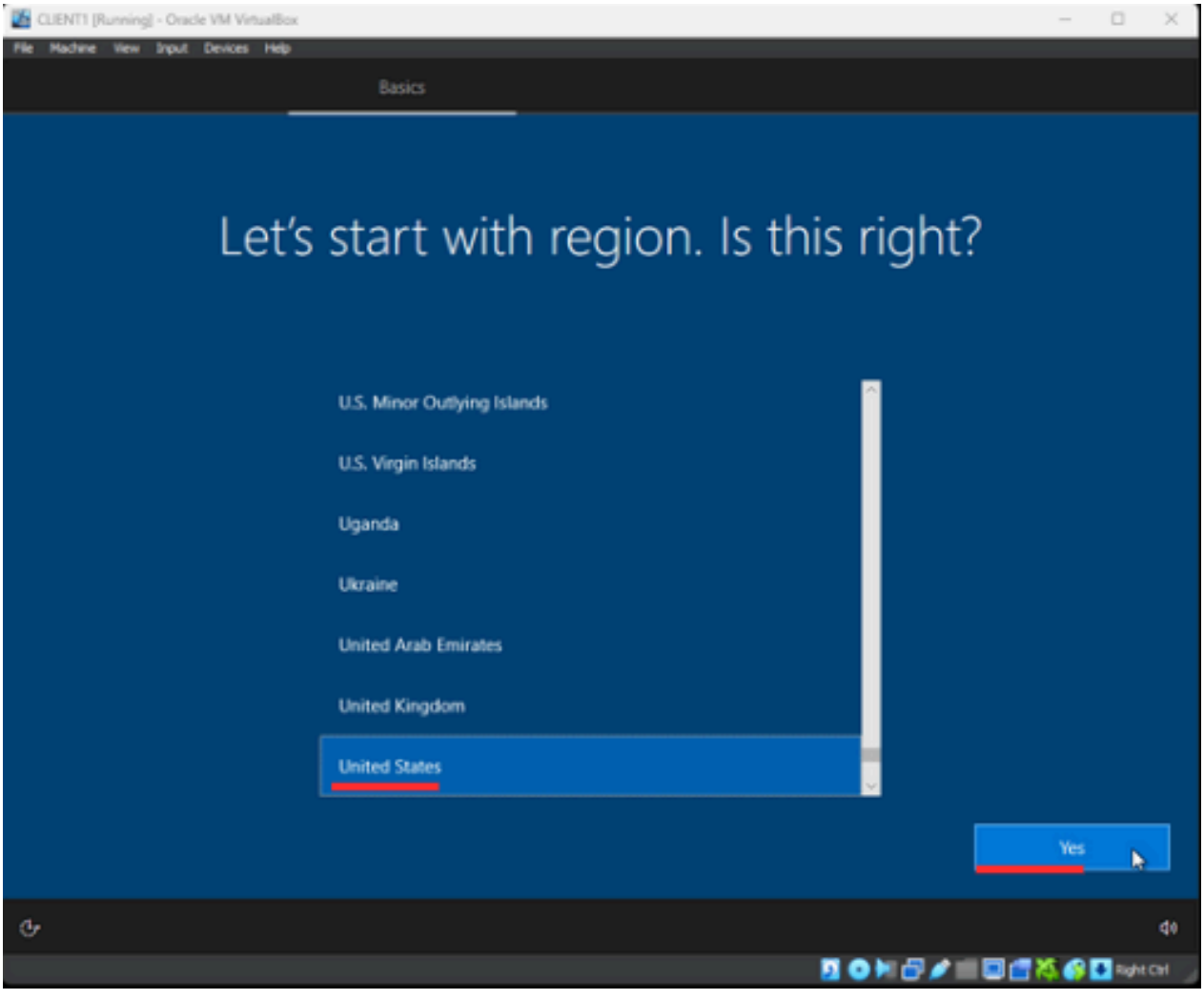

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Windows Setup
Select the operating system you want to install
Operating system
Architecture
Date modified
Windows 10 Home
x64
12/4/2023
Windows 10 Home N
x64
12/4/2023
Windows 10 Home Single Language
x64
12/4/2023
Windows 10 Education
x64
12/4/2023
Windows 10 Education N
x64
12/4/2023
Windows 10 Pro
x64
12/4/2023
Windows 10 Pro N
x64
12/4/2023
Description:
Windows 10 Pro
Next
1 Collecting information
2 Installing Windows
Right Ctrl

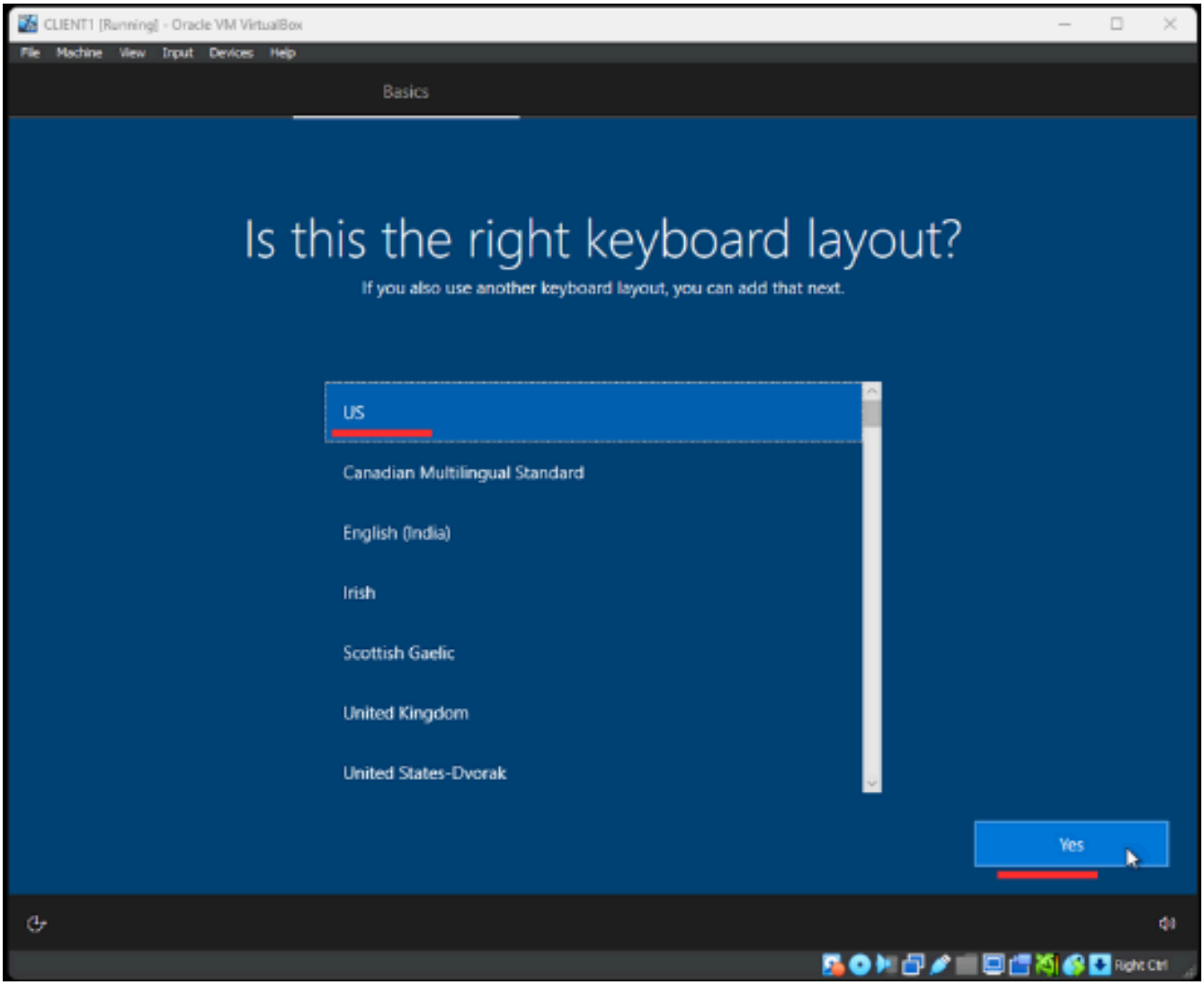

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Windows Setup
Applicable notices and license terms
Last updated June 2021
MICROSOFT SOFTWARE LICENSE TERMS
WINDOWS OPERATING SYSTEM
IF YOU LIVE IN (OR IF YOUR PRINCIPAL PLACE OF BUSINESS IS IN) THE UNITED STATES, PLEASE READ THE BINDING ARBITRATION CLAUSE AND CLASS ACTION WAIVER IN SECTION 11. IT AFFECTS HOW DISPUTES ARE RESOLVED.
Thank you for choosing Microsoft!
I accept the license terms
Next
1 Collecting information
2 Installing Windows
Right Ctrl

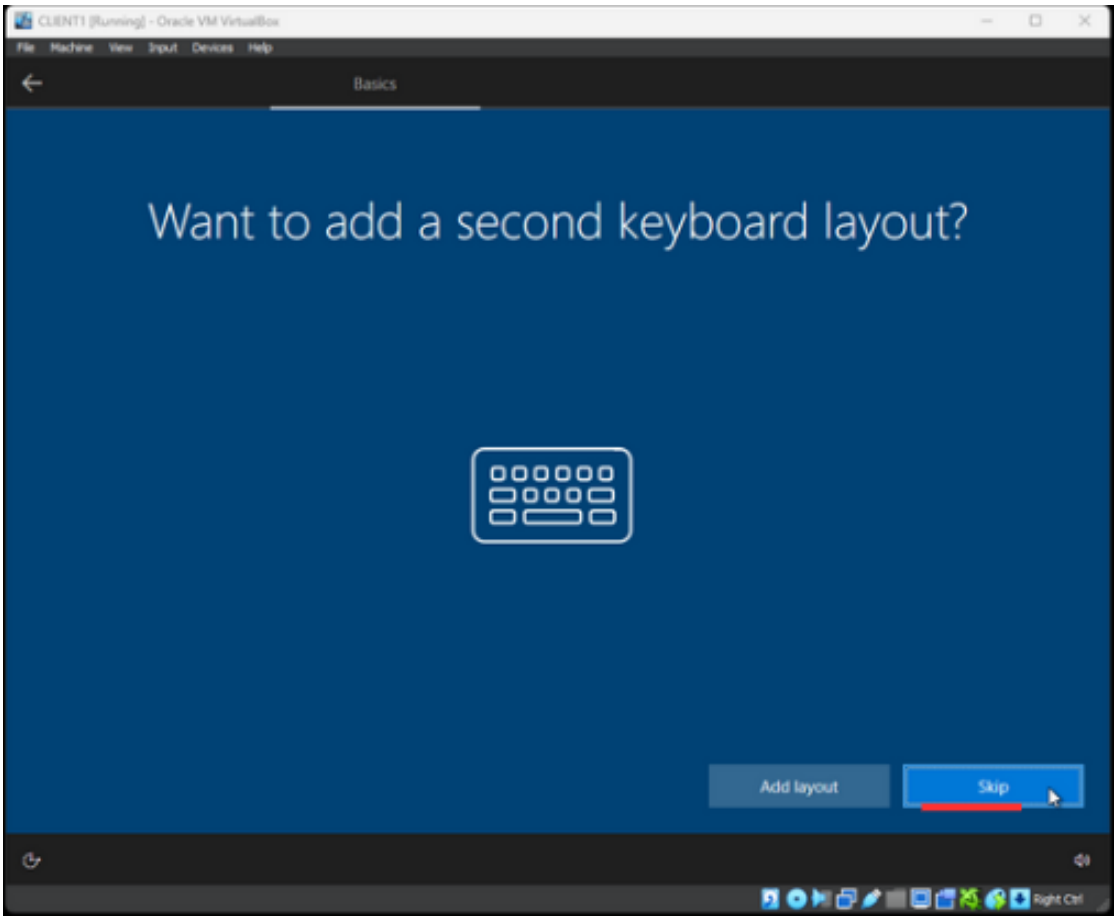

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Windows Setup
Which type of installation do you want?
Upgrade: Install Windows and keep files, settings, and applications
The files, settings, and applications are moved to Windows with this option. This option is only available when a supported version of Windows is already running on the computer.
Custom: Install Windows only (advanced)
The files, settings, and applications aren't moved to Windows with this option. If you want to make changes to partitions and drives, start the computer using the installation disc. We recommend backing up your files before you continue.
1 Collecting information
2 Installing Windows
Right Ctrl

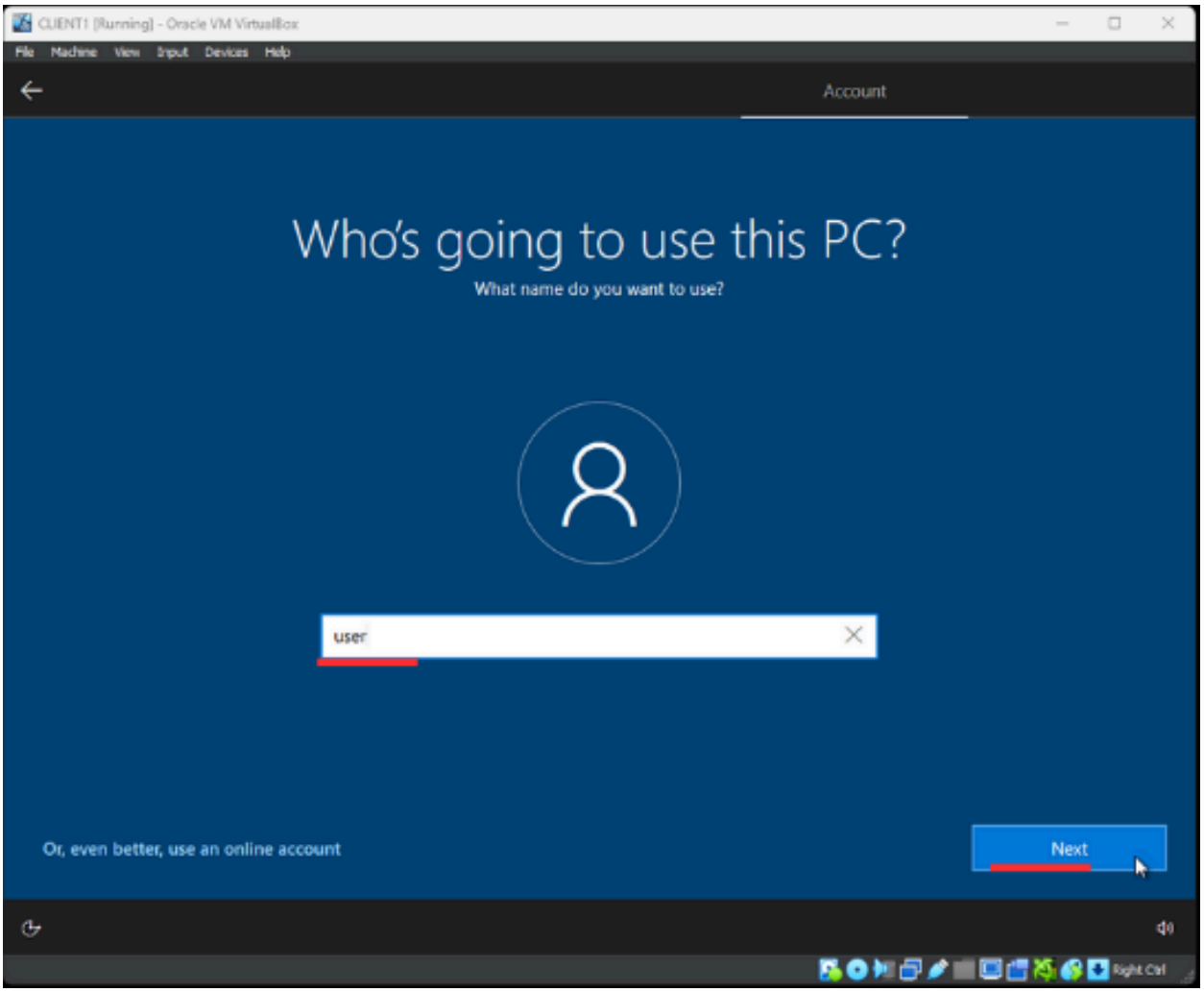

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Windows Setup
Where do you want to install Windows?
Name
Total size
Free space
Type
Drive 0 Unallocated Space
50.0 GB
50.0 GB
Refresh
Delete
Format
New
Load driver
Extend
Next
1 Collecting information
2 Installing Windows
Right Ctrl

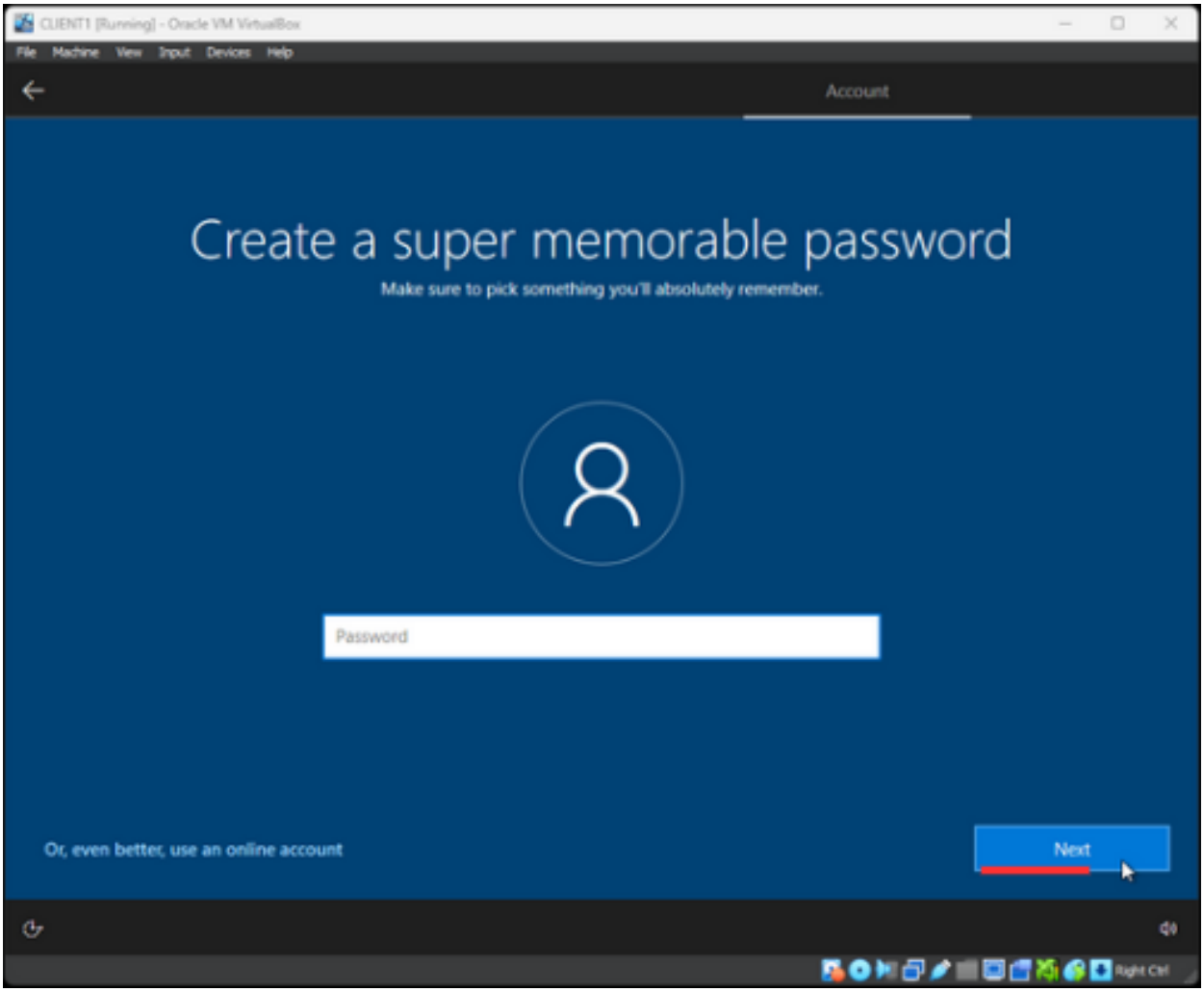

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Windows Setup
Installing Windows
Status
Copying Windows files (100%)
Getting files ready for installation
Installing features
Installing updates
Finishing up
1 Collecting information
2 Installing Windows
Right Ctrl

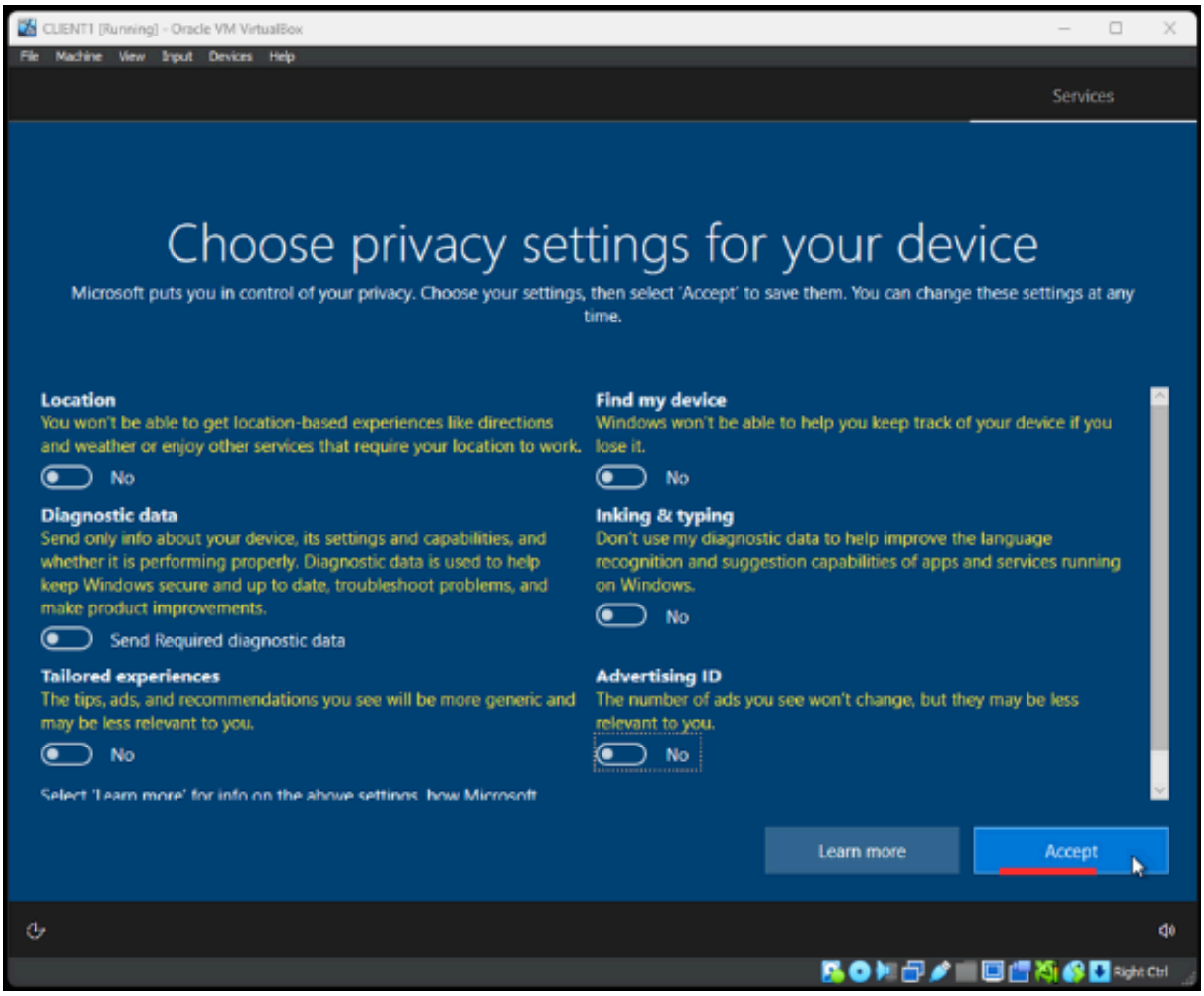

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Basics
Let's start with region. Is this right?
U.S. Minor Outlying Islands
U.S. Virgin Islands
Uganda
Ukraine
United Arab Emirates
United Kingdom
United States
Yes
Right Ctrl

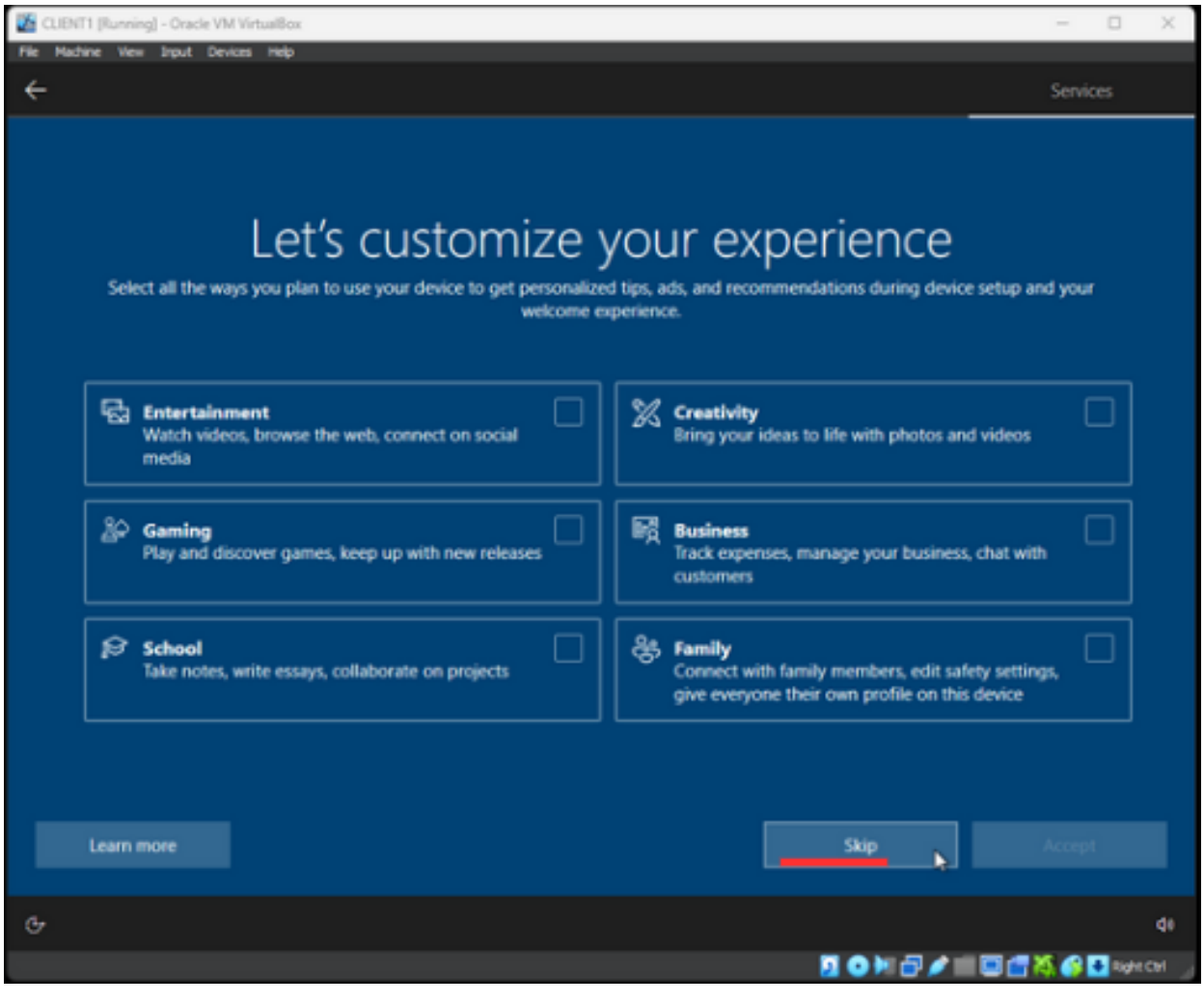

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Basics
Is this the right keyboard layout?
If you also use another keyboard layout, you can add that next.
US
Canadian Multilingual Standard
English (India)
Irish
Scottish Gaelic
United Kingdom
United States-Dvorak
Yes
Right Ctrl

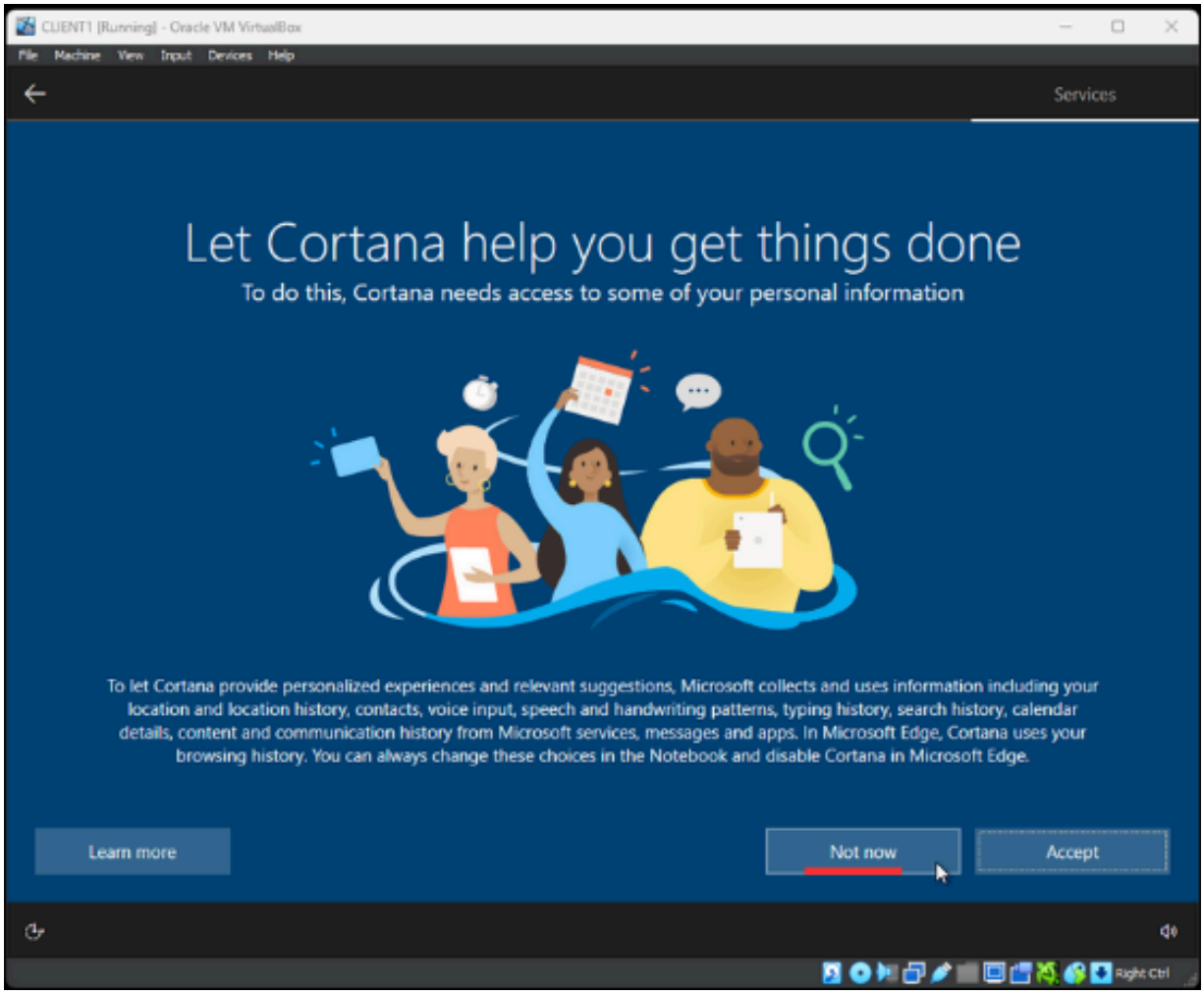

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Basics
Want to add a second keyboard layout?
Add layout
Skip
Right Ctrl

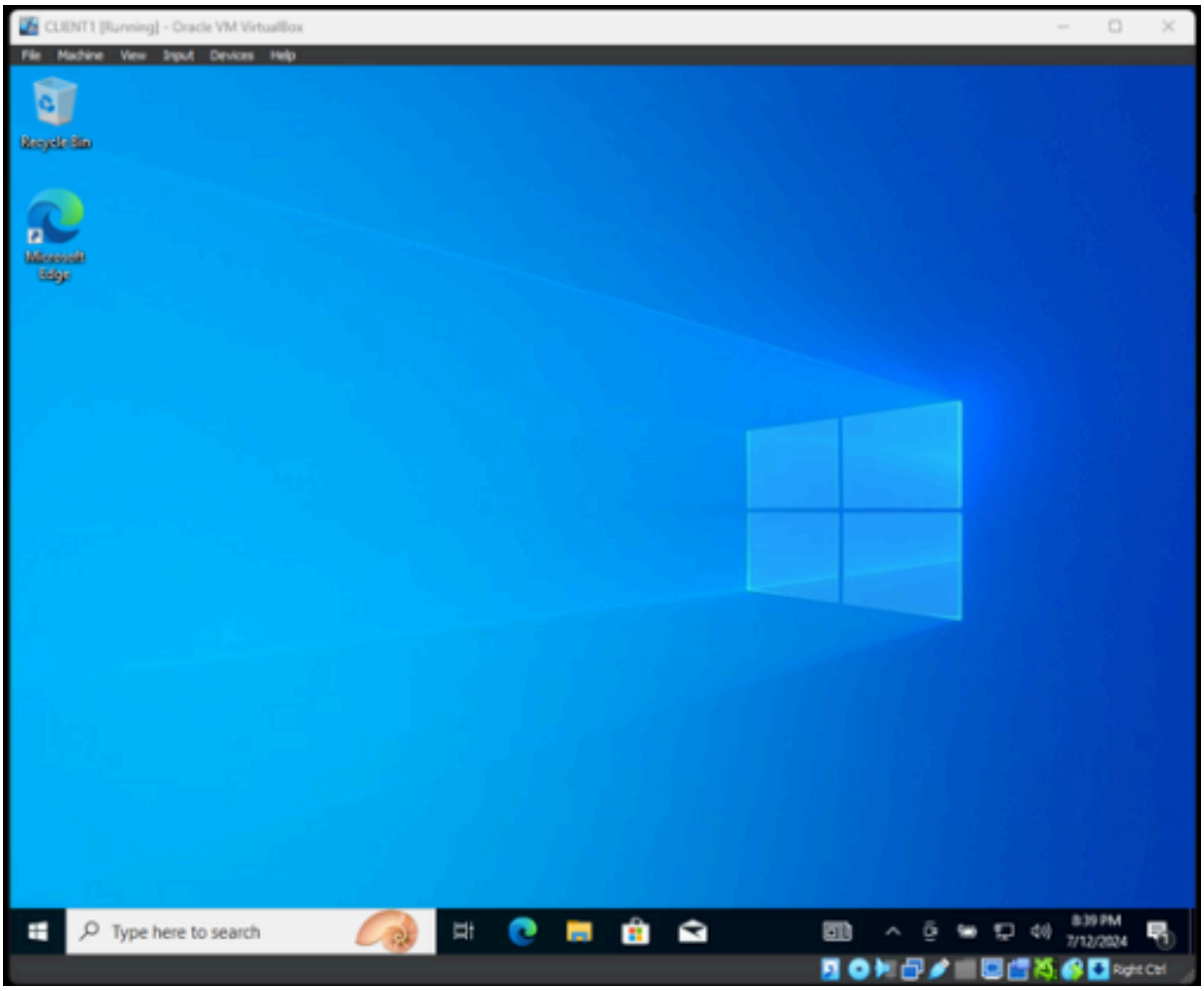

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Account
Who's going to use this PC?
What name do you want to use?
user
Or, even better, use an online account
Next
Right Ctrl

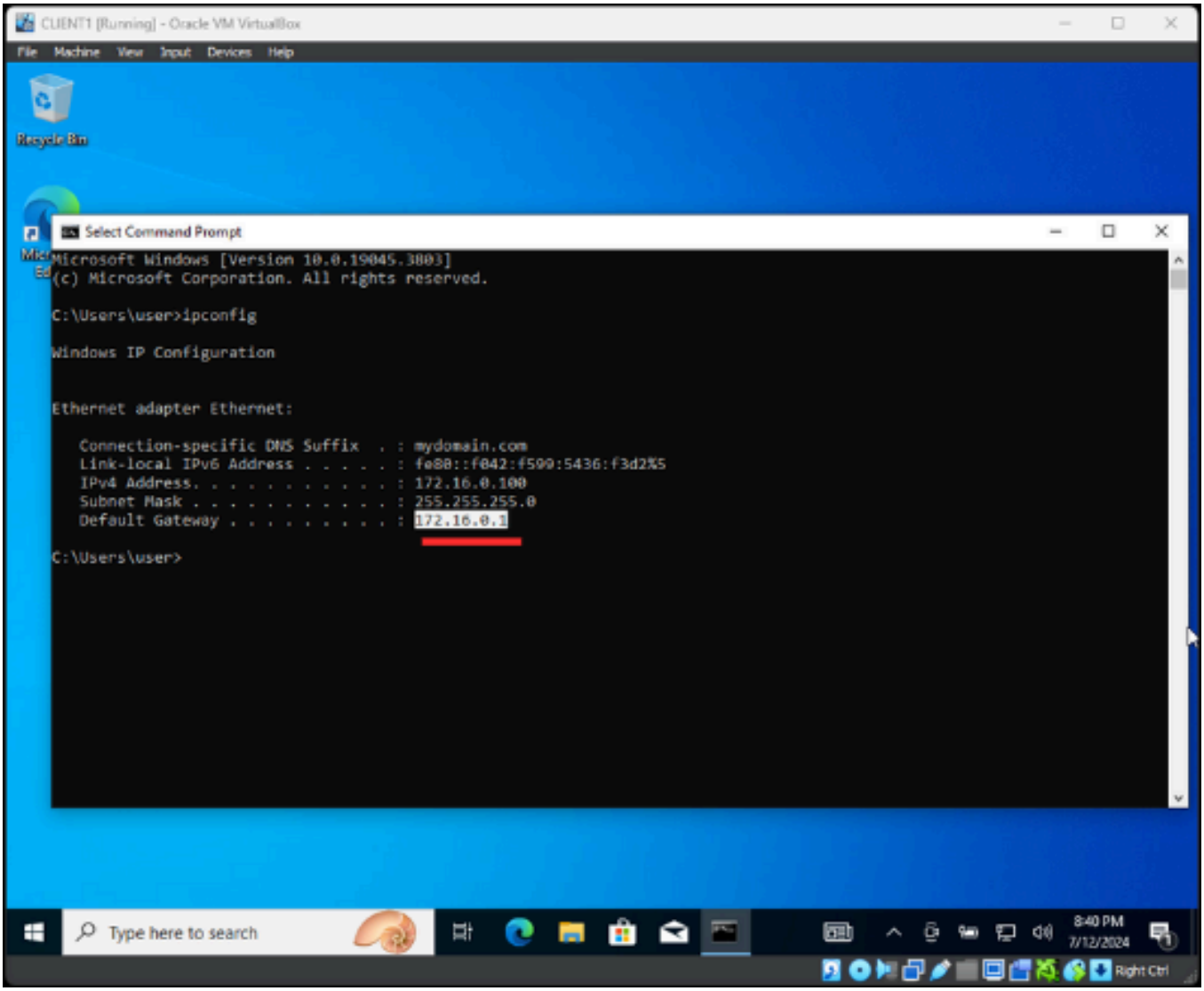

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Account
Create a super memorable password
Make sure to pick something you'll absolutely remember.
Password
Or, even better, use an online account
Next
Right Ctrl

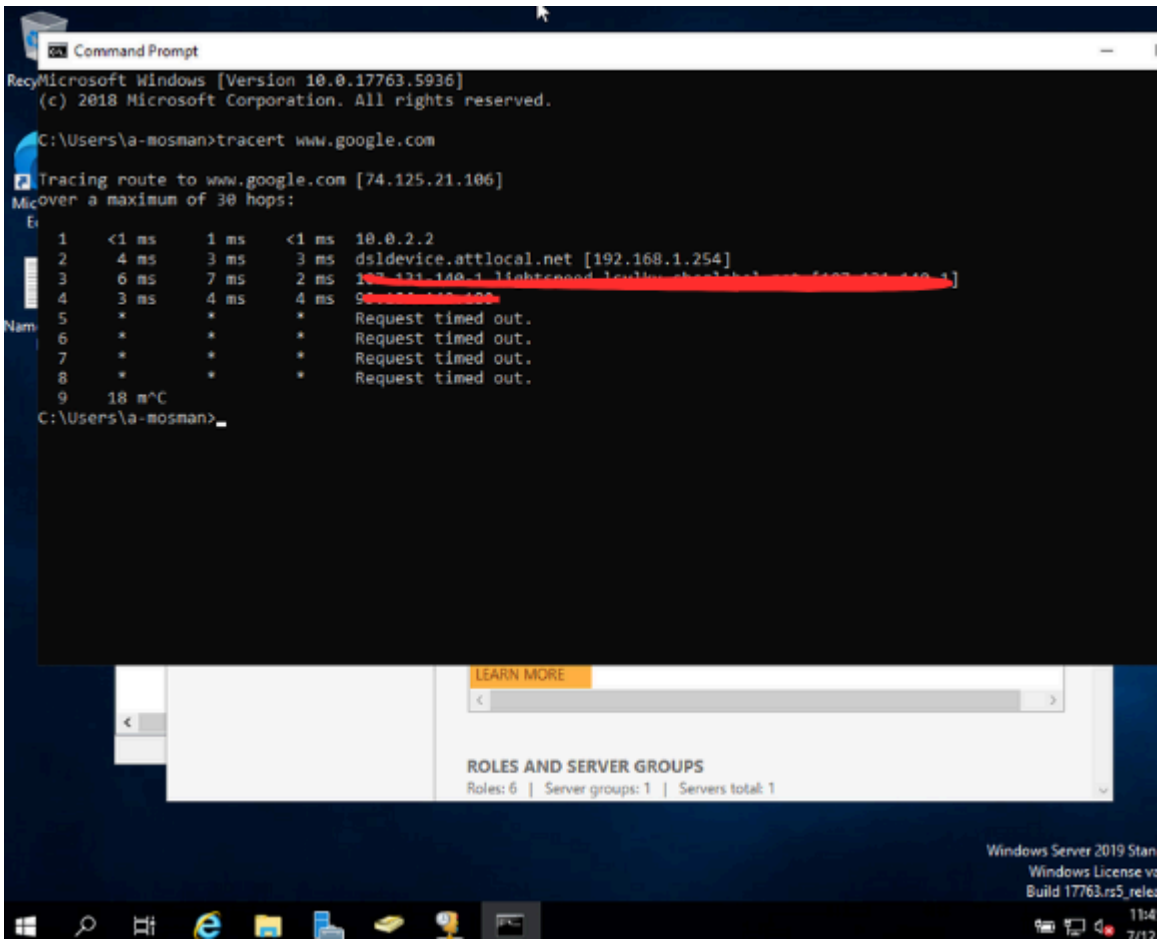

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Services
Choose privacy settings for your device
Microsoft puts you in control of your privacy. Choose your settings, then select 'Accept' to save them. You can change these settings at any time.
Location
You won't be able to get location-based experiences like directions and weather or enjoy other services that require your location to work.
No
Find my device
Windows won't be able to help you keep track of your device if you lose it.
No
Diagnostic data
Send only info about your device, its settings and capabilities, and whether it is performing properly. Diagnostic data is used to help keep Windows secure and up to date, troubleshoot problems, and make product improvements.
Send Required diagnostic data
Inking & typing
Don't use my diagnostic data to help improve the language recognition and suggestion capabilities of apps and services running on Windows.
No
Tailored experiences
The tips, ads, and recommendations you see will be more generic and may be less relevant to you.
No
Advertising ID
The number of ads you see won't change, but they may be less relevant to you.
No
Select 'Learn more' for info on the above settings, how Microsoft
Learn more
Accept
Right Ctrl

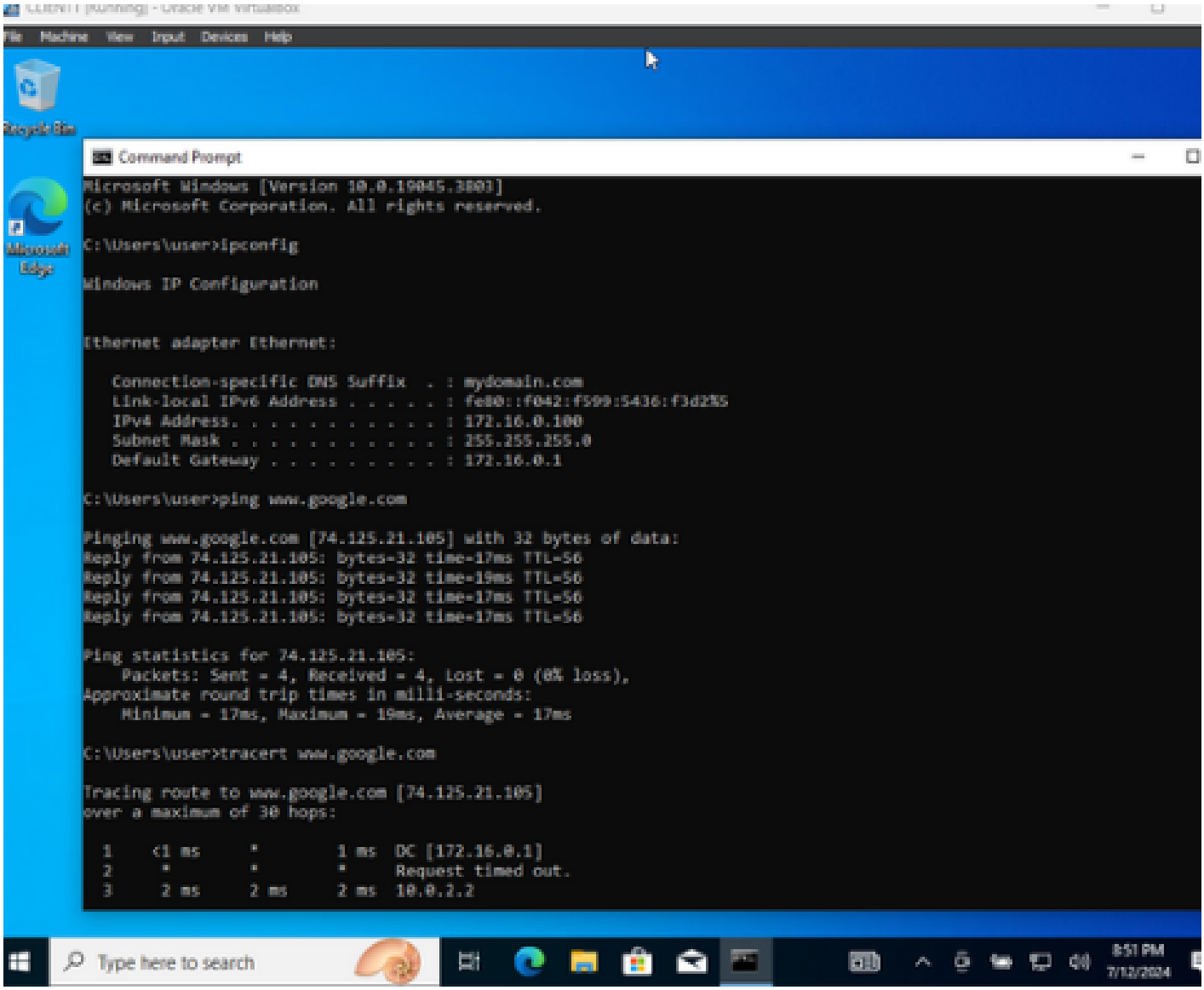

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Services
Let's customize your experience
Select all the ways you plan to use your device to get personalized tips, ads, and recommendations during device setup and your welcome experience.
Entertainment
Watch videos, browse the web, connect on social media
Creativity
Bring your ideas to life with photos and videos
Gaming
Play and discover games, keep up with new releases
Business
Track expenses, manage your business, chat with customers
School
Take notes, write essays, collaborate on projects
Family
Connect with family members, edit safety settings, give everyone their own profile on this device
Learn more
Skip
Accept
Right Ctrl


CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Services
Let Cortana help you get things done
To do this, Cortana needs access to some of your personal information
To let Cortana provide personalized experiences and relevant suggestions, Microsoft collects and uses information including your location and location history, contacts, voice input, speech and handwriting patterns, typing history, search history, calendar details, content and communication history from Microsoft services, messages and apps. In Microsoft Edge, Cortana uses your browsing history. You can always change these choices in the Notebook and disable Cortana in Microsoft Edge.
Learn more
Not now
Accept
Right Ctrl

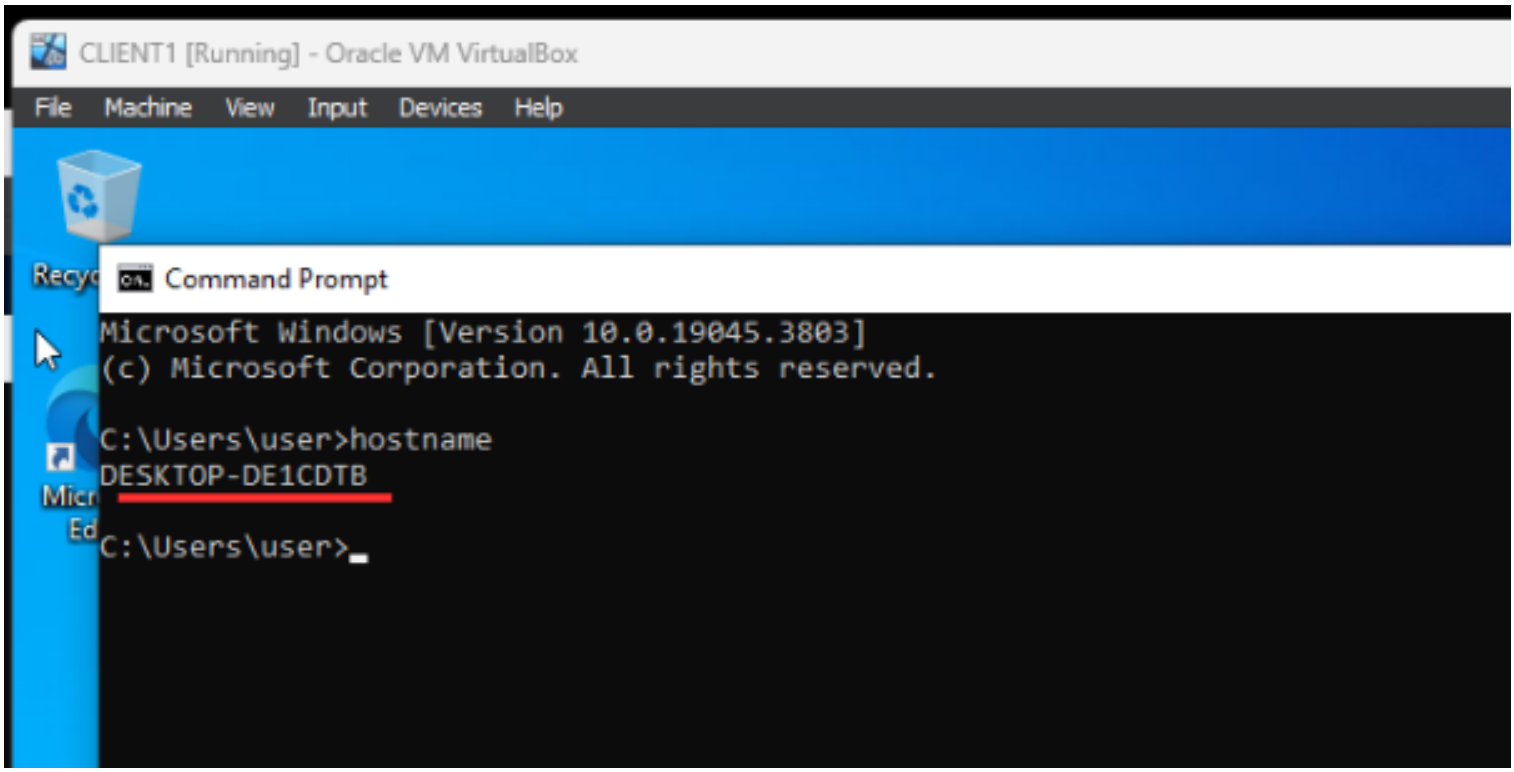

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Recycle Bin
Microsoft Edge
Type here to search
8:39 PM
7/12/2024
Right Ctrl

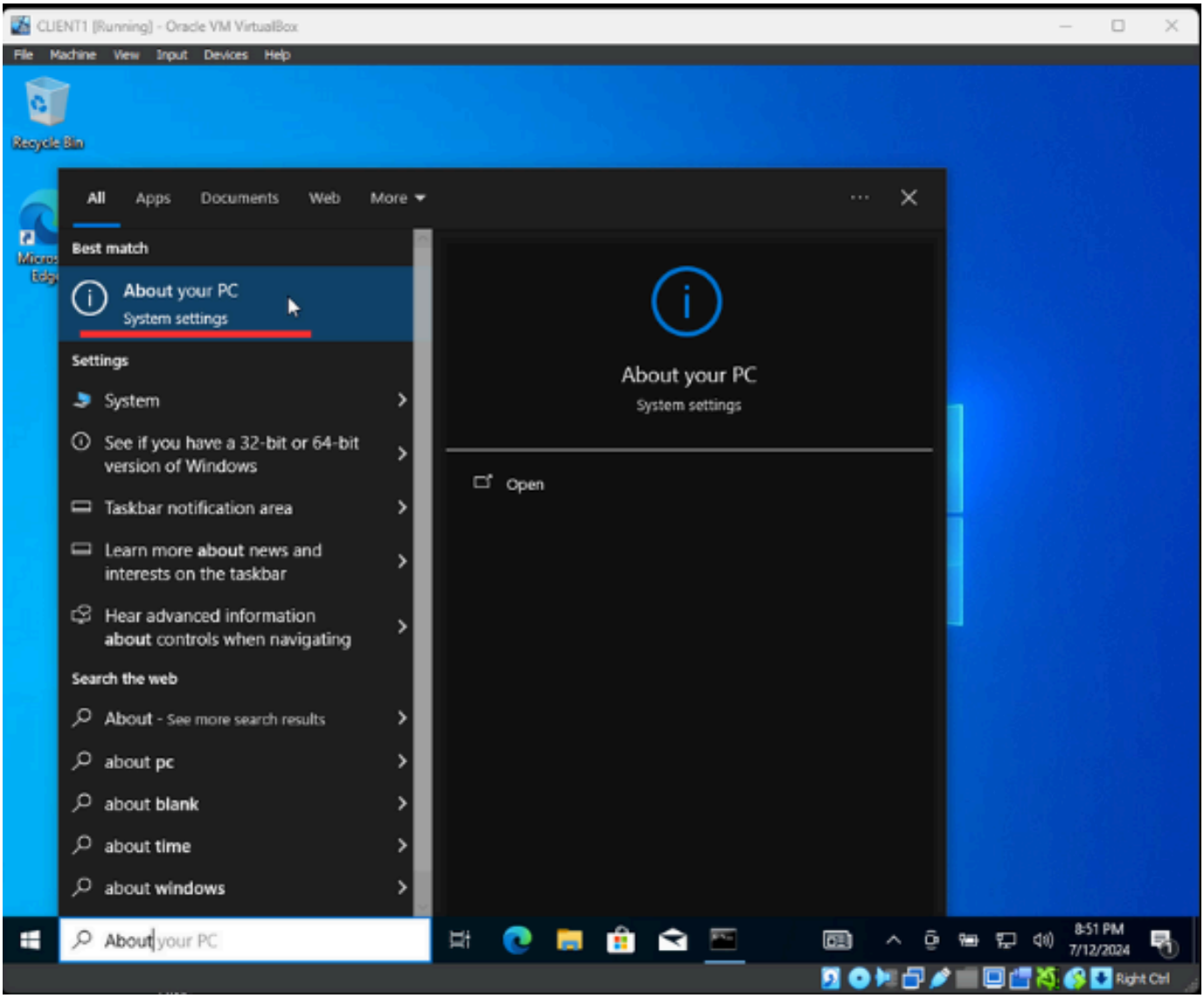

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Recycle Bin
Select Command Prompt
Microsoft Windows [Version 10.0.19045.3803]
(c) Microsoft Corporation. All rights reserved.
C:\Users\user>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet:
Connection-specific DNS Suffix . : mydomain.com
Link-local IPv6 Address . . . . . : fe80::f042:f599:5436:f3d2%5
IPv4 Address. . . . . : 172.16.0.100
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 172.16.0.1
C:\Users\user>
Type here to search
8:40 PM
7/12/2024
Right Ctrl

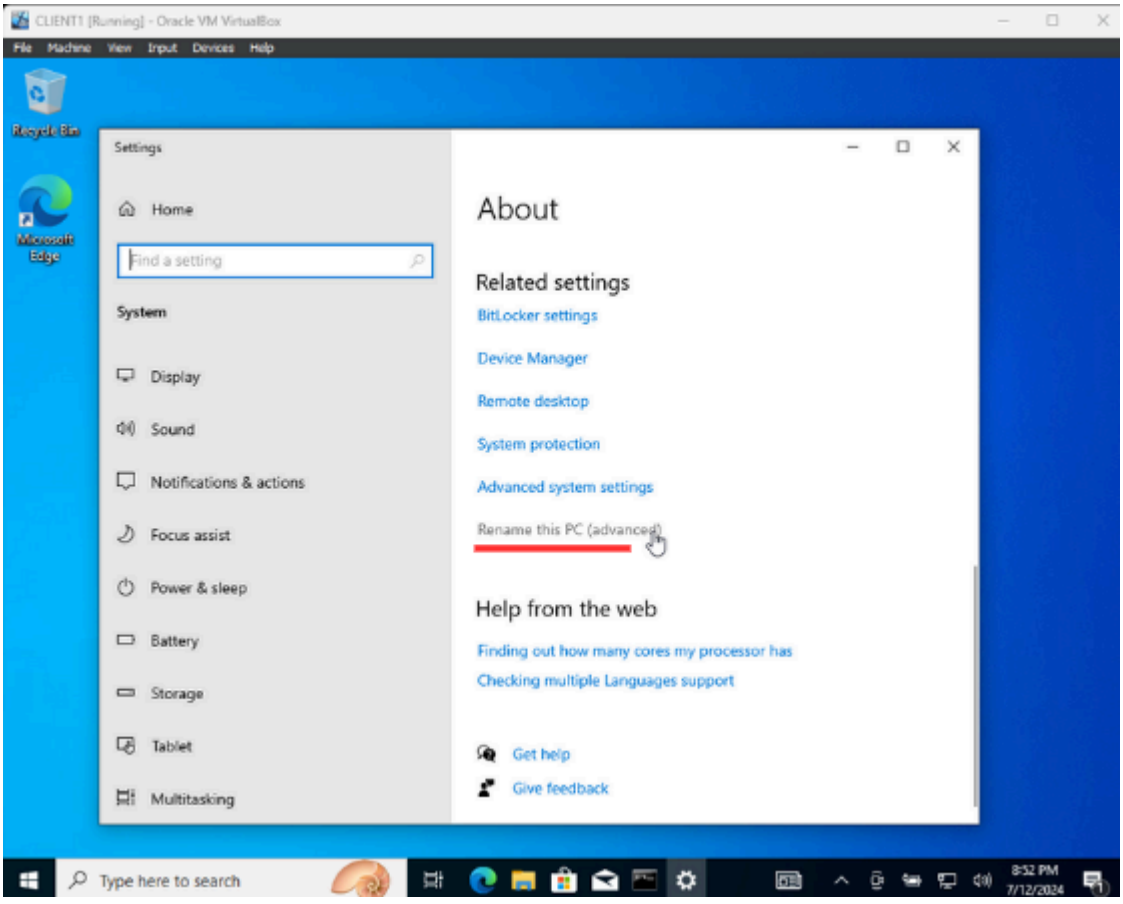

Command Prompt
Microsoft Windows [Version 10.0.17763.5936]
(c) 2018 Microsoft Corporation. All rights reserved.
C:\Users\a-mosman>tracert www.google.com
Tracing route to www.google.com [74.125.21.106]
over a maximum of 30 hops:
1 <1 ms 1 ms <1 ms 10.0.2.2
2 4 ms 3 ms 3 ms dsldevice.attlocal.net [192.168.1.254]
3 6 ms 7 ms 2 ms
4 3 ms 4 ms 4 ms
5 * * * Request timed out.
6 * * * Request timed out.
7 * * * Request timed out.
8 * * * Request timed out.
9 18 m^C
C:\Users\a-mosman>
LEARN MORE
ROLES AND SERVER GROUPS
Roles: 6 | Server groups: 1 | Servers total: 1
Windows Server 2019 Stan
Windows License v
Build 17763.rs5_rele

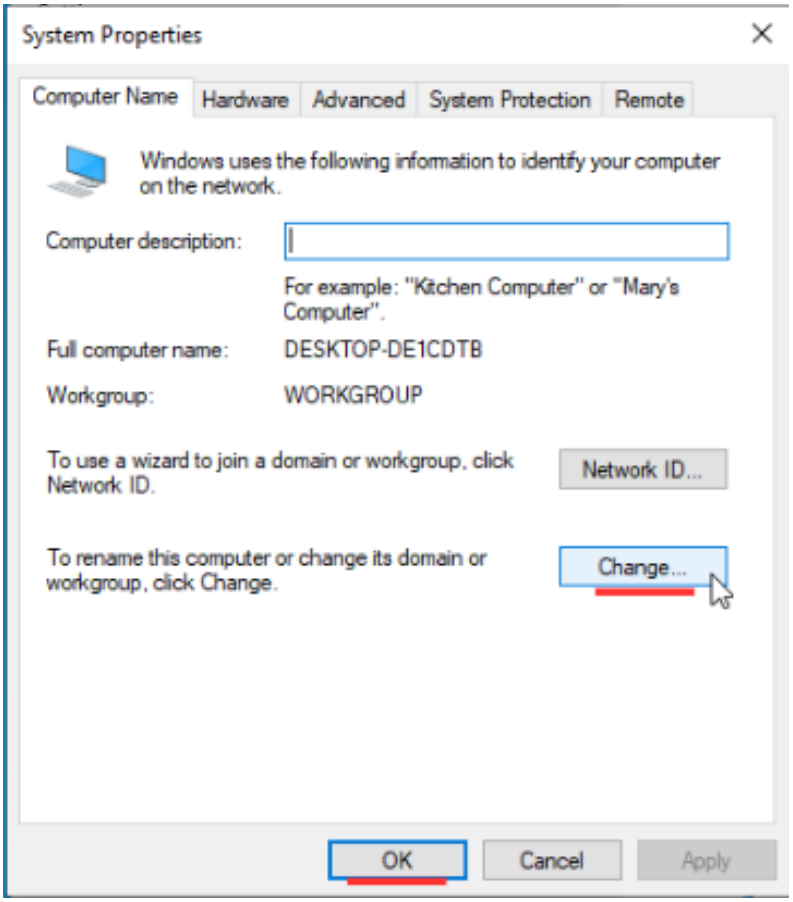


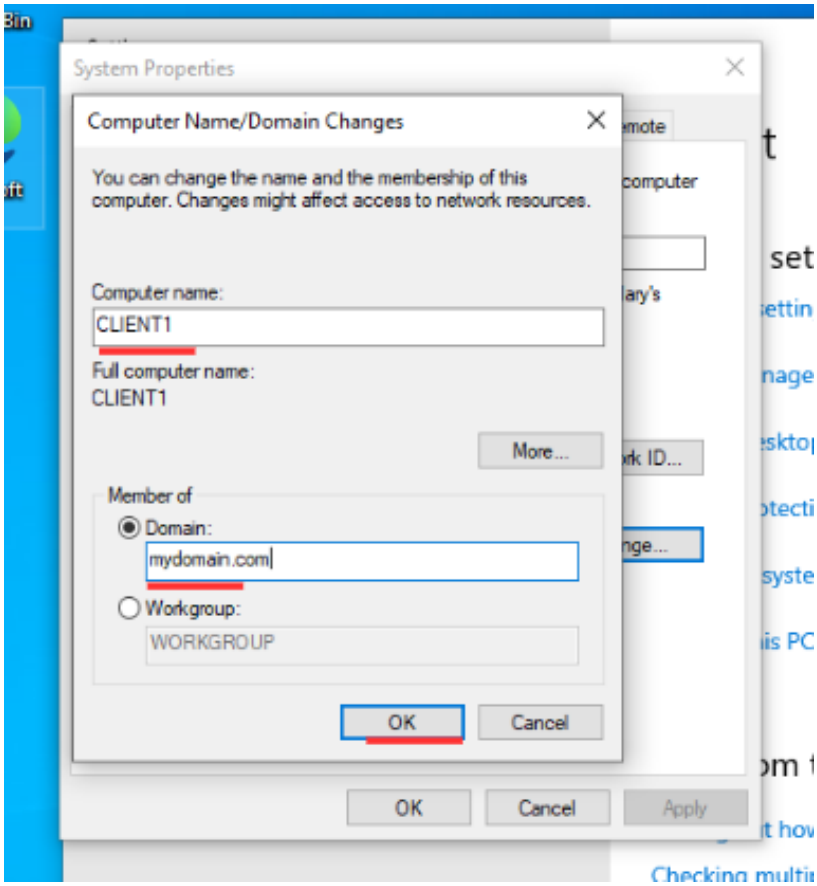
The domain controller functions as the default gateway for the client computer. It forwards packets to the Oracle IP address, which then passes them to the ISP's default gateway. From there, the packets traverse various hops and routers until they reach the Google server.



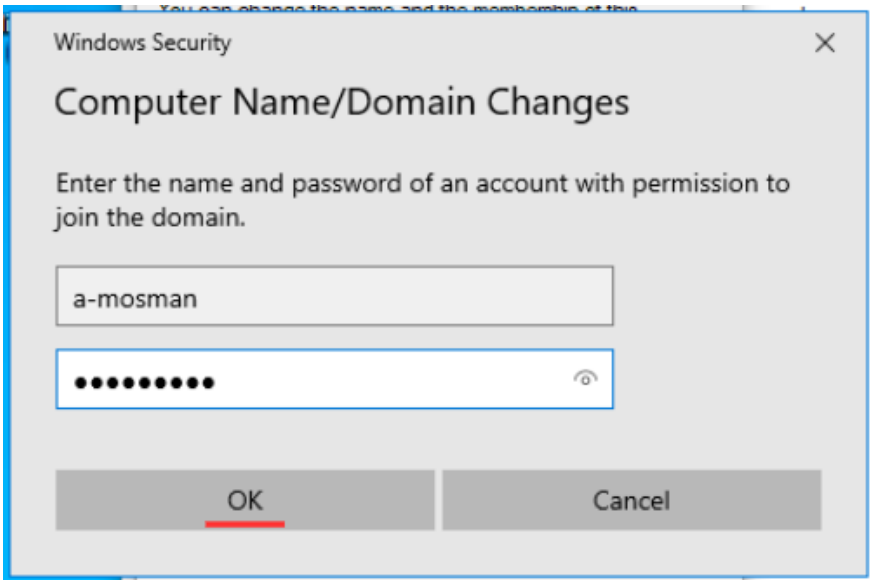

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Recycle Bin
All Apps Documents Web More
Best match
About your PC
System settings
Settings
System
See if you have a 32-bit or 64-bit version of Windows
Taskbar notification area
Learn more about news and interests on the taskbar
Hear advanced information about controls when navigating
Search the web
About - See more search results
about pc
about blank
about time
about windows
About your PC
System settings
Open
About your PC
8:51 PM
7/12/2024
Right Ctrl

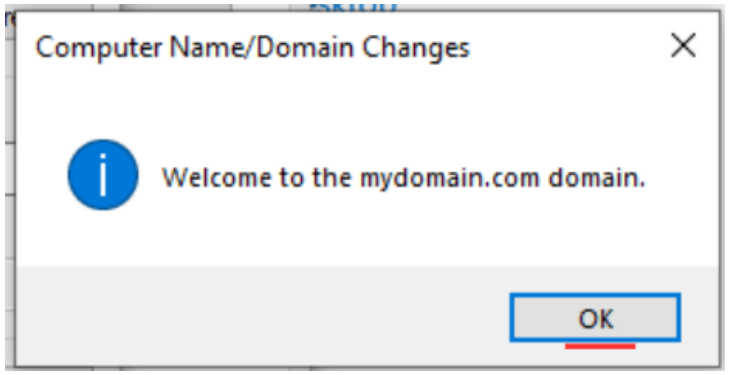

CLIENT1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Recycle Bin
Microsoft Edge
Settings
Home
Find a setting
System
Display
Sound
Notifications & actions
Focus assist
Power & sleep
Battery
Storage
Tablet
Multitasking
About
Related settings
BitLocker settings
Device Manager
Remote desktop
System protection
Advanced system settings
Rename this PC (advanced)
Help from the web
Finding out how many cores my processor has
Checking multiple Languages support
Get help
Give feedback
Type here to search
8:52 PM
7/12/2024

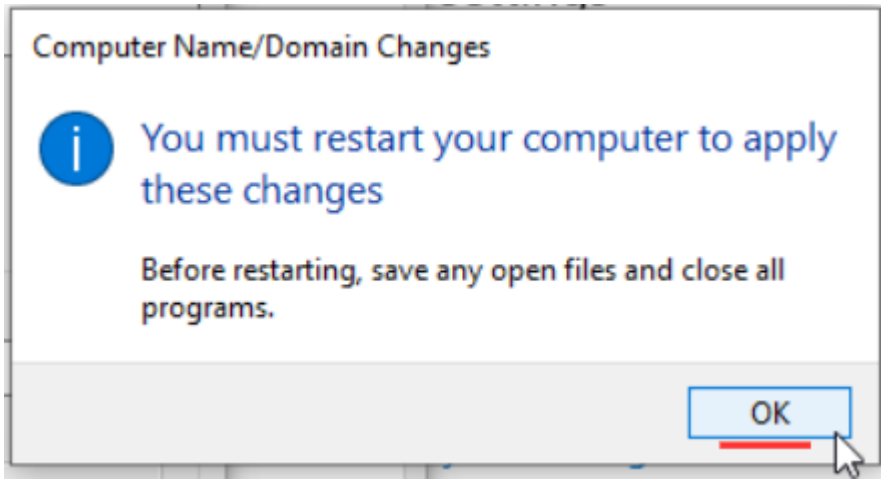


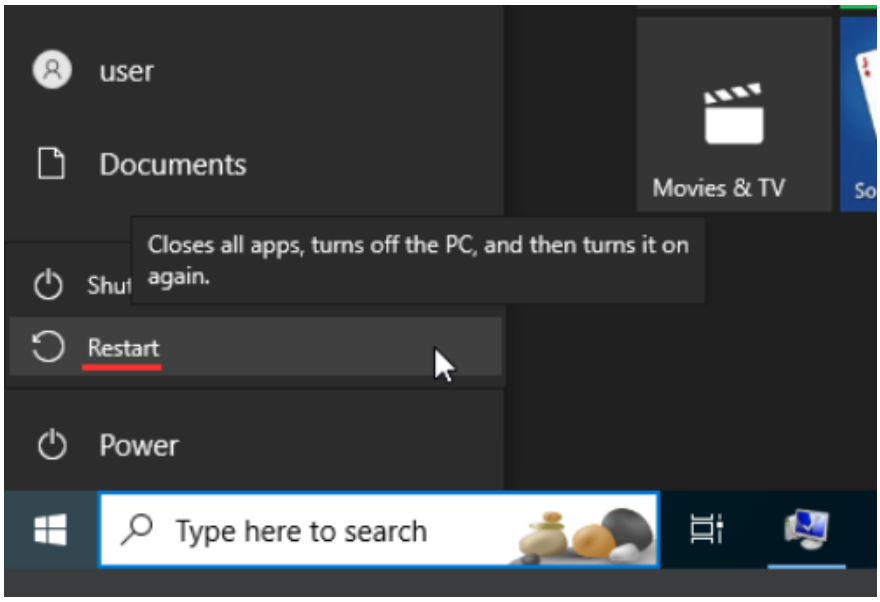


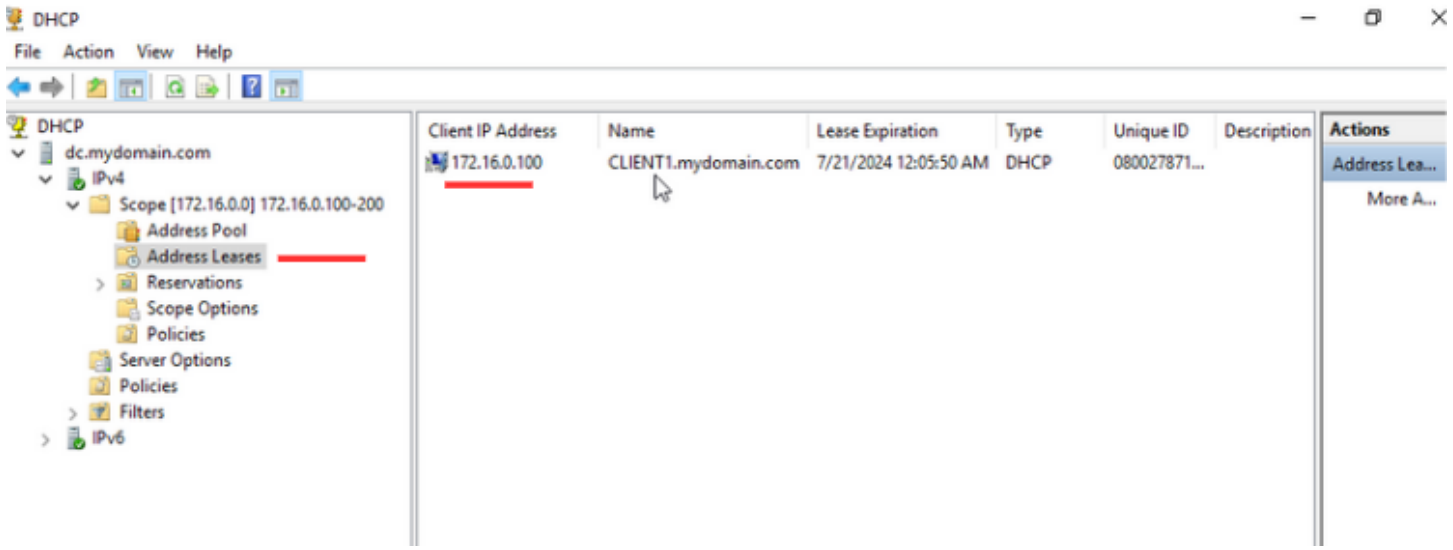
This part also adds the computer to the domain. Computer becomes a member of “mydomain.com”



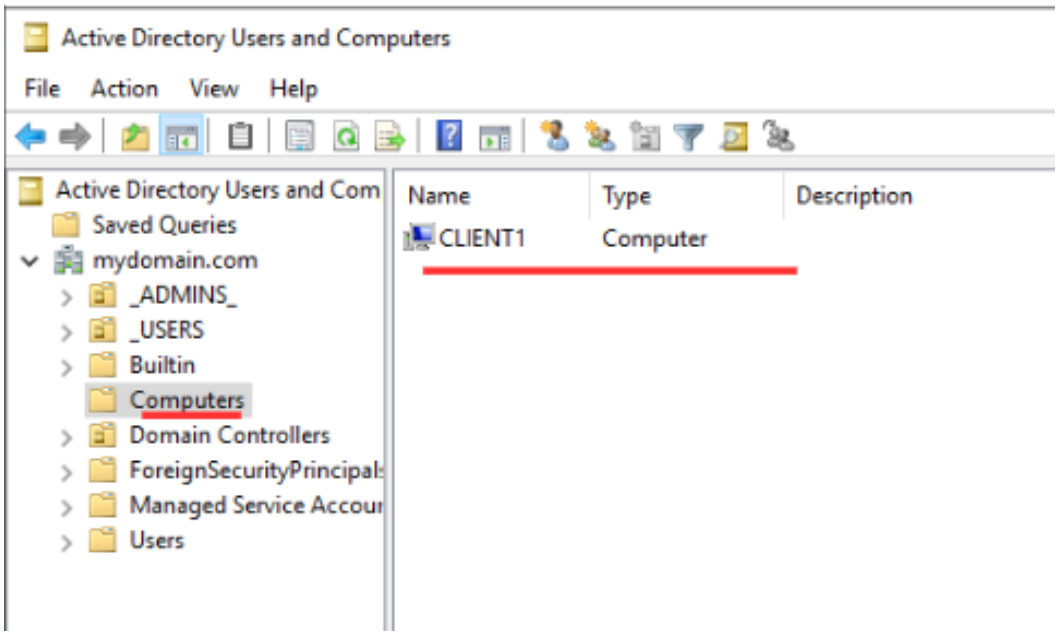




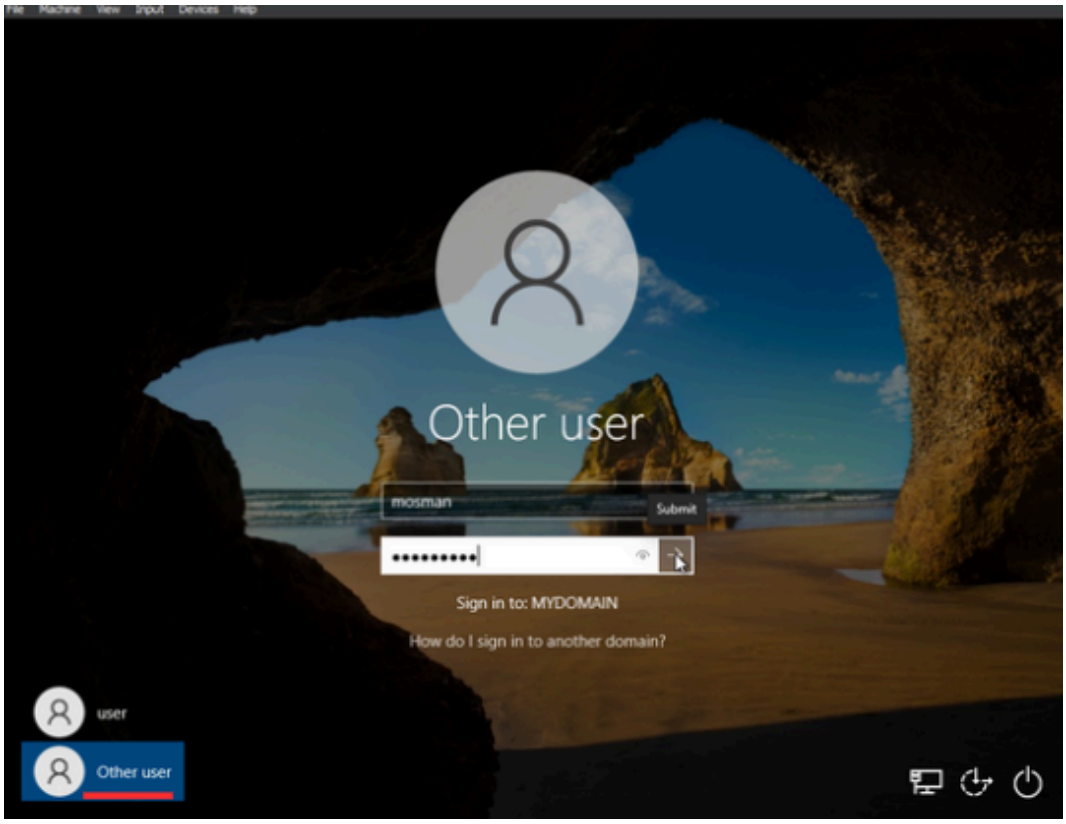


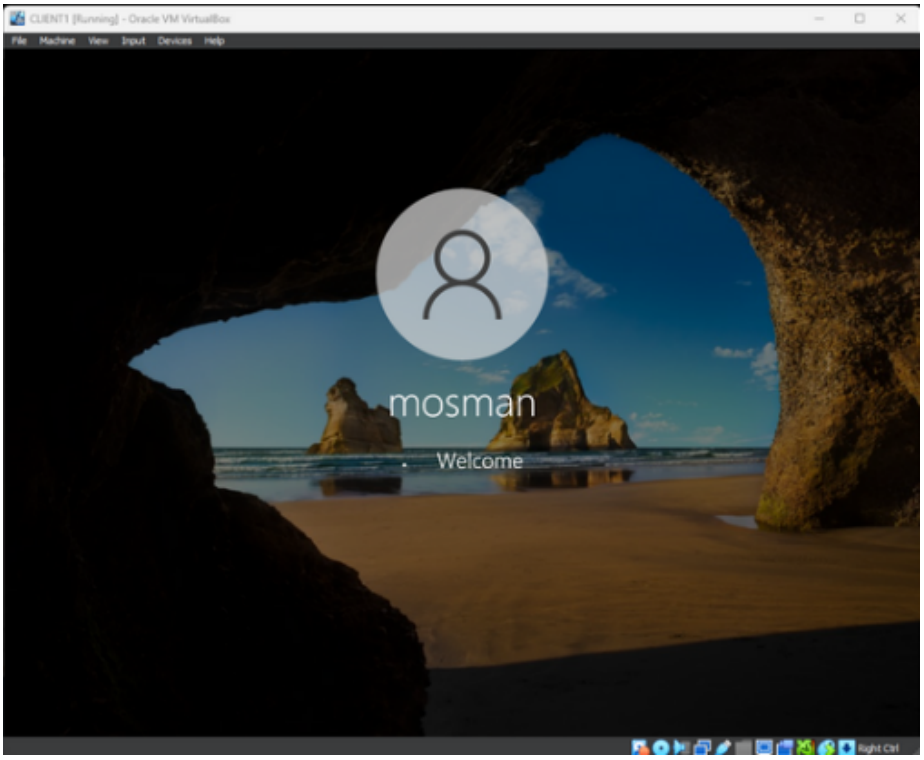


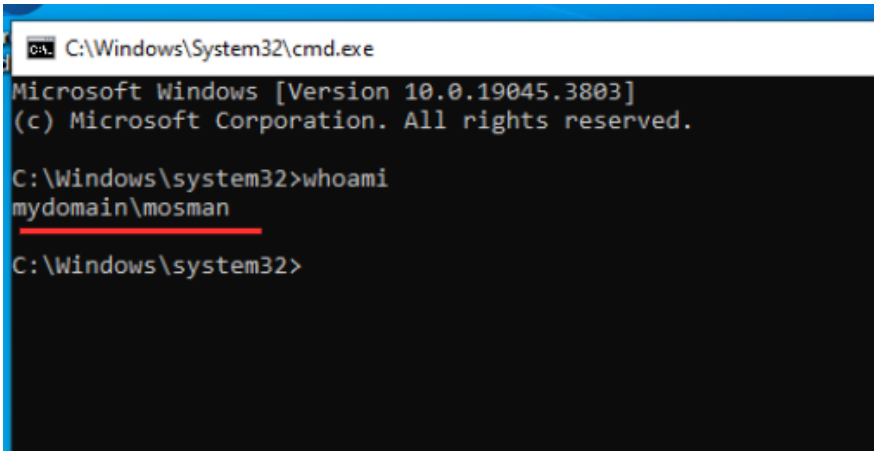
On the DC server you can verify that the Client 1 computer has been assigned an IP address by the DHCP server. Here you can verify the lease and expiration date.



In the active directory users and computers, you can verify that the CLIENT1 has indeed been added to the domain computers and it is now a member of the domain. Now you can use the CLIENT1 computer tp sign in using one of the accounts created by the PowerShell script from earlier


Other user
mosman
Submit
Sign in to: MYDOMAIN
How do I sign in to another domain?
user
Other user


mosman
Welcome


C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19045.3803]
(c) Microsoft Corporation. All rights reserved.
C:\Windows\system32>whoami
mydomain\mosman
C:\Windows\system32>

This setup now simulates a corporate environment. A newly onboarded employee can be granted credentials and can use a computer connected to the domain such as CLIENT1. They can access any computer within the same domain they are a member of.

You can follow the same process to add CLIENT2. Once both clients are added, you can experiment with various configurations and settings to gain a deeper understanding of how Active Directory domain servers operate. This hands-on experience will help to learn more about user management, group policies, and other essential aspects of Active Directory administration.